



# ARCHED AR5i INSERT STOVE

Please fix label with serial number and stove  
Type here before putting manual into stove

## Installation and Operating Instructions

Please hand these instructions to the stove user when the installation is complete. Leave the stove ready for operation and instruct the user in the correct use of the appliance and operation of controls.

**Important:** – This product must be installed by a suitably qualified installer.

### **Heat Design**

30 – 60 Hawthorn Road  
Western Industrial Estate  
Naas Road  
Dublin 12

[www.heatdesign.ie](http://www.heatdesign.ie)



**PLEASE READ ALL THESE INSTRUCTIONS CAREFULLY!**

**For safety reasons it is essential that your stove is correctly installed and operated. Heat Design cannot accept responsibility for any fault or consequential problems arising through incorrect installation or operation.**

## TABLE OF CONTENTS

<b>Section</b>	<b>Page No</b>
1. List of Components	2
2. Component Identification and Installation	2
3. Installation Instructions	3
Warnings and important safety information	3
4 Installation Information	4
Chimney	4
Ventilation	4
Flue Draught	4
Connection to Chimney	5
Material Clearances	5
Hearths	5
Commissioning & Handover	5
5. Technical Data	6
6. Operating Instructions	6
Air controls	6
Cleaning	7
Fuels	7
Notes on Wood Burning	7
Notes on Burning Solid Fuel	8
Re-fuelling	8
Refuelling onto a Low Firebed	8
Fuel Overloading	8
Shutting down	9
Maintenance	9
Seasonal Use	9
7. Safety Notes for your Guidance	9
8. Stove Dimensions	10
9. Frequently Asked Questions	11

# 1. List of Components

Fig 1 – Stove Tool

Description of Parts	Qty
AR5i Stove Assembly	1
Tool	1
Ash Pan	1
Fixing bar	1
Bag containing fixings	1
Stove Operating Glove	1
Touch up paint	1
Spare rope	1
Warranty Card	1

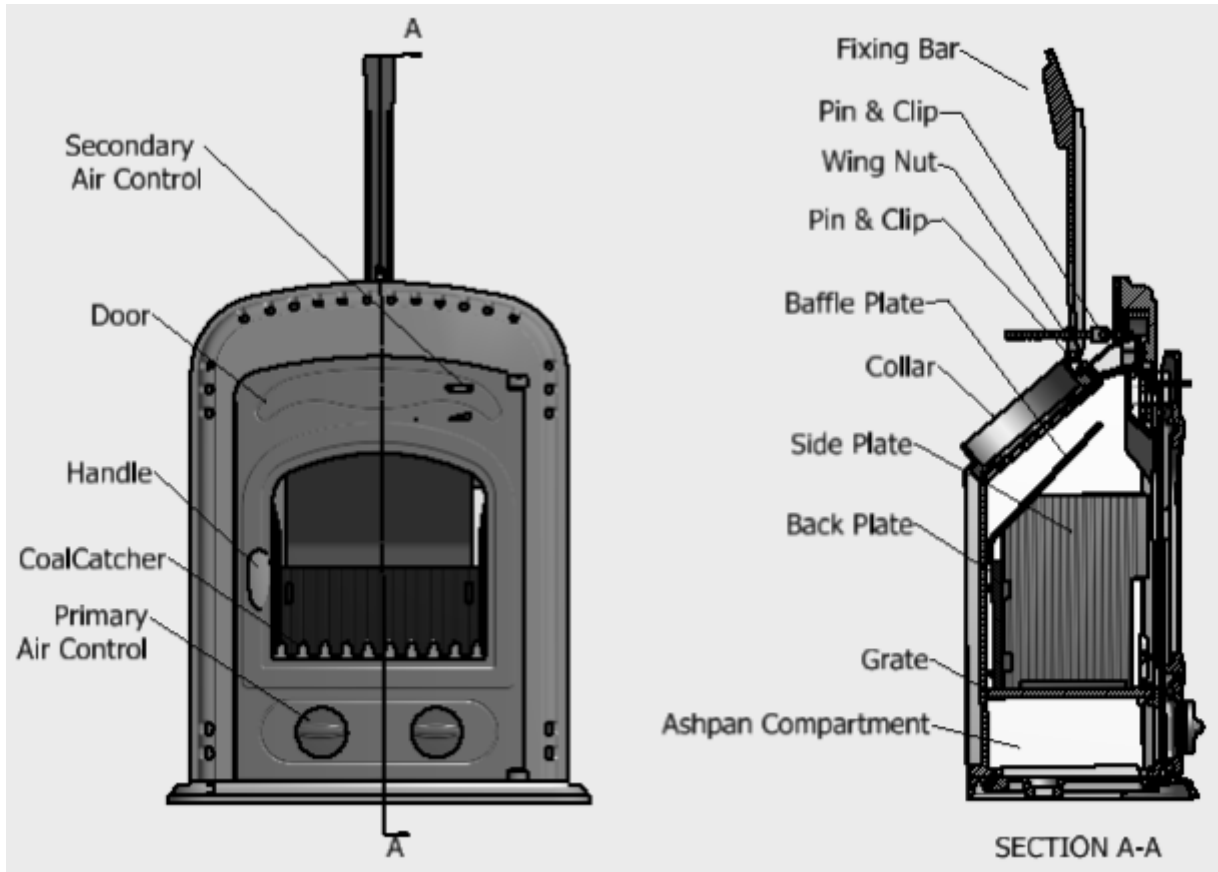


Fig 2 – AR5i Stove Assembly and controls

# 2. Component Identification and Installation

Your Arched Stove comes packed in a cardboard box. Carefully remove any straps and remove all cardboard and any plastic packaging, open the door and remove all the contents. See List of Components section and check contents carefully.

- Remove the coal catcher by lifting it up and rotating it until it can be removed through the open door of the stove
- Now lift up the grate and remove it from the stove.
- Also remove the ashpan and its contents from the stove.
- Secure the fixing bar and the tightening screw to the stove as shown in fig. 2. Do not put on the wingnut until the stove is in place.

- Place the insert stove into position and mark the intended position of the fixing screw in the fireplace through the hole in the base of the appliance. Remove the stove, drill a hole and insert the rawl plug supplied. Re-position the stove and screw into place.
- Create a seal with the fascia of the fireplace. Place hand through the stove flue collar and tighten the wingnut onto the tightening bar. The fixing bar creates pressure when it contacts the chimney/lintel. The stove should be tightly sealed to the fireplace fascia.
- Insulate the space between the fireback and the stove – the back, top and sides of the box is well insulated with 6:1 vermiculite/cement mix or any other good non-combustible insulating material.
- Connect the connecting flue or flue liner/adaptor to the stove spigot and seal from the inside.

**It is essential that a fireback is present where the insert stove is to be fitted.**

### **3 Installation Instructions**

#### **WARNINGS AND IMPORTANT SAFETY INFORMATION**

##### **READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION**

**It is very important to understand the requirements of the National Building Regulations(England and Wales – Document J / Scotland - Part F/Document J (Republic of Ireland only) and standards BS 8303, BS EN 15287-1, along with any local regulations and working practices that may apply. Should any conflict occur between these instructions and these regulations then the regulations must apply.**

##### **Important Chimney Warning**

This stove must not be installed into a chimney that serves any other heating appliance.

##### **Extractor Fan Warning**

There must not be an extractor fan fitted in the same room as the stove as this can cause the stove to emit fumes into the room.

##### **Cleaning and Chimney Sweeping**

**The appliance, flue & chimney must be cleaned and checked internally and externally regularly in use and especially after a period on disuse (e.g. after summer).** Lift down the baffle at least weekly to check for build up of soot or debris on the top from the flue pipe. Remove the baffle and check the flue spigot and connector is fully clear at regular intervals. The chimney and flue connector must be swept at least annually by a Hetas approved or suitably qualified chimney sweep, more often when used with sooty fuels or damp wood. Any loose, broken or leaking joints or flue ways **MUST** be repaired immediately. Where the chimney is believed to have served an open fire installation it is possible that the higher flue gas temperature from a closed appliance may loosen deposits that were previously firmly adhered, with the consequent risk of flue blockage. It is therefore recommended that the chimney be swept a second time within a month of regular use after installation.

##### **Fuels**

Only use recommended fuels. The appliance can be damaged by burning petroleum coke, liquid fuels or general rubbish and this will invalidate your warranty and risk your personal safety. **The appliance must not be used as a rubbish incinerator.**

##### **Maintenance**

Annual checking and servicing of the appliance and flue by a competent engineer is recommended.

Ventilation No purpose provided ventilation is normally required for stoves rated under 5KW. However for newer build properties or properties that have been modified so that the design air permeability is less than 5m<sup>3</sup>/h.m<sup>2</sup>a permanent ventilator will need to be fitted. Approved document J of the building Regulations

gives more detailed information. For each KW above 5KW, 550 sq mm of fixed ventilation is required – i.e. a stove rated at 8KW would require 3 x 550 sq mm = 1650 sq mm of fixed ventilation. If more than one appliance is installed in the same room, the ventilation requirements for each appliance must be added together.

There must not be an extractor fan fitted in the same room as the stove as this can cause the stove to emit fumes into the room.

### **Health and Safety Precautions**

**Works must be carried out with care to meet the requirements of Health and Safety (Health and Safety at Work Act 1974) and comply with the Health and Safety rules contained therein, and any new regulations introduced during the lifetime of these instructions.**

#### **Handling**

Adequate facilities must be available for unloading and site handling. Heat Design Stoves are very heavily built so always ask for assistance when lifting and siting the stoves.

#### **Fire Cement**

Some types of fire cement are caustic and should not be allowed to come into contact with the skin. In case of skin contact, wash immediately with plenty of water.

#### **Asbestos**

This stove contains no asbestos. If there is a possibility of disturbing any asbestos in the course of installation then please seek specialist guidance and use appropriate protective equipment.

#### **Metal Parts**

When installing or servicing this stove, proper care should be taken to avoid the possibility of personal injury.

## **4.0 Installation Information**

### **Chimney**

The chimney height and the position of the chimney terminal should conform to Building Regulations. Minimum chimney height is 4.5m. Check that the chimney is in good condition, dry, free from cracks and obstructions. The diameter of the flue should not be less than 150mm and not more than 200mm. If any of these requirements are not met, the chimney should be lined by a suitable method. The chimney must be swept before connection to the stove.

Where the chimney is believed to have previously served an open fire installation, it is possible that the higher flue gas temperature from the stove may loosen deposits that were previously firmly adhered, with the consequent risk of flue blockage. It is therefore recommended that the chimney be swept a second time within a month of regular use after installation.

If you have any doubts about the suitability of your chimney, consult your local dealer/stockist or chimney specialist. If there is no existing chimney then either a solid fuel compatible prefabricated block chimney or a twin-walled insulated stainless steel flue to BS 1856-1 can be used. These chimneys must be fitted in accordance with the manufacturer's instructions and also please refer to the current issues of British Standards BS EN 15287-1:2007 for design, installation and commissioning of chimneys.

### **Ventilation**

No purpose provided ventilation is required for stoves rated under 5KW. For each KW above 5KW, 550 sq mm of fixed ventilation is required – i.e. a stove rated at 8KW would require 3 x 550 sq mm = 1650 sq mm of fixed ventilation. If more than one appliance is installed in the same room, the ventilation requirements for each appliance must be added together.

### **Flue Draught**

A flue draught of minimum 1.2mm to a maximum 2.5mm water gauge (12 to 25 Pascals) is required for satisfactory appliance performance. The flue draught should be checked under fire at high output and, if it exceeds the recommended maximum, a draught stabiliser must be fitted so that the rate of burning can be controlled to prevent over-firing.

## Connection to the Chimney

This appliance is **not** suitable for use in a shared flue. This appliance requires a direct flue connection to the spigot. It is **essential** that all connections between the stove and chimney-flue are sealed and made airtight with sealing rope, clamping rings and/or fire cement or heat resisting cement where required.

Both the chimney and flue pipe must be accessible for cleaning and if ANY parts of the chimney cannot be reached through the stove (with baffle removed), a soot door must be fitted in a suitable position to enable this to be done.

In adverse weather conditions, downdrafts may occur causing smoke or fumes to spill into the room. If this occurs the appliance should be shut down as much as possible by closing the air controls and the room should be ventilated to clear the fumes. If the problem persists seek the advice of a chimney sweep.

## Material Clearances

### Safety Distances from Combustible Surfaces:

Model	Side	Back
AR5i	350mm	300mm

In addition it is strongly recommended that any furniture or other combustible materials are kept at least 900mm clear from the front of the stove.

### Distances from NON - combustible materials:

To conform with building regulations the fireplace recess walls should be at least 200mm thick or each rear leaf at least 100mm thick in the case of a cavity wall at the rear. If these dimensions are not met further protection for any combustible materials must be provided. The walls of the fireplace recess and the hearth must be made of non-combustible material.

### Hearths:

Heat Design stoves require a 125mm thick non-combustible constructional hearth beneath them to protect the building, this can include any solid non-combustible floor. A non-combustible superimposed hearth forming an apron of at least 225mm at the front of the stove and 150mm on either side must also be provided. The superimposed hearth must not be less than 12mm thick and must have a clearly defined edge (change of level) to discourage placing of any combustible materials on or partially over it.

The appliance shall be installed on a floor with adequate load-bearing capacity. If the existing construction does not meet this requirement, suitable measures (e.g. load distributing plate) should be provided to achieve it.

## Commissioning and Handover

Upon completion of the installation, allow a suitable period of time for any fire cement and mortar to dry out. A small fire may then be lit and checked to ensure the smoke and fumes are taken from the stove up the chimney and emitted safely to atmosphere.

Advise the customer not to run the stove at full output for at 3 – 4 days. Explain that the stoves can provide much more or less than their rated heat outputs depending upon how they are burnt and fuels and fuel loads used.

On completion of the installation and commissioning, ensure that the operating instructions and operating tools (including glove) for the stove are left with the customer. You must be sure to advise the customer on the correct use of the appliance with the fuels likely to be used on the stove and warn them to use only the recommended fuels for the stove.

Advise the user on what to do should smoke or fumes be emitted into the room from the stove – see **Safety Notes** section. The user should be warned that they **MUST** use a suitable fireguard in the presence of children, aged and/or infirm persons.

## 5.0 Technical Data

Technical Specifications		Wood	Coal
Nominal Heat Output	kW	4.8	5.4
Efficiency	%	78.3	77.9
CO Emission (@13% O2)	%	0.26	0.08
Flue Gas Temp (avg. at nominal output)	°C	282	304
Refuel Period	hr	0.75	1.0
Flue Outlet Size	mm	153	153
Product Weight (Packed)	kg	87	87
Maximum Log Length	mm	280	N/A

\*Average reading at nominal output

## 6.0 Operating Instructions

### Operation with door left open

Operation with the door open can cause excess smoke. This appliance is not designed for open operation and therefore should **not** be operated with the doors open.

### Dampers left open

Operation with the air controls or appliance dampers open can cause excess smoke. The appliance must not be operated with air controls, appliance dampers or door left open except as directed in these instructions. This stove is designed to burn cleanly with high efficiency. If used correctly this stove will burn with the very useful feature of clean glass. However, for this product to work properly it must be used correctly.

It is **essential** that the stove has an adequate air supply for combustion and ventilation. The primary and secondary air inlets must be kept clear from obstruction.

**Warning!** This appliance will be very **hot** when in operation and due care should be taken when operating the controls. A leather glove is provided to assist safe operation.

Do not use an aerosol spray on or near the stove when it is alight.

### Air Controls

#### Primary Air

Primary air is controlled via the rotating dials the bottom of the door. This provides a conventional air under draught to the bed of the fire. The primary air is used when lighting the stoves or when the fuel bed goes very low. The primary air inlet will usually be closed when burning wood and open when burning coal type fuel.

## **Secondary Air (Air Wash)**

The AR5i stove has a powerful “air wash” system. This secondary air supply to the stove is controlled via a slider assembly control located on the top right of the stove. If you want clean glass, always leave this control open some way whilst burning unless the stove is being shut right down for a long period.

## **Multifuel Grate**

This stove is fitted with a grate with a strong set of cast iron bars with suitable air slots and will burn most fuels. When burning coal type fuels it is important to stoke the fire well where required to de-ash regularly, to ensure that the primary airflow is not impeded, as a build-up of ash *when burning coal* can damage the cast iron grate. A build up of ash when burning wood will not usually harm the grate and indeed wood burns better on a bed of wood ash building up. Excessive wood ash build up is not to be recommended however as this would decrease the size of the firebox and consequently decrease the amount of fuel that can be put in the stove.

## **Ashpan**

It is essential that you empty the steel ash pan every day. Use the thick end of tool to hook onto and lift the ash pan out of the stove. **DO NOT allow ash to build up underneath the bed as this may cause damage to the grate.**

## **Cleaning**

### **Glass:**

Despite the advanced air wash system provided, the glass will still need cleaning from time to time depending on the fuel quality and burning rates used. Never clean glass when the stove is hot. Always use stove glass cleaner or ceramic hob cleaner, which is available from your stove retailer. As an alternative, use a wet cloth with some of the wood ash if burning wood but be very careful to use very clean ash so as not to scratch the glass.

### **Outer body:**

The outer body simply needs to be dusted from time to time. **DO NOT** use any kind of furniture polish or cleaning agent other than your stove suppliers recommended paint.

### **Inner firebox:**

Brush the inside of the firebox clean from time to time to check the integrity of the plates and liners etc. It is not normally necessary to re-paint inside the firebox due to the high temperatures that mean that the paint does not have much effect before being burnt off. Steel and cast iron liners are resilient firebox materials and will give reliable service without major cleaning or work on the firebox.

### **Baffle:**

It is essential to check the top of the baffle for build-up of soot and ash regularly when in use and after a long period of no use. From time to time remove the baffle if necessary to ensure that the flue way entrance is clear. Take note of the baffle orientation when removing and ensure it is refitted the same way.

## **Fuels**

The appliance is fitted with a versatile multifuel grate and has been tested using wood and coal.

## **Notes on Wood burning**

With a full load of wood, the stove will need to be refuelled approximately every 0.75 hours depending on burn rate. Wood can be stacked in the stove but care must be taken that logs do not touch the baffle. Do not stack fuel above the level of the tertiary air inlets at the back of the stove.

Always make sure that flames are visible above the wood after re-fuelling for cleanest burning. Open the air wash full for 1 to 2 minutes to achieve full flames above the fuel. Carefully adjusting the secondary air controls and fuel load will then control the burn rate of the stove. Wood burns most efficiently with the primary air controls closed and the secondary (air wash) controls open about 25%, this setting will give the stoves nominal output of approximately 5kW.

**See also:** section entitled ‘Lighting the Stove’.



Wood burns best on a bed of ash and it is therefore only necessary to remove surplus ash from the stove occasionally. **If the grate is completely clear, place a few handfuls of ash into the slots in the grate to help the firebed build up.**

Burn only dry, well-seasoned wood, which should have been cut, split and stacked - under protection from rain - for at least 12-24 months with free air movement around the sides of the stack to enable it to dry out. Burning wet or unseasoned wood will create tar deposits in the stove and chimney and will not produce a satisfactory heat output. **Wood that is not properly dry ('dry' is considered to be less than 20% internal moisture content) uses up energy from the burn process to evaporate the water inside the wood thus creating very poor conditions for combustion.** The main cause of burning problems with wood stoves is due to excessively damp wood. Wood can appear perfectly dry on the outside but still contain 40-50% water on the inside. A moisture meter can be purchased from some stove and equipment suppliers if you wish to check your wood source is correct.

### **Notes on Burning Solid Fuel**

See section 6.6 on lighting the stove. After the fire has become established close the airwash until it is approximately 25% open and use the primary air control to set the burn rate. De-ash the stove by stoking the fire before adding new fuel. Open the primary air 100% for a few minutes before refuelling to establish a good hot bed. Leave the primary air fully open for 4-5 minutes after adding the new fuel and then adjust until approximately 25% open to achieve nominal output of about 5kW. With experience you will learn to adjust the controls to establish personal settings. It is better to refuel little and often, this burns the fuel more efficiently and prolongs the life of the stove.

### **Re-fuelling**

When burning wood, the fire will die down as the fuel is consumed. When the flames disappear and the remainder is breaking down into glowing embers it is an appropriate time to consider re-fuelling. **NOTE:** If the flames disappear and there are still lumps of solid wood left this indicates excessive moisture in the wood or insufficient air supply/flue draught.

**Note:** To eliminate unwanted smoke emission, after loading new logs on to the fire, open the air wash control up fully for 1-2 minutes to boost the fire and get flames issuing from the top of the fuel as soon as possible. When flames are well established, reduce the air wash to the running setting required. Burning without flames above the fuel will create unnecessary smoke. Do not operate the appliance with the air controls fully open for a prolonged period as it will cause over firing and may result in smoke being produced.

Loading 1 to 2 medium sized logs will produce a good output with reasonable burn time, generally small logs will burn up quicker producing a high output for a short time and a large log will take longer to burn and produce less output over a given time. These appliances are approved for intermittent operation on wood (0.75 to 1.5 hour burn cycles) although much longer burn times can be achieved by fully loading the firebox, getting the fuel burning well and then shutting the air controls down. The fire will then often need reviving by first de-ashing and then using small pieces of wood and plenty of air to get flames issuing from the wood again.

### **Refuelling on to a low fire bed**

If there is insufficient burning material in the fire bed to light a new fuel charge, excessive smoke emission can occur. Refuelling must be carried out onto a sufficient quantity of glowing embers and ash that the new fuel charge will ignite in a reasonable period. If there are too few embers in the fire bed, add suitable kindling to prevent excessive smoke

### **Fuel Overloading**

Four good size logs is a sufficient quantity of fuel to achieve the rated output from this appliance. Never exceed this amount of fuel and never stack the fuel too high in the stove so as it touches the baffle or blocks the tertiary air holes as this may cause smoke to be produced.

## **Shutting Down**

The stove will normally shut down by itself as the fuel is consumed. In order to shut down the stove for other reasons, close the primary air controls (if open), then close the secondary air control. If the controls are left in this position, the fire will eventually burn out. If you want to revive the fire open the secondary air controls fully.

**Warning!** - The stove will remain **very hot** for a considerable time after the fire has died down or been extinguished.

**Warning!**- **Petroleum coke fuels or household waste must not be burnt on this appliance.**

## **Maintenance**

Inspect the inside of the firebox and above the baffle plate every week during use. **See chimney cleaning section in section 3.1 Warnings and Important Information.** Inspect the inside of the stove and the flue ways and ensure they are 100% clear after a period of disuse (e.g summer). **Only use manufacturers recommended replacement parts on the appliance**

## **Seasonal Use**

Remove the baffle and inspect the inside of the stove and the flue ways and ensure they are 100% clear after a period of disuse, for example if the stove is not used during the warmer periods of the year. Also set the air controls to 50% to keep the appliance ventilated and stop the build-up of any moisture inside.

# **7.0 Safety Notes for your guidance**

***FIRES CAN BE DANGEROUS*** – Always use a fireguard in the presence of children, the elderly or the infirm.

**DO NOT perform modifications to the appliance as this could seriously compromise safety in operation.**

**DO NOT OVERFIRE** – it is possible to fire the stove beyond its design capacity, this could damage the stove, so watch for signs of over firing – if any part of the stove starts to glow red, the fire is in an over fire situation and the controls should be adjusted accordingly. Never leave the stove unattended for long periods without first adjusting the controls to a reduced and safe setting – careful air supply control should be exercised at all times.

## **CO ALARMS**

Building Regulations require that whenever a new or replacement fixed solid fuel or wood/biomass appliance is installed in a dwelling a carbon monoxide alarm must be fitted in the same room as the appliance. Further guidance on the installation of the carbon monoxide alarm is available in BS EN50292:2002 and from the alarm manufacturer's instructions.

**Provision of an alarm must not be considered a substitute for either installing the appliance correctly or ensuring regular servicing and maintenance of the appliance and chimney system.**

Your installer should have fitted a CO alarm in the same room as the appliance. If the alarm sounds unexpectedly, follow the instructions given under "Warning Note" below.

## **WARNING NOTE – FUME EMISSION**

Properly installed, operated and maintained this appliance will not emit fumes into the dwelling. Occasional fumes from de-ashing and refuelling may occur. However, persistent fume emission is potentially dangerous and must not be tolerated.

If fume emission does persist, then the following immediate action should be taken: -

1. Open doors and windows to ventilate room and then leave the premises
2. Let the fire out
3. Check for flue or chimney blockage and clean if required
4. Do not attempt to re-light the fire until the cause of the fume emission has been identified and corrected. If necessary seek expert advice.

The most common cause of fume emission is flueway or chimney blockage. For your own safety these must be kept clean at all times

#### IN THE EVENT OF A CHIMNEY FIRE

- Raise the alarm to let others in the house know.
- Call the Fire Brigade
- Reduce the appliance-burning rate by closing all air controls fully.
- Move furniture and rugs away from the fireplace and remove any nearby ornaments.
- Place a fireguard or spark guard in front of the stove.
- Feel the chimneybreast for sign of excessive heat.

If the wall is becoming hot, move the furniture away. Ensure that the Fire Brigade can gain access to your roof space in order to check this area for signs of fire spread

## 8.0 Stove Dimensions

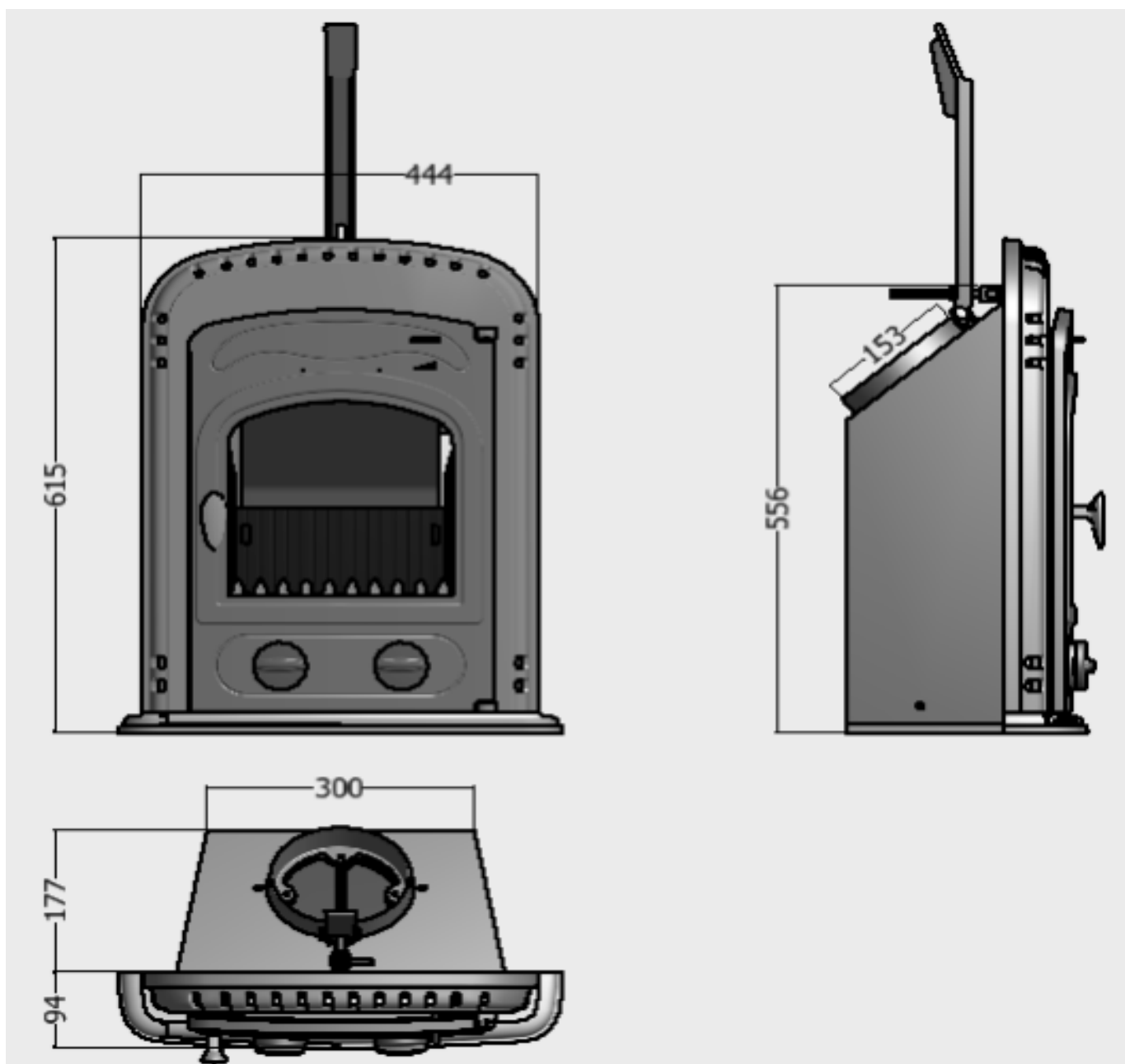


Fig. 3 – AR5i Insert Stove

## **9.0 Frequently Asked Questions**

*1 Do stoves require a chimney? All of our multi fuel and wood burning stoves require a suitable chimney or professionally installed flue system.*

*2 How do I clean the chimney? You will require a chimney sweep to clean the chimney. It is essential to provide a dedicated chimney cleaning access door when installing the flue of the stove in some situations. In other situations the chimney can be swept through the firebox.*

*3 Who should install my stove? Heat Design want you to enjoy the maximum performance from your appliance. To ensure this, it is essential that they are installed correctly. We strongly recommend that your stove is installed by a suitably qualified installer e.g HETAS.*

*4 How do I regulate the heat output? Each stove has various air controls, which will allow you to easily regulate the heat output and refuelling rate.*

*5 What warranty do I get? Heat Design will replace, free of charge, any working part that fails (under normal operating conditions) within 12 months of purchase. Consumables such as glass, firebox lining boards or stove rope and adhesives are not guaranteed. A call out charge will apply if our engineer attends any stove problem that is not related to product failure.*

*6 Where can I get spare parts? Your local Heat Design Stove retailer will be pleased to supply spare parts and to provide any other information you require.*

*7 Can the doors be left open while burning? For safety and heat efficiency the doors should remain closed.*

*8 Why is the stove smoking when lit? A flue with back draught problems is almost certainly the cause of a smoking stove. Also check adequate ventilation is present. A qualified fitter should complete both a smoke pressure and flow test prior to fitting the stove to ascertain the integrity of the flue.*

*9 Why should I "Run in" my stove? To begin, light a series of small fires over a period of a few days to allow the paint finish to cure. The stove is finished with a highly heat resistant paint. The finish can be renovated with stove paint available from your local stove retailer. If the stove is not "run in" correctly, this may cause the paint to discolour and flake.*

*10 What is Over Firing? Your stove should never be used in a manner to cause over firing. Over firing can be caused by over loading the stove with fuel, and with primary controls open. If any part of stove glows "red" your stove is over firing and your draught control should be adjusted to restrict airflow to stove. Over firing can cause permanent damage to the appliance, which is not covered by warranty.*

**Heat Design**  
30 – 60 Hawthorn Road  
Western Industrial Estate  
Naas Road  
Dublin 12  
[www.heatdesign.ie](http://www.heatdesign.ie)