

By appointment to The Royal Danish Court

morso

DB15

HIGH-EFFICIENCY SOLID FUEL CENTRAL-HEATING STOVE WITH AUTOMATIC CONTROL
Multifuel Models and PureWood Models

INSTALLATION AND OPERATING INSTRUCTIONS

LEAVE THIS DOCUMENT WITH THE HOUSEHOLDER!



These stoves exceed the safety and performance requirements of European Standards Intermittent burning solid fuel roomheaters for installation with a single dedicated chimney. Independently tested by SGS Nederland BV. Notified Body 0608 - May 2011

		Morso DB15 Central Heating Stove with DTRG Downburn Firebox				
Fuel		Anthracite	Biomass (Beech Logs)	Biomass (Joinery Waste)	Lignite	Bituminous Coal
Test Standard		EN 13240:2001 +A2:2004				
Test Cycle		2.0 kg per 1 hr	1.3 kg per 0.75 hrs	2.9 kg per 0.73 hrs	3.4 kg per hr	2.5 kg per hr
Flue Draught Pa (ins WG)		12	12	12	12	12
Efficiency %		80.7%	80.0%	78.2%	79.5%	80.7%
Recommended Rating to room kW (btu)		5.8 (19,700)	5.7 (19,600)	6.2 (21,200)	7.8 (26,800)	9.1 (31,300)
To water, kW (btu)		6.3 (21,600)	8.8 (30,000)	7.9 (26,900)	7.7 (26,200)	7.6 (25,800)
Total Output, kW (btu)		12.1 (41,400)	14.5 (49,600)	14.1 (48,200)	15.5 (53,000)	16.7 (57,100)
Mean Flue Gas Temp Rise °C		200 °C	263 °C	251 °C	276 °C	241 °C
Minimum room air entry requirement		8000 mm ²				
Minimum Clearance to combustibles		100mm at sides and back Temperature underneath can exceed 100°C - traditional hearth required				
Emissions as if O ₂ =13%	NOx mg/m ³	-	98mg/m ³	-	-	-
	CO %	0.06%	0.24%	0.07%	0.24%	0.23%
	CxHy mg/m ³	-	77mg/m ³	-	-	-
	Gas flow g/sec					
	Smoke Emission mg/m ³	-	48mg/m ³	47mg/m ³	42mg/m ³	733mg/m ³

NOTE: The ratio of water to room output has been corrected for net/gross errors.

Glyn Hughes

I declare that this information is true, these products meet the requirements of Harmonised Standards and are fit for sale. Signed on behalf of the manufacturer by Glyn Hughes, Design Engineer, at Winstar, Derbyshire, England 22. Jul. 2014

Read these instructions! Use only recommended fuels!
For open-vented water systems only - Maximum pressure 2bar



This document, when completed by the installer, constitutes part of a 'Hearth Notice' for purposes of Building Law. It must be left with the householder and placed where it can easily be found.

INSTALLED AT LOCATION:

BY:

EMERGENCY CONTACT:

I definitively assert that this installation is safe, has been lit and demonstrated to the householder, conforms with current building regulations and with these instructions

SIGNED: _____ DATE: _____

Flue Draught measured on commissioning:

Pa
WG

Fuel used on commissioning



TO FIND A QUALIFIED INSTALLER, FUEL SUPPLIER or CHIMNEY SWEEP, CONTACT:

UK: The Solid Fuel Association, 7 Swanwick Court, Alfreton, Derbyshire DE55 7AS Tel:0845-601-4406 www.solidfuel.co.uk
RoI: Irish Nationwide Fireplace Organisation, 162 Capel Street, Dublin 1 Tel:01-801-5959 www.fireplace.ie



Morso UK Ltd, Unit 7, The I O Centre, Valley Drive, Rugby, Warwickshire, CV21 1TW UK

The Morso DB15 may be used in smoke control areas when operated strictly in accordance with these instructions and with the attached Soliftec Smoke Advice Sheet No1 (www.soliftec.com/smokeadvice.htm), when burning:
UK: Untreated wood logs, lignite briquettes or authorised smokeless fuels (Exempted from s20 of the Clean Air Act 1993)
RoI: Wood logs, smokeless fuels or peat briquettes, but not petroleum coke (Control of Atmospheric Pollution Regulations, 1970)

THIS APPLIANCE BECOMES EXTREMELY HOT AND CAN PRODUCE POISONOUS GASES.

A fire-guard should be used if children or the infirm are present. The installer is required to EXACTLY follow these instructions and to completely comply with all local, national and international standards.

Building rules and regulations are available at www.soliftec.com

INSTALLING a stove is a 'controlled service', the law expects that it is either supervised by a qualified installer or that the building inspector is informed. Check with your local authority.

ASBESTOS: Your stove does not contain asbestos, but take care to avoid disturbing asbestos in an old installation.

WEIGHT: Your stove is heavy (182kg) take great care when moving it and ensure that the intended fireplace can support the weight- consider fitting a load distributing plate.

YOUR CHIMNEY, by becoming warm, makes the gas inside it rise, pulling fresh air into the stove to make it work. It must:

- Generate a draught in use of at least 12Pa (0.05ins wg)
 - Be capable of withstanding the temperatures generated.
 - Be absolutely incapable of leaking fumes into the dwelling
- Several different forms of chimney may be suitable, but they will commonly need to be:
- At least 5m high.
 - Terminating at least 1m above any roof ridge.
 - Have an internal cross-section equivalent to not less than

- 150mm dia and not more than 0.14m² (eg 375 x 375mm)
- Be free from even the slightest crack or source of leakage.
- Have no bends sharper than 45°.
- Be swept and entirely free of obstructions
- Be connected only to this one appliance.
- Be of thick masonry or otherwise adequately insulated.
- Conform to local building regulations.

Special rules apply where the flue passes through timber, thatch or other vulnerable materials- take specialist advice.

It is not possible to access the chimney for cleaning through the fire, fit hatches to provide access.

YOUR FIREPLACE: Stoves become VERY hot, the setting must be made entirely of durable fireproof materials. take care to observe the safe distances to combustibles shown on the front page.

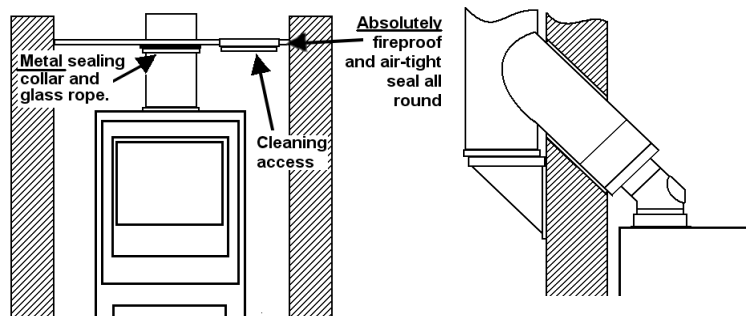
AIR SUPPLY: Your stove needs fresh air from outside to breathe - the air inlets should equal about 550mm² for each kW of nominal output.

This degree of air can often be provided by leakage around door frames etc, especially in older buildings. It must be a matter for the judgement of the installer as to whether an extra permanent air vent is required. Where is needed, it is wise to fit an outside vent as close to the fire as possible. Correctly sited and sized, air will only move between the vent and the stove, preventing unpleasant draughts.

An extractor fan, or another fuel-using appliance, or an open fireplace or chimney, in the same building, can remove this air.

FITTING

Fasten the flue outlet to the top of the stove and seal to the chimney using a **short** (up to about 0.5m) length of uninsulated pipe. Two possible ways of doing this are shown.

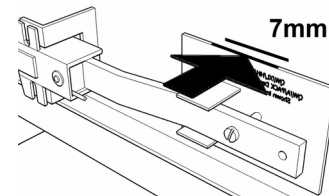


Through **steel or concrete** closure plate (with cleaning door) into old, oversized, chimney. Steel sealing collar.

45° top outlet sleeved through wall into external insulated flue. Cleaning hatches on bends.

Whichever method is used it is imperative that the route for gases from the stove to the chimney terminal is completely air-tight; even the tiniest gap or crack can spoil the updraught. Seal all joints with fireproof cement and/or heatproof rope.

Adjusting the thermostat: Check the thermostat on the side of the stove before fitting! With the fire cold, the



thermostat sensor in place in its hole towards the rear top of the boiler and the thermostat control turned to '1' the air closure 'damper' plate should be approximately 7 mm open.

HEATING SYSTEM DESIGN

This appliance is for use with an open-vented water heating circuit at a maximum pressure of 2 Bar, equivalent to a static head of 18 metres. **Suggested circuit designs are given on a separate sheet.**

IMPORTANT! CHECK THE INSTALLATION !

Once installed, light the fire, demonstrate it to the householder and check that:

- 1) It burns controllably and does not emit fumes to the room
- 2) The route for gases from the stove to the chimney terminal is completely airtight, unobstructed and able to be swept. (access hatches may be required.)
- 3) The installer has completed the notice at the beginning of this document, has demonstrated the method of lighting, control and cleaning, and pointed out the safety requirements to the householder.
- 4) The entire fireplace construction is of durable fireproof materials.
- 5) The flue presents a draught in use of at least 12Pa
- 6) A CO alarm is fitted
- 7) The water system can never exceed 2 Bar pressure, has provision to dissipate or store surplus heat, can accommodate boiling, and has means to minimise the circulation of cool water through the boiler.



GUARD AGAINST CONDENSATION! Solid fuels contain water which can condense on cool boiler faces to cause rapid corrosion and failure. Always fit a device such as a low-level thermostat to minimise cool water circulating through the boiler.

ALLOW FOR OVERHEATING! This boiler has automatic control, but there must be some way of dissipating surplus heat - fit a high-level thermostat to override controls and run the central heating if there is risk of boiling. Follow the rules on the accompanying Circuit Design leaflet. An old-fashioned 'heat leak' radiator *will not* suffice.

LIVING WITH YOUR STOVE

Every fuel, chimney and condition of use is different. Only experience will show which are the best settings for you.

HOW THE DB15 WORKS: The Morso DB15 is a 'downburn' stove where the waste gases pass *down* through the hot fire and into an 'afterburn' chamber (A) at the back where even smoke is burned away. This system gives very clean combustion and extremely high efficiency on a wide range of fuels.

LIGHTING If lighting after a period of non-use, do check that the flueways and chimney are completely clear. Empty the ashes if need be. Place two or three firelighters close together, or screwed-up paper covered with dry sticks, at the back of the grate and light them.

When they are burning well gently fill the fire with dry fuel. Downburn stoves ignite very quickly, but they begin to burn at the back, so the full flame may not be apparent for a few minutes.

FILLING: (C) Don't fill to the point where fuel touches roof of the stove.

CONTROL. Correctly installed (see separate sheet) this stove will control itself for minimum fuel consumption.

The manual control on the top of the door overrides the automatic control. It can be helpfully used when first lighting or refuelling, but

keep it shut, or nearly so, in normal use.

The **Thermostat Dial** on the lower right of the stove controls a device which senses the temperature of water in the boiler and automatically allows air in to make the fire burn more or less fiercely, so that water always leaves the boiler at about 50°C on the lowest setting to about 90°C at the highest. Once you have found the most appropriate setting for your house - usually about midway - it shouldn't be necessary to adjust it again. To adjust the house temperature, adjust the radiator thermostats (if fitted) or your central room thermostat. These controls will then automatically limit or allow the flow of water through the boiler, which will adjust itself accordingly. Your fire will die down or flare up and the central heating pump go on or off as needed in response to the temperature of rooms and water.

When you adjust the central controls, wait an hour or two for the adjustment to 'bed in' - controls are deliberately made to react slowly to prevent rapid on-off-on-off cycling.

EMPTYING ASHES. If you're burning only wood, ash need only be emptied once it begins to overflow.

On the Multifuel model, using mineral fuels like anthracite, coal or manufactured smokeless fuels, the ash must be removed before it builds up to touch the underside of the grates, or it will severely damage them. To empty the ash on multi-fuel models agitate the firebed by using the tool to operate the riddling mechanism on the right-hand side. Use the ashpan tool to lift out the ashpan. Remember to let ash cool before disposing in plastic sacks or dustbins.

EXTENDED BURNING Allow the fire to burn down to a low, hot firebed. Empty the ash, fully fill with hard fuel such as anthracite and your stove can burn for up to twelve hours without attention.

KEEPING THE WINDOW CLEAN. Reduce the risk of staining by using only *very dry* fuel. Severe stains can be removed when cold with a domestic bleach cleaner. DO NOT use proprietary solvent-based stove window cleaners. The window is not glass but a transparent ceramic, it may develop tiny hairline cracks, these are harmless, and a characteristic of the toughest and material known.

OPENING THE DOOR This stove is designed to be operated only with the door closed. Open the door very slowly to minimise fume emission and prevent hot fuel falling out.

SUMMER SHUT DOWN: Before a long period of non-use, empty fuel and ash and leave all the air controls open to allow ventilation

to reduce condensation.

FUELS

The **Multifuel** Morso DB15 is one of very few stoves which can burn almost any solid fuel. The **PureWood** models can only burn wood products such as logs or wood briquettes, with extraordinary cleanliness and efficiency.

There is no 'perfect' fuel, so we strongly recommend that you try a selection of fuels (or mixtures) to find which suits you best. Do avoid dusty materials like sawdust, they can burn far too violently.

SMOKE CONTROL: In certain areas special rules apply to reduce smoke nuisance. Check with your local authority.

WOOD only emits as much carbon to the atmosphere as the tree took in when growing, so wood is considered the 'carbon neutral' fuel. When wood is cut down its cells are full of water. Burning such wet or 'green' wood wastes heat in making steam and produces flammable, acidic tars which will cling to, and rapidly damage, your stove and chimney. Split logs will typically take two years to become reasonably dry, round logs very much longer. Cracks in the ends, a hollow sound when tapped and bark falling away are all signs that a log may be ready for use. The fine, white residue produced when wood burns is not ash, but the remains of cell walls which can burn if kept hot enough, so don't de-ash the fire until absolutely necessary when using wood.

For best performance, and *always* for low smoke emission:

- Split logs lengthways for drying
- Use logs no bigger than about 100mm x 250mm
- Ensure logs are absolutely dry (less than 20% moisture)
- Fill the stove loosely, so air can circulate between logs.
- Fill 'little and often'
- When first lighting, or reviving a fire from embers, use only very small, thin, dry, sticks.
- Keep a constant, deep, bed of charcoal and wood ash beneath the burning logs. This may need several firings to build up.

JOINERY WASTE Dry wood offcuts will burn well, but don't expect softwood waste to burn as cleanly or for as long as hardwood logs.

PEAT: Sod turf must be thoroughly dry.

LIGNITE or BROWN COAL is a natural mineral, between peat and coal. It lights easily and burns well, but produces much ash.

BITUMINOUS COAL (Sold as 'Housecoal' or 'Polish') (does NOT burn smokelessly, and is not permitted in smoke control areas of the UK and RoI) is raw, natural coal containing a high proportion of bitumen. The DB15 is one of very few stoves which can burn this fuel with high efficiency. But be aware that it makes lots of tarry smoke and large volumes of flammable gas which can sometimes make it difficult to control.

ANTHRACITE is a natural hard, shiny form of coal. Slow to light, it can burn for very long periods with great heat. Despite its high price-per-bag it generally works out to be one of the cheapest of all fuels. Use the 'small nuts' size.

COKE is coal from which the smoke has been removed. Sometimes difficult to light, it burns very cleanly.

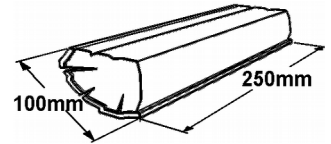
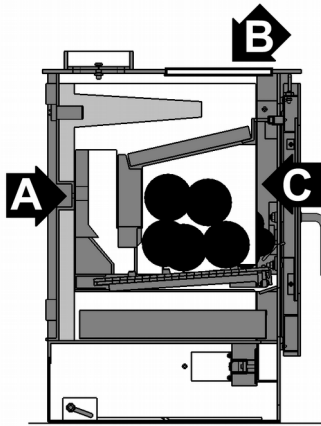
BRIQUETTES Are compressed blocks of fuel, generally able to burn for long periods and remarkable for their consistency. 'Homefire' and 'Phurnacite' are smokeless types while other brands are made from lignite, peat or housecoal.

PETROLEUM COKE sold as 'Petcoke', 'Longbeach' and other names, is an industrial reagent made from oil sometimes simply sold as 'smokeless fuel' without any brand designation and identifiable by a structure of tiny cohered beads. Although the DB15 can burn this fuel safely, it WILL rapidly degrade interior parts.

HOUSEHOLD WASTES Some plastics give off toxic fumes when burned and remember that batteries and aerosols explode! The stove is not an incinerator, so only ever use the recommended fuels and NEVER use liquid fuels in any form.

PROBLEMS?

Problems like those listed here are usually due to some difficulty with the installation, chimney or fuels, so please check back



Use radiator or room thermostats to control the system, not the controls on the stove

through this leaflet carefully. If necessary seek specialist advice.

SMOKE FROM THE CHIMNEY It is quite normal for a little smoke to be emitted from the chimney, especially when the fire is cold. Use only VERY dry wood or smokeless fuels. Is the chimney high enough and hot enough to generate the necessary 12Pa draught?

POOR HEAT OUTPUT: This appliance is *very easily* capable of producing the quoted heat outputs given suitable fuels and a chimney capable of developing sufficient draught. Is the chimney too short or becoming cool or damp? Is the fuel completely dry? Have the central controls been set correctly? Is the building sufficiently well insulated?

CONDENSATION onto cool surfaces inside the stove can be severe if fuel is in any way damp. *Use only very dry fuel.* It is vital that the heating circuit is fitted with a device, such as a low-limit thermostat, to minimise cold water circulating through the boiler.

SMOKE COMING INTO ROOM A little smoke leaking into the room during refuelling is normal, but fumes are poisonous and recurrent smoke emission must NEVER be tolerated, causes might be:

NEW STOVE: There is often a smell and sometimes visible fumes as the paint cures. This normally stops after an hour or so.

INADEQUATE SEALS: Are all flue pipes and connectors *absolutely* gas-tight? Even the tiniest crack or gap can spoil the draught. Does an inset appliances fully seal against the fireplace?

BLOCKED FLUEWAYS: Has soot and ash collected above the inner back part of the firebox?

UNSUITABLE, BLOCKED OR UN-SWEPT CHIMNEY: The first requirement for correct operation is a sound chimney. Check the requirements earlier in this document and in any case of doubt engage a professional sweep or chimney engineer.

POOR AIR SUPPLY: Lack of air to the fire is a common cause of smoking and poor performance. Air supply problems may be worse in certain wind conditions (often incorrectly ascribed to 'downdraught', which is in fact very rare), where air can be sucked out of the room. The answer is to fit an air vent, as near to the fire

as possible, facing into the usual wind direction.

DOWNDRAUGHT: Wind can blow *down* a chimney if there is something higher nearby such as a tree, hill or high building. Fitting an anti-downdraught cowl to the chimney top can cure this. Types which cannot be swept through are not recommended.

POOR CHIMNEY DRAUGHT- Chimney draught in use **MUST** be at least 12Pa.

CHIMNEY FIRE: In the rare event of deposits inside the chimney igniting (roaring sound + dense smoke and sparks from the chimney) immediately close the door, shut all air controls and call the fire brigade. Prevent fires by using *very dry fuel* and having your chimney swept regularly.

MAINTENANCE

MONTHLY- Open the fire door and inspect the top flue passages. Gain access for cleaning by using the tool to lift off the lid (B on the diagram).

ANNUALLY- SWEEP THE CHIMNEY The entire length of the chimney from stove to outlet should be swept annually, more often if smoky fuels are used.

NEW PARTS Your stove has been extensively tested for safety - please don't try to modify it and always obtain genuine spare parts.

SURFACE FINISH Wipe the stove body with a slightly damp cloth when cool. NEVER use aerosol spray or wax near the hot fire – they can ignite. Painted steel parts can be refurbished using special spray paint.

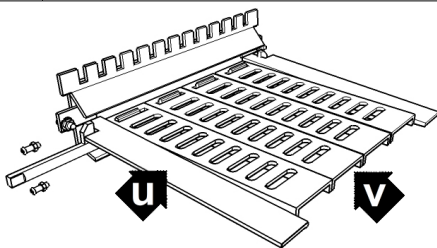
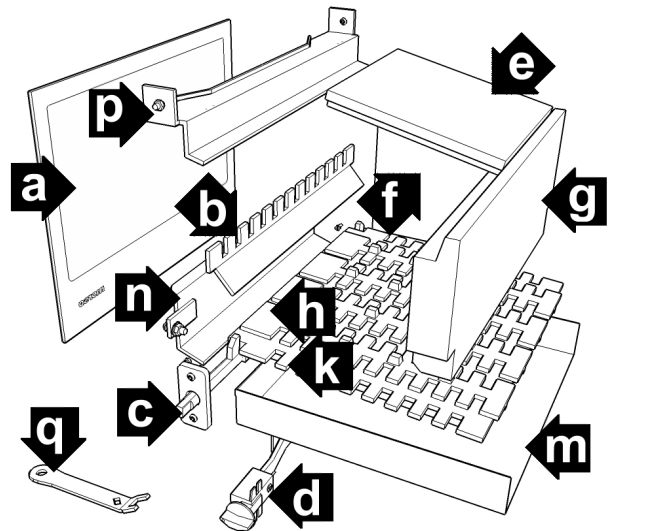
Your stove generates **VERY** high temperatures. Eventually the internal parts will require replacement . Help parts to last by:

- Using only recommend, very dry, fuels.
- Emptying the ash very regularly when using mineral fuel -never allow it to touch the underside of the grate.
- Cleaning the flueways regularly.
- Avoiding 'over-firing'

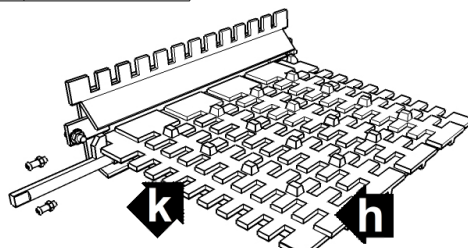
PARTS AND ACCESSORIES

Standard Spare Parts for Morso DB15 Central Heating Stove

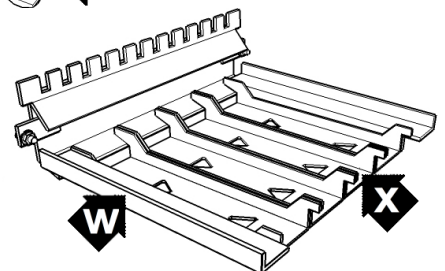
a	Window	MOR0029
b	Front firebar	MOR0030
c	Riddling bar	MOR0031
d	Thermostat assembly	MOR0032
e	Roof brick, pair, with seals	MOR0033
f	Side Brick, pair, with seals	MOR0034
g	Mid Brick, with seals	MOR0035
h	Cast Chrome grate bar, upper	MOR0036
k	Cast Chrome grate bar, lower	MOR0037
m	Ashpan	MOR0038
n	Ash deflector plate and bracket	MOR0043
p	Throat plate support	MOR0044
q	Operating tool	MOR0040
	Touch-up paint	MOR0039
	Rope Seal kit	MOR0041
	Mineral fibre seals between bricks	MOR0042
u	Stainless Alloy grate, end pieces	MOR0036SS
v	Stainless Alloy grate, centre pieces	MOR0037SS
w	Wood grate, end pieces	MOR0036PW
x	Wood grate, centre pieces	MOR0037PW



Standard stainless alloy grate - for all fuels



Optional cast chrome grate for all fuels, including corrosive fuels



Wood-only grate. Deeper capacity and ash retention for sustained wood burning

Multifuel stove models can have any all-fuels or wood-only grate set fitted. PureWood stove models can only have the Wood-only grate