

MODEL : CARRON ECO 5KW SE
Document – Version 3
Dated 16th March 2021

IMPORTANT INFORMATION

BEFORE LIGHTING THE APPLIANCE, PLEASE READ THESE INSTRUCTIONS THOROUGHLY.

Installation of this appliance must either be completed by a registered HETAS installer or inspected by local authority building control if carried out by a non-registered installer.

A list of HETAS registered installers is available at www.hetas.co.uk

- ✓ The installation of this appliance must comply with current building regulations/local regulations including those referring to national and European standards.
- ✓ This appliance has been designed for intermittent operation.
- ✓ Regularly clean and inspect the appliance to ensure the airways are free from obstruction.
- ✓ The chimney must be swept annually.
- ✓ Take care when manoeuvring the appliance as it is very heavy. Mechanical aids should be used whenever possible.
- ✗ If the appliance becomes damaged, do not continue to use until repaired.
- ✗ Only genuine Carron spare parts must be used. Failure to do so may result in damage to the appliance/property and the warranty will be invalid.
- ✗ Unless authorised by Carron, this appliance must not be modified in anyway.
- ✗ Do not use this appliance as an incinerator.
- ✗ The appliance must not be installed in a room with an extractor fan operating.

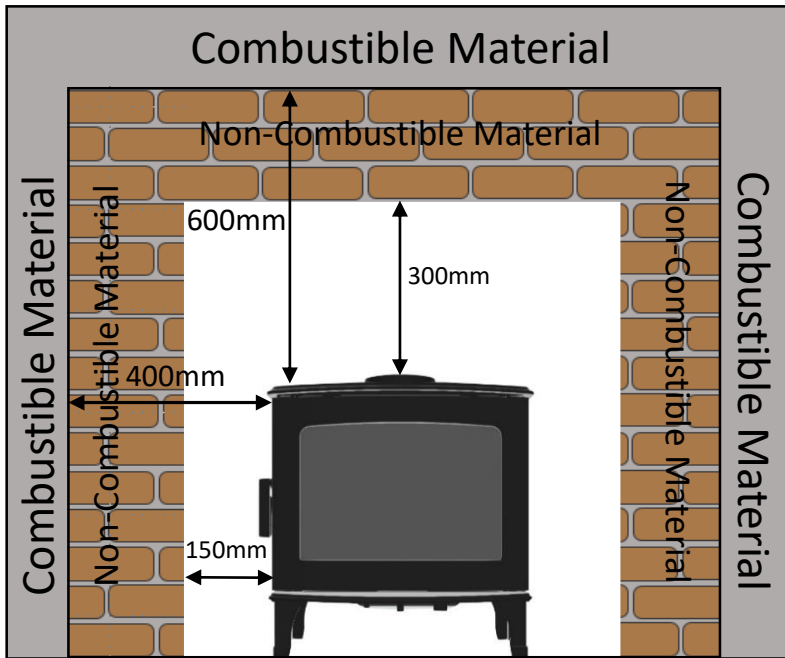
The Clean Air Act 1993 and Smoke Control Areas

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. In Scotland appliances are exempted by publication on a list by Scottish Ministers under section 50 of the Regulatory Reform (Scotland) Act 2014. Similarly, 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.

Further information on the requirements of the Clean Air Act can be found here: <https://www.gov.uk/smoke-control-area-rules> 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 Carron Eco 5kW SE stove has been recommended as suitable for use in smoke control areas when burning wood logs. The Carron Eco 5kW SE stove must be fitted with a permanent stop to prevent closure of the secondary air control slide plate beyond 33mm open and the tertiary air control slide plate beyond 51mm open.

INSTALLATION INSTRUCTIONS



Installation Clearances

Minimum clearance to combustibles

Above the appliance - 600mm
Each Side of the appliance – 400mm
Rear of the appliance – 350mm

Minimum clearance to non-combustibles

Above the appliance - 300mm
Each Side of the appliance – 150mm
Rear of the appliance – 150mm

Failure to adhere to these clearance will invalidate the warranty and could damage your appliance/property.

Hearth Requirements

Place the stove on a solid non-combustible hearth extending 300mm at the front of the stove, 150mm either side of the stove and 50mm at the rear. The hearth must have a thickness of at least 12mm. The maximum hearth temperature attained during testing was 44°C (Refer to document J of the UK Building Regulations). Ensure that the floor has sufficient load bearing capacity. Fit a load bearing plate if necessary.

Flue Requirements

To ensure that your chimney meets the required specifications it must: -

- ✓ be at least 5 metres high - have no bends sharper than 45 degrees
- ✓ be swept clear of any obstructions by a qualified chimney sweep
- ✓ terminate at least 1 metre above any roof ridge
- ✓ have an internal cross-section of between 0.018m² and 0.14m²
- ✓ be free from sources of leakage
- ✓ be connected only to the one appliance i.e. not a shared flue system
- ✓ be well insulated, or have a wall thickness of at least 100mm

CO Alarms

In accordance with building regulations, a Carbon Monoxide Alarm, conforming to BS EN 50292:2002 must be fitted in the same room whenever a new or replacement wood/solid fuel or biomass appliance is installed in a dwelling.

The alarm must be installed in accordance with the alarm manufacturers instructions and is not to be considered as an alternative to the appliance being installed correctly and subsequent regular maintenance of the appliance and associated flue system.

OPERATING INSTRUCTIONS

Recommended Fuels (without multi-fuel conversion installed)

- ✓ **Hardwood logs:** such as ash, oak and beech which have been cut for at least 12 months with a maximum moisture content of 20% and stored under shelter.
- ✓ **Maximum log length:** 300mm length with a maximum depth of 125mm.

Recommended Fuels (with multi-fuel conversion installed)

- ✓ **Smokeless Mineral Fuel:** Such as Maxibrite which is approved for use in smoke control areas.

Prohibited Fuels

- ✗ **Green wood:** i.e. wood which is less than 12 months old with a moisture content of above 20%
- ✗ **Recovered wood:** i.e. pallets, fencing panel, railway sleepers etc. These will have been impregnated with wood preservatives which can cause issues with the flue and possibly overheat the appliance.
- ✗ **Liquid fuels.**
- ✗ **Peat based Fuels**
- ✗ **Household waste:** Burning this can produce harmful fumes.
- ✗ **Petroleum based coke:** This burns with an extremely high heat which can cause damage to the appliance.

Caution - The stove and flue pipe will become extremely hot during use; take care especially when children or the infirm are present. Do not store flammable materials near to the stove. Any combustible furnishings must be at least 800mm away.

Air Controls

The air controls for the appliance are located underneath the stove at front. When pulled forward they are in the fully open position and when pushed back are fully closed. The function of each control is as follow (from left to right as you look at the appliance)

Left - Tertiary Air (for the air supply above the firebed)

Centre – Primary (for the air supply under the grate when using multi fuel conversion kit)

Right – Secondary (for the air supply above the stove door glass)

Initial Firing of the appliance

Wood likes to burn on a flat base with air flowing over the top and minimal air underneath. The air controls on this stove allow you to completely cut off the primary air under the fire whilst leaving the secondary/tertiary air open for burn control.

Please note that the first fire you light in your stove should be small and operated with the all air inlets set as low as possible – the air control should be set in pushed back position to achieve this.

During this initial firing it is normal to experience fumes and a light haze from the appliance as the paint cures during which you must ensure the room is well ventilated.

OPERATING INSTRUCTIONS

Normal Operation (after initial firing) – wood burning

To establish clean burning, it is important to get the appliance hot as quickly as possible. This can be achieved with the following ignition regime:-

- I. Set the air control to the maximum setting by pulling the air controls forward.
- II. Light a double-handful of kindling with a couple of firelighters, with the door 5-10mm open. After 3 minutes a hot fuel bed will have been established, then add two small sized logs (each about half the size of a "standard" 9 inch log).
- III. Let these burn well for another 3 minutes , with the door still open 5-10mm.

Normal Operation (after initial firing) – Mineral Smokeless (Solid Fuel)

- I. Set the air control to the maximum setting by pulling the air controls forward.
- II. Light a double-handful of kindling with a couple of firelighters, with the door 5-10mm open. After 3 minutes a hot fuel bed will have been established, at this point the mineral fuel can be added to the fuel bed.

Refuelling of the appliance at nominal output would be approximately every 4 hours. It is important to ensure that the fuel bed does not exceed the height of the fire bars at the front and does not exceed a 30 – degree incline from front to back. Ensure you refuel onto a bed of hot embers to achieve the best burn. When using solid mineral fuels, we suggest you keep the secondary air control in the closed position, so it can burn at maximum efficiency. At this time the primary air controls can adjust the burn rate of the appliance.

Refuelling your stove - in order to maintain clean burning, after refuelling air control needs to be open for 5 minutes afterwards.

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

Over Firing

Do not run the stove with the air control fully open for prolonged periods. This may result in over firing and cause damage to the appliance invalidating your warranty

Do not leave the stove unattended during lighting. After the ignition procedure is complete, the stove must not be operated with the door open

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 appliance door left open except as directed in the instructions.

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 the instructions. **Ash Removal** - Ashes can remain hot for a long period after the fire has extinguished, care must be taken when disposing of these and ensuring they are completely cooled.

Wood Burning - Wood burns most efficiently on a bed of ashes allowing you to get the best results from your wood burning stove. However, the ash, should not be allowed to build up excessively (no more than 25mm in depth) on the stove base. When the appliance is cool, the ash should be swept from the appliance taking care not to damage the lining of the stove. Sharp pointed rakes must not be used.

Mineral fuels – The ash pan must be emptied frequently to prevent the ash tray overflowing and restricting the airflow and preventing a good burn. The ash must not build up to the point it contacts with the underside of the grate as this will cause distortion and significantly reduce the life of the solid fuel grate.

Chimney Fire

In the unlikely event of a chimney fire,

- ✓ If safe to do so, ensure the stove door is closed
- ✓ If safe to do so, close the air control.
- ✓ Evacuate the property immediately and call the fire brigade.
- ✗ Do not attempt to extinguish your stove.
- ✗ Do not use the appliance until the chimney/flue has been inspected by a qualified person and any faults found have been rectified.

Persistent fume emission should not occur if the product is properly installed and operated. However, should this happen, take immediate action as follows:-

- ✓ Ventilate the room
- ✓ Extinguish the fire
- ✓ Check the chimney/flue for blockages and clean if required
- ✓ Seek expert advice if necessary.

MAINTENANCE INSTRUCTIONS

Maintenance

Maintaining your appliance will help ensure you have many years of trouble-free use. Regular checks of the following items is recommended: -

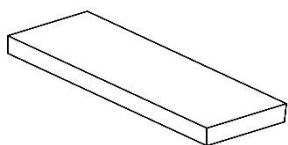
NOTE ALL MAINTENANCE TO BE CARRIED OUT WHEN THE APPLIANCE IS COLD

- ✓ Removal of top firebrick and clear any soot build up.
- ✓ Check condition of the firebricks, if these have just have hairline fractures they do not require replacement. They will need to be replaced if larger cracks develop exposing the appliance body or the fire brick material begins to crumble.
- ✓ Using a suitable stove glass cleaner, remove any discolouration from the appliance glass.
- ✓ Inspection of the rope seal on both the appliance door and the door glass to ensure this has not deteriorated or moved.
- ✓ Flue to be swept annually by a competent person, if in doubt contact a professional chimney sweep.
- ✓ If the appliance has not had regular use, the appliance and flue system should be checked to ensure it is free from blockages prior to use.

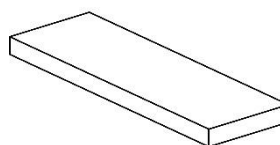
- ✗ Do not use abrasive cleaners on the stove glass as you can damage the specialist coating.
- ✗ 'Crazing' in the coating of the glass can take place if incorrect fuels are used, if this occurs replace the glass.

SPARES

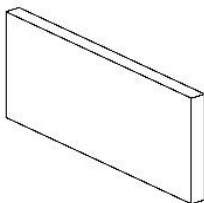
BHC820 – Top firebrick



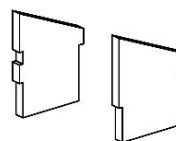
BHC821 - Bottom firebrick



BHC822 –Back firebrick



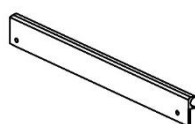
BHC823 – Side firebricks x 2



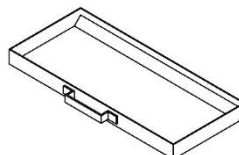
BHC826
Grate



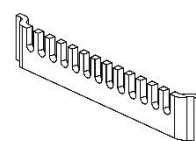
BHC828
Door bar



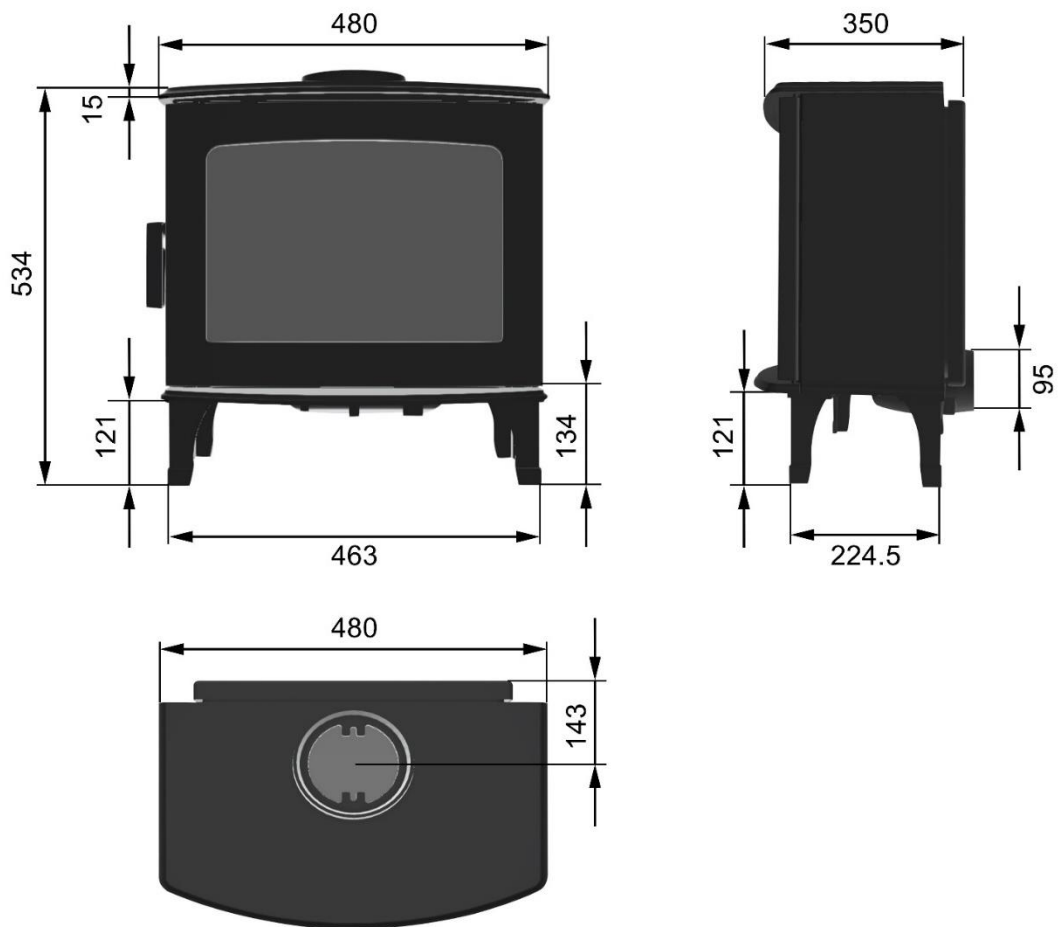
BHC824
Ashpan



BHC825
Front fire bar



SPECIFICATIONS



Carron Eco 5kw – SE

Fuel	Wood	Mineral Fuel
Flue Diameter	125mm (5")	
Flue Location	Top	
Nominal Output	5kw	
Total Efficiency	78.6%	75.5%
Mean flue gas temperature	309°C	347°C
Flue Draft Required	12Pa	
Flue Mass Gas Flow	4.0g/s	4.1g/s
Mean CO emission (at 13 % O ₂)	0.11%	0.08%
Maximum Hearth Temperature	44°C	
Maximum Log Size	300mm Length 125mm Width	N/A
Construction	Cast Iron	

SPECIFICATIONS

Carron Eco 5kW – Performance Test Results

All efficiencies in table are Net values

Wood Results, 0.75 hour refuels

Parameter		A19/10-1	A19/10-2	A19/10-3	Mean
Test Duration	h	0.78	0.75	0.75	0.76
Total Efficiency	%	78.0	78.6	79.3	78.6
Nominal heat output	kW	5.0	5.2	5.2	5.1
Mean CO ₂ emission	%	10.8	11.2	12.2	11.4
Mean CO emission	%	0.10	0.17	0.22	0.16
Mean CO emission (at 13 % O ₂)	%	0.07	0.12	0.14	0.11
Mean flue gas temperature	°C	308	305	313	309
Flue gas mass flow	g/s	4.1	4.1	3.7	4.0
Mean C _n H _m (at 13 % O ₂)	Nmg/m ³	43	78	66	62
Mean NO _x (at 13 % O ₂)	Nmg/m ³	130	131	136	132
Dust (at 13 % O ₂)	Nmg/m ³	12	14	22	16

Maxibrite Results, 1.0 hour refuels

Parameter		A20/70-1	A20/70-1	Mean
Test Duration	h	1.0	1.0	1.0
Total Efficiency	%	75.4	75.5	75.5
Nominal heat output	kW	5.0	5.0	5.0
Mean CO ₂ emission	%	10.6	10.5	10.6
Mean CO emission	%	0.11	0.10	0.11
Mean CO emission (at 13 % O ₂)	%	0.08	0.08	0.08
Mean flue gas temperature	°C	349	344	347
Flue gas mass flow	g/s	4.0	4.1	4.1
Mean C _n H _m (at 13 % O ₂)	Nmg/m ³	18	16	17
Mean NO _x (at 13 % O ₂)	Nmg/m ³	123	129	126
Dust (at 13 % O ₂)	Nmg/m ³	9	10	10

Temperature Safety Test – Distances to Combustible Materials.

(Note: Single wall flue configuration used during test).

Back Wall: 350 mm

Side Wall: 400 mm

Hearth under stove: 43.5°C

Hearth 225mm in front: 116°C

Hearth 300mm in front: 100°C

Hearth 400mm in front: 67°C



Warranty

Carron Stoves are supplied with a 5 year stove body warranty. This warranty does not cover items considered consumables, these items include door glass, fire bricks, fire rope. The use of incorrect fuels and misuse would invalidate this warranty.

Installation of this appliance must either be completed by a registered HETAS installer or inspected by local authority building control if carried out by a non-registered installer. Proof of compliance with the above would be required in the event of a warranty claim.