

European Type Test Report

Roomheater fired by Solid Fuel

Salamander Hobbit Multifuel Stove

Model 0901

**Salamander Stoves Ltd
Rosemount, Canada Hill
Ogwell
Devon
TQ12 6AF**

Report Number : 6515

Project Number : 6515

Date : 19 May 2010

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Test report of the examination of the:

Salamander Hobbit Multifuel Stove

Appliance Received: 15th February 2010
Testwork Completed: 1st March 2010

Tested and examined to: BS EN 13240:2001 + Amendment A2:2004

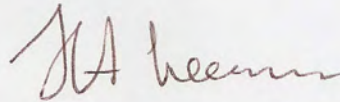
Project Number: 6515	Initials: <i>TSB</i>
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Report History

Date	Description	Project Number	Test Engineer
15 th February 2010	Appliance received	6515	JT
22 nd February 2010	Testwork commenced		
1 st March 2010	Testwork complete		
16 th March 2010	Preliminary examination of documentation		
19 th May 2010	Final examination of documentation		


Signed by Test Engineer:



Name:

J Freeman

Date : 19 May 2010

Project Number: 6515	Initials: 
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The appliance, made by Salamander Stoves Ltd:

Salamander Hobbit Multifuel Stove

has been examined to:-

BS EN 13240:2001 + Amendment A2:2004

and meets the essential type-test requirements when tested as a multifuel stove for intermittent operation burning wood logs and smokeless fuel.


Signed in Acceptance:

John Tucker

**John Tucker
Authorised Signatory
On behalf of Technical Manager**

Date: 19 May 2010

<p>Project Number: 6515</p>		<p>Initials: <i>JT</i></p>
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Special Remarks

The Salamander Hobbit Multifuel Stove is a dry, freestanding roomheater designed to provide space heating to the place of installation. A pre-production model was submitted for initial type testing against BS EN 13240:2001 plus Amendment A2:2004.

The manufacturer declares that only well seasoned wood and solid mineral fuel should be burnt on this appliance for intermittent use. The manufacturer also states that the appliance should not be connected to a flue serving more than one appliance.

The manufacturer claims that the appliance can be connected to a chimney using a top or rear flue connection. For the purposes of the test work the appliance was tested using the top flue configuration because it was considered that this would give the worst case scenario to provide the base line figures for the performance criteria.

The Salamander Hobbit Multifuel Stove was received on the 15th February 2010. Test work commenced on the 18th February 2010 and was completed on the 1st March 2010.

The appliance was tested using wood logs and Ancit. The tests carried out on the appliance were:

1. A performance test at nominal heat output (burning wood).
2. A performance test at nominal heat output (burning Ancit).
3. A temperature safety test (burning fir wood).

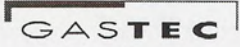
The manufacturer has not specified any duration for reduced output operation and thus a reduced output test was not undertaken.

For the nominal output tests the back and side trihedron walls were positioned at 285 mm and 400 mm, respectively, from the appliance. At the start of the temperature safety test, the trihedron walls were positioned at 375 mm to the rear and side of the appliance. To satisfy the pass criteria for combustible substances surrounding appliances, the rear and side trihedron walls were moved to 450 mm and 400 mm, respectively, from the appliance, these distances being the separation distances between the main body of the appliance and the trihedron walls.

It is important to note that the appliance(s) referred to in this report was/were tested at the manufacturer's declared nominal output (as required by the Standard). This nominal output does not necessarily equate with the full (or maximum) output of the appliance(s), which may be higher.

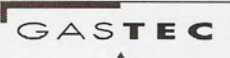
If the manufacturer applies a CE mark to the appliance, the manufacturer is required to establish, document and maintain (and may be required to demonstrate) a permanent Factory Production Control system in accordance with Clause 9.3 of the Standard.

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None of the interpretations and opinions given in this report are covered by the UKAS accreditation. The Schedule of UKAS Accreditation excludes quality of materials, pressure testing of boiler, testing of screw threads, quality of vitreous enamel finish, electrical controls and safety, measurement of thickness of enamelled components and dress guard testing.

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Description	Enclosure Number
Installation and Operating Instructions	T1 – T8
Appliance General Dimension Drawing	T9
Data Plate	T10

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
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4.1 Production documentation

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
To identify the appliance the manufacturer shall have available documents and/or scaled assembly drawings showing the basic design and construction of the appliance. The documentation and/or the drawings shall include at least the following information:		
- the specification of the materials used in the construction of the appliance;	Yes	
- the nominal heat output in kW using fuels recommended by the manufacturer;	Yes	
If the appliance is fitted with a boiler then the following additional details shall also be specified:		
- the welding process used in the manufacture of the boiler shell; <i>NOTE The symbol for the type of weld used is sufficient.</i>	N/A	
-the permissible maximum operating water temperature in °C;	N/A	
-the permissible maximum operating pressure in bar;	N/A	
-the type test pressure in bar;	N/A	
-the water heating output in kW	N/A	

4.2.1 General Construction

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
The shape and dimensions of the components and equipment and the method of design and manufacture, and if assembled on site the method of assembly and installation, shall ensure that, when operated in accordance with the provisions of appropriate test(s) and exposed to the associated mechanical, chemical and thermal stresses, the appliance shall operate reliably and safely such that during normal operation no combustion gases posing a hazard can escape into the room in which the appliance is installed nor can embers fall out.	Yes	
Non-combustible materials shall be used, except that it shall be permissible to use combustible materials for the following applications: <ul style="list-style-type: none"> - components or accessories fitted outside the appliance; - internal components of controls and safety equipment; - operating handles; - electrical equipment. 	Yes	
No part of the appliance shall comprise any material known to be harmful..	Yes	
Hard solder, containing cadmium in its formulation, shall not be used.	Yes	
When fired with solid mineral fuels, the appliance shall have a bottomgrate and an ashpan.	Yes	
Component parts, which require periodic replacement and/or removal, shall be either so designed or identified as to ensure correct fitting.	Yes	
NOTE 1 Because the entire heat dissipating surfaces of the appliance including the flue spigot/socket and the flue gas connector are working surfaces, there is no requirement for limiting the surface temperature of the appliance. NOTE 2 All operations which the user carries out, including loading and emptying the appliance, adjusting controls and de-ashing should be easy, safe and effective.	Yes	

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4.2.2 Integral boiler

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
The boiler shell shall be constructed from cast iron and/or steel and shall be capable of operating at the maximum operating pressure declared by the manufacturer. The integral boiler shall meet the requirements of A.4.7.	N/A	No Boiler fitted.
The materials and dimensions for the integral boiler construction shall be in accordance with the specifications given in Tables 2 to 7. If alternative materials are used, a certificate giving evidence of similar performance is required.	N/A	
Provision shall be made for parts which form a seal to be located securely by means of bolts, gaskets or welding; to prevent the leakage of air, water or combustion products. Adjacent surfaces between metal components in the firebox or the flueways shall be gastight. Where a seal is made with fire cement, the cement shall be supported by adjacent metal surfaces.	N/A	

4.2.2.1 Boilers constructed of steel

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
4.2.2.1.1 Welding and welding materials The materials used shall be suitable for welding. Note The materials listed in Table 3 of BS EN 13240, are suitable and do not require any additional heat treatment after welding.	N/A	No Boiler fitted.
4.2.2.1.2 Nominal minimum wall thicknesses (steel) Boilers constructed of mild steel shall have the appropriate wall thickness set out in Table 2 of BS EN 13240.	N/A	
NOTE 1 The nominal minimum wall thicknesses of Table 2 apply to pressure loaded sheets and tubes other than immersion coils, safety heat exchangers. NOTE 2 Thinner wall thicknesses are only permissible with proof of equivalent corrosion resistance, heat resistance and strength. NOTE 3 The nominal minimum wall thicknesses listed in Table 2 have been specified taking into consideration the following parameters: - the permissible maximum water operating pressure (4 bar); - the material properties; - the heat transfer location.	N/A	
The tolerances on the nominal minimum wall thicknesses for steels shall be as specified in EN10029:1991.	N/A	

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4.2.2.2 Boilers constructed of cast iron

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
4.2.2.2.1 Cast iron parts subject to water pressure The mechanical properties of cast iron used for parts subject to water pressure shall, as a minimum, correspond to the values listed in Table 4 of BS EN 13240.	N/A	No Boiler fitted.
4.2.2.2.2 Minimum wall thicknesses (cast iron) The wall thicknesses of the casting section shall be not less than the minimum thicknesses listed in Table 5 of BS EN 13240.	N/A	


4.2.2.3 Boiler shell tappings

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
The threads of boiler shell tappings, for flow and return pipes, shall be not less than the minimum thread size designation given in Table 6 of BS EN 13240..	N/A	No Boiler fitted.
Where tapered threads are used, they shall be in accordance with the requirements of ISO 7-1:1994 and ISO 7-2:2000. Where parallel threads are used, they shall be in accordance with ISO 228-1:2000 and ISO 228-2:1987. The design and position of flow tappings shall be such that air will not be retained within the boiler shell.	N/A	
The minimum depth of tapping or length of thread shall be not less than the minimum values given in Table 7 of BS EN 13240.	N/A	
If boilers are supplied with reducing bushes in horizontal flow tappings, these shall be eccentric and fixed so that the reduced outlet is uppermost.	N/A	
Where a drain socket is provided in the boiler shell, it shall have a minimum thread size designation of 1/2 and shall be in accordance with either ISO 7-1:2000 and ISO 7-2:1982 if tapered threads are used or ISO 228-1:2000 and ISO 228-2:1987 if parallel threads are used.	N/A	

4.2.2.4 Boiler waterways

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
4.2.2.4.1 Design of all boiler waterways The design of the boiler shall ensure a free flow of water through all parts. To minimise the build up of sediment, designed sharp or wedge-shaped waterways with a taper towards the bottom shall be avoided.	N/A	No Boiler fitted.
Where inspection holes are provided in the boiler to give access for inspection and cleaning of the waterways, they shall be a minimum of 70 mm x 40 mm or have a minimum diameter of 70 mm and be sealed with a gasket and cap.	N/A	
4.2.2.4.2 Boilers waterways used with indirect water systems The minimum internal dimension of waterways throughout the main body in appliances designed for indirect water systems shall be not less than 20 mm, except where waterways have to be reduced locally to facilitate manufacture or are in areas not in direct contact with burning fuel, in these cases the width of the waterways shall be not less than 15 mm.	N/A	
The design of the boiler shell shall ensure a free flow of water through all parts such that under normal operation in accordance with the manufacturer's instructions, no undue boiling noises occur	N/A	
4.2.2.4.3 Boilers waterways used with direct water systems The minimum internal dimension of waterways in boilers designed for direct water systems shall be not less than 25 mm.	N/A	

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4.2.2.4.4 Venting of the water sections The boiler shell and its component waterways shall be designed in such a way that their respective water sections are well vented.	N/A	
The boiler shall be so designed that under normal operation in accordance with the manufacturer's installation instructions, no undue boiling noises occur..	N/A	
4.2.2. 4.5 Water tightness Holes, for screws and similar components, which are used for the attachment or removal of parts shall not open into waterways or spaces through which water flows. NOTE This does not apply to pockets for measuring, control and safety equipment,	N/A	

4.2.3 Cleaning of heating surfaces

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
All heating surfaces shall be accessible from the flue gas side for inspection and cleaning with brushes, scrapers or chemical agents by means of sufficient cleaning openings.	N/A	
Where cleaning and servicing of the boiler and its components require the use of special tools (e.g. special brushes), these shall be supplied by the appliance manufacturer.	N/A	

4.2.4 Flue spigot or socket

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
For horizontal flue connection, the flue spigot/socket shall be designed to allow fitting, internal or external, over a length of at least 40 mm, of a flue gas connector.	Yes	
For vertical flue connection, the fitting shall overlap by at least 25 mm.	Yes	
NOTE For inset appliances (made for fireplace recesses) with a vertical chimney flue connection and where the manufacturer's installation instructions specify, in addition to the flue gas connector, that an insulating mortar infill should be added around the connector to seal the appliance to the chimney flue, then in this case it is permissible for the flue spigot/socket overlap to be reduced to a minimum of 6 mm.	N/A	

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4.2.5 Flueways

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
The size of the flueway in its minimum dimension shall be not less than 30 mm except it shall be permissible to reduce it to not less than 15 mm for appliances designed only to burn fuels other than bituminous coals and peat briquettes, and where an access door(s) is provided for cleaning the flueway.	Yes	
It shall be possible to clean the flueways of the appliance completely using commercially available tools or brushes, unless special tools or brushes are provided by the appliance manufacturer.	Yes	

4.2.6 Ashpan and ash removal

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
A means for the removal of the ash residue from the appliance shall be provided.	Yes	
When an ashpan is provided, it shall be capable of containing the combustion residue from two full charges of fuel whilst retaining sufficient space above to allow adequate primary air flow through the bottomgrate or firebed.	Yes	
If the ashpan resides in the appliance it shall locate in the ashpit in such a way that it allows the free passage of primary air and in such a position that it does not obstruct any primary air inlet control.	Yes	
NOTE 1 The ashpan should be designed and constructed to ensure that: a) it effectively collects the residue from beneath the bottomgrate; b) it can be easily and safely withdrawn, carried and emptied when hot, using the tool(s) provided, without undue spillage of residue material. NOTE 2 The ashpan can be shovel shaped.	Yes	

4.2.7 Bottomgrate

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
Where the bottomgrate is removable it shall be so designed or marked as to ensure correct fitting.	Yes	
If a de-ashing mechanism is fitted it shall be capable of effectively de-ashing the fuelbed.	N/A	
NOTE 1 The preferred design with the fire door(s) and ashpit door(s) closed should allow de-ashing to be carried out. The de-ashing should be possible without undue effort. NOTE 2 If it is necessary to remove the ashpit door to de-ash the fire, the appliance should be designed to minimise ash or fuel spillage during the de-ashing operation.	Yes	

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4.2.8 Combustion air supply

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
4.2.8.1 Primary air inlet control The appliance shall be fitted with either a thermostatically controlled primary air inlet control or a manual primary air inlet control. For appliances with boiler, a manual primary air inlet control shall only be allowed for boiler outputs up to 7,5 kW. The adjusting control shall be clearly visible or shall be permanently marked so that its operation is readily understandable by the user.	Yes	Manually operated
The design shall be such that during operation of the appliance, neither ash nor unburnt fuel can prevent the movement or closure of the air inlet control.	Yes	
The 'cold' setting of the primary air inlet control shall be clearly marked and the method of adjustment shall be described in the user instructions.	Yes	
The thermostat shall have a variable temperature range and be of the immersion or dry pocket type. The pocket shall be positioned so that the thermostat senses the temperature of the flow water from the appliance.	N/A	
4.2.8.2 Secondary air inlet control Where a secondary air inlet control is provided the position of air entry shall be so designed that the passage of air is not restricted when the firebox is filled to the manufacturer's recommended capacity.	Yes	Manually operated

4.2.9 Control of flue gas

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
If a flue damper is fitted, it shall be of a type that does not block the flue totally. The damper shall be easy to operate and incorporate an aperture within the blade which, in a continuous area, occupies at least 20 cm ² or 3 % of the cross-sectional area of the blade if this is greater.	N/A	
The position of the damper shall be recognisable to the user from the setting of the device.	N/A	
If a draught regulator is fitted the minimum cross sectional area requirement shall not be applicable but the device shall be easily accessible for cleaning.	N/A	

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4.2.10 Firedoors and charging doors

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
Firedoors and charging doors shall be designed to prevent accidental opening and to facilitate positive closure. Door seals shall be either metal to metal or of flexible non-combustible material.	Yes	
Means shall be provided to maintain the fit of any door sealed with flexible non-combustible material.	Yes	
When open, firedoors shall not obstruct the firebox opening and shall be capable of opening to an angle greater than 90°.	Yes	

4.2.11 Flue bypass device

BS EN 13240:2001 + Amendment A2:20045 Requirement met	Yes/No/N/A	Note
Any flue bypass device shall be easily operable. The extreme positions corresponding to full opening and closing shall be stable and easily identifiable.	N/A	

4.2.12 Front firebars and/or deepening plate

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
Front firebars shall be designed to retain the fuel or ash such that there is no undue spillage of ash or burning fuel from the roomheater during normal operations, particularly during refuelling or de-ashing.	Yes	
If the appliance is fitted with removable front firebars and/or deepening plate, they shall be of a design such that they can neither be incorrectly fitted nor accidentally dislodged.	Yes	

4.2.13 Solid mineral fuel and peat briquettes burning appliances

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
When the recommended fuels are solid mineral fuel and peat briquettes, the appliances shall have a bottomgrate and an ashpan.	Yes	

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7.1 General

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
Instructions written in the language of the country of intended destination shall accompany the appliance and shall describe the installation, operation, maintenance and, if assembled on site, the assembly of the appliance. The instructions shall not be in contradiction to the requirements or test results in accordance with this standard	Yes	

7.2 Installation instructions

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
The installation instructions shall contain at least the following information:		
- a statement to the fact that "all local regulations, including those referring to national and European standards need to be complied with when installing the appliance";	Yes	
- the type (model or number) of the appliance;	Yes	
- the nominal heat output(s) in kW or W;	Yes	
- the space heating output in kW or W;	Yes	
- the water heating output in kW or W;	N/A	
- the maximum operating water pressure in bar, where applicable;	N/A	
- the safety clearances against combustible materials, and the other protective measures that shall be taken to protect the building construction;	Yes	
- the requirements for the supply of combustion air, for the simultaneous operation with other appliances and for the operation of exhaust air devices; NOTE Extractor fans when operating in the same room or space as the appliance, may cause problems.	Yes	
- the need of any air inlet grilles to be so positioned that they are not liable to blockage;	Yes	
- the mass of the appliance in kg;	Yes	
- the minimum flue draught for nominal heat output, (where applicable, with open and closed firedoors);	Yes	
- the flue gas mass flow in g/s (where applicable, with open and closed firedoors);	Yes	
- whether the appliance is suitable for installation in a shared flue system;	Yes	
- the flue gas temperature directly downstream of the flue spigot/socket in °C, (with closed firedoors), under nominal heat output conditions	Yes	
- the inset of roomheaters: in all cases the minimum dimensions of the required builder's opening and/or firefront opening in the surround;	N/A	
- the floors: the appliance shall be installed on floors with an adequate load-bearing capacity. If an existing construction doesn't meet this prerequisite, suitable measures (e.g. load distributing plate) shall be taken to achieve it;	Yes	
- the assembly of the appliance on-site, if applicable;	Yes	
- advice on the need to provide access for cleaning the appliance, the flue gas connector and the chimney flue;	Yes	
- the installation of the damper device, if applicable;	N/A	
- the water content and instructions for fitting a drain-cock in the lowest part of the system (where applicable);	N/A	
- the setting of temperature controller and method of adjusting the "cold" setting distance;	N/A	
- advice on a means of dissipating excess heat from the boiler, such as using a "heat leak" radiator.	N/A	
- advice on the installation of any air grilles, especially in relation to the temperature of surrounding walls, floor, ceiling or other structure around the appliance	N/A	


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7.3 User operating instructions

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
Each appliance shall be accompanied by instructions in the language of the country in which it is to be operated, containing all important details regarding the operation for the concerned appliance.	Yes	
The operating instructions shall contain at least the following information:		
- a statement to the fact that "all local regulations, including those referring to national and European standards need to be complied with when installing the appliance";	Yes	
- a list of the recommended fuels including type and size in accordance with this standard;	Yes	
- details of the method of refuelling and de-ashing the appliance and the maximum filling height in the firebox and typical refuelling intervals at nominal heat output for various recommended fuels;	Yes	
- a description of the correct instructions for safe and efficient operation of the appliance including the ignition procedure;	Yes	
- advice against the use of the appliance as an incinerator and the use of unsuitable and non recommended fuels, including advice against the use of liquid fuels;	Yes	
- the operation of all adjusting devices, dampers and controls;	Yes	
- ventilation requirements for simultaneous operation with other heating appliances (where applicable);	Yes	
- the correct operations for seasonal use and under adverse flue draught or adverse weather conditions;	Yes	
- advice on the need for regular maintenance by a competent engineer;	Yes	
- instructions on how to achieve slow combustion;	N/A	
- a warning that the firebox and ashpit cover shall be kept closed except during ignition, refuelling and removal of residue material to prevent fume spillage, unless the appliance is intended to be operated with open firebox;	Yes	
- operation with open firebox, where applicable;	Yes	
- operation of the thermal discharge control, where applicable;	N/A	
- the need for regular cleaning of the appliance, of the flue gas connector and the chimney flue and highlighting the need to check for blockage prior to re-lighting after a prolonged shut down period;	Yes	
- advice on the adequate provision of combustion and ventilation air and on keeping air intake grilles supplying combustion air, free from blockage;	Yes	
- instructions on simple fault finding and the procedure for the safe shut down of the appliance in event of malfunction e.g. overheating, interruption of water supply;	Yes	
- warning that parts of the appliance, especially the external surfaces, will be hot to touch when in operation and due care will need to be taken;	Yes	
- the means of protection against risk of fire in and outside the heat radiation area;	Yes	
- warning against any unauthorised modification of the appliance;	Yes	
- use of only replacement parts recommended by the manufacturer;	Yes	
- advice about the actions to be taken in the event of a chimney fire;	Yes	
- whether the appliance is suitable for installation in a shared flue system;	Yes	
- advice on whether the appliance is capable of continuous or intermittent operation and instructions on how this is achieved.	Yes	
- advice on the adjustment of any air grilles, where fitted	N/A	

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8 Marking

BS EN 13240:2001 + Amendment A2:2004 Requirement met	Yes/No/N/A	Note
<p>Each appliance shall be permanently and legibly marked, with the minimum following information, in a place where it is accessible so that the information can be read when the appliance is in its final location:</p> <ul style="list-style-type: none"> -the manufacturer's name or registered trade mark; -the type or the model; -the nominal output in kW or W, or range (if more than one fuel) of heat outputs listed in the form: 'from ... (lowest) kW to ... (highest) kW'; -the space heating output in kW or W; -the water heating output in kW or W; -the standard number: EN 13240; -the mean carbon monoxide concentration calculated to 13% oxygen ; -the determined appliance efficiency at nominal heat output, as defined in Sections 6.3 and 6.4 of the Standard -the maximum water operating pressure (if applicable), in bar; -the instruction "follow the user's instructions"; -the minimum clearance distances from combustible materials, in mm, as appropriate; -whether or not the appliance can be used in a shared flue; -the words "use only recommended fuels"; -whether the appliance is capable of continuous or intermittent operation. 	Yes	
<p>If a label is used it shall be durable and abrasion proof. Under normal operating conditions, the label shall not discolour, thus making the information difficult to read. Self-adhesive labels shall not become detached as a result of moisture or temperature.</p>		

Project Number: 6515	Initials: <i>RS</i>
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Date: 19 May 2010	RESULTS SHEETS	GASTEC ▲ at CRE
Report Number: 6515	Roomheater fired by solid fuel	Page RS 5/01

Test Results

Appliance	Salamander Hobbit
Flue configuration (Top or Rear)	Top

Manufacturer's Declarations		
Test Fuel Type	Wood Logs	Solid Mineral Fuel
Nominal output, kW	4.0	4.0
Nominated refuel period, h	1.0	2.0

Test Fuel Analysis		
Test Fuel Type	Wood Logs	Solid Mineral Fuel
Moisture content % (as fired)	18.8	1.27
Hydrogen content % (as fired)	4.89	3.46
Carbon content % (as fired)	41.33	83.13
Net calorific value kJ/kg (as fired)	15101	31772
Gross calorific value kJ/kg (as fired)	16610	32567

Project Number: 6515	Initials: <i>MS</i>
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Date: 19 May 2010	RESULTS SHEETS	GASTEC at CRE
Report Number: 6515	Roomheater fired by solid fuel	Page RS 5/02

Efficiency Tests

Performance test at nominal heat output burning wood logs

(See clause 6.2 and 6.3 of the Standard)

Test Fuel Type	Wood Logs			
	A10/72-1	A1-/72-2	A10/72-3	Mean
Test Number	0.90	1.08	1.00	0.99
Test Duration, h	74.9	74.3	75.0	74.7
Total efficiency, %	4.0	4.2	3.9	4.0
Nominal heat output, kW	Not applicable			
Nominal heat output to water, kW	4.0	4.2	3.9	4.0
Nominal heat output to space, kW	0.40	0.38	0.42	0.40
Mean CO emission (at 13% O ₂), %	266	264	244	258
Mean flue gas temperature, °C	4.1	4.5	4.4	4.3
Flue gas mass flow, gs ⁻¹	3.6	4.6	3.9	4.0
Calculated output over manufacturer's declared refuelling period, kW	0.9	1.1	1.0	1.0
Calculated period at manufacturer's declared nominal output, h				

Summary of Efficiency Results – Net and Gross

Test Number	A10/72-1	A1-/72-2	A10/72-3	Mean
Net efficiency, %	74.9	74.3	75.0	74.7
Gross efficiency, %	68.1	67.5	68.2	67.9

Assessment of Results Against Requirements of Standard

	Clause	Mean	Requirement of standard	Pass/Fail
Total efficiency, %	6.3	74.7	≥ 50	P
Nominal heat output, kW	6.3	4.0	≥ manufacturer's declaration	P
Mean CO emission (at 13% O ₂)	6.2	0.40	≤ 1.0	P
Overall Assessment				Pass

Project Number: 6515	Initials: <i>RS</i>
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Date: 19 May 2010	RESULTS SHEETS	GASTEC ▲ at CRE
Report Number: 6515	Roomheater fired by solid fuel	Page RS 5/03

Performance test at nominal heat output burning solid mineral fuel (Ancit)

(See clause 6.2 and 6.3 of the Standard)

Test Fuel Type	Solid Mineral Fuel (Ancit)		
	A10/83	A10/85	Mean
Test Number			
Test duration, h	2.05	2.02	2.04
Total efficiency, %	68.4	68.9	68.7
Nominal heat output, kW	3.9	4.0	4.0
Nominal heat output to water, kW	Not applicable		
Nominal heat output to space, kW	3.9	4.0	4.0
Mean CO emission (at 13% O ₂)	0.34	0.43	0.39
Mean flue gas temperature, °C	298	276	287
Flue gas mass flow, gs ⁻¹	4.9	5.3	5.1
Calculated output over manufacturer's declared refuelling period, kW	4.0	4.1	4.1
Calculated period at manufacturer's declared nominal output, h	2.0	2.0	2.0


Summary of Efficiency Results – Net and Gross

Test Number	A10/83	A10/85	Mean
Net efficiency, %	68.4	68.9	68.7
Gross efficiency, %	66.7	67.2	67.0

Assessment of Results Against Requirements of Standard

	Clause	Mean	Requirement of standard	Pass/Fail
Total efficiency, %	6.3	68.7	≥ 50	P
Nominal heat output, kW	6.3	4.0	≥ manufacturer's declaration	P
Mean CO emission (at 13% O ₂)	6.2	0.39	≤ 1.0	P
Overall Assessment				Pass

Project Number: 6515	Initials: <i>ASB</i>
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Date: 19 May 2010	RESULTS SHEETS	
Report Number: 6515	Roomheater fired by solid fuel	Page RS 5/04

Safety Test


For the nominal output tests the back and side trihedron walls were positioned at 285 mm and 400 mm, respectively, from the appliance.

At the start of the temperature safety test, the trihedron walls were positioned at 375 mm to the rear and side of the appliance. To satisfy the pass criteria for combustible substances surrounding appliances, the rear and side trihedron walls were moved to 450 mm and 400 mm, respectively, from the appliance, these distances being the separation distances between the main body of the appliance and the trihedron walls.

Temperature of adjacent combustible materials (see Clause 5.6 of the Standard)

Performance test procedure	Ref in standard	Temperature, °C					PASS/ FAIL (Note 1)
		Surround Back wall Maximum	Surround Side wall Maximum	Hearth	Ambient	ΔT (Max-ambient)	
Nominal heat output (Wood logs)	A4.7.3	48.7	47.7	45.7	11.2	37.5/36.5/ 34.5	N/A
Nominal heat output (Ancit)	A4.7.3	51.6	58.5	66.4	14.4	37.2/44.1/ 51.9	N/A
Temperature safety	A4.9.2.2	80.0	79.9	49.4	15.2	64.8/64.7/ 34.3	Yes
Overall Assessment							Pass

Note 1 Pass criterion is for combustible substances surrounding the appliance not to exceed the ambient temperature by more than 65 K.

Project Number: 6515	Initials: 
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Date: 19 May 2010	RESULTS SHEETS	GASTEC at CRE
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Surface temperatures of handles or knobs (see clause 5.5 of the Standard)

Test procedure	Surface material of handles/knobs	Performance test at nominal heat output Fuel- Wood			Performance test at nominal heat output Fuel- Ancit		
		T_s	ΔT	Tool necessary?	T_s	ΔT	Tool necessary?
Ambient temperature °C		11.2			14.4		
Temperatures °C (see notes below)		T_s	ΔT	Tool necessary?	T_s	ΔT	Tool necessary?
Firebox door handle*	Metal	92.9	81.7	Y	120.0	105.6	Y
Primary air wheel	Metal	40.3	29.1	N	106.7	92.3	Y
Secondary air lever	Metal	121.1	109.9	Y	151.3	136.9	Y
Ash door handle	Metal	56.4	45.2	Y	81.9	67.5	Y


Note 1: T_s Surface temperature of handle/knob
 ΔT $T_s - T_a$, where T_a = Ambient temperature

Note 2: An operating tool shall be provided where it would otherwise be necessary to touch any surface having a temperature above ambient for more than the following values:-

- 35 K for metals
- 45 K for porcelain, vitreous enamel or similar materials
- 60 K for plastics, rubber or wood

The manufacturer supplies a tool for manipulation of the primary and secondary air controls, doors and removal of ash pan.

Project Number: 6515	Initials: <i>JUL</i>
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Date: 19 May 2010	ENCLOSURE SHEETS	
Report Number: 6515	Roomheater fired by solid fuel	Page ES 6/01

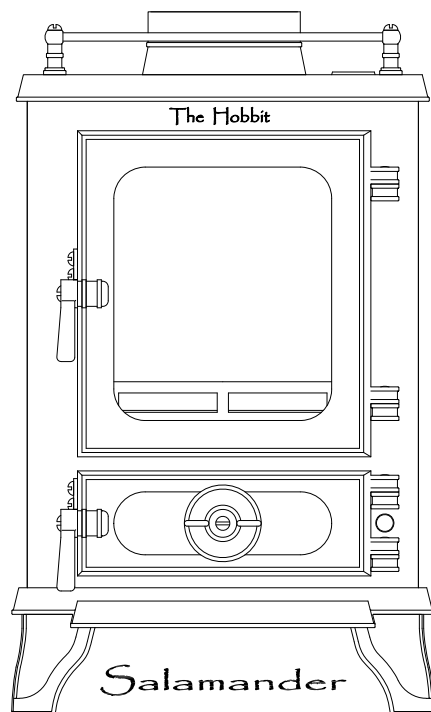
Enclosures

Enclosure Number	Description	Page
1	Installation and Operating Instructions	T1 – T8
2	Appliance General Dimension Drawing	T9
3	Data Plate	T10
	End of Report	

Installation and Operating Instructions



The Hobbit



Salamander Hobbit
Model 0901
Multifuel Stove

Section	Contents	Page
1	Important information about installing and using the Hobbit stove	3
2	Unpacking the Hobbit Stove	4
3	Assembly of the Hobbit Stove	5
4	Components of the Hobbit stove	6
5	Installation of the Hobbit	7
6	Operating instructions 6.1 Fuel 6.2 Before lighting 6.3 Lighting a wood fire 6.4 Lighting a solid fuel fire 6.5 De-ashing the stove	8
7	Guidance on safe operation	12
8	Maintenance	13
9	Fault finding	14
10	Spare parts	14
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2 – Unpacking the Hobbit Stove

TAKE CARE

Remember the stove is made of cast iron and is very heavy.

Carefully open the firebox door and remove the packing. Inside the stove will be the following items

Packing list for the Salamander Hobbit

1	Stove body with grate and grate centre installed.
2	Legs x 4
3	Leg bolts with washers x 4
4	Back air box
5	left Air Box
6	Right Air Box
7	Baffle Plate
8	Fire bars
9	Ash pan
10	Salamander multipurpose tool
11	Dustpan and brush

PLEASE READ THESE INSTRUCTIONS CAREFULLY

For your safety it is very important that your stove is correctly installed. Take care when assembling and moving the stove. It is made of cast iron and is very heavy (47kg)

1 - Important information about installing and using the Hobbit stove

- All national and local regulations, including those referring to national and European standards need to be complied with when installing the stove.
- The stove must be installed by a registered installer or approved by your local building control officer.
- Only use for domestic heating purposes only.
- Burn only approved fuels (Wood or smokeless fuel). Do not use petroleum based products or use as an incinerator.
- This stove will become very hot whilst in operation and due care should be taken. Use only the tool provided to operate the door handles, air controls, riddling control and ash pan. Always use a fireguard in the presence of children, the elderly or the infirm. Do not place flammable objects on or near the stove.
- The stove must NOT be installed into a chimney that serves any other appliance and is suitable for intermittent burning.
- There must be a suitable air supply into the room where the stove is installed and care should be taken so it is not possible to block the front or back air inlets to the stove.
- There must NOT be an extractor fan in the same room as the stove as this may cause fumes to be emitted into the room.
- Do not make unauthorised changes or modifications to the stove and use only recommended spare parts.
- The stove and chimney flue must be regularly cleaned . It is especially important to check for blockages following a prolonged shutdown period. It is recommended that the stove and flue is regularly maintained by a competent engineer.

3 – Assembly of the Hobbit Stove

The stove is supplied with the flue collar fitted to the top. If the installation requires the flue to exit from the rear of the stove, swap the collar for the blanking plate on the back before assembling the firebox as described below.

- 3.1 Lay the stove carefully on its side and attach one leg to each corner of the base using the bolts and washers. Carefully lift the stove back upright to rest on its feet.



- 3.2 Check that the grate and grate centre is located correctly and sitting horizontal in the stove. Check the riddling mechanism operates and moves freely.

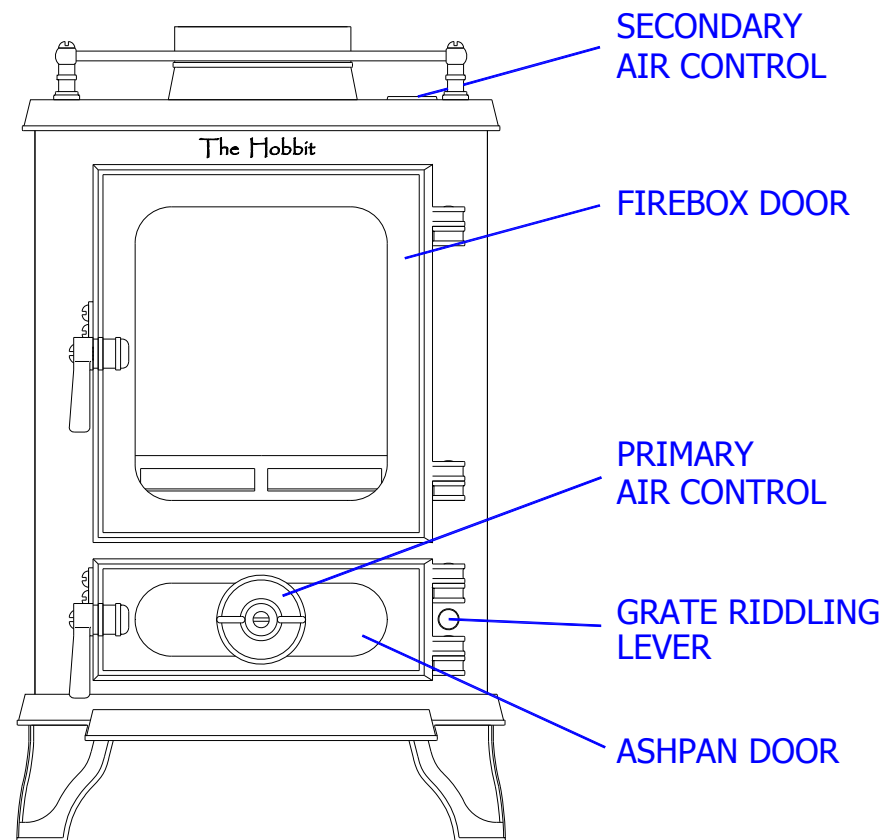


- 3.3 Picture shows how the back and side air boxes and baffle locate together when installed in the firebox.



- 3.4 Build the firebox inside the stove by locating first the rear air box, then the baffle, then the left air box, followed by the right air box. The weight of the baffle holds the assembly together.

4 – Components of the Hobbit Stove



5 – Installation of the Hobbit

PLEASE READ THESE INSTRUCTIONS CAREFULLY
For your safety it is very important that your stove is correctly installed.
Salamander Stoves cannot accept any responsibility for any fault arising through incorrect installation or use.

4.1 Regulations

All national and local regulations, including those referring to national and European standards need to be complied with when installing the stove.

4.2 Installation

The stove must be installed by a registered installer or approved by your local building control officer.

4.3 Safety clearances

The stove must be installed with the following minimum safety clearances from combustible materials.

Side	400mm
Rear	450mm

If the stove is to be installed in a non combustible recess it is recommended that 100mm clearance is left at the back and sides for maintenance and to allow air to circulate around the stove.

4.4 Floor

National and local building regulations must be complied with when considering the floor or hearth where the stove is to be installed. The floor must be capable of bearing the weight of the stove and the hearth temperature which on test was measured at 66.4 deg C on full fire.

4.4 Access for cleaning

Although access to the flue can be gained by removing the stove firebox components, consideration must be given to installing extra access in the flue system to ensure all sections can be cleaned and maintained.

6 – Operating Instructions

6.1 Fuel

Wood

Use only seasoned timber with a moisture content of less than 20%. Typically this means wood which has been cut and stored in an open dry shelter for between one and two years.

DO NOT BURN wet or unseasoned wood, construction timber, painted or treated wood, driftwood or manufactured board products. Doing so will result in the wood burning inefficiently and excess smoke, soot and tar will be produced. This will coat and damage the internal components of the stove and flue and could result in a chimney fire.

Solid Fuel

Use only Anthracite or manufactured smokeless fuel listed as suitable for use on closed heating appliances.

DO NOT BURN bituminous coal, any petroleum based products or any liquid fuels.

6.2 Before lighting

If using for the first time, or following a long period out of use check that the flue is clear and unobstructed.

Check that the riddling control is free to move and is pushed fully in towards the stove.

Check that the ash pan is empty, in position and the ash pan door is closed

WARNING

During the first few times the stove is used, the heat resistant paint will be curing, and may give off small amounts of smoke and odours. This is completely normal for this type of appliance, and the room should be well ventilated.

To aid this process and not damage the stove finish, the first few times a new stove is used the fire should be kept to a moderate size, and not fired vigorously.

6.3 Lighting a wood fire

- Open the primary air control approx 1cm by turning anti-clockwise. (The circular wheel in the centre of the bottom door)
- Open the secondary air control fully by moving the lever fully to the left (Top right back of the stove)
- Place 2 or 3 firelighters or screwed up newspaper onto the fire grate with about 1 kg of kindling and light the fire with a taper.
- When the firelighters or newspaper are burning, leave the door ajar about 1 to 2 cm to achieve a good draw and avoid condensation. Allow the burning kindling to warm up the chimney.
- After 2 to 5 minutes the chimney should be warm enough create a good draw and the door can be closed.
- Once the kindling has formed a good bed of glowing embers the stove can be refuelled with 2 or 3 pieces of wood. (*do not be tempted to overfill the firebox and risk fuel falling onto the glass or out the fire as the door is opened*) Close the door, and once the new fuel is burning fully close the primary air control (on the ash pan door) then just slightly open about half a turn.

If required the bottom door can be opened 1cm for a short while until the new fuel is alight.

When opening the door always open gently for the first 2 to 3 cm to allow the pressure to equalise and stop smoke from escaping.

The stove should not be operated with either door left open for long periods. The stove door should never be left open when the stove is in use.

Adjust the secondary air control to achieve the desired burning rate.

Under normal chimney draft conditions expect to refuel the stove every 45 to 60 minutes.

Remember

Wood that is smouldering and producing smoke with no flame, is burning very inefficiently and producing unburnt gases and soot that deposit on the inside of the stove and flue and the door glass.

Wood burns best when lying on a bed of about 1cm of ash.

Burning the stove too slowly (with the secondary air valve closed for too long) is not recommended as this is very inefficient and produces unburnt gases and deposits in the stove. It is therefore not recommended that the stove is left lit overnight.

After refuelling, increase the amount of air to get the wood lit as quickly as possible. Once lit reduce the air again.

It will take time to get to know your stove and how best to operate it under different conditions. The type and condition of the wood, chimney draught, weather, wind and outside temperature will all slightly change the way the wood burns and therefore how you should use the stove.

When in use, burning the stove vigorously for a short period will remove any build up of unwanted deposits on the inside of the stove and glass.

6.4 Lighting a solid fuel fire

Use only Manufactured Smokeless fuel

WARNING
Do not load with solid fuel above the level of the front bars.

The lighting procedure is the same as for wood, but remember.....

As a rule of thumb....

Wood requires an air supply from the top. When burning wood efficiently open and control the fire with the secondary air control at the back of the stove and just crack open the primary air control on the bottom door.

Solid fuel requires an air supply from underneath. When burning solid fuel efficiently control the fire with the primary air control at the bottom of the stove and just crack the secondary air control to keep the glass clear.

6.5 De-ashing the stove

The action of riddling the grate will allow ash to fall from bed of the fire into the ash pan underneath.

To riddle the grate place the forked end of the tool in the slot in the riddling lever located between the hinges of the bottom door.

Pull and push the lever backwards and forwards and ash will fall through the grate into the ash pan.



Remember

When burning wood it is good to maintain a bed of ash on the grate about 1cm thick.

When burning solid fuel the air is being supplied through the grate therefore it should not be allowed to get completely blocked with ash.

Do not be tempted to over riddle the grate, as hot or burning fuel may fall through into the ash pan.

Do not let the ash level in the ash pan get higher than the sides of the pan. This will reduce airflow to the fire through the grate.

To remove the ash pan use the rounded end of the tool as shown.



WARNING

Take great care when removing and emptying the ash pan. It may be very hot and still contain burning or smouldering embers and is a fire risk.

7 – Guidance on safe operation

Fire can be very dangerous

During operation, the stove and all the fittings (door handles and controls) get very hot.

Do not overfire the stove.

It is possible to fire the stove to such an extent that damage may occur. Look out for parts of the stove or flue glowing red hot. If such a situation occurs adjust the air supply accordingly to reduce the burning rate.

Chimney fire

In the event of a chimney fire

- Shut all air controls immediately
- Raise the alarm and evacuate the building
- Call the fire brigade
- Do not re-enter the building

Fumes

If installed, operated and maintained correctly the stove will not emit fumes into the room other than occasionally very small amounts when re-fuelling or de-ashing.

If fumes are being emitted during normal operation

Ventilate the room by opening all doors and windows.

Let the fire burn out

Leave the room

Check the stove, flue and chimney for blockages

Do not re-use the stove until the cause of the problem has been identified and rectified.

If required seek expert help.

Adverse weather conditions

In a small number of installations, very occasionally in specific weather conditions (direction of wind) the draw of the chimney may be affected causing a downdraught and fumes to be emitted into the room.

If this is the case the stove should not be used and advice sought from a professional flue installer who would be able to advise on possible solutions such as an anti-downdraught cowl.

8 - Maintenance

Maintenance should only be carried out when the stove is cool

Before use

Between burns in the stove it is good practice to keep ash and debris to a minimum. Especially empty the ash pan and ash pan section. Remember that if only burning wood it is recommended to keep a bed of ash about 1cm thick on the grate.

Cleaning the stove

Clean the outside of the stove with a soft brush.

Regularly remove and clean the baffle and back and side air boxes of soot and debris. also clean the internal surfaces of the stove. The frequency will be dependant on how vigorously the stove has been fired and what fuel has been used.

Any deposits allowed to build up in this area could reduce the lifespan of the stove. Note that if required the flue can be accessed for cleaning from inside the stove.

Gaskets

The rope gaskets in both doors will need regular inspection to check the condition and ensure that the doors seal and full control of the air supply to the fire can be maintained.

Stove glass

Clean the stove glass only when cool with a specialist glass cleaner. Use of any abrasive cleaner will scratch the glass and make subsequent cleaning more difficult.

Chimney

It is important to have the chimney cleaned at least once a year.

Regular inspection and cleaning of the internal components of the stove can indicate if the chimney requires more frequent cleaning.

If the stove has been unused for an extended period (during the summer) the chimney should be checked by a competent person before use.

Note

All parts that are in direct contact with the fire (grate, Baffle, back and side air boxes) are considered as normal wear parts. Their life will be dependant on how vigorously the stove is operated and they must be inspected and maintained on a regular basis. If they become worn, damaged or not positioned correctly, non wear parts such as the stove top and sides will be exposed to excessive heat and may be damaged.

Remember

If the stove is not to be used for an extended period set both air controls to half open to allow an airflow through the stove and avoid condensation.

9 – Fault Finding

Fire will not burn

The fuel is too wet and not suitable
Air inlets to the stove are blocked
The flue is blocked or restricted
Inadequate air supply into the room

Soot build up on glass

Fuel is too wet
Fuel pieces are too large and "smouldering" rather than burning.
The stove operating temperature is too low
The stove is being run too "slow" with not enough air
Poor chimney draft
Too little secondary air washing over the window

Excessive wear on internal parts

Stove fired too vigorously
Too little air passing through the bottom grate
Use of wood that is too dry (eg wood from old furniture)

10 – Spare Parts

A full range of products are available to maintain your stove including :-


Rope
Rope Glue
Glass cleaner
Stove paint

All individual components of the hobbit are available as spares.

For the complete list of available spares with prices go to Salamanderstoves.co.uk

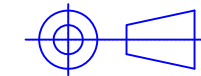
11 - Specification

Copy of the CE plate attached to the stove

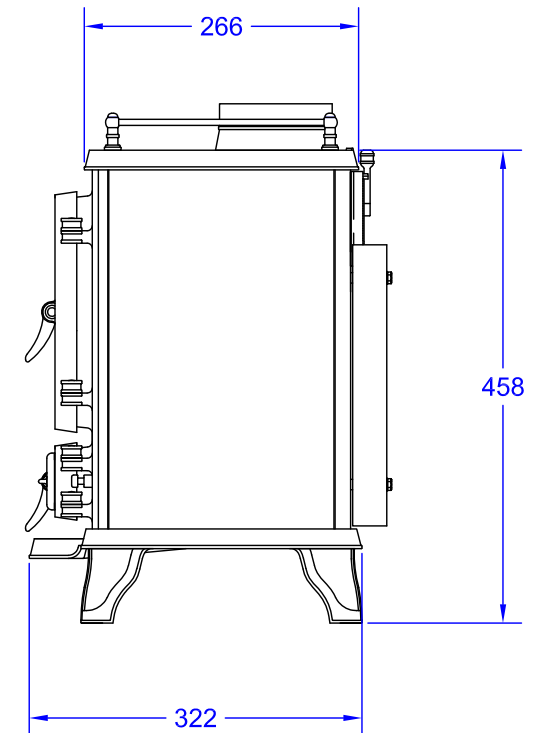
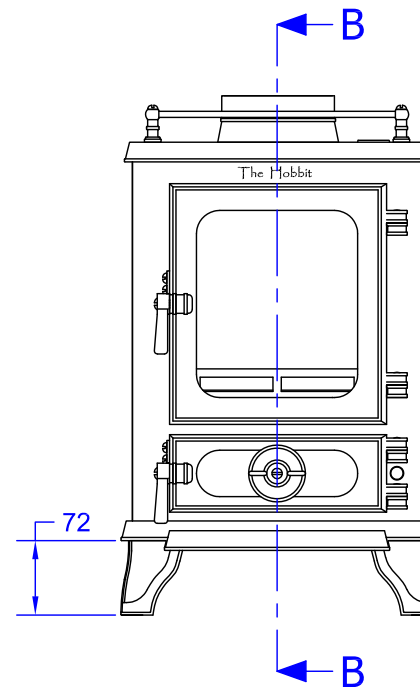
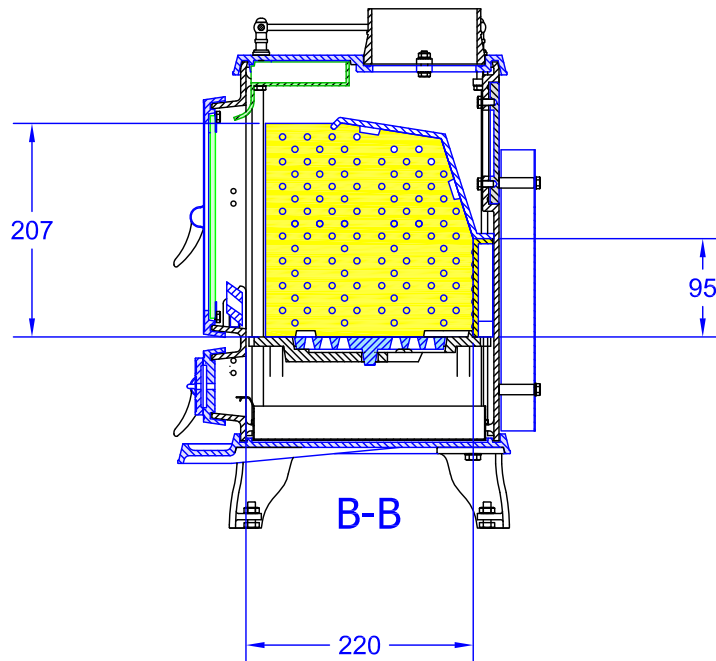
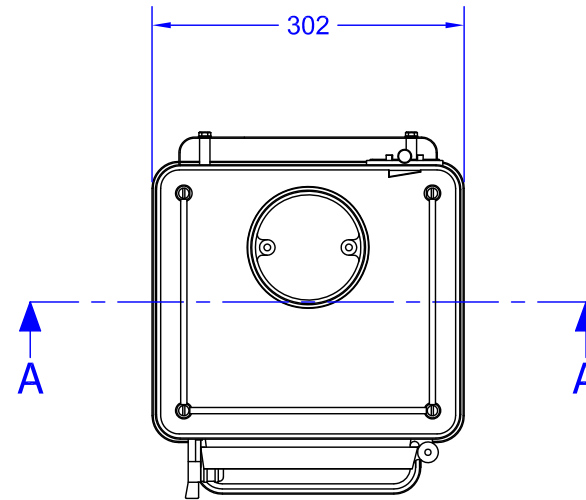
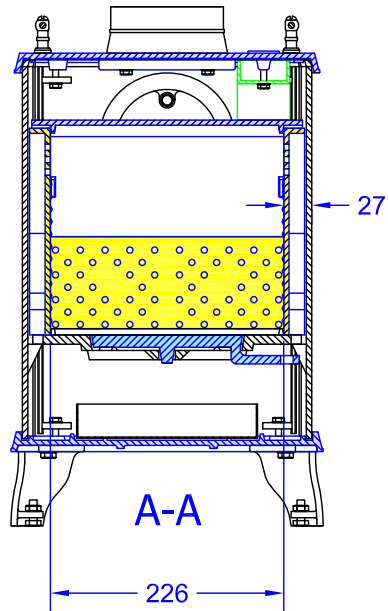
		EN 13240:2001 / A2:2004
Roomheater fired by solid fuel		
Roomheater type	Salamander Hobbit	
Fuel types	Wood, Manufactured Smokeless Fuel	
Nominal heat output	4 Kw	
Total net energy efficiency		
Wood	74.7 %	
Manufactured Smokeless Fuel	68.7 %	
Distance to adjacent combustable materials		
Side	400 mm	
Rear	450 mm	
Emission of CO in combustion products		
Wood	0.40 %	
Manufactured Smokeless Fuel	0.39 %	
Flue gas temperature		
Wood	258 °C	
Manufactured Smokeless Fuel	287 °C	
The appliance is capable of intermittent operation		
The appliance cannot be used in a shared flue		
Follow the users manual and only use recommended fuel		
Salamander stoves Ltd		2010
Rosemount, Canada Hill		
Ogwell, Devon, TQ12 6AF		

Test refuelling interval	Wood	1 hour
	Manufactured smokeless fuel	2 hours
Flue mass gas flow g/s	Wood	4.3
	Manufactured smokeless fuel	5.1
Total net efficiency	Wood	74.7%
	Manufactured smokeless fuel	68.7%
Gross efficiency	Wood	67.9%
	Manufactured smokeless fuel	67%

Tests conducted by Gastec @ CRE Ltd at 12Pa flue draught



DO NOT SCALE



PROPERTY OF			
Canvas & Cast Ltd			
ROSEMOUNT, CANADA HILL, OGWELL, DEVON, TQ12 6AF			
DRAWN	JDL	DATE	10.02.10
		DWG NO	0901 CE

The Hobbit MODEL 0901
OVERALL DIMENSIONS AND FIREBOX DIMENSIONS



Specification

Copy of the CE plate attached to the stove

CE	EN 13240:2001 / A2:2004	
	Roomheater fired by solid fuel	
<hr/>		
Roomheater type	Salamander Hobbit	
Fuel types	Wood, Manufactured Smokeless Fuel	
Nominal heat output	4 Kw	
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<p>The appliance is capable of intermittent operation The appliance cannot be used in a shared flue Follow the users manual and only use recommended fuel</p>		
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Gross efficiency	Wood	67.9%
	Manufactured smokeless fuel	67%

Tests conducted by Gastec @ CRE Ltd at 12Pa flue draught

Date: 19 May 2010	ENCLOSURE SHEETS	GASTEC <small>^</small> at CRE
Report Number: 6515	Roomheater fired by solid fuel	Page ES 6/12

End of Report

Project Number: 6515		Initials: <i>Jsh</i>
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