

MODENA



BEDIENUNGSANLEITUNG & GARANTIEKARTE
MODE D'EMPLOI & CARTE DE GARANTIE
ISTRUZIONI OPERATIVE & CARTOLINA DI GARANZIA
INSTRUCTIONS FOR USE & WARRANTY CARD
BEDIENINGSHANDLEIDING & GARANTIEBEWIJS

hase 

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Dear Customer,

You have decided to buy a Hase tiled stove.

Traditional craftsmanship, elegant design and the latest combustion technology guarantee you years of enjoyment in front of your MODENA stove.

The bodywork of the Hase stove comprises strong modern welded steel plates.

The stability and long service life of all Hase models is ensured by both the heat-resistant tiling of the fire box and the temperature-stable special lacquer.

The top quality of all the materials is a matter of course for us as is the greatest possible care we take in production.

All control elements are easily located and simple to use.

Please read through these operating instructions carefully. They will give you helpful hints and useful tips to increase the pleasure you get from your stove.

We hope that you will enjoy many happy hours around your new Hase stove.

**Your
Hase-Kaminofenbau GmbH**

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1.1 Legal building regulations

Before installing your tiled stove we recommend that you talk to your local planning officer. He will advise you on the relevant building regulations, supply permission.

Also check whether the room in which the MODENA stove is to be installed has an adequate supply of fresh air. If the windows and doors are sealed it may be that the required supply of fresh air is no longer ensured and the draught levels required by your stove may be insufficient. The performance of your tiled stove is also dependent on the draught from your chimney. This may be impaired by the cross section of your chimney or an effective chimney height of less than 4.50 m. The effective chimney height is the distance between the flue gas intake in the chimney and the top of the chimney pot.

1.2 Type of construction

The MODENA may only be operated with the fire box door being closed. It can be connected to suitable chimneys that already are being used for other devices. For reasons of safety, the stove is equipped with a self-closing fire box door.

1.3 The flue pipe

The MODENA must be connected using a smoke pipe with an interior diameter of 150 mm and a minimum vertical length of 615 mm. All the parts must be fitted extremely accurately at the connection points. The pipe must be sealed well in the chimney entrance and must not project into the cavity of the chimney otherwise smoke extraction will be impaired.

1.4 Heat-sensitive materials

If the floor is flammable, for example, if made of wood, plastic or is carpeted, etc., a floor plate must be used. (Please also read Chapter 5: Safety).

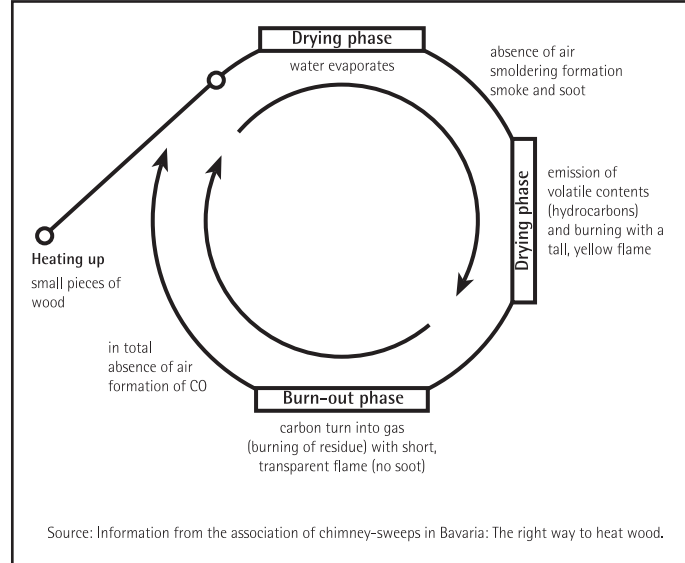
2.1 Fuels

In accordance with the First Ordinance on the Implementation of the Federal Emission Reduction Law, only fuels which generate low quantities of smoke may be used in stoves. For Hase stoves these are exclusively:

- natural wood with bark, eg. in the form of logs or bricks, and also brown coal briquettes, Anthracite, & Homefire smokeless fuel.

The following should. NOT BE BURNED:

- painted or plastic-coated wood
- wood treated with wood preservatives
- domestic waste
- paper briquettes (pollutants: cadmium, lead, zinc)
- damp wood (residual moisture content over 20%)
- Bituminous Coal



The combustion process

If the above materials are burned they not only generate unpleasant smells but also emissions which damage the environment and are harmful to the health.

Highly resinous kinds of wood (e.g. spruce, pine, fir) tend to give off large quantities of sparks. These types of wood should only be burned with the doors closed. Twigs and sticks of wood

should only be used for lighting the fire.

2.2 The combustion process

The following conditions must be met for burning solid fuels:

- The necessary supply of oxygen must be available. This is generally taken from the ambient air.
- The ignition temperature must be achieved. This means the temperature at which the fuel continues to burn without interruption whilst giving off large quantities of heat.

Steel expands very slightly on heating and contracts again to the same degree on cooling. The steel of which your stove is made also reacts to fluctuations in temperature. Your stove is however designed in such a way as to allow the fire box to expand and contract without damaging the stove. During the firing process the internal action in the steel produces a crackling noise.

Wood combustion can be broken down into three phases:

1. Drying phase

The moisture still contained in the air-dried wood (approx. 15 - 20%) is evaporated. This is done at temperatures of approx. 100°C. The wood must be provided with heat during the warming phase for this purpose, which can be achieved by quick-burning wood.

2. Degasification phase

At temperatures of between 100°C and 150°C the contents of the wood start (slowly at first) to decompose and gasify and the wood begins its thermal decomposition. At temperatures over 150°C the gas development increases strongly.

The proportion of volatile components makes up around 80% of the wood substance. The actual combustion begins with the ignition of the resulting gases at a temperature of around 225°C (ignition temperature) with the emission of heat. There must be an adequate supply of oxygen available for this purpose. The peak of the combustion process is reached at a temperature of around 300°C. The reaction is now so turbulent that the largest amount of heat is released at this point. Flame temperatures of up to 1100°C are possible.

3. Burn-off phase

Glowing charred wood remains after the volatile components have been burned off. This wood burns slowly and almost without flames at a temperature of approx. 800°C.

These processes do not only take place consecutively in a wood fire, however, but also simultaneously. The combustion process is shown in the schematic diagram (s. Figure).

tion process is shown in the schematic diagram (s. Figure).

2.3 The combustion products

From a chemical point of view wood mainly consists of the elements carbon, hydrogen and oxygen.

Wood contains almost no substances which are critical from an environmental point of view, such as sulphur, chloride and heavy metals. Therefore after the total combustion of wood the main gaseous products are carbon dioxide and water vapour as well as a small quantity of wood ash which is the solid combustion product.

If the wood does not combust fully on the other hand, a series of pollutant substances may be emitted, such as carbon monoxide (toxic), acetic acid, phenols, methanol (toxic), formaldehyde, soot and tar.

2.4 Your contribution to protecting the environment

Whether your stove burns in a manner that is harmful to the environment or not depends to a large extent on how you operate it and the type of fuel you use (see Section 2.1).

The following hints are intended to help you with this:

- Use only dry wood, leaf-wood like birch and beech are most suitable. (see Sections 2.6 and 2.7).
- Only use small pieces of wood to light the fire. These will burn more easily than large logs and the temperature required for total combustion of the wood will be reached more quickly.
- Do not place too much wood in the stove at one time. It is better to add smaller quantities more frequently. The quantity of wood must always be adjusted to the amount of heat required.

The quality of the combustion process can be checked very easily by means of the following features:

- *The colour and characteristics of the ash.* If the combustion process

is good the result will be fine white ash. Dark colouration indicates that the ash contains charcoal residue.

The burn-off phase in this case has been incomplete.

- *The colour of the flue gases emitted from the chimney.* In this respect remember the following: the less colour in the flue gases emitted from the chimney, the better the quality of the combustion process.

2.5 Heating between seasons

Between seasons (in spring and autumn) you may experience draught difficulties in the chimney if the outdoor temperature is over 16°C. If no draught can be created at these temperatures by a quick fire (temporary generation of great heat by rapidly burning paper or thin wood Chipping's) you should not light the stove.

2.6 Wood moisture content and calorific value

The calorific value of the wood depends largely on the wood moisture content. The more water the wood contains, the more energy must be used to evaporate it. This energy is then lost for heating. The more moisture the wood contains, therefore, the less its calorific value. An example: freshly cut wood has a moisture content of approx. 50% and a calorific value of around 2.3 kWh/kg; wood which has been well dried in the air, on the other hand, has a moisture content of approx. 15% and a calorific value of around 4.3 kWh/kg.

Therefore, if you use very moist wood you will have around half the heat output with the same quantity of wood than when you use dried wood. To be also considered is the fact that if you burn moist wood, the resulting water vapour can condense in the flue pipe or chimney. This can lead to pitting or the chimney becoming sooted or tarred up. Furthermore, if the wood has a high moisture content the combustion temperature is reduced which prevents total combustion of all the wood components and causes considerable pollution. The energy content of

the unburned wood is also lost. It is quiet clear, therefore, that burning inadequately dried wood is irresponsible both from an economical and an ecological point of view.

2.7 Drying and storing wood

As explained under Section 2.6 low wood moisture content is of great importance. Therefore, the following provides a few tips on how to dry and store wood.

- Wood needs time to dry. It will dry in the air outdoors after approx. one to two years if stored properly.
- The wood should be stored ready for use after being sawn and split. This ensures rapid drying because smaller pieces of wood will dry better than logs several metres in length.
- Your logs should be stored in a ventilated, if possible sunny position and be protected from rain (ideally facing south).
- Leave a hand's width between the individual piles of wood so that air can get in between them and remove any escaping moisture.
- Do not cover the piles of wood with

plastic sheets or tarpaulins because the moisture will then be unable to escape.

- Do not stack fresh wood in a cellar since it will rot rather than dry for the lack of air movement.
- Only store dried wood in dry cellar rooms.

2.8 Assessment of the wood moisture content

For you as a stove user it is important to be able to assess whether your wood is air dry (with a residual moisture content less than 20%) or whether it must be stored for a longer period.

The air-dried condition has been reached when the moisture content of the wood is in balance with the ambient air, i.e. it no longer dissipates moisture to the air and no longer takes moisture out of the air. The weight of the wood is characteristic for the moisture balance.

One method which allows you to assess the moisture content is described here. You must observe the points listed under Point 2.7 as a basis for optimum wood storage. Then proceed as follows:

- Take a log from various points in your wood pile.
- Mark these logs to enable you to identify them easily.
- Now weigh the logs on a kitchen scale and make a note of their weights.
- Now dry the logs artificially for several hours (e.g. near the stove, complying with safe distances bet-

ween the stove and the combustible materials or in the oven at 100°C).

- Then place the logs back in the wood pile where they were.
- Weigh the logs again one or two days later.

The moisture balance will be disturbed by drying the logs. The logs will therefore try to reproduce the balance after being dried by taking moisture out of the air. If they achieve the same weight as when they were first weighed they have absorbed the same quantity of water which they lost through being dried. This means that the moisture had balanced out before the wood was weighed for the first time.

If, on the other hand, they are still lighter, there was more water in them before they were weighed for the first time than required for the moisture balance. Therefore, these logs have to be stored for a while longer.

2.9 Cleaning and Maintenance

The chimney stove and the smoke tubes should be inspected each year - if required, even more often - at the end of the heating period for deposits. The upper hot plate can be removed to clean the flue gas paths. Any soot or dust residue can be brushed off and vacuumed. Replace heat-resisting slabs in reverse order.

We will have to provide the steel stoves with a finish of heat-resistant paint. However, heat-resistant stove lacquers do not provide protection against corrosion, with the result that a rust film may form in unfavourable conditions, for example caused through:

- the use of too much water for cleaning the floor/base plate area.
- spilt water from boilers or dishes.
- the positioning in "moist rooms", e.g. conservatories, or the intermediate storage in the building carcass/garage

Clean areas covered in a rust film with emery paper and spray them with stove lacquer spray (available at your Hase specialist dealer).

From time to time, the handling shaft should be greased (for grease see accessories drawer of your stove).

Do not use any detergents containing acid (e.g. citrus or vinegar detergents) to clean the steel parts. Sufficient cleaning can be achieved by wiping the steel parts with a slightly dampened cloth.

When the stove is properly operated, the secondary air simultaneously forms an air curtain in front of the pane and delays the sooting of the glass.

A time-tested environment friendly method for cleaning the ceramic glass panels with materials which are available in every household is as follows:

Take:

- 1 ball of kitchen paper, newspaper, or the like
- wet it
- dip it into the cold wood ash
- wipe the glass with it
- wipe the glass with a clean ball of paper and the job is done.

3.1 Primary and Secondary Air

The Modena features a primary and secondary air valve.

1. Primary air [I]

The primary air required to start the fire and to burn brown coal briquettes is piped up to the fire chamber from below. When burning logs, the primary air slider [I] must be closed after igniting the fuel.

CAUTION:

When burning wood with opened primary air slide there is a risk of the stove overheating (forge fire effect).

2. Secondary air [II]

The secondary air is guided into the combustion chamber from the top. It carries the volume of oxygen into the combustion chamber required to completely burn the wood gas and ensures that, if used correctly, the window to the combustion chamber remains free of soot.

To regulate the secondary air, the following general rule applies:

A small fire requires little secondary air; a large fire requires much secondary air. Shutting the secondary air valve too tightly [II], results in the danger of a smouldering fire or a blow-up occurring.

The secondary air valve [II] should not be completely shut during operation.

The valve controls are located at the lower right and left side of the stove [see illus.].

For settings of operational elements see Chapter 4.

3.2 The shaking grate [a]

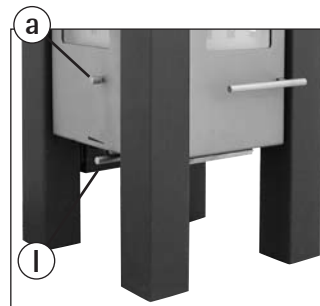
The shaking grate is used to dispose any unburned components (ashes) into the ash drawer and to supply combustion air when starting the fire. It is operated by a slider at the left side below the fire chamber window. [a]

3.3 The ash drawer

The ash drawer must be emptied in good time. Ash piling up can prevent primary air from getting to the stove.

Please make sure that the ash is only removed when it is cold.

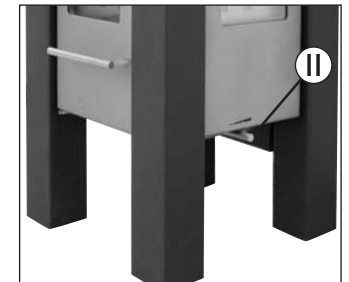
The ash drawer stands in its turned over lid when collecting ash. To empty the drawer pull out the lid and the ash drawer than push the lid on the ash drawer. This closes the ash drawer and prevents flying ash. This, in turn, keeps your home clean when you dispose of the ash. The ash drawer is put back into the stove by proceeding in the reverse order.



3.4 The throttle flap

The throttle flap is fitted in the flue pipe and is used to regulate the flue gas flow. It is not fitted in every flue pipe and is also not absolutely essential. The influence of the throttle valve on the burn off is dependent on many factors, including the chimney height and cross section, the indoor and outdoor temperature, etc. When the handle is horizontal the throttle flap is closed.

If the fire box door is opened during the firing process, first of all the throttle valve must have been opened.



GB HEATING WITH THE MODENA

4.1 Initial operation

Please observe that during the first 2 to 3 firings a distinct odor will be experienced.

4.2 Heating with wood

Lighting

A fast heating-up phase is important as higher rates of emissions during the heating up and lighting phase may occur if operated incorrectly. For environmental reasons we therefore ask you to strictly observe the following sequence. The fire should always be lit with wood.

During heating-up the primary air valve and the secondary air valve should be fully opened. The further position of the secondary air slide depends on the draught of the chimney. The slide settings described here are recommendations that apply under standard conditions.



heating-up air slide (I)



secondary air slide (II)

Procedure	Position of control elements
Open the throttle flap entirely, if your flue pipe has one	Set handle of throttle flap along the length of the pipe
Open fire box door	
Open shaking grate	Pull out shaking grate slide
Open heating-up air slide completely	Move primary air slider [I] all the way back
Open secondary air slide completely	Move secondary air slider [II] all the way back
Sweep remaining ash and any unburned charcoal into the centre with broom	
Place screwed up newspaper, non-coated cardboard or wood wool into the middle of the firebox, top it with around 0.5 kg dry wood chippings and around 1.5 kg wood (2 logs)	
Light the material at several points	
When starting the fire, the fire chamber door can be left slightly ajar to preventing condensation from precipitating on the windows	
When the kindling material has thoroughly caught fire, close the fire chamber door; reduce primary air after awhile, if necessary.	Pull primary air valve [I] forward
After a few minutes, add 3 to 4 small logs, arranged lengthways	

Continuous heating/adding wood

After reaching operational temperature and observing certain basic rules heating is feasible at a very low rate of emission of exhaust gas. Heating capacity depends on feeding of fuel. The respective fuel quantities and lengths of logs are:

- nominal capacity 8 kW: 2 logs, approx. 2 kg total weight each, maximum length of logs: 30 cm
- minimum heat capacity 4 kW: 2 logs of approx., 1 kg total weight each.

- Maximum fuel load size is 2.5 kg
- **Exceeding the maximum fuel load size leads to a danger of overheating, possibly resulting in damage to the stove and risk of a stove fire**

These are guidelines to assist you. Use smaller logs during the heating-up phase.

ATTENTION:
When feeding more fuel, the stove may overheat.

4.3 Heating with brown coal briquettes

Use wood to start the fire and for the first fuel load, see "Heating with Wood". Put the first 3-to-4 brown coal briquettes on a red-hot bed of embers. They should rest in the centre of the grate with an inch-wide distance between them and burned using the following settings:

- Primary air slider halfway open [I]
- Set secondary air slider [II] to position 1
- Open shaker grate

Procedure	Adding wood	Position of control elements
Open the throttle flap entirely, if your flue pipe has one		Set handle of throttle flap along the length of the pipe.
Shut off primary air		Pull primary air slider [I] all the way forward
Adjust secondary air		Set secondary air slider [II] to the second notch
Open shaker grate		Pull out shaker grate slider
Slowly open fire box door to prevent smoke from entering the surroundings		
Load 2 logs (lengthways) of approx., each with a 2 kg total weight, into the fire chamber. Add a single layer of combustible		
Close door for fire box		
<i>Wood should be added when the flames of the prior fire are about to die. Do not exceed the maximum fuel load size of 2.5 kg.</i>		

Maintaining the Embers

To maintain embers over several hours, wait until briquettes are thoroughly burned, using the above-mentioned settings. Then, shut off primary air [I] and close the shaker grate. Secondary air [II] should remain in position 1 or lower (do not completely shut off as long as stove is operating). To re-start the fire flames, open primary air [I] and shaker grate and add fresh fuel.

GB HEATING WITH THE MODENA

4.4 Heating with wood at lowest thermal output

Regulate the heating capacity of your stove with the fuel quantity. Proceed as follows for lower heating requirements:

Procedure	Position of control elements
Close shaking grate	Push shaking grate slide in
Close heating-up air slide	Pull primary air slider (I) all the way forward
Set secondary air	Set secondary air slider [II] to the first notch
Two thin logs (approx.1 kg total weight)	

5. Safety

Never use **methylated spirits; petrol or other flammable fluids to light the stove.**

For safety reasons, the glass plate should not be cleaned with a damp cloth while it is still hot. Receptacles with cold contents should not be placed on the glass plate (danger of breakage).

Children should never be left unattended near the burning stove.

5.1 Safe distances

With flammable materials (eg. wood panelling, plastic cladding and curtains) the safe distance to the side and behind the stove is at least 20 cm. Flammable floor materials (eg. carpet, wood or plastic flooring) must be protected to the front and side with a non-flammable covering (eg. tiles, marble or steel plate) (see Fig. 1).

According to DIN 18891 the following safe distances are valid when using a covering for the floor:

- A 50,0 cm
- B 30,0 cm
- Distance of combustible materials C 20,0 cm

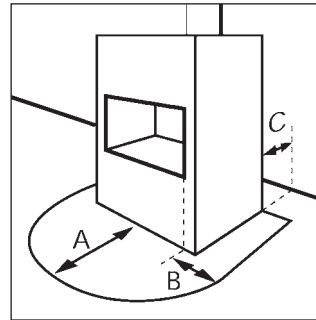


Fig. 1: Dimensions of bottom plate

5.2 Radiation zone

No flammable or heat-sensitive materials are to be left within a distance of 80 cm in the radiation zone (see Fig. 2).

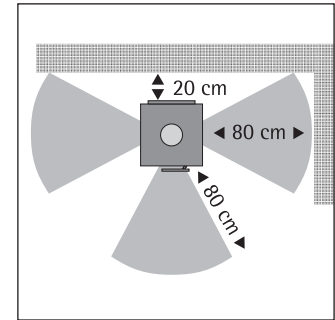


Fig. 2: Radiation zone

Problem	Cause	Remedy
The wood does not light or only does so slowly	The wood is too thick The wood is too damp The air supply is too low	Section 4.2 Continue heating Section 2.8 Section 4.2 Lighting
The wood burns without a bright, yellow flame, smoulders or even goes out	The wood is too damp The air supply is too low The throttle flap is closed too far	Section 2.8 Section 4.2 Lighting Section 3.5
Too much soot is generated, the insulating tiles do not stay clean	The wood is too damp The air supply is too low The quantity of wood is too small and thus the combustion chamber remains too cold	Section 2.8 Section 4.2 Continue heating
Although the fire burns well the stove does not get warm	The chimney draught is too strong	Section 3.4
The wood burns up too quickly	The chimney draught is too strong The wood has been cut too small Incorrect setting of operating elements	Section 3.4 Section 4.2 Section 4.2
Smoke escapes into the room while the stove is burning	The air supply is too low The throttle flap is closed too far The chimney cross section is too small The flue gas ducts in the stove pipe or chimney are badly sooted The wind is blowing down the chimney	Ensure supply of fresh air (i.e. open the window) Section 3.3 Fit a draught booster (flue gas fan) Section 2.9 Fit a wind guard on the chimney pot
The chimney becomes wet and sooty, condensate runs out of the stove pipe	The wood is too damp The flue gases are too cold The chimney is too cold The chimney cross-section is too large	Section 2.8 The stove pipe is too long and must be insulated The chimney must be insulated

Type description	MODENA
Standard reference:	chimney stove to DIN 18891-1

The following data shall apply to the dimensions of the chimney in accordance with DIN 4705:

Operation with fire box closed (design type 1)	
Nominal thermal output	8 kW
Waste gas mass flow rate	10,2 g/s
Waste gas outlet temperature	350 °C
Minimum delivery pressure at nominal thermal output	0,11 mbar

The nominal thermal output of **8 kW** indicated on the unit's type plate will be sufficient for provided that heating conditions are favorable **73 bis 186 m³** (volume in accordance with DIN 18893)

	Height	Width	Depth
Oven	136,0 cm	63,8 cm	58,0 cm
Fire box	124,3 cm	31,7 cm	31,7 cm
Fore box opening	910 cm²		

Pipe	diameter internal 150 mm
Connection branch	top
Connection height top	119,3 cm

Combustion air inlet	diameter internal 120 mm
Connection height back, pipe centre	18,1 cm

Safety distances from flammable materials

