SOLIFTEC
THE SOLID FUEL TECHNOLOGY INSTITUTE

STATEMENT OF SOLID FUEL APPLIANCE PERFORMANCE

Name of Appliance	Name and Address of manufacturer	
Type of appliance eg 'freestanding roomheater'		
Minimum distance to combustibles	Minimum distance from combustibles at rear, sides, back, base, top, in mm. Or 'for installation only in all-masonry fireplaces at least 300mm from combustible materials in accordance with building regulations'	
Type of boiler and method of construction		eg 'welded steel'
Boiler maximum operating water temperature		ºC
Boiler maximum operating pressure in bar.		bar
Boiler test pressure in bar		bar
Appliance mass		kg

Test Type			eg 'normal use'
When fueled with			eg 'Wood Logs', 'Anthracite peas' etc
With the controls set at			eg 'damper 2mm open, airwash closed'
Refueling cycle			Hours
Burning at a rate of			kg/hr
With a flue draught of			Pa
Output to room			kW
Output to Water			kW
Mean Efficiency			%
Mean Flue Temperature			ºC
Mean CO concentration			% actual
Mean Oxygen			%
Mean CO_2			%
Test Method and by who tested.			eg 'flue loss'. All estimated figures to have 'c' before, as 'c5.5kW'

This information is true (signed)

Person responsible for the appliance in the UK / RoI

PRELIMINARY CHECKLIST FOR CONFORMITY TO EN13240

CONSTRUCTION REQUIREMENT	MET
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 as specified and exposed to the associated mechanical, chemical and thermal stresses, the appliance shall operate reliably and safely such that during normal operation no combustion gas posing a hazard can escape into the room in which the appliance is installed nor can embers fall out.	
Non-combustible materials shall be used, except that it shall be permissible to use combustible materials for: - components or accessories fitted outside the appliance; - internal components of controls and safety equipment; - operating handles; - electrical equipment.	
No part of the appliance shall comprise any material known to be harmful.	
When fired with solid mineral fuels, the appliance shall have a bottomgrate and an ashpan.	
Component parts, which require periodic replacement and/or removal shall be either so designed or marked for identification to ensure correct fitting.	
All operations which the user carries out, including loading and emptying of the appliance, adjusting controls and de-ashing should be easy, safe and effective.	
Any 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.	Maximum operating pressure (not usually over 4bar)
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, cement shall be well supported by adjacent metal surfaces.	
Thickness of walls of the firebox which are in contact with fire and/or water	(Minimum: non-alloy steel 5mm, Stainless 3mm)
Walls of convection heating surfaces outside combustion chamber (except circular tubes)	(Minimum: non-alloy steel 4mm, Stainless 2mm)
Circular tubes used in convection part of heat exchanger	(Minimum: non-alloy steel 3.2mm, Stainless 1.5mm)
Water cooled grate tubes	(Minimum: non-alloy steel 4mm, Stainless 3mm)
Surfaces not in contact with burning fuel or products of combustion	(Minimum: non-alloy steel 3mm, Stainless 2mm)
The mechanical properties of cast iron used for parts subject to water pressure shall, as a minimum, correspond to the values listed	Grey cast iron (EN 1561:1997) Tensile strength *R*m > 150 N/mm², Brinell hardness 160HB to 220HB Spheroidal graphite iron (EN 1563:1997) Tensile strength *R*m > 400 N/mm², Elongation 18 % A3

CONSTRUCTION REQUIREMENT	MET
The wall thickness of the casting section shall be not less than the minimum thicknesses	Nominal heat output <30kW, Grey cast iron 3.5 mm, Spheroidal graphite cast iron 3.0 mm. >30kW and <50kW, 4.0 and 3.5mm
If boilers are supplied with reducing bushes in horizontal flow tappings, these shall be eccentric and fixed so that the reduced outlet is uppermost.	
Size of boiler tappings	(Minimum thread size on flow and return tappings ≤22kW Gravity =1, Pumped = ½ > 22 <35 Gravity =1¼, Pumped =1 > 35 < 50 Gravity =1½ , Pumped =1
Thread depth of boiler tappings	Size ½ to 1¼, minimum depth = 16mm Size 1½, minimum depth = 19mm
The design of the boiler shall ensure a free flow of water through all parts.	
To minimize the build up of sediments, sharp or wedge-shaped waterways with a taper towards the bottom shall be avoided.	
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.	
The minimum internal dimension of waterways throughout the main body of the appliance shall be not less than 20 mm except where waterways have to be locally reduced to facilitate manufacture or are in areas not in direct contact with burning fuel, in these cases the width of the waterways shall not be less than 15 mm.	
The minimum internal dimensions of waterways in boilers designed for direct water systems shall be not less than 25 mm.	
The boiler and its components shall be designed in such a way that their respective water sections can be vented.	
The boiler shall be so designed that under normal operation in accordance with the manufacturer's installation instructions, no undue boiling noises occur.	
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.	
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.	
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.	
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.	
For vertical flue connection, the fitting shall overlap by at least 25 mm.	

CONSTRUCTION REQUIREMENT	MET
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.	
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.	
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.	
A means for the removal of the ash residue from the appliance shall be provided.	
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.	
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.	
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. The ashpan can be shoval shaped.	
The preferred design with the firedoor(s) and ashpit door(s) closed should allow de-ashing to be carried out. The de-ashing should be possible without undue effort. 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.	
Where the bottomgrate is removable it shall be so designed or marked as to ensure correct fitting. If a deashing mechanism is fitted it shall be capable of effectively de-ashing the fuelbed.	
The appliance shall be fitted with either a thermostatically controlled primary air inlet control or a manual primary air inlet control.	
For appliances with a 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.	
The design shall be such that during operation of the appliance, neither ash nor unburned fuel can prevent the movement or closure of the air inlet control.	
The 'cold' setting of the air inlet control shall be clearly marked and the method of adjustment shall be described in the user instructions.	
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.	
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.	

CONSTRUCTION REQUIREMENT	MET
If a flue damper is fitted it shall be of a type, which 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 cm2 or 3 % of the cross-sectional area of the blade if this is greater.	
The position of the damper shall be recognizable from the setting of the device.	
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.	
When the appliance is equipped with a charging door, that door shall be large enough to allow the appliance to be filled with the commercial fuels recommended by the manufacturer.	
Firedoors and charging doors shall be designed to prevent accidental opening and to facilitate positive closure.	
Any flue bypass device shall be easily operable.	
The extreme positions corresponding to full opening and closing shall be stable and easily identifiable.	
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.	
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.	
When the recommended fuels are solid mineral fuel and peat briquettes, the appliances shall have a bottomgrate and an ashpan.	
Where the appliance manufacturer claims that a continuous burning appliance can be connected to a chimney serving more than one appliance, special rules apply, see EN13240	
The operation of an appliance with an open firebox shall only be permitted when any escape of harmful combustion gases, and any loss of the firebed from the appliance, does not occur under the test conditions.	
The boiler shell and its water carrying components shall not leak or become permanently deformed when subjected to the type pressure test	
Temperatures measured in the fuel storage container shall not exceed the ambient room temperature by more than 65 K.	
If the manipulation of the operating components does not require the assistance of tools, the surface temperatures, measured only in the areas to be touched, shall not exceed the ambient room temperature by more than: - 35 K for metal; - 45 K for porcelain, vitreous enamel or similar materials; - 60 K for plastics, rubber or wood. If these temperatures are exceeded, the manufacturer shall indicate in the instructions the need to use an operating tool. This tool shall be supplied with the appliance. NOTE A suitable glove is regarded as a tool.	
If, when tested the temperature of the surrounding walls and/or of the floor exceeds the ambient temperature by more than 65 K, the manufacturer shall provide the necessary information for insulating the walls and/or floor or indicate the clearance distance required.	(Or indicate that the appliance is only suitable for installation in all-masonry fireplaces at least 300mm from combustibles)

CONSTRUCTION REQUIREMENT	MET
The appliance shall comply with the electrical safety requirements of EN 50165 if mains operated electrical equipment is fitted as part of the appliance.	
When tested, the flue gas temperature shall be measured and the mean calculated and recorded in the installation instructions.	
When measured, the mean carbon monoxide concentration calculated to 13% oxygen (O2) content in the flue gas shall be less than or equal to the manufacturer's declared value and shall not exceed 1,0%.	
When tested, the measured total efficiency from the mean of at least two test results at nominal heat output shall be greater than or equal to the manufacturer's declared value and shall equal or exceed 50%.	
Where the flue draught values given need to be exceeded in order to obtain the manufacturer's declared nominal output, the required flue draught shall be clearly stated in the appliance's installation instructions.	For appliances <25kW nominal heat output: Slow combustion test 6Pa Nominal heat output test 12Pa Safety test 15Pa
At the conclusion of a slow combustion or reduced combustion test periods , it shall be possible to satisfactorily revive the fire. Recovery shall be deemed to be satisfactory if the refuel charge is visibly ignited within a time of 20 min.	
When tested, and when the appliances is operated with closed doors, the minimum times for maintenance of combustion with one added test load of fuel shall be not less than the values given as appropriate to the appliance type and/or the test fuel used. The nominal, slow and reduced test loads shall be the same. The slope formed by the test load shall not obstruct, even partially, any flue.	CONTINUOUS BURNING APPLIANCES nominal: Solid mineral fuel: 4hrs, Wood: 1,5hrs slow combustion: Solid mineral fuel: 12hrs, Wood: 10hrs INTERMITTENT BURNING APPLIANCES nominal: Solid mineral fuel: 1hrs, Wood: 0,75hrs
The space heating output declared by the manufacturer shall not exceed the measured space heating output.	
The water heating output declared by the manufacturer shall not exceed that measured.	

INSTALLATION AND OPERATING INSTRUCTIONS

INSTRUCTIONS	MET
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 phrase "All local regulations, including those referring to national and European Standards need to be complied with when installing this appliance."	
Type (model or number) of the appliance;	
the nominal heat output(s) in kW or W;	
the space heating output in kW or W;	
the water heating output in kW or W;	
the maximum operating water pressure in bar, where applicable;	

INSTRUCTIONS	MET
the safety clearances against combustible materials, and the other protective measures that shall be taken to protect the building construction;	For appliances installed in all-masonry fireplaces Soliftec recommend a minimum 300mm
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.	
the need of any air inlet grilles to be so positioned that they are not liable to blockage;	
the mass of the appliance in kg;	
the minimum flue draught for nominal heat output, (where applicable, with open and closed firedoors);	(Minimum flue draught is commonly 12Pa)
flue gas mass flow in g/s, where applicable, with open or closed firedoor operations as specified by the manufacturer, (or alternatively the nominal heat output and the appliance efficiency and mean CO2 concentration when operating at nominal heat output should be given for all test fuel types);	
whether the appliance is suitable for installation in a shared flue system;	
the flue gas temperature directly downstream of the flue spigot/socket in °C, (with closed firedoors), under nominal heat output conditions;	
for inset roomheaters: the minimum dimensions of the required builder's opening and/or firefront opening in the surround;	
that 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;	
the assembly of the appliance on-site, if applicable;	
advice on the need to provide access for cleaning the appliance, the flue gas connector and the chimney flue;	
the installation of the damper device, if applicable;	
the water content and instructions for fitting a drain-cock in the lowest part of the system (where applicable);	
the setting of temperature controller and method of adjusting the "cold" setting distance;	
advice on a means of dissipating excess heat from the boiler, such as using a "heat leak" radiator.	
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.	
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 operation. The operating instructions shall contain at least:	
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";	
a list of recommended fuels including type and size	

INSTRUCTIONS	MET
details of the method of refueling and de-ashing the appliance and the maximum filling height in the firebox and typical refueling intervals at nominal heat output for various recommended fuels;	
a description of the correct instructions for safe and efficient operation of the appliance including the ignition procedure;	
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;	
the operation of all adjusting devices, dampers and controls;	
ventilation requirements for simultaneous operation with other heating appliances (where applicable);	
the correct operations for seasonal use and under adverse flue draught or adverse weather conditions;	
advice on the need for regular maintenance by a competent engineer;	
instructions on how to achieve slow combustion;	
a warning that the firebox and ashpit cover shall be kept closed except during ignition, refueling and removal of residue material to prevent fume spillage, unless the appliance is intended to be operated with open firebox;	
operation with open firebox, where applicable;	
operation of the thermal discharge control, where applicable;	
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;	
advice on the adequate provision of combustion and ventilation air and on keeping air intake grilles; supplying combustion air, free from blockage;	
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;	
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;	
the means of protection against risk of fire in and outside the heat radiation area;	
warning against any unauthorised modification of the appliance;	
use of only replacement parts recommended by the manufacturer;	
advice about the actions to be taken in the event of a chimney fire;	
whether the appliance is suitable for installation in a shared flue system;	
advice on whether the appliance is capable of continuous or intermittent operation and instructions on how this is achieved.	
advice on the adjustment of any air grilles, where fitted.	

PRODUCT LABELING

Each appliance to be marked, or to carry on its packaging:

LABELING SHOWS...	MET
manufacturer's name or trade mark;	
the type or the model;	
nominal output in kW or W, or range listed from lowest to highest	
space heating output in kW or W;	
water heating output in kW or W;	
the standard number: EN 13240;	
measured CO concentration at 13% oxygen content	
determined appliance efficiency at nominal heat output,	
maximum water operating pressure (if applicable), in bar;	
"follow the user's instructions" and "use only recommended fuels"	
the minimum clearance distances from combustible materials, in mm, as appropriate;	
whether or not the appliance can be used in a shared flue;	
whether the appliance is capable of continuous or intermittent operation.	

Typical label for an appliance intended to conform to the construction and/or performance requirements of EN13240, which meets the preliminary requirements laid out here, but the performance of which has not been confirmed by a Notified Body

FIRES Ltd

Ectofire500+

Intermittent burning solid fuel roomheater for installation in masonry fireplace with single chimney.
Minimum clearance to combustibles: 300mm.
Output: 4.7kW (anthracite).
CO: 0.27% @13%O_2. Efficiency: 64%
CONSTRUCTION CONFORMS TO

EN13240

Follow the user's instructions!
Use only recommended fuels!

FACTORY PRODUCTION CONTROL (FPC)

The manufacturer shall have a documented system of Factory Production Control, preferably conforming to the requirements of EN ISO 9001 covering:

FPC REQUIREMENT	MET
9.3.2 Raw materials and components	
9.3.3 Control of inspection, measuring and test equipment	
9.3.4 Process control	
9.3.5 Product inspection, testing and evaluation	
9.3.5.1 Materials of construction - a) Type – composition/specifications, b) Thickness, c) Dimensions, d) Finish.	
9.3.5.2 Insulation material - a) Specification of insulation material, b) Density value - thermal conductivity	
9.3.5.3 Seals and sealant materials	
9.3.5.4 Manufacturing checks	
9.3.5.4.1 Construction and dimensions of a) flue spigot; b) flueways; c) ashpan; d) bottomgrate; e) air supply , thermostat, manual control, inlet size etc.; f) control of flue gas (damper); g) firedoors/charging doors; h) flue by pass; j) front firebars; k) boiler construction – dimensions, waterways, tappings etc (if fitted); m) firebox/combustion chamber construction; n) convection system.	
9.3.5.4.2 Other checks - a) Sealing of components to avoid leakage; b) Fitment of moving/interconnecting parts.	
9.3.6 Non conforming products to be identified and not placed on the market.	
9.3.7 Corrective and preventive action	
9.3.8 Handling, storage, packaging, preservation and delivery	

OR, DETAILS OF ISO CERTIFICATE: