



## EKOL CRYSTAL-5

### – INSTALLATION AND OPERATING INSTRUCTIONS



# **INTRODUCTION**

## **SAFETY**

Safety is the most important consideration when using and installing your stove. If not installed and used correctly, a house fire could result. Installation must comply with relevant national and local Building Regulations and fire safety standards.

**IN THE EVENT OF A CHIMNEY FIRE, EVACUATE THE PROPERTY AND CALL THE EMERGENCY SERVICES.**

Your stove will be heavy and care needs to be taken when lifting - 2 people will normally be required to lift.

## **UNPACKING**

Your stove will have several of its components stored inside the stove itself for transportation.

Take the legs out and attach them one at a time to the underside of the stove – it may help to sit the stove on some sturdy blocks of wood or bricks whilst you do this. Do NOT use a wrench to tighten any bolts, they should be hand-tight only – cast iron is relatively brittle and can crack if over-tightened.

Do NOT drag the stove on its legs – it must be carefully lifted into place.

The flue spigot can also be bolted to the flue outlet – the stove has two options for flue outlet – one on the top and one at the rear. - Most people use the top outlet – in this case, remove the blanking plate at the top and secure to the rear outlet instead, but depending on where you intend to position the stove in relation to your chimney, you may wish to use the rear outlet.

Inside the stove will also be an ash-pan which sits underneath the grate, and will require regular emptying. You will also find a detachable tool for removal of the ash-pan.

You will also find a glove which must be used when opening the door or when adjusting air vents when the fire is hot.

## **INSTALLATION**

Installation of your stove must comply with relevant local and national Building Regulations and fire safety standards.

## **TECHNICAL**

Model; “Ekol Crystal-5”

Nominal heat output – 5 kW

Gross Weight of Stove (inclusive of packaging) - 66kg.

Net Weight of Stove - 65 kg.

Max Height - 540 mm

Max Width - 395 mm

Max Depth - 365 mm

Flue Diameter - 125mm (5”)

Mean flue gas temperature directly downstream of the flue spigot - 272 degrees C. (with closed doors).

Flue gas mass flow – 3.9g/s

Mean CO emission (at 13% Oxygen) – 0.13%

Efficiency – 80.3%

The stove must not be installed within the specified minimum distances to combustible materials: A gap of at least 800mm needs to left between the stove and any combustible materials at the sides and 820mm to the rear. Adjacent walls should be of non-combustible materials and construction, preferably masonry or brickwork.

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.

The stove should be installed on a level floor with adequate load bearing capacity.

The stove needs to stand on a hearth of non-combustible materials not less than 12mm thick conforming to Building Regulations.

Normally for most houses in the UK 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.

NOT suitable for installation in a shared flue system.

If installed in a standard type chimney, a register plate needs to be fitted inside the chimney.

When purchasing flue pipe, 5" 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.

We recommend that you have a qualified fitter install your stove. The British recognised standard for solid fuel installations is HETAS. You can find a HETAS qualified installer in your area by going to the HETAS website – [www.hetas.co.uk](http://www.hetas.co.uk).

## **OPERATING INSTRUCTIONS**

### **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).

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.

The Ekol Crystal-5 has been recommended as suitable for use in smoke control areas when burning seasoned wood. 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.

### **FUEL**

Wood- All types of wood are suitable provided they are well seasoned, UNTREATED, and have a moisture level between 12% and 20%. For soft woods, typically they will need to have been left in suitable storage for 9+ months in order for the moisture to evaporate. For hardwoods, this will usually be 18 months+. It is recommended that logs should be no more than 5" or 125mm in diameter. If you are unsure of the moisture content of your fuel, then you can buy a moisture meter which will indicate the moisture levels in your fuel. Liquid fuels must NEVER be used.

**WARNING: Wet timber should not be used as this will create excess tar deposits in the chimney and stove and could increase the risk of chimney fire. Timber which is not of a suitable moisture content will also create more smoke and harmful emissions, and will damage the stove and flue system.**

The Ekol Crystal-5 is Multifuel capable – as well as wood it can burn any smokeless coal. Never use your stove as incinerator to burn waste or rubbish.

## **AIR INLET CONTROLS**

Your stove has three air inlet areas-

The upper vent provides air supply for the air-wash system and allows air into the higher areas of the fire box – this is called the Secondary air – when this vent is open, the door glass is kept clean by high speed air rushing downwards across the inside of the glass. By moving the Secondary vent knob to the right, airflow into the stove is increased. The secondary air vent is set such that the closure plate does not seal fully, thus allowing some constant air supply into the stove.

The lower vent knob on the bottom of the door controls the provision of Primary air – this is the primary source of air supply for combustion. Sliding the knob to the right increases the amount of Primary airflow into the stove.

The third (Tertiary) vent control is located underneath the stove and controlled by a lever/ knob tucked under the bottom shelf. Moving the lever to the right increases the airflow into the stove. The air is then channelled through a chamber on the rear of the stove and to the rear of the firebox, and enters the firebox via a series of small holes in the throat plate. The closure plate mechanism on the rear of the stove incorporates a ‘stop-bolt’ – a physical stop to ensure the Tertiary air inlet vent cannot be fully closed. This is required to ensure the stove maintains a level of combustion not likely to create excessive smoke.

## **TOOLS**

The glove is provided for adjusting the air inlets and for opening the door when the stove is hot, as these knobs will heat up when in use. The tool handle provided is for removing the ash-pan.

NOTE – all parts of the stove will become hot during use and care needs to be taken to avoid injury through burning.

## **LIGHTING THE FIRE**

- Prior to lighting the fire for the first time, ensure that-
- Installation and building work is complete.
- The chimney is suitable and sound and has been swept and free from obstruction.
- Adequate ventilation and provision for combustion air has been made.
- That the stove installation has been carried out in accordance with Building Regulations and any applicable local regulations as well as these installation instructions.
- That chimney draw has been checked and within specification. (The stove has been tested at nominal output with a flue draught of 12 Pa)

## **INITIAL CURING AND TEMPERING FIRES**

**ESSENTIAL INSTRUCTIONS BEFORE USE** – It is essential to follow these ‘tempering-in’ instructions in order to avoid serious damage to your stove. The castings of your stove require very gentle ‘normalising’ to release stresses in the metal formed during the casting process. The paint finish also requires an initial curing process to be followed: -

For the initial tempering/ curing period, ensure the tertiary air inlet is set to MINIMUM, by sliding the lever to the ‘Minus’ position. Set the Primary air to half position and secondary air to half position.

For the first 2 burns on day one just use small controlled kindling wood fires with each fire lasting around 40 minutes – the second fire can be started when the stove is almost cooled down after the first. A third slightly hotter medium type fire should then be lit using smallish logs and lasting around 1 hour. Then for the next week or around 15-20 hours total burn time, fires must be gently increased in temperature and log size and load and NO COAL must be used during this period. A stove thermometer will be a valuable tool in helping you to achieve this safely and also to ensure an efficient burn rate in future. Starting a large fire too soon is likely to damage the stove in which case it will not be covered by the warranty. Note: the paint on any new stove is relatively soft. As such do not clean, wash or wipe the surface until the paint has fully cured. Never wipe the stove whilst warm. If the above advice is ignored then

there is a high risk of the paint being “shocked” by excessive heat and could peel. Furthermore, if the stove is over-fired it will invalidate your guarantee.

**ENSURE THAT YOU HAVE READ AND UNDERSTOOD THESE INSTRUCTIONS BEFORE LIGHTING THE FIRE, AND THAT YOU ARE CONFIDENT THE STOVE HAS BEEN INSTALLED CORRECTLY. ALWAYS WEAR A PROTECTIVE GLOVE WHEN REFUELLING YOUR STOVE.**

### **Ignition (FOLLOW INITIAL TEMPERING INSTRUCTIONS ABOVE FIRST TO AVOID DAMAGE)**

- Ensure the ash-pan is in place. Ensure all air inlets are fully open (**tertiary air should be closed for first 3 burns**)
- Construct a pile of kindling in the middle of the grate using approx 500g of kindling wood
- Light with a single chemical firelighter
- Partially shut the door but leaving it cracked open slightly
- After about 5 minutes or when the fire is well established, shut the door
- After a further 3-5 minutes as the fire starts to die, add a further three larger pieces of wood weighing approx 0.75kg in total.
- Once these logs are alight, and after about 7 minutes or so, a normal load of 3 logs weighing up to 1.4kgs in total can be added (**ONLY AFTER THE INITIAL TEMPERING PERIOD HAS BEEN FOLLOWED – SEE ABOVE**)
- Once this load is burning well, the Primary air vents can be closed, with the Secondary and Tertiary vents left open.

### **Refuelling**

- Open the Primary air vents
- Add up to 1.4kg of wood
- After about 2 minutes or when flames from the fresh fuel fully established, close the Primary vents
- At high power output, your stove will require refuelling approximately every hour.
- It is important to follow these instructions in order to achieve clean burning and to maximise the efficiency of the stove
- Do not leave the fire unattended until flames are well established on the newly charged logs
- Always refuel onto hot embers.
- If the fire has died out at the point of refuelling, use kindling to re-establish the fire and follow the “Ignition” procedure above.
- It is important that the stove is not overloaded with fuel.
- Reduced burn rates can be achieved by reducing the openings of the Secondary and Tertiary air vents.
- Refuelling on to a low fire bed – If there is insufficient burning material in the firebed 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** - The maximum amount of fuel specified in this manual should not be exceeded, overloading can cause excess smoke.

**Operation with door left open** – Operation with the door open can cause excess smoke. The appliance must not be operated with the door left open except as directed in the instructions.

### **UK Clean Air Act 1993 - Smoke Control Areas**

The Ekol Crystal-5 stove is suitable for use in smoke control areas when used in accordance with these instructions.

*WARNING- The high temperature paint covering the stove will give off some fumes during the initial few uses of the stove. The fumes are non-toxic, but some people may find them unpleasant – Ensure the area is well ventilated during this period.*

The higher power output rating of this stove is based on around 1.4kg of seasoned logs which would require refuelling every hour.

This stove is suitable for intermittent burning, and should not be used constantly for extended periods. Not suitable for overnight burning.

Under certain abnormal weather conditions, e.g. down draughts, it may be difficult to get sufficient draw through the appliance to achieve good combustion. When this happens, the stove should not be used.

### **IMPORTANT: -**

As of October 2010, it is a legal requirement to use a Carbon Monoxide Detector in the same room as the stove. This needs to incorporate a battery which lasts the life of the detector.

### **CLEANING/MAINTENANCE**

Regular cleaning of the stove is essential for safety and efficiency. The ash-pan should be emptied at least after every use, and during use if burning for longer periods.

When cold, the inside of the stove should be given a regular sweep out.

The flue and flue pipe will require cleaning with a suitable chimney brush, to minimise build up of soot and tar. Your chimney will also require periodic sweeping.

If the glass becomes stained from the inside, the air-wash vent may need opening more during use.

The high temperature paint which your stove is finished in should last many years with normal use, but when it does eventually require re-finishing, black heat resistant paint in spray cans can be purchased from most hardware stores. – Do not use regular paint which is not high temperature resistant.

After prolonged periods of not using the fire, the stove and flue system should be checked for blockages prior to re-lighting.

We recommend regular servicing and safety checks are carried out by a qualified engineer.

There must be no unauthorised modification of the appliance. Use only replacement parts recommended by the manufacturer.

**MODELS WITH MIRROR GLASS: THIS GLASS HAS A SPECIAL COATING, DO NOT USE ANY ABRASIVE MATERIAL TO CLEAN THE GLASS.** Just use a clean cloth with warm water.

### **GUARANTEE**

The main body of your stove is guaranteed for 12 months. This does not include glass, grates, door seals, over-firing incorrect use or installation not carried out by a competent person or in accordance with building regulations. – You should have zero problems with your stove unless it is abused and if treated well your stove will last and last.

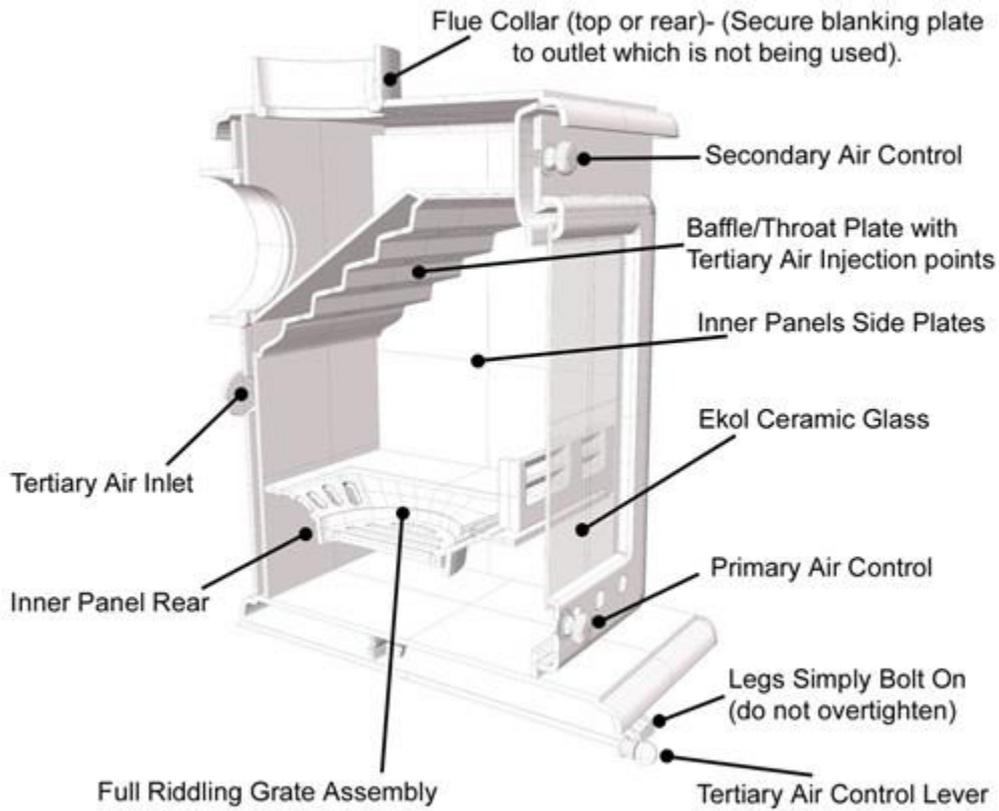
### **What to do in the event of a chimney fire:-**

- cut off the air supply to the stove, i.e. close the primary and secondary air supplies
- move any combustible materials well-away from the stove
- get everyone out safely
- make sure that the fire brigade has clear access
- call 999

If you have any questions or concerns regarding the safe use of your stove, please contact us: -

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## Ekol Crystal Cutaway Section Parts Drawing



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