

# Installation and Operating Instructions for

## Greymetal Wood Burning Stoves

Arctic 5

Lumo 5

Lumo 5 Rotary

Orbit

Greymetal Ltd  
FTS  
Drome Road  
Zone 1  
Deeside Industrial park  
CH5 2LR

November 2015 Revision 1

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Important – please read section 7.2 before lighting!

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# 1 Introduction

The appliance is designed to heat domestic residential and social spaces. The stove is intended for use only by adults with occasional attendance and supervision. The room in which the stove is installed must be provided with a sufficient fresh air supply, possibly by gaps through windows and doors. In well-sealed buildings, sufficient fresh air supply to the room must be ensured by a vent of 550mm<sup>2</sup> for each Kilowatt of rated nominal output.



**The local Building Control department must be consulted prior to any DIY installation.**

**Please follow all of the instructions when installing and operating the stove.**

## **The Clean Air Act 1993, Smoke Control Areas and DEFRA**

Under the Clean Air Act, local authorities may declare the whole or part of the district of the authority to be a smoke control area. It is an offence to emit smoke from a chimney of a building, from a furnace or from any fixed boiler if located in a designated smoke control area. It is also an offence to acquire an "unauthorised fuel" for use within a smoke control area unless it is used in an "exempt" appliance ("exempted" from the regulations which generally apply in the smoke control area).

The Secretary of State for Environment, Food and Rural Affairs has powers under the Act to authorise smokeless fuels or exempt appliances for use in smoke control areas in England. In Scotland and Wales this power rests with Ministers in the devolved administrations for those countries. Separate legislation, the Clean Air (Northern Ireland) Order 1981, applies in Northern Ireland. Therefore, it is a requirement that fuels burnt or obtained for use in smoke control areas have been "authorised" in Regulations, and that appliances used to burn solid fuel in those areas (other than "authorised" fuels) have been exempted by an Order made and signed by the Secretary of State or Minister in the devolved administrations.

Further information on the requirements of the Clean Air Act can be found here:  
<http://smokecontrol.defra.gov.uk/>

Your local authority is responsible for implementing the Clean Air Act 1993 including designation and supervision of smoke control areas and you can contact them for details of Clean Air Act requirements.

The Arctic 5, Lumo 5, Lumo 5 rotary, and Orbit 5kW stoves are exempt appliances that have been recommended as suitable for use in smoke control areas when burning wood logs; and have been factory fitted with a secondary air control which cannot be fully closed.

## 2 COMBUSTION AND HEATING FUNCTION

The stove is designed for combustion of wood and wood 'eco' briquettes by a burn-through system that ensures excellent combustion conditions. If not in a smoke control area, lignite briquettes may also be used.

The heating function is achieved mainly by convection, and partially by radiant heat. The convection system is able to heat up particularly cold rooms relatively quickly.

Convection heating works by sucking in the air from the room through the vents at the bottom of the stove into the space between the firebox and the outer casing. It is heated in-between the double walls of the stove causing it to rise. It flows back into the room through the vents in the upper part of the stove. Heat is also radiated by the surface of the stove body, but the main source of radiant heat is the glass door surface.

### 3 DESIGN

The appliance is fabricated from pressed and welded sheet steel, and may include as an optional extra a stone or ceramic outer casing. The stove combustion chamber is lined with refractory (heat resistant) vermiculite firebricks. The refuelling door of the stove has a *ceramic* window, resistant to very high temperatures and thermal shocks. The ceramic is almost clear, allowing heat radiation from the combustion chamber ('firebox') to pass through; and allows a view of the flames when burning. There is a solid cast iron grate at the bottom of the firebox and an ash pit below. The stove is spray painted with silicone polymer paint, resistant to high temperatures.

Primary air, secondary air and tertiary air is supplied to the firebox. Primary air is used for lighting and is channelled under the grate; secondary air is channelled onto the glass from above and provides the self-cleaning ('air-wash') of the glass. Tertiary air is fed to the upper part of the firebox through the vents at the back of the firebox, and provides further combustion of un-burnt gases (burnout).

The Arctic, Lumo (non-rotary) and Orbit stoves have the option of feeding combustion air through the Central Air Feed (CAF) from the outdoors. If the CAF is used, the stove does not take air from the room. These options are specified in the **Product Technical Sheet (TS)**.

### 4 SAFETY REQUIREMENTS

#### 4.1 General provisions

- The principles of fire protection in the Building Regulations publication "**Approved Document J - Combustion appliances and Fuel Storage systems (2010 edition incorporating 2010 and 2013 amendments)** [http://www.planningportal.gov.uk/uploads/br/BR\\_PDF\\_ADJ\\_2010.pdf](http://www.planningportal.gov.uk/uploads/br/BR_PDF_ADJ_2010.pdf) must be observed when operating and installing the stove.
- The appliance may be used in a normally experienced environment according to *Approved Document J*. In any change of environment, when a temporary danger of fire or explosion could emerge (e.g. when using glues, solvents, paints etc.), the stove must not under any circumstances be in operation. The stove may be used further only after thorough ventilation of the room, at best by draught.
- The stove must be connected to a chimney with a draught of at least 12 Pascals. The installer should test and certify the adequacy of the draught. The stove may be connected only to its own independent chimney.

#### 4.2 Safe distance of the appliance from combustible surfaces:

##### Hearth:

The appliances **do not** cause the **hearth temperature** to exceed 100°C and can be placed on a non-combustible, non-structural hearth of 12mm thickness. The hearth must exceed the dimensions of the stove by at least 15 cm on each side, 10 cm at the back and 30 cm to the front. It must have a minimum thickness of 12mm.

**Table No. 1 – Information on flammability degree of some building materials according to BS EN 13501-1+A1**

Status of flammability of building materials and products	Building materials classified in the relevant flammability degree
A non-flammable	granite, sandstone, heavy porous concretes, bricks, ceramic tiles, special plasters
B uneasily flammable	acumine, wood-cement board, lihnos, itavere
C1 hardly flammable	broad-leaved wood, plywood, sirkoklit, laminated paper, formica
C2 medium flammable	chipboards, solodure, cork boards, rubber, flooring materials
C3 easily flammable	wood-fibre boards, polystyrene, polyurethane

When installing the stove in a room with combustible substances of flammability classes B, C1 and C2, safe distances from the front of **800 mm** and in other directions **200 mm** must be observed, unless the Technical Sheet or the CE plate on the rear of the stove specifies otherwise.

If the stove is installed in a room with combustible substances of class C3, the above stated distances must be **doubled**. Please consult **Table No. 1** for clarity.

There is no requirement for minimum clearance to non-combustible surfaces around the sides and back of the stove. However, 100 mm is recommended to allow for heat and air circulation to the room. The further the stove is placed in the room, the better the heat distribution.

Refer to Diagram 30, Page 42 of Document J for further installation dimensions and requirements for non-combustible wall thickness etc.

### 4.3 Danger Warnings

Flammable liquids **MUST NOT** be used for lighting or heating! It is further forbidden to burn any plastics, wooden materials with chemical binders (chipboards etc.) as well as unsorted household waste with remnants of plastics or chemically treated wood etc.



**The stove must be operated by adults only! It is inadmissible to let children near the stove without supervision of adults. The stove surface is super-heated, particularly the glass; you can suffer serious burns by touching it.**

**Where there are children under 8, a fire-guard must be used.**

In operation, the stove requires occasional attendance and supervision. A protective mitten is included in each stove for the safe operation of the air controllers and door handle. **DO NOT** put any combustible items on the stove during operation or when it is still warm as they can ignite. **DO NOT** put any containers of cold liquids onto a hot stove with stone or ceramic casing as it will cause the stone to break.

Please be extremely cautious when handling the ash pit and when removing hot ashes because there is a danger of being burnt. Hot ashes must not come into contact with flammable items - e.g. when being emptied into dustbins.



**The stove may be operated only according to these Instructions. It is inadmissible to perform any unauthorized modifications to the stove.**

### 4.4 Chimney Fires

If a fire occurs in the chimney, the fire in the stove must be put out immediately by removing the burning fuel with the help of a small shovel to a suitable non-flammable container and the fire brigade must be called immediately by dialling either 112 or 999.

## 5 ASSEMBLY

**Warning:** When assembling the stove, all regulations in particular those related to national and European standards for this type of appliance must be observed, refer to Approved Document J.

### 5.1 Instructions for stove assembly

- Place the combustion air vents, if needed, so that they cannot become blocked.

- When installing the appliance, adequate access for cleaning of the stove, firebox, connecting pipes and chimney must be provided.
- The appliance must be installed on a floor with adequate load bearing capacity.
- If the stove hasn't been used for some time, check the flue-ways to see whether or not they have become blocked.
- If installing a glass hearth, adhesive cork discs are placed underneath in order to eliminate unevenness. Seal the glass with transparent silicon to the floor around the edges, so that dirt can't go under it.
- The flue pipes can be connected to most models to the top or rear exit (see Technical Sheet). The choice of which exit depends on the user or on the flue draught. When changing the flue exit, see the instructions in **Annex No. 12.3**.
- The cover for the hole in the stove's outer shell can be found in the ash pan. When assembling and disassembling the firebox plug and the cast-iron spigot, make sure they are air-tight using fire rope.
- In stoves having a metal sheet top plate fitted with a break-off cover, the plug can be broken off with the help of a screwdriver.
- When using the rear outlet on stoves with a stone top plate, a lid made of the corresponding stone type is included to plug the hole in the upper stone.

### 5.1.2. Chimneys and Flue Pipes:

Approved Document J deals with the installation of chimneys and flue pipes and should be referred to at all times.

1. There is a minimum gap required between an un-insulated flue pipe and combustible material. To a combustible material it must be at least 3 x the outside diameter of the flue pipe (450 mm for 6" single wall flue pipe). To a proprietary non-combustible shield it must be at least 1.5 x the flue diameter (e.g. 225 mm for 6" single wall flue pipe).
2. The rear flue exit is normally used when the chimney is tall and provides too powerful an up-draught. Where the chimney is short, and the draught weak, the top flue exit will give better performance.
3. Flue connections should be sealed with a suitable proprietary sealant such as fire cement or high temperature rope seal. Cartridge sealing compounds are superior to fire cement.
4. If a suitable approved factory made chimney system is to be used, it should be installed according to the manufacturer's instructions and the regulations found in Approved Document J. ("Stainless Steel Twin Wall Insulated Chimney System".)
5. The flue draught should be at least 12 Pa for optimal performance, but in most cases a flue height of 4.5m should be adequate, measured from the stove's top air inlet to the top of the flue.
6. No horizontal sections are allowable.
7. Flues should have a maximum of 4 bends with angles of 45 degrees. And a maximum of two bends in-between each sweeping access point. [A D J Page 27 Diagram 15].
8. The flue exit from the building should be positioned to comply with the requirements of the Building Regulations. These can be seen on A D J page 31 Diagram 17.
9. If the chimney is too high (draught exceeds 35 Pa) or so that the chimney draught can be regulated on days with strong winds, it is necessary to fit the flue with a damper or flue balancer.
10. No other heating appliances should be connected to the same Flue or Chimney system.

## 5.2 Central Air Feed (CAF)

Sufficient fresh combustion air must be ensured by a hole with a minimum 10 cm diameter or equivalent area. The hole for fresh air can be substituted by leaky windows and doors but we always advise an independent fresh air supply.

If the option of a direct fresh air supply through the Central Air Feed from the outdoors to the stove is used, it must be fed through a pipe with a diameter of 100 mm or equivalent ducting. The length of the pipe must not exceed 5 metres; the length is reduced by 1 m for each 90 degree bend. The connector of the Central Air Feed is bought as an optional extra. The Central Air Feed must never be blocked.



**WARNING:** Kitchen and other Extractor fans: If they are placed in the same space (or house) as the stove, then they must have their own independent air vent. It must be able to supply the same volume of air to the space that the fan is capable of extracting. The Central Air Feed must also be used.

## 6 FUEL

The wood stove is designed for heating with firewood, wood briquettes also referred to as 'heat logs', and for some products when not in smoke control areas, lignite briquettes (see TECHNICAL SHEET). The humidity of the wood should be under 18%. Wood stored for at least 3 years in a well aired shed achieves such humidity. Kiln-dried wood is the preferred fuel. When heating with briquettes, they must be stored in a completely dry environment; otherwise they will become damp and fall apart. When heating with "wet" wood, the stove loses at least 20% of its efficiency and output. The fuel consumption rises and the stove will "tar". The tar will stain the glass heavily, making cleaning difficult.

### IMPORTANT:

- Only the above stated fuels may be used for heating in the stove. Liquid fuels and coal must not be used undefined household waste including plastics etc. must not be burnt.
- Refuelling on to a low fire-bed:  
If there is insufficient burning material in the fire-bed to light a fresh fuel loading, excessive smoke emission will occur. Refuelling must be carried out onto a sufficient quantity of glowing embers and ash so that the new fuel load will ignite in a reasonably short period. If there are too few embers in the fire bed, add suitable kindling to prevent excessive smoke.
- Fuel overloading:  
The maximum amount of fuel specified in this manual should not be exceeded, overloading can cause excess smoke.
- The optimal amount of wood to achieve the nominal output is found in the Technical Sheet of the stove.)

## 7 OPERATION

The fireplace stove may be operated only in compliance with these Instructions. The stove must not be operated by children. Only the defined fuels may be used for heating. The stove requires occasional supervision. The manufacturer supplies a protective mitten together with the stove for safe operation.

### 7.1 Combustion process

The combustion of wood, eco briquettes and in some stoves lignite briquettes is carried out by the burn-through system, which means that the combustion takes place in the whole fuel load at the same time.

To ensure the optimum conditions for easy kindling and successful ignition, a sufficient quantity of air must be fed under the burning fuel, through the grate. That air is called the **primary air** and is always controllable. The feed of **secondary air** is also independently controllable. It improves the combustion and improves the cleaning of the door glass. The tertiary air is a smaller supply and is intended to improve the general combustion process and is permanently open.

When the right quantity and proportion of the types of air fed to the right places of the combustion chamber are achieved, the combustion efficiency is increased, reducing the emissions of harmful gases to the atmosphere. The arrangement of the air controllers is represented on the diagram in the Technical Sheet supplied with each stove. In practice, the exact setting of the air control levers varies with a number of factors – the fuel humidity, the fuel type, the chimney draught, the outside air pressure conditions etc. Therefore the user must fine tune the burning process for optimal flame intensity and quality.

Generally speaking, however, when lighting, both vents are set fully open and during the main operation of the stove, the primary is closed and the secondary left open in order to maximise the glass cleaning.

## 7.2 IMPORTANT! - First firing

*The paint can become soft for a short time during first lighting. Do not touch the outer surface and do not put anything on the stove. The rope seal of the door can also stick to the body of the stove at this time - leave the door slightly open initially.*

The first ever burn in the stove must be carried out so that the temperature rises slowly. It has been shown that in this way, the paint is hardened more durably.

The manufacturer supplies the stove in a crate made of spruce timber; the wood is very dry and it has been chosen especially for the first burn.

**It is important that during the first burn, the full output is gradually achieved and maintained for an hour.** During that time, the paint is burnt out, stabilized and achieves full hardness and abrasion resistance.

There will be some smoke and a chemical smell from the paint. The room must be extremely well ventilated and pets removed.

## 7.3 Kindling

The grate should be clear before kindling. Place a large amount of crumpled newspaper or solid firelighters and several pieces of kindling in the firebox. Set the primary air controller (choke) fully open. Set fire to the paper and close or almost close the door. Leave to burn for several minutes until a high flame is reached and the chimney fully warmed for maximum draught.

## 7.4 Heating

### 7.4.1 Burning wood and wood briquettes

Following the initial kindling, we recommend closing the primary air supply fully or almost fully. The burning rate is regulated by the secondary air controller.

### 7.4.2 Burning lignite briquettes

The burning rate is regulated by the primary air control. Following the initial lighting phase, the manufacturer recommends closing the secondary air supply fully or almost fully.

In practise, the optimal position of the controls will be a matter of trial and error and will vary depending on the chimney draught.

**Feed with fresh fuel when there are only glowing embers in the firebox.**

When the wood has burned down to embers, open the stove door 10 to 15 mm and wait 15 to 20 seconds before opening the door fully and quickly put the fuel into the firebox. This procedure will significantly decrease the volume of smoke entering the living room. To further reduce smoke spill-out, open the starting flap (on some models only, labelled [firing valve]) immediately prior to loading.

## 7.5 Glass cleaning / 'Air-Wash' Function

This is dependent on the use of the correct dry fuel, plenty of combustion air (particularly secondary air) and sufficient chimney draught. The method of operating the stove also influences the cleanness of the glass. We advise you to stoke up only one layer of fuel, distributing the fuel as uniformly as possible in the firebox and as far as possible from the glass. The same applies to briquettes. The distance between logs should be 5 to 10 mm. If the glass darkens during burning, increasing the burning intensity will usually clean the glass automatically.



## 7.6 Removal of ash

Depending on the length and intensity of the heating phase, the ash should be shaken through the grate to the ash pan with the help of a poker. **Please ensure that the ash pan is not overfilled, thereby obstructing the air feed through the grate and leading to subsequent problems with lighting or burning.**

The ash pan must be emptied when the ash is cold, ideally when preparing the lighting/kindling stage. Ash from burnt wood can be used in compost or as a fertilizer.

**Warning:** Before emptying the ash pit, make sure it doesn't contain hot embers that could start a fire.

**7.7 The appliance must not be operated with the appliance door open** except briefly when fuelling. Operation with the door open can cause excess smoke to enter the room.

## 7.8 Air Controls left open

Running for any length of time with the air controls fully open can cause excessive smoke. The appliance must not be operated with air controls, appliance dampers or door left open except as directed in the instructions.

# 8 CLEANING AND MAINTENANCE

- The appliance must be cleaned at least once a year; it must always be cold before cleaning.
- During cleaning, any accumulations of tar in the flues, in the firebox and on the baffle plates above the firebox should be removed as much as possible.
- The grate must be kept unobstructed.
- Repair any parts of firebrick lining that have fallen out, ideally with a new firebrick. The integrity of the lining should be monitored during the heating season. The gaps between the individual boards serve for thermal expansion, preventing cracking; the gaps **must not** be filled in any way (e.g. with accumulated ash).
  
- **Some cracks in vermiculite firebricks are normal and are to be expected. They remain functional and should remain in use unless they have appreciable holes, have disintegrated or fallen out.**
  
- Stove glass cleaners of varying strength are available, but damp newspaper can also work. The glass must be cleaned only when cold. Never use water to clean painted parts of the stove surface; soft foam sponge or soft flannel cloth will be suitable.
- By regular cleaning of the chimney you will prevent soot deposits on the chimney walls from igniting.
- We advise to use only dry, no more than slightly moistened cloth to clean the ceramic tiles. Clean the stove only when cold.
- The textured stucco surfaces should be cleaned only with the help of a broom or vacuum cleaner.

# 9 COMMON FAULTS

### **Disintegrated or broken vermiculite brick**

A vermiculite board or complete lining can be ordered as spare part from the distributor.

### **Door sealing**

A new rope seal can be ordered as a spare part from the distributor.

### **Damaged door, damaged glass.**

Changing the door glass is fiddly and requires a modicum of practical ability but is not complicated. Make sure the screws are cleaned with a fine wire brush and soaked overnight with a solvent such as white spirit to soften the tar before attempting to remove them. Do not get solvent on the paint. Do not over-tighten screws when replacing.

Doors virtually never need replacing, but changing the door is not difficult for anyone with a small degree of practical skill. Contact the distributor for specific advice before attempting to remove the door.

## 10 UNCOMMON FAULTS

Some microscopic cracks may occur, sometimes referred to as “hair cracks”, during the traditional method of manufacturing the ceramic tiles for the stoves’ outer casing. Such hair cracks are natural and are **not** considered defects.

## 11 SERVICE

### 11.1 Guarantee and after-guarantee service

The guarantee and after-guarantee service is provided by the principal manufacturer, ABX, through its distributor in the UK, Greymetal Ltd:

Greymetal Ltd / FTS

Drome Road

Zone 1, Deeside Industrial Park

CH5 2LR

Tel 01244 913320

e-mail: [info@greymetal.co.uk](mailto:info@greymetal.co.uk)

Technical information related to installation and operation and spare parts may be obtained from [technical@greymetal.co.uk](mailto:technical@greymetal.co.uk)

### 11.2 Ordering spare parts

When ordering spare parts, please state the:

- stove type
- year of production/purchase
- serial number

Identify the spare part with the help of the Technical Sheet, stating the name of the part and possibly its number or position according to the diagram. Send the order by e-mail. Spare parts and accessories can be ordered from the seller or directly from the manufacturer.

## 12 STOVE PACKAGE AND DISPOSAL

### 12.1 Package

The fireplace stove is, unless stated otherwise (see TECHNICAL SHEET), delivered in assembled condition on a wooden transport pallet in protective wooden casing. The stove is wrapped in shrink wrap and fixed to the pallet.

The following package disposal is possible from the perspective of wastes:

- Disassemble and burn the wooden base (see First kindling).
- Throw the bag to municipal waste or deliver it to a collection point.
- Cardboard: recyclable.

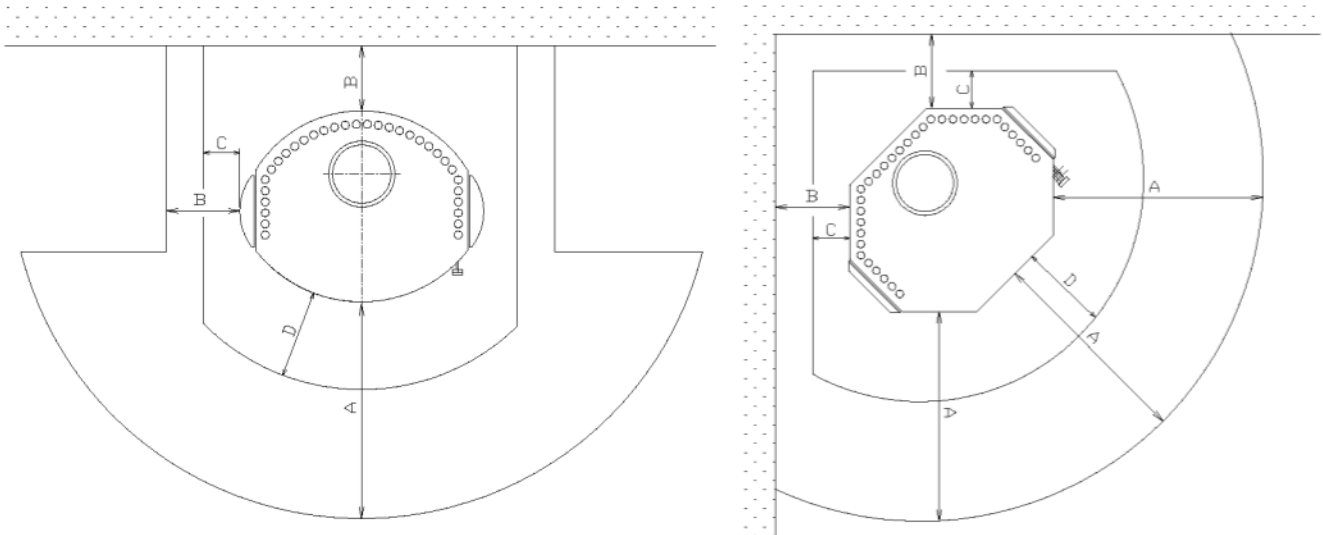
### 12.2 Stove disposal

For disposal of the entire stove, throw the vermiculite lining, glass and seals to land fill waste. Also ceramic, stone and tile can be put into the rubble skip at the recycling centre. The steel sheet body and the together with cast iron parts can be taken to a scrap yard.

# 13 ANNEXES

1. Technical Sheet of the relevant stove type (separate sheet)
2. Distances and size of hearth
3. Swapping the flue spigot
4. Instructions for cleaning of cast-iron and tile ovens

## 13.2 Distances and size of hearth

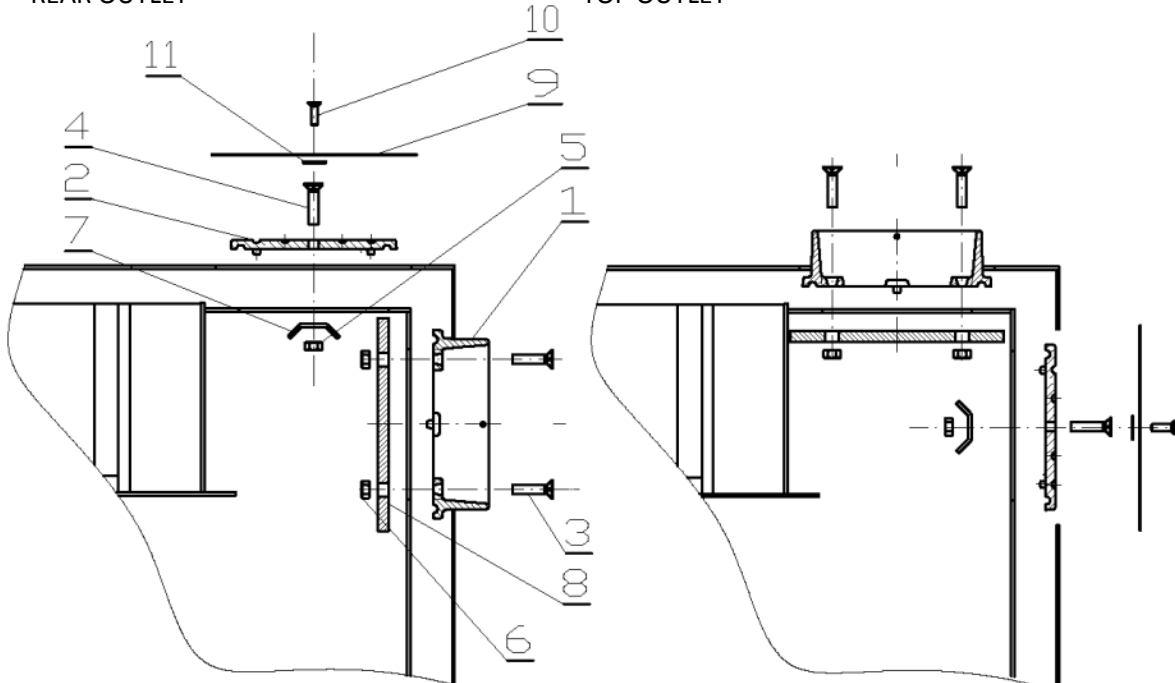


Minimum distances from flammable materials	A ≥ 800 mm
	B ≥ 200 mm
Minimum size of protective foundation board	C ≥ 100 mm
	D ≥ 300 mm

## 13.3 Swapping the flue spigot

REAR OUTLET

TOP OUTLET



- |                                  |                                |
|----------------------------------|--------------------------------|
| 1. UPTAKE NECK $\varnothing 150$ | 7. COVER PARTITION             |
| 2. UPTAKE PLUG                   | 8. UPTAKE PARTITION            |
| 3. SCREW OF UPTAKE NECK M6 2 PCS | 9. STEEL SHEET OF UPTAKE COVER |
| 4. SCREW OF PLUG M8              | 10. SCREW OF UPTAKE COVER      |
| 5. NUT M8                        | 11. HANDLE OF UPTAKE COVER     |
| 6. NUT M6 2 PCS                  |                                |

NOTE: FOR STOVES WITH A WELDED STEEL UPTAKE, THE UPTAKE PLUG (2) IS TO BE MOVED FROM ONE UPTAKE TO THE OTHER USING ITEMS 4, 5, 7.

### 13.4 Instructions for cleaning of cast-iron and tile stoves

After long-term use of cast-iron and tile stoves and/or if some unsuitable fuel is used, the space between vermiculite baffle plates and the fire box may become clogged with soot. The stove suffers insufficient draught and does not heat properly. Therefore this space should be cleaned on a regular basis, i. e. at least once every 6 months. For the cleaning procedure, see the scheme.

- (1) The lower vermiculite guiding plate is pushed upwards.
- (2) The soot is released by careful knocking so that it falls down into the firebox.
- (3) The lower vermiculite plate is put back to its original position.

