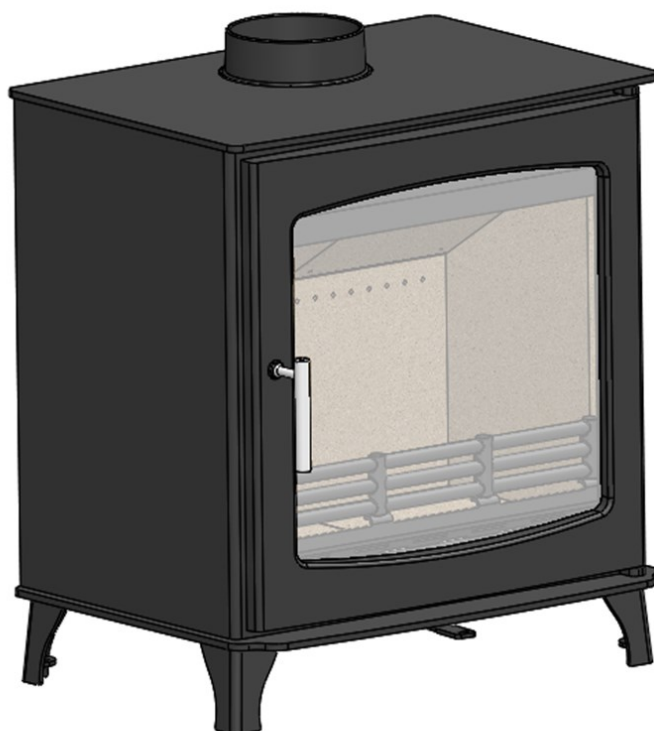


# REVOLUTION 21

TECHNICAL INFORMATION FOR THE REVOLUTION 21 ECODESIGN BOILER STOVE



## ADDRESS

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## CONTACT

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# REVOLUTION 21

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# REVOLUTION 21

## 1 WELCOME

DEAR CUSTOMER,

Congratulations and thank you for purchasing an Ecosy+ stove.

The Revolution range boasts some amazing technology that means this range has some of the highest efficiency and lowest particulate output of any boiler stove sold in the UK. This is one of only a few boiler stoves in the UK that has officially passed the new Eco Design regulations.

To top it off, this stove backed up with a 3-year guarantee.

To ensure you get the most out of your fire for the longest time, please take the time to have a read through the attached manual.

Yours Truly,

THE ECOSY+ TEAM

## 2 SAFETY

### 2.1 GENERAL

Please read the instructions in full and do not light the fire prior to the works being completed. Lighting the fire prior to water flowing around the boiler may cause it to distort, voiding any guarantee.

#### IMPORTANT

Please ensure these instructions are left with the customer.

### 2.2 SAFETY INSTRUCTIONS

Special care must be taken when installing the stove and that the requirements of the Health and Safety at Work Act 1974 are adhered to.

#### HANDLING

This appliance is very heavy. Adequate facilities must be available for moving the item. Ensure the path is clear and protection is applied to the hearth before placing it on it. Especially if the hearth is easily scratched.

### WARNING

Be sure to keep children away from the fire when lit, as they do get very hot. The handle is cool to touch but we would always suggest using a glove, as the handle can still get hot if not correctly seated at 6-o'clock.



## REVOLUTION 21

### 3.1 TECHNICAL DATA

REVOLUTION 21	
Efficiency (%)	77
Nominal Space Heating Output (kW)	6.9
Nominal Water Heating Output (kW)	5.3
CO @ 13% O2 (%)	0.06
Mean Flue Temperature (°C)	296
Min. Draft (Pa)	12
Max Water Operating Pressure (Bar)	2
Weight, w/o water (kg)	185

### 3.2 PRODUCT FICHE

REVOLUTION 21	
Energy Efficiency Class	A
Direct Heat Output (kW)	10.3
Indirect Heat Output (kW)	-
Energy Efficiency Index (EEI)	102
Useful Energy Efficiency at Nominal Heat Output (%)	77

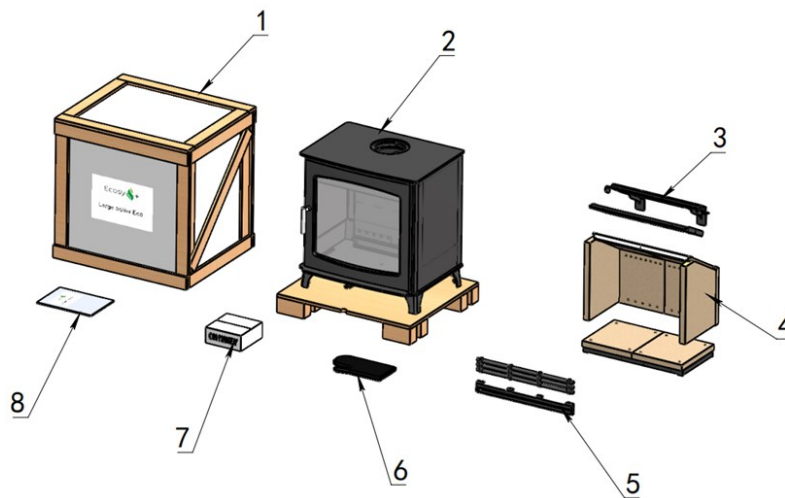
Safety Precautions

Local space heater must be assembled, installed and maintained in accordance with manufacturer's instructions.

## REVOLUTION 21

### 3.3 ITEM LIST

Please see the below drawing, showing what is included. Check the appliance and accessories for any damage. Please contact the supplier if any of the components are missing or damaged prior to the stove being fitted. If the stove has been fitted with damaging, arranging a replacement can become difficult.

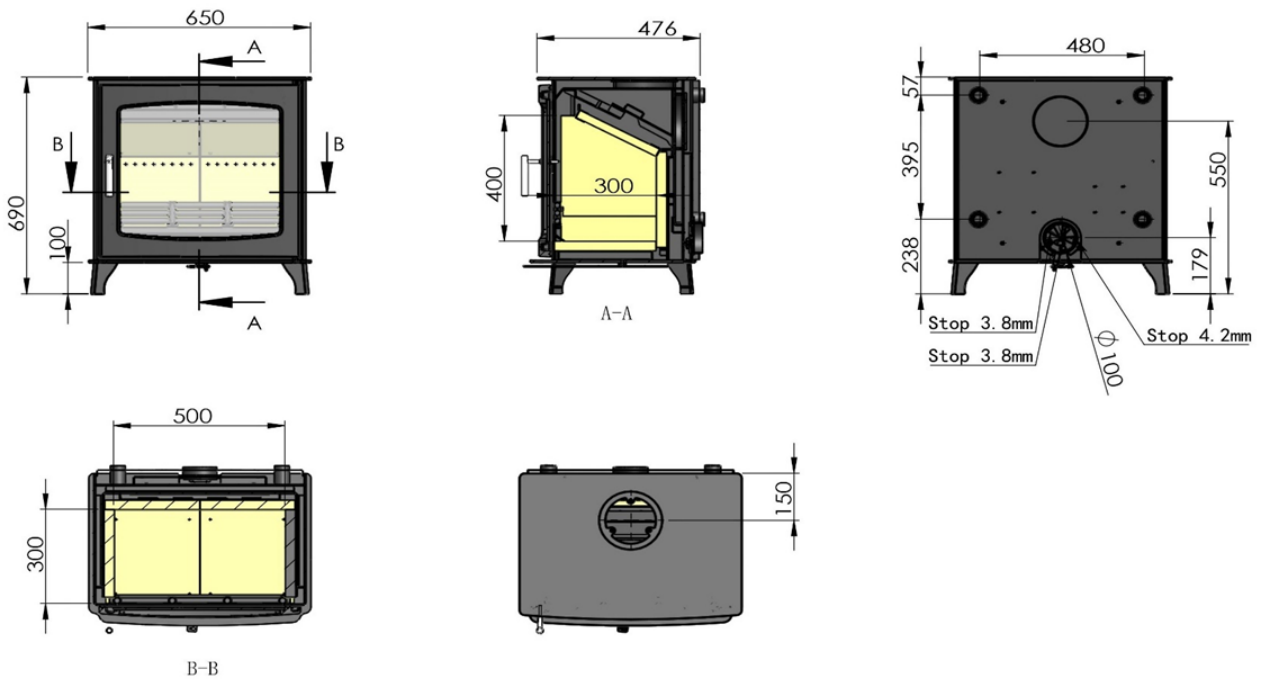


#### PACKAGING CHECKLIST

- |   |  |
|---|--|
| 1 | Box                                    |
| 2 | The stove itself                       |
| 3 | Baffle plate, high up inside the stove |
| 4 | Fire bricks (These are not packaging)  |
| 5 | Log Retainer                           |
| 6 | Glove                                  |
| 7 | Flue Collar with Fixings               |
| 8 | Instructions                           |

# REVOLUTION 21

## 3.4 APPLIANCE DIMENSIONS



REVOLUTION 21	
HEIGHT	669
WIDTH	650
DEPTH	476

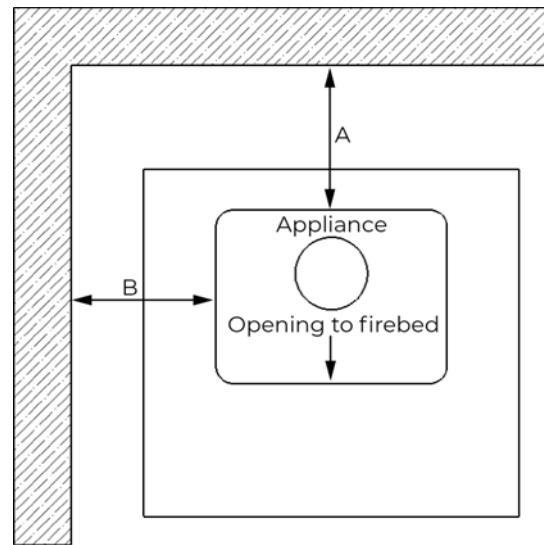
Dimensions in mm

# REVOLUTION 21

## 3.5 MATERIAL CLEARANCES

Combustible Material ( With twin walled flue fitted directly onto the stove )

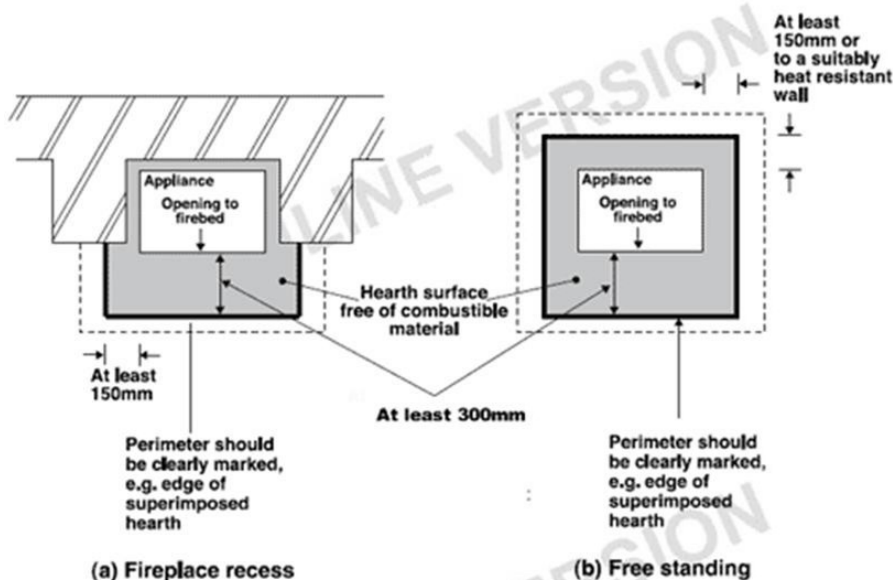
COMBUSTIBLE MATERIAL	
A	150
B	470
Dimensions in mm	



We suggest a minimum of 50mm to non combustible materials to allow air flow around the fire.

## 3.6 HEARTH REQUIREMENTS

This appliance is approved to sit on a 12mm hearth. The hearth must be strong enough to support the weight of the fire. For example, standard 12mm glass hearths will be strong enough. Please see below diagrams for recess and free standing installations.



## REVOLUTION 21

### 4 INSTALLATION REQUIREMENTS

#### 4.1 INSTALLATION BODY

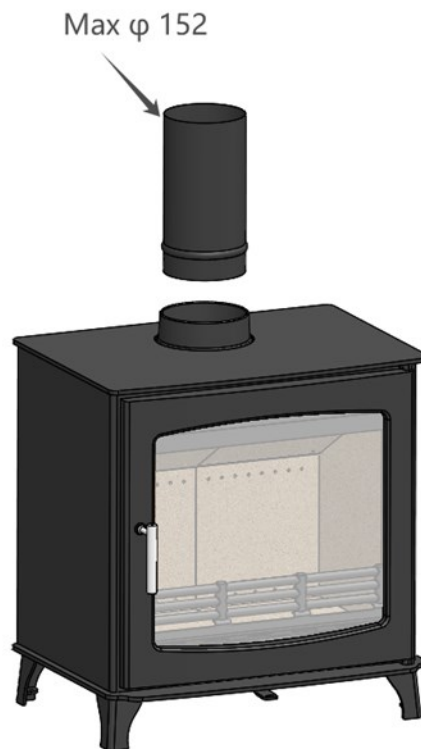
Ecosy+ stoves recommend that this stove be installed by a member of an accredited competent person's scheme e.g. HETAS. If the installer is not a member of a competent person's scheme, it is a legal requirement, in the UK, to notify your Local building Control Officer in advance of any installation work starting. Never light the fire until the full works have been signed off.

#### 4.2 FLUE AND CHIMNEY REQUIREMENTS

When purchasing flexible flue liner, or twin walled flue, 6" diameter is required. The flue pipe must be fitted INSIDE the flue spigot and sealed with a generous amount of Fire Cement. Access should be provided for cleaning the flue to ensure that the passageways for exhaust gases remain free from obstruction. This stove cannot be installed into a shared flue.

It is essential that all connections between the appliance and flue or chimney are sealed and made airtight. Any bend in the chimney or connected flue pipe should not exceed 45°. The minimum recommend chimney length is 3.5m with a cross-sectional area of 175-200cm<sup>2</sup>.

To ensure the stove functions well and remains safe, we suggest the chimney is swept at least once a year. To prevent blockage, always ensure dry, seasoned wood is burnt.





## REVOLUTION 21

### 4.3 AIR SUPPLY

Your stove will require a constant air supply and should not be used at the same time and in the same room/space as extractor fans or any device which may draw air supply away from the stove, unless the fire is connected to its direct air feed socket. Normally for most houses in the UK built before 2008 no extra ventilation is required when installing a stove rated at 5kW or less. Note: The requirements regarding ventilation have been updated in the most recent version of the Building Regulations and are now based on the air permeability of the house. Any stove being installed in a home that has permeability ratings of 5 m<sup>3</sup>/hm<sup>2</sup> or less will require ventilation irrespective of the KW output.

The whole Revolution range has 100mm direct air feed inlets that can be connected to bring fresh air from the outside, directly into the fire. On this model, this inlet is on the stoves base and any ventilation pipes being added, will need to be put in prior to the stoves installation. If the stove is drawing in air directly from the room, ensure the direct air spigot on the base of the stove is not restricted in any way to ensure oxygen can freely flow into the fire. If you find the stove draws well with the door ajar but often dies when the door is closed, it could be caused by a lack of oxygen able to flow through that spigot, or a lack of free oxygen in the room in general.

The testing for this model has been carried out on a chimney with a rating of 12 Pascals and this is industry standard. Anything less than this approved rating could cause smoke to spill from the stove into the room. The chimney is often overlooked by the end user but has a huge bearing on how the fire will perform. The chimney creates suction that pulls the smoke up the chimney and out, opposed to forcing it out of the fire and into the room. The most common cause for a chimney not performing well is the fact it is cold. Cold air sinks the smoke down, whereas a warmer chimney draws the smoke up and out. This issue is most common on twin-walled chimney systems and exposed brick chimneys on the gable end of a house. Getting heat up the chimney as quickly as possible will help to ensure this negative pressure is reversed as quickly as possible. The minimum chimney height required for this unit is 4.5 meters. The complete system must have fewer than 4 bends and each bend should be 45 degrees or under. You can exit from the rear of the fire and attach our custom rear flue box or a 90-degree T piece. Ensure single skin flue pipe is kept away from combustible materials as this will get very hot.

If you are installing into a brick chimney, we would suggest lining the chimney with an approved flexible liner. (316 or 904 grade) Doing so will increase the stove efficiency. Do not connect or share the flue or chimney.

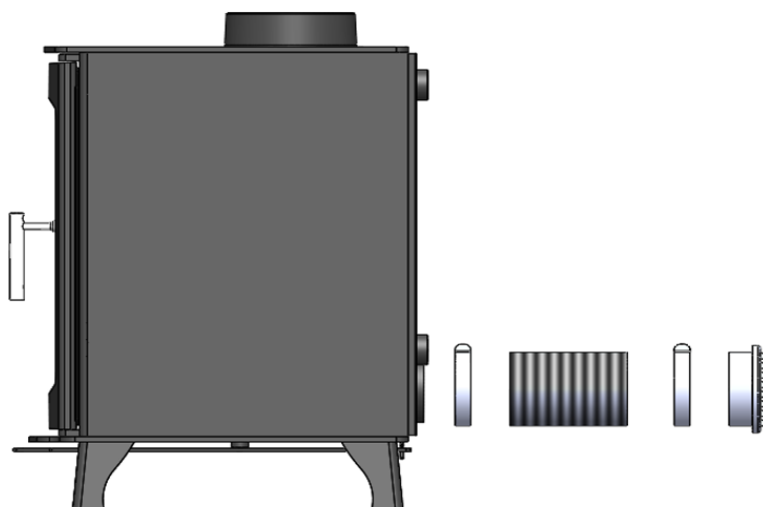


Diagram above showing how the direct air feed is connected (optional in most cases )

## REVOLUTION 21

### 4.4 CARBON MONOXIDE (CO) ALARM

In compliance with Building Regulations, a carbon monoxide (CO) alarm must be installed in the room where the stove is located that conforms to BS EN 50291. See BS EN 50292 and the alarm manufacturer's instructions for installation guidance.

The use of such an alarm is not considered a substitute for regular maintenance or servicing of the appliance and flue system.

### 4.5 BOILER REQUIREMENTS

It is the responsibility of the installation engineer that the appliance is installed correctly and safely and that the relevant installation requirements are met.

Do not under any circumstances connect the stove to a sealed (pressurised) heating system or unvented hot water cylinder.

Do not link the stove into a heating or hot water system with an existing boiler without the use of suitable equipment such as a neutraliser. When fitting this type of system, the neutraliser manufacturer's instructions must be followed.

Do fit an open cold feed and expansion cistern with separate cold feed and vent pipes. The cold feed and vent pipes must be unvalved. The open vent pipe should have a diameter of 22mm and rise continuously from the boiler. It is common practice to form the vent pipe from an extension of the primary flow (see diagram).

Do connect the stove to a double feed, indirect hot water cylinder via 28mm copper flow and return pipework, rising continuously from the boiler to the cylinder. The cylinder and heat leak radiator must be sited higher than the stove.

Semi pumped systems should be used on heating and hot water systems with gravity circulation to the hot water cylinder and one unvalved 2 KW radiator to act as a heat leak when the central heating is switched off.

All four tappings on wraparound boilers should be used for systems incorporating separate gravity and pumped heating loops. Each flow and return should be taken from diagonally opposite sides of the boiler.

If a common flow and return is used, these should also be taken from diagonally opposite sides of a wraparound boiler, and plugs inserted into the sockets not used.

Systems using a common flow and return to the boiler should incorporate an injector tee on the primary return connection from the central heating pump (see diagram).

A HIGH LIMIT thermostat should be fitted to the gravity flow pipe close to the boiler and set at 90°C. This should override any pump control, switching the pump on and dissipating any excess heat around the radiator circuit.

To prevent boiler corrosion due to condensation it is necessary to maintain the return water temperature above 45°C. This can be achieved by the use of a LOW LIMIT thermostat on the return pipe from the hot water cylinder, close to the boiler. The thermostat should make on temperature rise, preventing the circulating pump from operating until the gravity circuit is up to temperature.

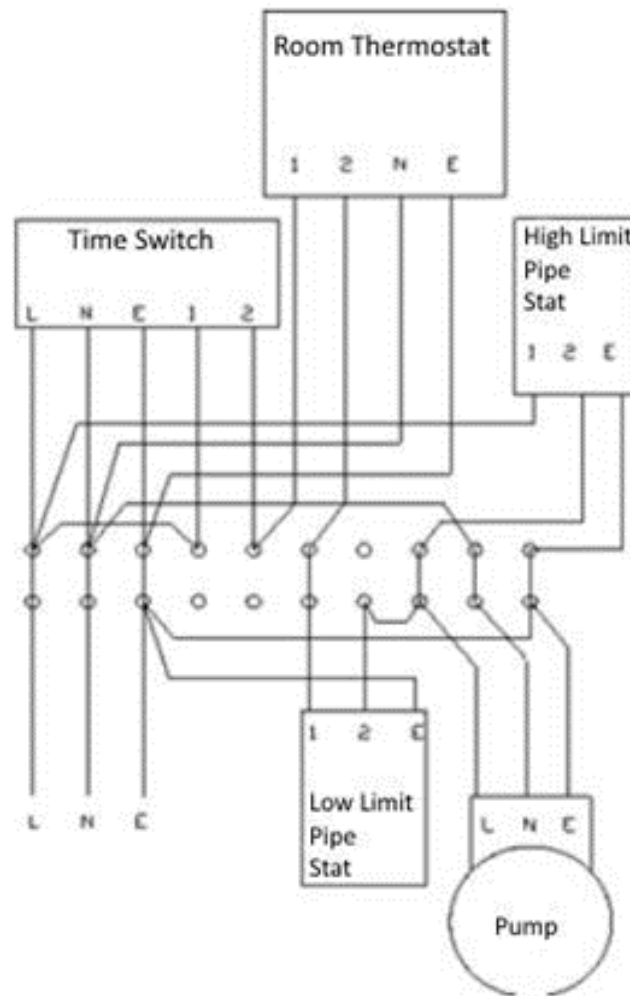
A corrosion inhibitor should be added to the system to ensure satisfactory performance and long system life.

# REVOLUTION 21

## 4.6 WIRING DIAGRAM

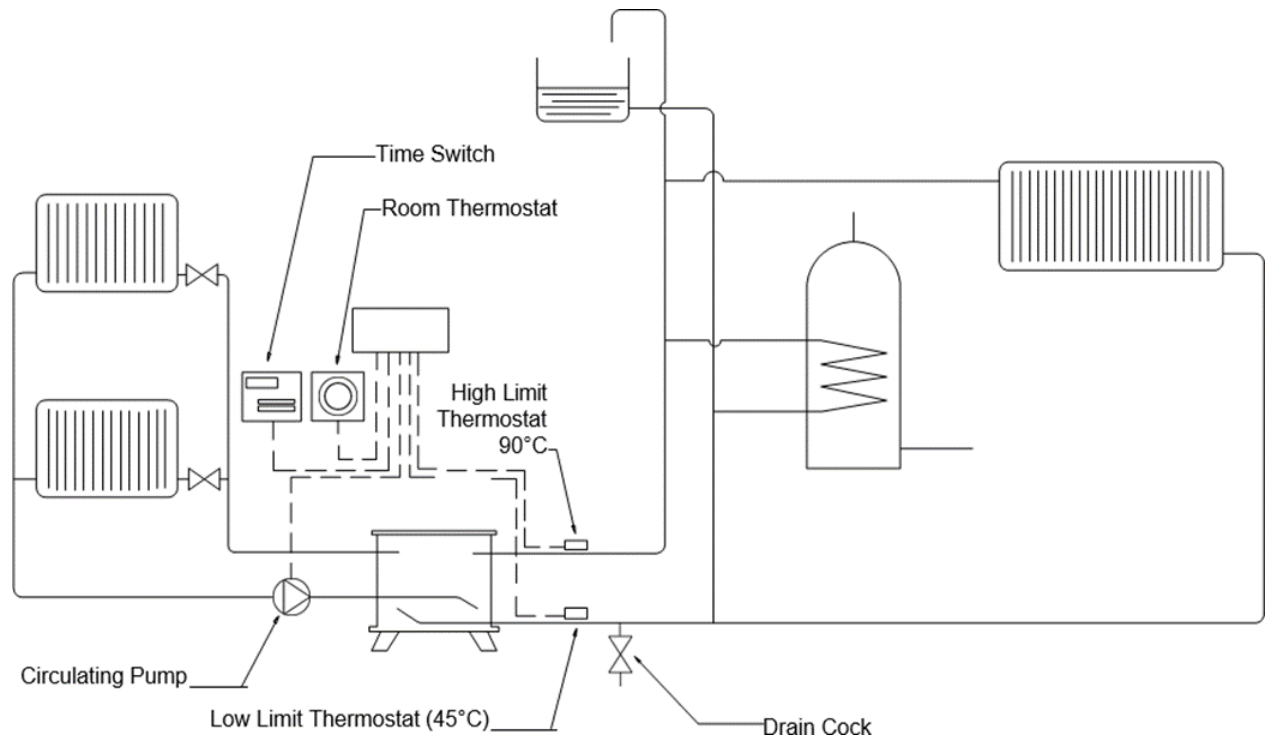
FOR GENERAL GUIDANCE ONLY

All electrical work must be carried out by a competent electrician in accordance with the rules in force and the instructions provided by the circulating pump and heating controls manufacturer.

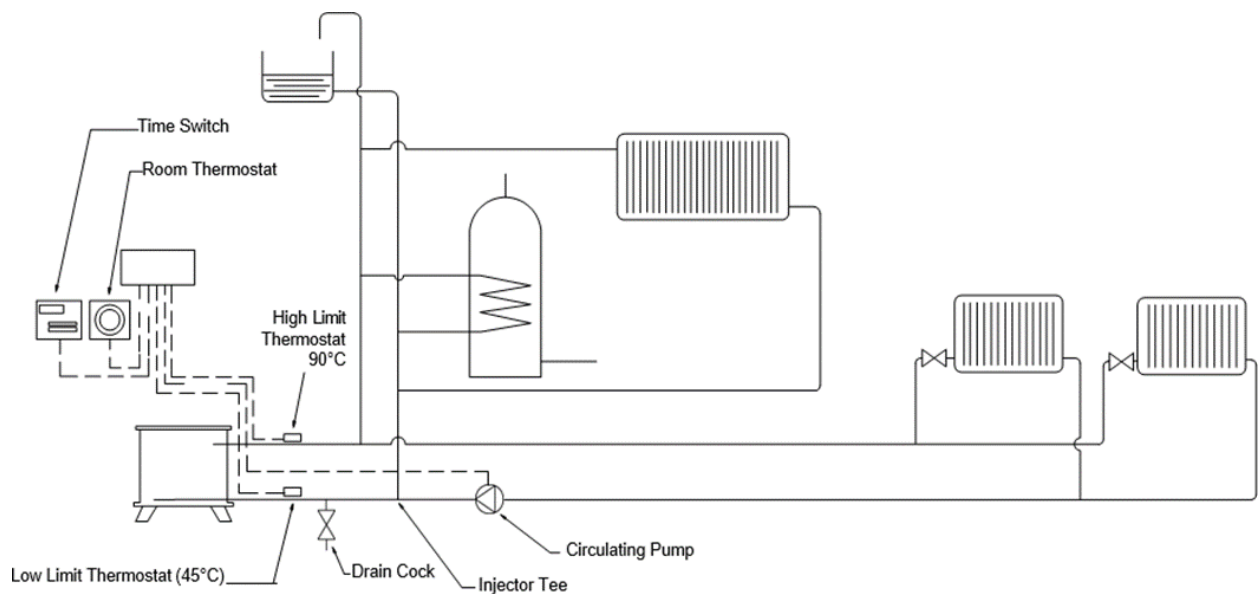


## REVOLUTION 21

### 4.7 FOUR TAPPING SYSTEM



### 4.8 TWO TAPPING SYSTEM



# REVOLUTION 21

## 4.9 CERTIFICATE OF COMPLIANCE

After completion of the appliance installation please ensure the form below (specimen) is completed by the installation engineer to comply with the requirements of HETAS and building regulations. The wet and dry side must be signed off at the same time. If evidence is not shown that both the wet and dry sides were completed at the same time, the guarantee may be voided. It is very important not to light the stove until water is running through the system.



**HETAS LTD - CERTIFICATE OF COMPLIANCE**  
 PLEASE TICK APPROPRIATE BOXES OR ENTER DETAILS IN BOXES BELOW

Shared ID (HETAS Use Only)  (Indicates that this data must be given)

**Customer Name** \*   
**Installation Address** \*   
**Installation Address**   
**Installation Address**   
**Team** \*   
**Postcode** \*  **Work Completion Date** \*

**Local Authority Name** (Must be given if no postcode available)   
**Installing Company Name** \*  **Company's HETAS Reg. No.** \*   
**Installing Engineer's Name** \*  **Engineer's HETAS Reg. No.** \*

**Description of Work**

**Location:** Lounge  Dining Room  Kitchen  Utility Room  Bedroom  Other, Specify

**Appliance:** Dry Open Fire  Open Fire with Boiler  Dry Cooker  Convector Boiler   
 Dry Roomheater/Stove  Roomheater/Close with Boiler  Independent Stove  Heat Output  kW  
 Make  Model

**System:** New Heating and Hot Water System  Updated Existing Heating and Hot Water System  Dry System Only

**IF Wet System, Is the Hot Water System Unvented?**  Yes  No

**Chimney:** New Insulated Factory Made Chimney System Installed

**Building of existing chimney:** Twin Wall Flexible Liner (for Class 1 Appliances)  Cast Iron Liner   
 Right Sectional Liner Metal  Right Sectional Liner Other

**Hearth:** New Hearth/Round Hired  Existing Hearth Burned/Updated

**Additional Information**

**Connecting fluepipe:** Diameter  mm Socket joints upward and gas tight

**Provision for sweeping chimney/fluepipe:** Yes  No  Chimney Data Plate Location:

**Air supply:** Has a permanently open air vent been fitted? Yes  No   
 Is vent opening at least 50% of cross sectional area of broodflue  or, Stale total free area of air vent  dm<sup>2</sup>

**Confirm an approved Carbon Monoxide alarm has been fitted**

**Testing & Commissioning to Approved J Appendix E**  
 Confirm you have commissioned and tested the appliance & associated work for safe and efficient operation

**Declaration of Compliance:** As the competent person responsible for the work described above, I confirm that the appliance and associated work has been installed in accordance with the HETAS rules of registration, and that the work complies with Regulations 4 and 7 of the Building Regulations, and Approved Documents J, G & L, as applicable.

Signed:  Print name:  Date:   
COPIES OF THIS COMPLETED CERTIFICATE MUST BE SENT BY EMAIL TO HETAS LTD AT THE ADDRESS GIVEN BELOW  
 (FORM COPY) GIVEN TO THE CUSTOMER FOR RETENTION (YELLOW COPY) RETAINED BY THE INSTALLING COMPANY

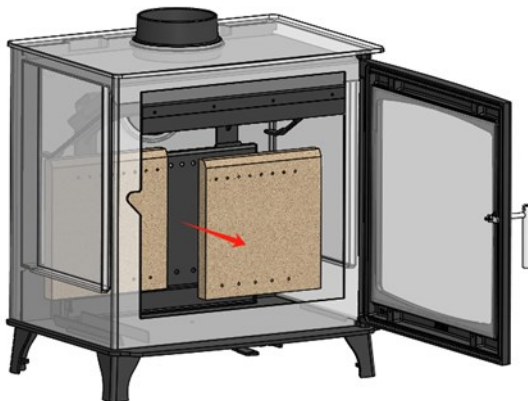
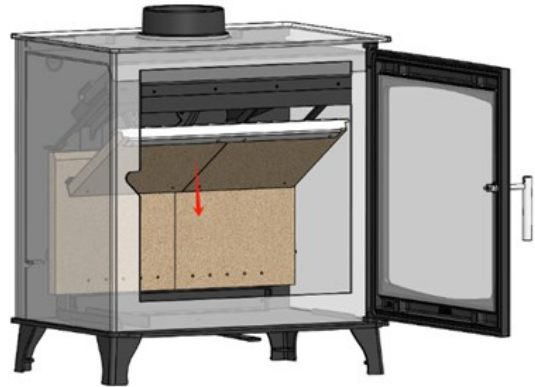
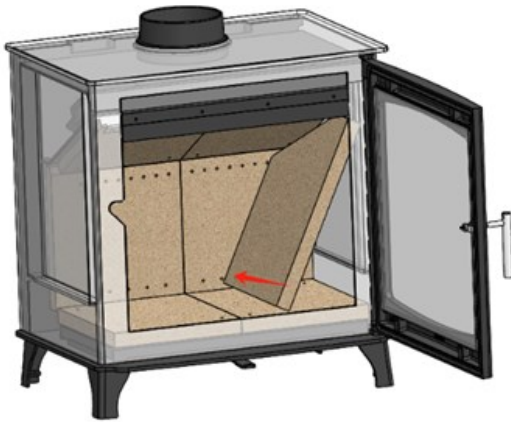
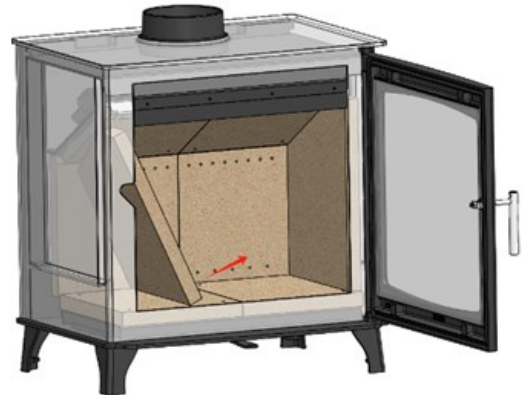
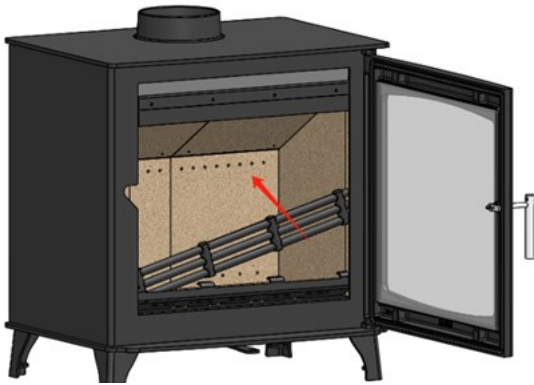
THIS CERTIFICATE SHOULD BE RETAINED BY THE PROPERTY OWNER  
 WHO MAY BE REQUIRED TO PRODUCE IT IN ANY FUTURE SALE OF THE PROPERTY.

HETAS Ltd, PO Box 37, Bishop Cleeve, Glos. GL52 5TB HETAS Ltd © (Jan 2015)

## REVOLUTION 21

### 5 STOVE PARTS

#### 5.1 FIRE BRICKS AND LOG GUARD

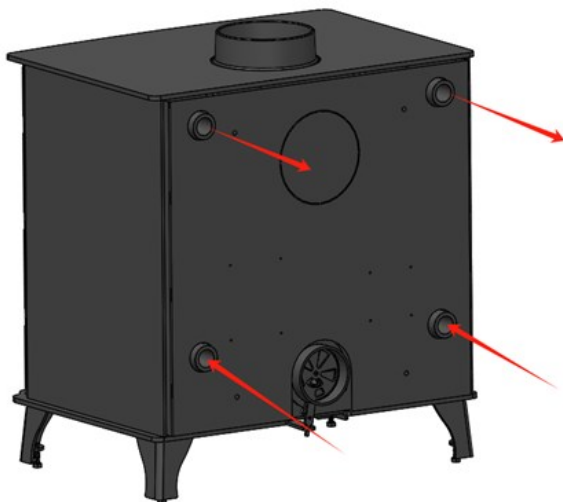


## REVOLUTION 21

### 5.2 BAFFLE



### 5.3 WET CONNECTIONS



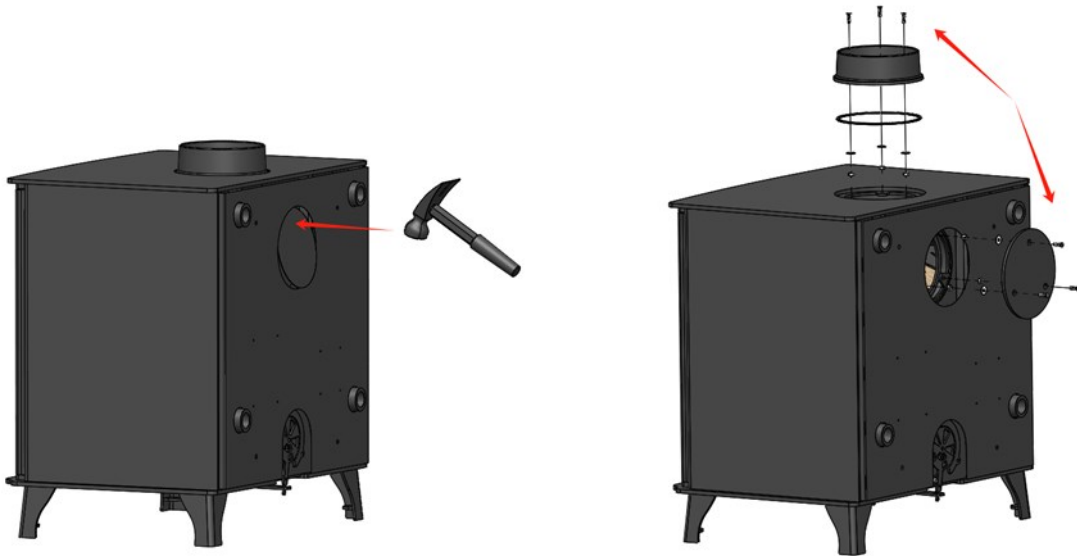
Water connection thread size 1" BSP.

Connect the water inlet to the bottom.

Connect the water outlet to the top.

## REVOLUTION 21

### 5.4 REAR FLUE CONNECTION





## REVOLUTION 21

### 5.5 DEFRA SETTING

The Revolution has been recommended as suitable for use in smoke control areas when burning seasoned wood logs. Each appliance has been factory fitted with a screw that prevents the full closure of the vent. If you are not in a smoke free zone, this can be removed.

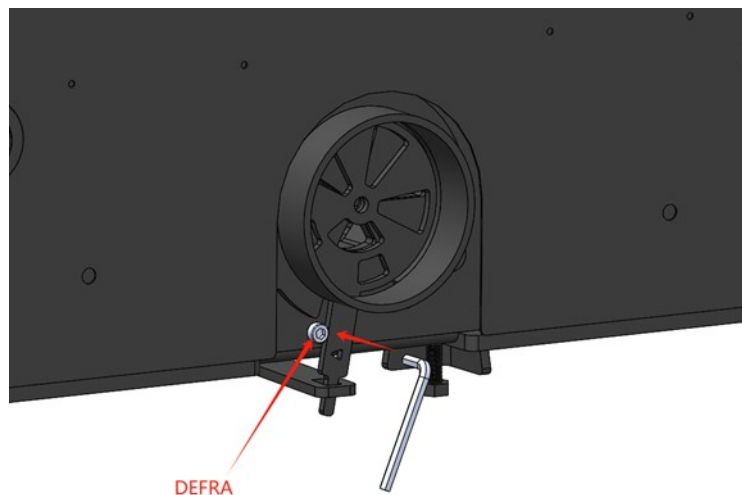
Your local authority is responsible for implementing the Clean Air Act 1993 including designation and supervision of smoke control areas and you can contact them for details of Clean Air Act requirements.

The stove has a small Alan key thread add to the base of the fire which prevents the full closure of the vent.

#### THE CLEAN AIR ACT 1993 AND SMOKE CONTROL AREAS

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 controls which generally apply in the smoke control area).

In England appliances are exempted by publication on a list by the Secretary of State in accordance with changes made to sections 20 and 21 of the Clean Air Act 1993 by section 15 of the Deregulation Act 2015. Similarly, in Scotland appliances are exempted by publication on a list by Scottish Ministers under section 50 of the Regulatory Reform (Scotland) Act 2014. In Northern Ireland appliances are exempted by publication on a list by the Department of Agriculture, Environment and Rural Affairs under Section 16 of the Environmental Better regulation Act (Northern Ireland) 2016. In Wales appliances are exempted by regulations made by Welsh Ministers.



## REVOLUTION 21

### 5.6 CONTROLLING THE STOVE

The revolution 21 is fantastically simple to use and has just the one control on the base of the fire. When lighting the stove, ensure this vent is open ( on ) to allow lots of air into the fire. In most cases you will also require the door to be ajar for between 3 and 5 minutes to give the fire a quick burst of oxygen. Once established the door can be closed and the fire controlled with the vent.

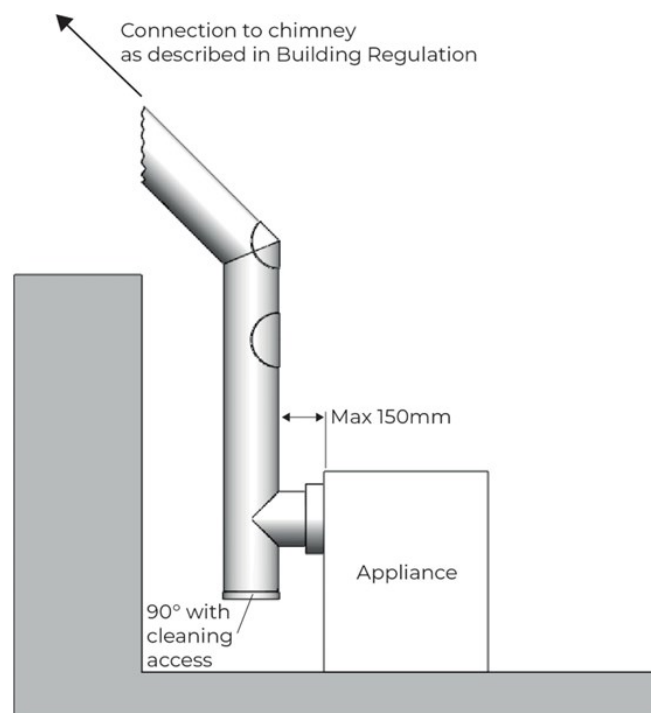
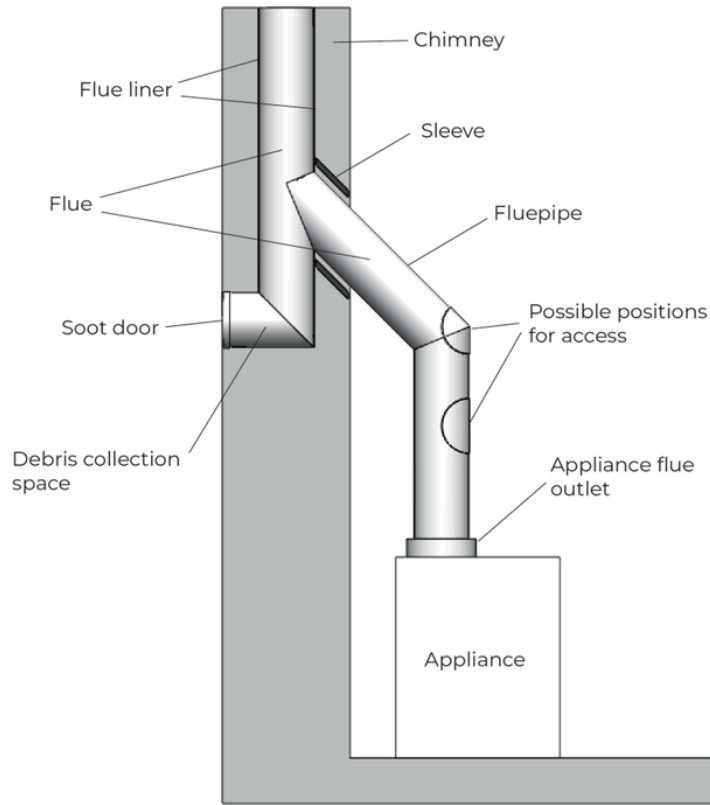
If the vent is closed off too early, the fire will go out. If left open for too long, the stove can over-fire. The heat will also bypass the boiler and go straight up the chimney. The controls need balancing, so the fire remains alight, and the boiler has a chance to absorb the heat, prior to it being drawn up the chimney.

It is extremely important to always burn dry, seasoned wood. Wet wood is the most common cause of the fire not getting hot enough and potentially causing the glass and internals to go black. To gain maximum output, the fire needs to be filled with a good amount of quality fuel. Hard woods like oak will often burn hotter for longer and are great for boiler stoves, as often the maximum heat energy is required to heat not just the room but the water too,



# REVOLUTION 21

## 5.7 STANDARD DRAWINGS



## REVOLUTION 21

### 5.8 CHECK BEFORE USE

- Once the stove has been installed and the flue connected replace all the internal components.
- Check the seal between the door, flue and joints are sound.
- Check the air controls are working correctly and smooth to operate.
- Conduct a draught test.
- Check the CO monitor is working correctly.
- Once the draught test and appliance is deemed safe for use the stove can be lit for the first time.
- Light the appliance as described in the user instructions. Ensure the temperature is increased slowly to allow the fixing cement and paint to cure.
- Check that no combustion products are entering the room.
- If everything is operating correctly explain to the user how to operate the appliance, the safety measures they should take and how to maintain the appliance.
- Ensure that the instructions are given to the user.

## REVOLUTION 21

### 6 GUARANTEE

#### 6.1 WHAT'S COVERED

The main body of your stove is guaranteed for 3 years. Installation not carried out by a registered HETAS installer will void the guarantee. The only exceptions will be if the install has been signed off by your local authority or suitably qualified Oftec installer. In addition to this the stove must be serviced annually by a suitably accredited chimney sweep or stove installer. For example, HETAS / METAC / NACS. In this service any perishable parts that are damaged will need replacing. Please keep hold of these receipts, as they will most likely be required in an unlikely event.

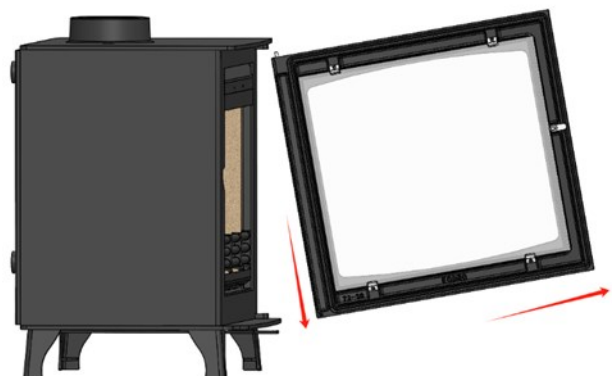
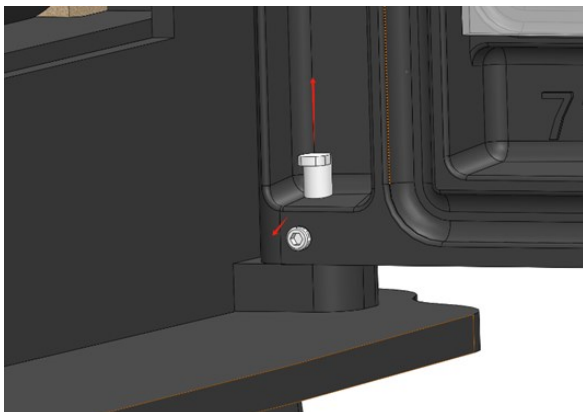
It is very important to ensure that the wet and dry side are commissioned at the same time. The failure to do so can result in void claim. The stove must have running water through it, prior to it being lit for the first time.

THE GUARANTEE DOES NOT COVER PERISHABLES LIKE GLASS, FIRE ROPE AND FIRE BRICKS

### 7 MAINTENANCE

#### 7.1 REMOVING THE DOOR

Loosen the Allen key thread and lever up the hinge pin on the bottom of the door. Once removed the door will pull away and release from the top hinge. Ensure the door is supported at all times.



## REVOLUTION 21

### 7.2 FITTING NEW GLASS

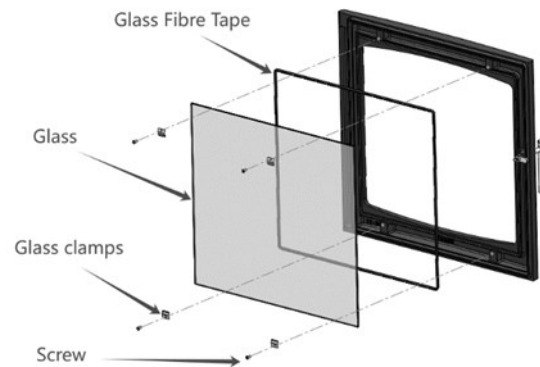
Ensure the door is on a soft flat surface before removing the glass.

Unscrew the glass clamps.

Remove the old glass and glass fibre tape.

Fit new glass and glass fibre tap.

Refit glass clamps. The glass clamps should only be finger tight to allow for the expansion and contraction of the glass.



### 7.3 FITTING NEW DOOR ROPE

Ensure the door is on a soft flat surface before removing the door rope.

Remove the door rope.

Scrape away any old adhesive.

Use a brush or dry cloth to remove any debris in the rope channel.

Spread the rope glue evenly in the channel.

Press the new rope into the rope channel and allow sufficient time to cure.

