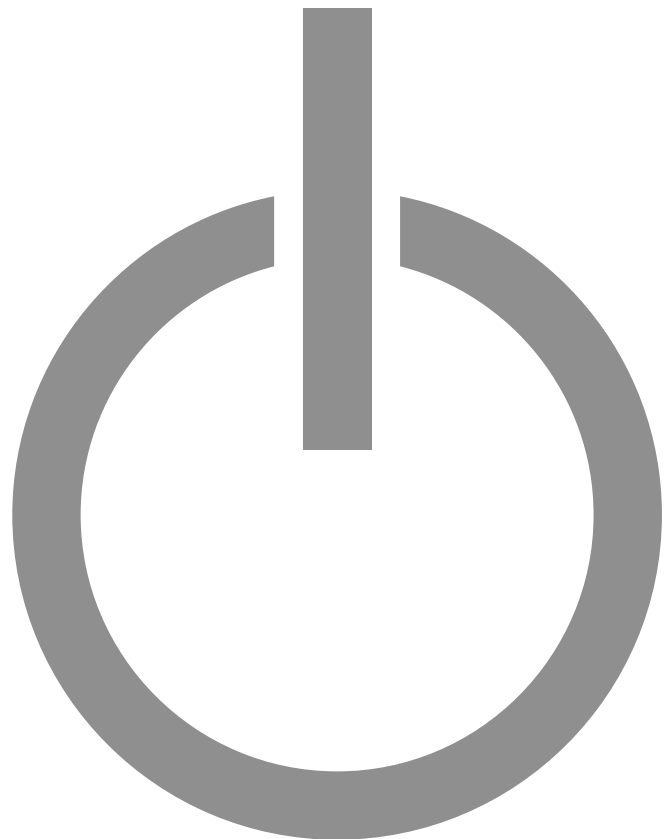


# Operating manual



*Comfortable  
heating. With wood!*

## HDG K10/15/21/26/33





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# 1 Notes on this manual

## 1.1 Introduction

### EASY AND SAFE OPERATION

This operating manual contains important instructions on the

- HDG K10
- HDG K15
- HDG K21
- HDG K26
- HDG K33

and how to operate it properly and safely. Following these instructions helps to avoid dangers, prevent repair costs and downtimes, maintain reliability and extend the life expectancy of the heating system.

### READING THE OPERATING MANUAL

This operating manual must be read and observed by everyone who operates or works on the HDG K10 - 33.

### TECHNICAL CHANGES

We continuously develop and improve our boilers. The information in this edition was correct at the time of going to press.

All details in these instructions on standards, regulations and worksheets should be checked before use and should be compared with the regulations applying locally at the site where the system is installed.

We reserve the right to make changes which may then differ from the technical details and illustrations in this operating manual.

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### GUARANTEE

The terms and conditions of the guarantee of your boiler can be found in the enclosed information sheet.

### SYMBOLS USED

In this operating manual, the following designations and symbols are used for particularly important information:

1. Instructions to the operator

✓ Result of the action described

 Cross reference for more explanation

• List

– List

## 1.2 Glossary

Term	Explanation
Actuator	This is a component which carries out a certain function in the heating system e.g. the worm feed stoking unit.
Automatic cleaning	At intervals, automatically cleans the surface of the heat exchangers.
Delivery system	Pellet transport system in the pellet storage room.
Display	Display of the boiler control unit.
Extinguishing device	Extinguishes the contents of the reservoir if the temperature of the contents exceeds 90°C.
HDG Control	Boiler and heating system controller.
HDG K10 - 33	Heating system for burning wood pellets.
Heating system	Comprised of boiler and corresponding accessories.
Pellet suction system	Pellet transport system which connects the reservoir with the delivery system.
Reservoir	A container which supplies pellets to be burnt in the boiler via the conveying auger.
Sensor	Records certain parameters (temperature, fill level) and forwards them to the control for analysis.
Wood pellets	Binder-free pellets made of pressed, untreated wood.

Table 1/1 - Glossary

# 2 Safety notes

## 2.1 Intended use

### BASIC SYSTEM DESIGN PRINCIPLES

#### BASIC PRINCIPLES

The heating system was built using state-of-the-art technology and conforms to recognised safety regulations. Nevertheless, there is still a risk of injury or death to users or bystanders, and of adverse effects upon the heating system or upon other material goods.

Have your specialist heating company provide you with a detailed explanation of the operation of the heating system.

#### USING THE HEATING SYSTEM

Only use the heating system when it is in perfect condition. Use it properly, as intended, be aware of safety and hazards, and observe the Operating manual. Have any faults which could impair safety fixed immediately.

This device can be used by children over 8 years old and people with reduced physical, sensory or mental capabilities or a lack of experience and knowledge, provided they are supervised or have been instructed on the safe use of the device and understand the resulting risks. Children may not play with the device. Cleaning and user maintenance must not be carried out by children without supervision.

### BASIC PRINCIPLES FOR THE CONTENT OF THE OPERATING MANUAL

#### SCOPE

The content of this operating manual is intended exclusively for the planning, installation and operation of the HDG K10 - 33 heating systems. The further implementation of applicable standards and guidelines, for example regarding installation of the heating system (pipework, etc.), is not part of this operating manual. HDG Bavaria does not assume any liability for this.

### PROPER AND IMPROPER OPERATION

#### PURPOSE OF THE HEATING SYSTEM

The heating system HDG K10 - 33 was designed to burn wood pellets in hot water heating systems.

Any other application is considered improper use. The manufacturer will accept no liability for any damage resulting from improper use. The operator bears sole responsibility in such cases.

Proper use includes adherence to the installation, operation and maintenance requirements specified by the manufacturer.

Modification of the specified operating values will affect the heating system's control programme and could lead to malfunctions. Only trained maintenance and operating personnel may undertake modifications to the operating values.



For more information on fuel, see chapter "3 Mode of operation", section "3.4 Fuel quality requirements".

---

## 2.2 Residual risks

Despite all precautions, the following residual risks remain:



### **Caution!**

Hot surfaces

Contact with the hot surfaces of the boiler can lead to burns.

Wait until the boiler has cooled down before touching non-insulated components.

---



### **Danger!**

Danger of asphyxiation due to lack of oxygen

If the boiler is in operation, carbon monoxide can be emitted through the open doors and lids.

Do not leave the doors and lids open any longer than necessary.

---



### **Warning!**

Danger of fire

Opening doors and lids to hot combustion residues during operation can pose the danger of fires.

Keep the openings closed during operation, and when performing cleaning work, allow the combustion residues to cool down before you place them in a fireproof container.

---



### **Warning!**

Danger from suspended loads

The boiler weighs over 300 kg. If the boiler is dropped during transport, persons can be seriously injured and the boiler can be damaged.

Make sure that you use appropriate lifting gear when placing the boiler.

---





**Danger!**

Danger of explosion due to carbon monoxide

Filling the burner pot with pellets manually may result in too much fuel in the burner pot. Consequently the pellets will not be optimally ignited and too much low temperature carbonisation gas may result which can lead to an explosion.

Do not fill the burner pot manually.



**Danger!**

Dangerous electrical current or voltage

The circuit boards and other electrical components carry current.

Have work on electrical components performed only by a qualified electrician and turn the main switch off.



**Warning!**

The boiler is under pressure.

## 2.3 Warnings and safety symbols used

The following warnings and safety symbols are used in this Operating manual:



**Danger!**

Dangerous electrical current or voltage

Work in areas marked with this symbol may only be performed by a qualified electrician.



**Warning!**

Hazardous area

Working in areas marked with this symbol can lead to serious injuries or to extensive material damage.



**Warning!**

Hand injuries can occur

Working in areas marked with this symbol can lead to hand injuries.



**Caution!**

Hot surfaces

Working in areas marked with this symbol can lead to burns.



---

**Warning!**

Danger of fire

Working in areas marked with this symbol can lead to a fire.

---



---

**Danger!**

Danger of asphyxiation due to lack of oxygen

When working in areas marked with this symbol, there is a danger of asphyxiation due to high concentrations of carbon monoxide.

---



---

**Caution!**

Danger of explosion

When working in areas marked with this symbol, there is a danger of explosion due to high concentrations of carbon monoxide.

---



---

**Warning!**

Suspended loads

When working in areas marked with this symbol, there is a danger of falling objects.

---



---

**Caution!**

Automatic start-up

Working in areas marked with this symbol can lead to injuries due to automatic start-up.

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**Important!**

Frost danger

Only install the heating system in a frost-proof room.

---



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Instructions regarding disposal

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Additional information for the operator

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## 2.4 Safety instructions for the pellet storage room

After the storage room is filled, odourless carbon monoxide may form and a lack of oxygen may arise. Therefore, in the first 6 weeks after filling the storage room, it is prohibited to enter the storage room, and only trained personnel may do so.

For pellet storage rooms, a special sticker (issued by the German Association of wood and pellet fuels - DEPV) must be attached to the access hatch to the fuel storage room.

It lists the following instructions.

- Access prohibited to unauthorised persons, keep children away!
- Smoking, flames and other sources of ignition prohibited.
- Turn the pellet boiler off for at least 1 hour before filling.
- Ensure adequate ventilation before entering.
- Beware of a risk of injury from moving components.
- Make sure filling is carried out properly.



---

In addition, observe the VDI guideline 3464 "Storage of wood pellets at the consumer".

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## 2.5 Duty of information

### READING THE OPERATING MANUAL

Any person performing tasks on this system must read the Operating manual prior to beginning work, particularly the chapter "2 Safety notes".

This is especially important for persons who only occasionally work on the heating system, for example when cleaning or servicing it.

The Operating manual must always be kept readily accessible at the place where heating system is installed.

# 3 Mode of operation

## 3.1 Overview

CROSS SECTION OF HDG K10 - 33

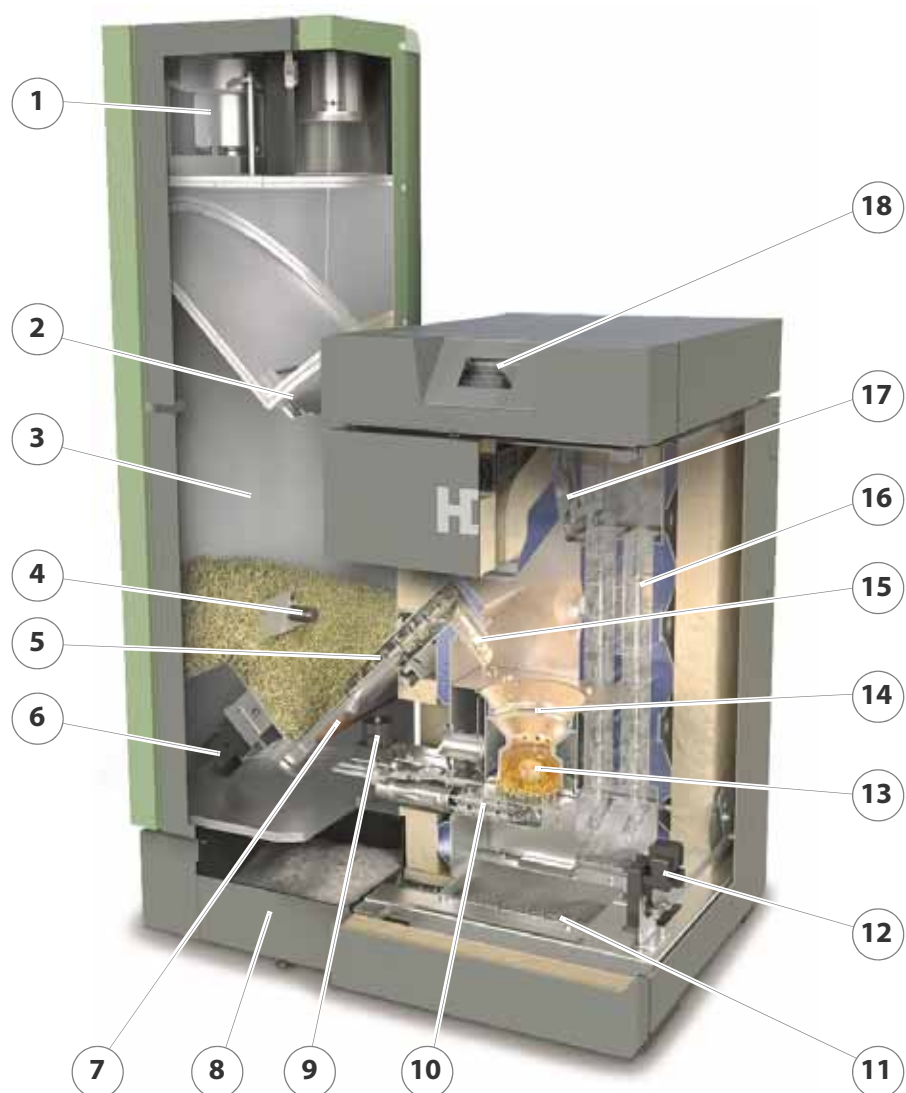


Figure 3/1 - Cross section of HDG K10 - 33

- 1 Vacuum fan
- 2 Flap of the delivery unit
- 3 Reservoir
- 4 Reservoir level indicator
- 5 Conveyor auger
- 6 Drive motor of stoker auger
- 7 Sensor for auger pipe safety thermostat

- 8 Ash container
- 9 Combustion grate drive motor
- 10 Ignition element
- 11 Ash compartment
- 12 Ash removal / cleaning system drive motor
- 13 Primary air pin
- 14 Burner pot
- 15 Drop chute
- 16 Heat exchanger surfaces incl. turbulators
- 17 Combustion chamber temperature sensor
- 18 Control unit HDG Control Touch

## 3.2 Functional description

### COMBUSTION PROCESS

In boiler HDG K10 - 33, the pellets are automatically transported from the fuel storage room to the reservoir using the delivery system with the assistance of the pellet suction system. The feeding system conveys the pellets to the burner pot of the boiler.

The automatic pellet suction system does not need to be fitted. In this case the reservoir will be filled manually.

The combustion process starts with a preliminary flushing. The flue gas fan and the combustion chamber of the boiler is flushed with fresh air. The next step is the ignition phase. The supplied pellets are automatically ignited with a heating element. In the subsequent flame stabilisation phase, even combustion is established.

The system then changes to modulation mode. In this mode, combustion is carried out according to the required output.

The boiler HDG K10 - 33 is equipped as standard with an automatic heat exchanger cleaning system. This ensures a consistently high heat transfer and consequently a high level of efficiency.

If the extracted power falls below the minimum nominal thermal power or there is no heating request, the boiler goes into burn-out mode. The flue gas fan continues running until the burner pot has cooled down.

To prevent the grating from slagging up and to ensure ash removal occurs, the grate plate is moved at intervals. The automatic ash removal system transports the accumulated fly and combustion ash to the external ash container.

The air necessary for combustion is supplied as required via a speed-controlled flue gas fan.

Sensors are used to:

- Continuously monitor the firing

- Adapt the boiler output to the heat requirements
- Minimise emissions
- To optimise boiler efficiency

#### BOILER AND WEATHER-COMPENSATED HEATING CONTROL HDG CONTROL

##### BOILER CONTROL UNIT

The boiler control unit of the pellet boiler HDG K10 - 33 is the electronic hub. It consists of the ready-to-use control panel and control unit on the top right side of the boiler. Using the control unit, you can regulate the boiler and call up information on the current process.


If the heating circuits issue a request for more heat, the pellet system automatically switches to the **flushing** operating mode and the combustion process begins.

Once the desired boiler temperature has been reached, i.e. the need for heat has been met, the heating system changes to **Burn out** mode and subsequently to the operating status **Standby**.

##### HEATING CIRCUIT CONTROL

The HDG Control controls the entire energy management of the heating system including the following, depending on the version:

- Accumulator management
- Weather-compensated heating circuits
- Domestic hot water heating
- Control of the second boiler
- Transfer of heat into the district heating grid
- Solar system for hot water and support of the heating system

 For a description of the HDG Control boiler and weather-compensated heating control, refer to the "HDG Control" operating manual.

#### DELIVERY SYSTEM

The delivery system is in the pellet storage room. Various delivery system options are available.

- Suction probes: The pellets are drawn up through 8 suction probes in the fuel storage room.
- Auger: Via an auger, the pellets on the sloping floor are transported to the transfer station.
- Pellet mole: The pellet mole moves freely in the fuel storage room.
- Pellet fabric silo: External pellet storage made from polyester.

The delivery system is controlled by the control system HDG Control.

### PELLET SUCTION SYSTEM

The pellet suction system links the delivery system with the reservoir of the HDG K10 - 33 boiler. This process is monitored by sensors and, using the boiler control system, can be limited to various times of day.

### RESERVOIR

Various versions are available:

	Reservoir Automatic	Reservoir Manual, small (Day container)	Reservoir Manual, large (Week container)
Filling	Automatic (pellet suction system)	By hand	By hand
Volume	107 kg	107 kg	200 kg

Table 3/1 - Reservoir

## 3.3 Technical data

Type of boiler	HDG K10	HDG K15	HDG K21	HDG K26	HDG K33
Performance data (measured according to DIN EN 303-5)					
Nominal thermal power	9.9 kW	15 kW	21 kW	25.9 kW	32.5 kW
Minimum thermal power	3.0 kW	4.3 kW	6.3 kW	7.6 kW	9.8 kW
Boiler efficiency at nominal thermal power	94.4 %	93.8 %	93.9 %	93.9 %	94.8 %
Electrical power consumption at nominal thermal power	28 W	33 W	41 W	48 W	77 W
Electrical connection: <ul style="list-style-type: none"><li>• Voltage</li><li>• Frequency</li><li>• Back-up fuse</li></ul>	230 V 50 Hz 13 A (slow-blow)				
General boiler data					
Boiler class	5				
Maximum permissible operating pressure	3.0 bar				
Maximum supply temperature	85 °C*				
Minimum return temperature	20 °C				
Water capacity	39 l		47 l		
Weight	261 kg		283 kg		
Planning data for flue calculation (DIN EN 13384-1)					
Flue gas temp. (Tw) at nominal thermal power	98 °C	119 °C	127 °C	134 °C	138 °C
Flue gas temp. (Tw) at lowest thermal power	78 °C	82 °C	87 °C	90 °C	92 °C
Flue gas mass flow, nominal thermal power	0.0058kg/s	0.0085kg/s	0.0118kg/s	0.0146kg/s	0.0180kg/s
Flue gas mass flow, minimum thermal power	0.0025kg/s	0.0034kg/s	0.0044kg/s	0.0049kg/s	0.0060kg/s
CO <sub>2</sub> content at nominal thermal power	13.4 %	14.2 %	14.2 %	14.2 %	14.6 %
CO <sub>2</sub> content at minimum thermal power	9.7 %	10.1 %	11.3 %	12.1 %	12.3 %
Flue draught requirement (Pw)	5 Pa				
Diameter of flue pipe connection	130 mm				
Height at middle of flue gas pipe connection	1050 mm (top) / 750 mm (rear)				
Water-side connections					
Supply and return connections	DN 25, outside thread				
Recommended pipe dimensions (minimum)	DN 25				
Water-side resistance, 10 K	360 Pa	760 Pa	1430 Pa	2150 Pa	3110 Pa
Water-side resistance, 20 K	100 Pa	210 Pa	390 Pa	580 Pa	860 Pa
Other information					
Sound pressure level	45.3 dB(A)	45.7 dB(A)	46.1 dB(A)	46.5 dB(A)	47.6 dB(A)
Min. Air inlet cross section	150 cm <sup>2</sup>				

Table 3/2 - Technical data

\*Maximum operating temperatures of up to 110 °C can also briefly occur.



## 3.4 Fuel quality requirements

Only wood pellets are permissible as fuel for the HDG K10 - 33 boiler.



With regard to the quality standards for pellets, DIN EN ISO 17225-2 "Biogenic solid fuel - fuel specifications and classes - classification of pellets" applies.

In accordance with this standard, the properties of pellets that can be used with the HDG K10 - 33 are specified below in more detail.

Wood pellets are pressed into a cylindrical shape. They consist of untreated shavings and sawdust from the wood processing industry as well as unprocessed forestry waste. They have a standardised diameter and length. They are pressed at a very high pressure and have a very low water content. The energy contained in 2 kg of pellets corresponds approximately to the energy contained in a litre of heating oil.

Essential criteria for the definition of the property classes are the length and diameter, moisture content and ash content of the fuel.

### LENGTH AND DIAMETER

The diameter of the pellets used must be in accordance with D06, i.e. 6 mm +/- 1 mm. The length of the pellets must measure between 3.15 mm and 40 mm. A maximum of 1.0% by weight of the pellets may be longer than 45 mm.

### WATER CONTENT

The water content must be less than 10% (M10) for property classes A1, A2 and B.

### ASH CONTENT

The ash content of the property class A2 and B is higher than that of A1 due to the higher proportion of bark, needles and leaves. The maximum ash content for property class A1 is 0.7% by weight (A0.7), for property class A2 the maximum ash content is 1.2 % by weight (A1.2) and for property class B the maximum ash content is 2.0 % by weight (A2.0). In accordance with the 1st Federal Emission Control Ordinance, operation with pellets in Germany is limited to property class A1.

Alternatively pellets with the "ENplus" or "DINplus" certificate are also suitable as they meet the quality requirements of property class A1.

### RECOMMENDED FUEL

It is important that fuel is used according to HGD fuel specifications. In particular, all fuel requirements concerning size, water content and ash content must be met.



Pay particular attention to the fuel quality, both when ordering and at delivery.



### Important!

If there is a significant change of fuel, the system must be reset accordingly and checked for emissions by authorised specialists.

# 4 Planning and installation

## 4.1 Planning the heating system

### REQUIRED ROOM SIZES AND MINIMUM CLEARANCES

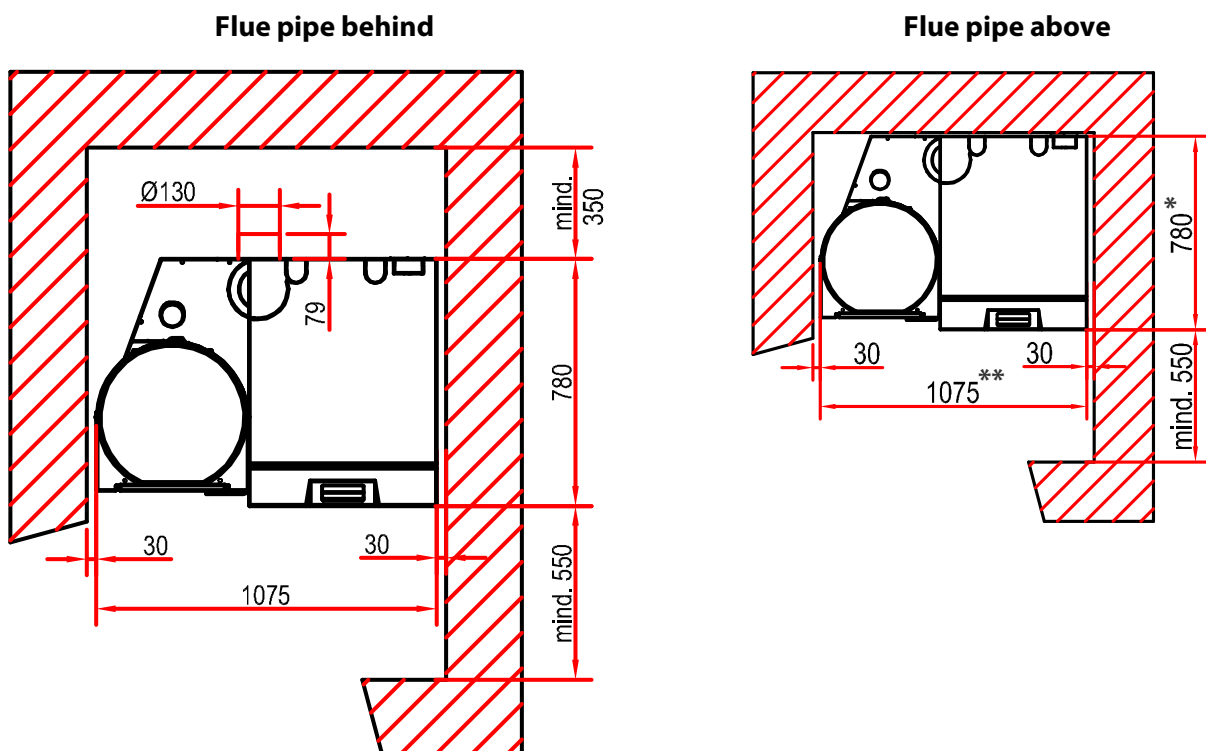


Figure 4/1 - Room sizes and minimum clearances in mm

\* for HDG K21/26/33. For HDG K10/15 = 710 mm

\*\* with 107 kg reservoir. With 200 kg reservoir = 1425 mm

**Minimum room height: 1850 mm**

**Recommended room height: 2250 mm**

## DIMENSIONS AND CONNECTIONS

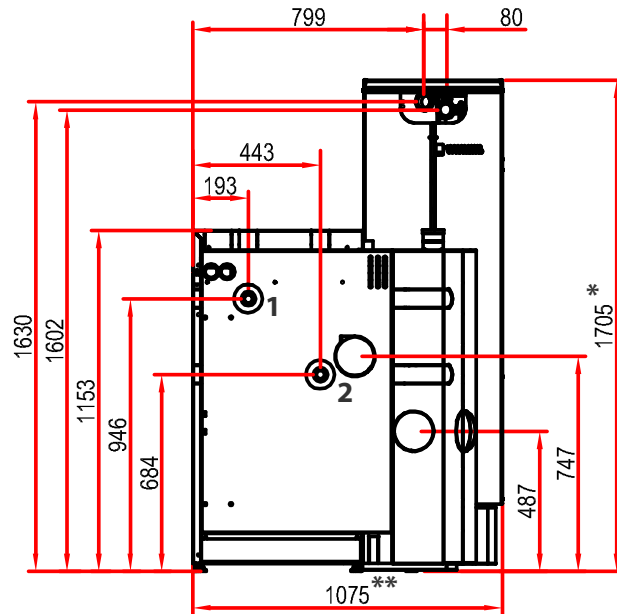


Figure 4/2 - Dimensions (mm) and connections

\* with 107 kg reservoir. With 200 kg reservoir = 1470 mm

\*\* with 107 kg reservoir. With 200 kg reservoir = 1425 mm

1 Boiler supply connection (DN 25, outside thread)

2 Boiler return connection (DN 25, outside thread)

## FURNACE ROOM

### APPLICABLE REGULATIONS

Local building regulations always apply. In Germany, individual state regulations on boilers and furnaces (FeuVO) also apply.



### Important!

Building regulations may differ from country to country and state to state.

For this reason, consult a qualified specialist for the planning and installation of your boiler room.

Make sure there is an adequate supply of fresh air to the boiler room so that there is enough air available for the combustion process and to protect the operator from the hazards of insufficient oxygen.

A base is not necessary for installation of the heating system. Ensure alignment on a horizontal plane.

### INSTALLATION



Observe the fire safety regulations.

To ensure unhindered operation and maintenance of the heating system, it is imperative that the heating system is installed in accordance with the specifications of HDG Bavaria and that the minimum spacing requirements are observed.

Also note that the thresholds in DIN 4109 “Soundproofing in building construction” may not be exceeded.

More detailed information can be found in the relevant local and national regulations.



Also observe the accident prevention regulations of the official safety organisations.


We recommend that objects which are not needed for the operation or maintenance of the heating system not be stored in the boiler room.

## 4.2 Connections

### CHIMNEY



According to EN 303-5, the entire flue system must be installed in such a way that contamination, condensation and insufficient flue draught are avoided. Note here that in the accessible operational area of the boiler, flue gas temperatures of less than 160 K above room temperature may arise.

 The required flue gas values are listed in chapter “3 Mode of operation”, section “3.3 Technical data”.

The benefits of the HDG K10 - 33 can only be enjoyed if all of the prerequisites for good combustion are ensured. The heating system and chimney form a single functional unit and must be adapted to one another in order to guarantee fault-free and economical operation.

Since the flue temperature may lie below 100°C when the system is partially loaded, a chimney/flue is required which meets the requirements of DIN EN 13384-1: 2003-03 “Thermal and fluid dynamic calculation methods”. If it does not meet this standard, contact your specialist heating company or chimney engineer.



When planning the flue system, a flue calculation based on DIN EN 13384-1 must be performed by authorised specialists.

Another essential criterion is to achieve the correct flue draught. This depends on three major factors.

The requirements for minimising the draught loss in the chimney are:

- Good thermal insulation to avoid the flue gases cooling down too quickly.
- Smooth interior surface to reduce the flow resistance.
- Chimney well-sealed to avoid outside air leaking in. Air penetrating from the outside speeds up the cooling of the flue gases.

### CHIMNEY CHARACTERISTICS

These requirements correspond to chimneys of the type according to DIN EN 13384-1: 2003-03 "Thermal and fluid dynamic calculation methods".

Insulated chimneys used today, consisting of a fireclay or stainless steel pipe with an insulating jacket and cladding bricks (three shell design), are to be assigned to groups I - II.

Uninsulated chimneys made of bricks or similar material correspond to design type III and are unsuitable.

Free-standing chimneys require particularly good insulation.

The system may only be connected to a chimney which has been dimensioned in accordance with DIN EN 13384-1, taking into account the fuel planned and the expected load, and which meets local building regulations for the installation site.

A chimney can only be designed with full knowledge of the on-site conditions. This includes taking into account the following factors:

- Building location
  - Surrounding hills/slopes
  - Wind direction
- Location of the chimney in the roof
  - The opening of the chimney must be at least 0.5 m above the highest edge of roofs with a slope of more than 20° or at least 1.0 m higher than roof surfaces which slope at 20° or less.
- The effective height of a chimney is measured from the flue entrance into it to the end of the chimney.

The firing system must be connected with a connecting piece which is as short as possible, at an angle which is less than 30 - 45° to the chimney.

You should aim for a connecting piece with a maximum length of 1 m using just one fitting. Every additional fitting results in a greater pressure loss in the exhaust path and should thus be avoided. The same is true for overly long connecting pieces. If, for constructional reasons, they have to be longer than 1 m, they should be adequately insulated (at least 5 cm of mineral wool or equivalent material) and, if possible, should be fitted with an upward inclination.

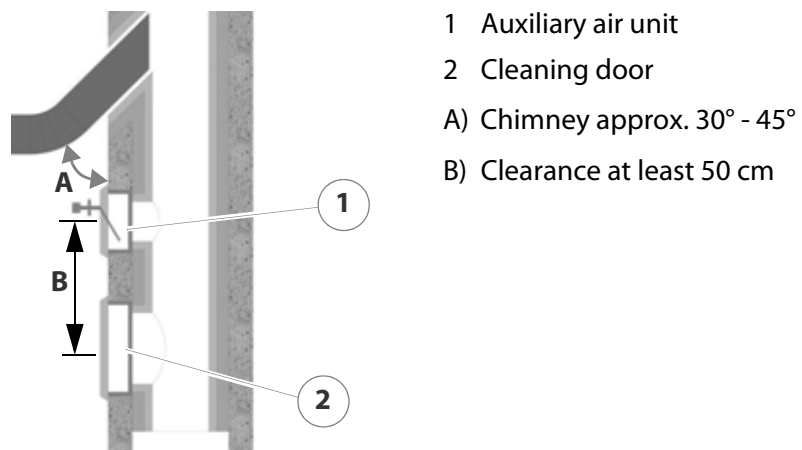


Figure 4/3 - Chimney connection

#### CHIMNEY DIMENSIONS

#### CONNECTING THE BOILER TO THE CHIMNEY

To compensate for irregularities in the flue draught of the chimney, HDG Bavaria recommends installing an auxiliary air unit in the flue gas pipe, or even better, in the chimney itself as shown in Figure 4/3 - Chimney connection.


The following should also be considered:

- The connecting piece may not protrude into the chimney.
- If the system flue gas pipe has a larger diameter than the chimney, the connecting piece must reduce its diameter to that of the connection. In this case, the connecting piece should taper as gently as possible.
- Use bends rather than elbows; the radius of the elbow may not be less than the diameter of the pipe.
- The chimney should be vertical and straight, if possible without deformations (take particular care in older buildings).
- All of the cleaning doors and measurement hatches on the chimney must have tight seals.
- To reduce the entry of additional cold air, only one heat source should be attached to each chimney.
- To prevent dust from escaping, the flue gas pipe must be sealed with heat-resistant silicone.

### ELECTRICAL SYSTEM

The instructions in 2006/95/EC (low voltage directive) must be followed for the electrical connections to the system.

No electrical installations, such as power sockets, distribution boxes, lights or light switches may be located in the pellet storage room. Any lights must be suitable for use in areas at risk of explosion. The VDE regulations for rooms with a risk of dust explosion must be followed.

 The required connection values are listed in chapter “3 Mode of operation”, section “3.3 Technical data”.

### LIGHTNING/SURGE PROTECTION



#### Important!

To operate the heating system safely and properly we recommend protecting the electronic components with a lightning and surge protection according to DIN EN 62305 or DIN VDE 0100-443. Please contact your specialist electrical service.

### WATER

The coatings formed by stones in the heat generator can have a detrimental effect on the efficiency (energy efficiency) of the heating/boiler system and can lead to damage and faults.

**Important!**

The heating system must be filled with water in accordance with VDI guideline 2035, "Avoiding damage in hot water heating systems".



Antifreeze agents may only be used after prior consultation with HDG.

#### OPERATION WITHOUT AN ACCUMULATOR

In principle the heating system HDG K10 - 33 does not need an accumulator. This requires a guaranteed minimum heat transfer capacity, for example, a demand circuit that cannot be disabled or no thermostat valves on any radiator.

**Exception:**

If the entire heat requirement of the object according to calculations in accordance with DIN EN 12831 is less than 50% of the nominal thermal power, we recommend installing an accumulator. This means that the HDG K10 - 33 boiler charges the accumulator by means of a return flow boost assembly.

#### USING AN ACCUMULATOR

When calculating the thermal requirements of buildings, e.g. according to DIN EN 12831 "Method for calculating the normal heating load", the lowest outside temperature of the relevant climate zone (e.g. -15 °C) is used. This condition only applies a few days per year, thus, the thermal performance of the heating system is greater than required on most days when heating is needed.

For this reason, the HDG K10 - 33 is fitted with power control as standard and with automatic ignition.

**It is, however, highly recommended to use an accumulator even with automatic boiler systems.**

The size of the accumulator will depend on the nominal thermal power of the boiler and on the thermal requirements of the building. As a guide, the recommended value of 20 litres per kW boiler output can be used.

An advantage of using an accumulator lies in the lower operating hours of the system and fewer start-up phases due to the extension of the heating intervals. This leads to a reduction in the proportion of external energy supplied and to lower wear of the mechanical components.

**For the above-mentioned reasons, we recommend an accumulator even for automatic boiler systems.**

#### SAFETY DEVICES

Safety devices (e.g. boiler safety module, low-water-level switch etc.) must be installed in accordance with DIN EN 12828: "Design for water-based heating systems in buildings".

#### RETURN TEMPERATURE

Operating temperatures which are too low, significantly shorten the service life of the boiler. Water vapour contained in the flue gas could be released in the form of condensation if the temperature drops below the dew point (approx. 50 - 55 °C), especially in the area


around the water-cooled heat-exchanger surfaces. This condensation, in combination with combustion residue, can lead to corrosion.

As a result of the built-in standard return flow boost assembly, the HDG K10 - 33 boiler can be operated up to a return temperature of at least 20°C. In this case no external return temperature control is required.

**Exception:**

For heating systems with accumulators, which are directly charged by the boiler, an external return temperature control must be used.

The return temperature control causes the water from the boiler return flow to be mixed with the water from the boiler supply flow until the minimum return temperature has been reached.

 The minimum return temperature is listed in chapter “3 Mode of operation”, section “3.3 Technical data”.

The control of the return temperature is handled by the HDG Control control unit.

The return temperature control consists of a 3-way mixing valve with a 230 V servo drive (running time 120-240 s) and a circulation pump from energy efficiency class A. For the HDG K10 - 33, we recommend

- Wilo 25/1-6, 3-way mixing valve DN 25 (or equivalent)



The pipe dimensions must be adapted to meet the requirements at the site. Take the water-side connections of the boiler for the supply and return into account.

 See chapter “3 Mode of operation”, section “3.3 Technical data”.

The return temperature control may not be further than 5 metres from the boiler.

The hydraulic system must be installed in accordance with specific technical principles of the heating construction industry. Take into account the stop cocks required for maintenance work and repairs.



The return temperature control is not designed for the use of a gravity brake and this should therefore not be installed.

The return temperature control must be installed according to the specifications of HDG Bavaria.

## 4.3 Scope of delivery

### BOILER

The boiler and the reservoir are delivered wrapped in plastic foil, each in a sturdy transport crate. The cladding and components to be installed are in separate boxes. The cleaning tools are enclosed with the boiler.



## ORIGINAL STATE ON DELIVERY

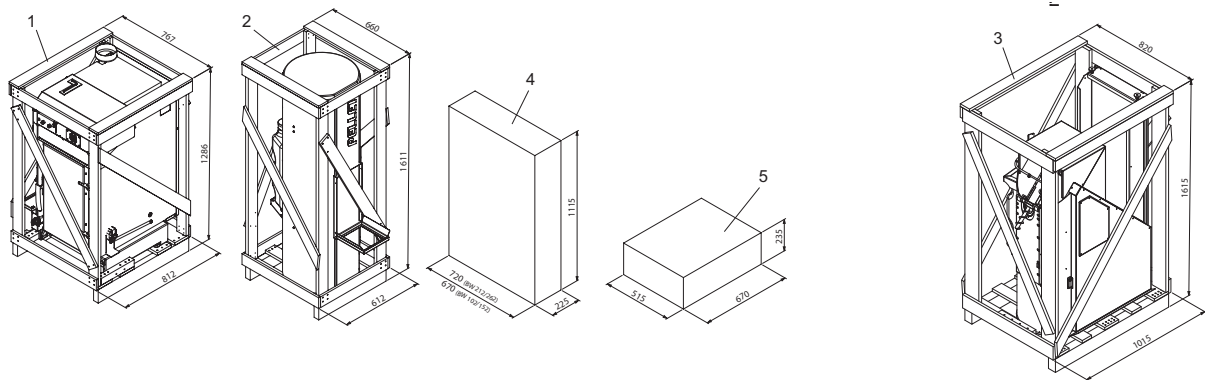


Figure 4/4 - Original state on delivery

- 1 Boiler
- 2 Day container
- 3 Week container
- 4 Cladding
- 5 Ash container

## 4.4 Installing the heating system

The heating system is installed by specialists from HDG Bavaria GmbH or an authorised HDG partner and a qualified electrician.

**Danger!**

Risk of material damage and injury due to incorrect installation

Installing the heating system requires comprehensive specialist knowledge. If installed by untrained persons, the heating system can be damaged and persons may be injured due to secondary damage.

Only allow authorised specialists to perform the installation.

**Danger!**

Dangerous electrical current or voltage

Switch off the mains supply to the heating system during the installation.

**Danger!**

Dust explosion due to build-up of static charge

Only qualified electricians certified according to TRBS 1203-1 may perform work on electrical systems in areas at risk of explosion.



### Caution!

Danger of injury

Some of the components being installed are heavy. Hands and feet could be crushed if installation is not performed properly.

### SUPPLY

If possible, the boiler and the reservoir are brought by lift truck to the installation site in their crates.

Net weight	HDG K10/15	HDG K21/26/33
Boiler incl. transport crate	218 kg	239 kg
Boiler	200 kg	221 kg
Minimum boiler weight (without combustion chamber door, cleaning shaft lid, cone, primary air pin)	170 kg	191 kg
Day container incl. transport crate	56 kg	
Day container	42 kg	
Week container incl. transport crate	107 kg	
Week container	81 kg	
Ash container	12 kg	

Table 4/1 - Net weight

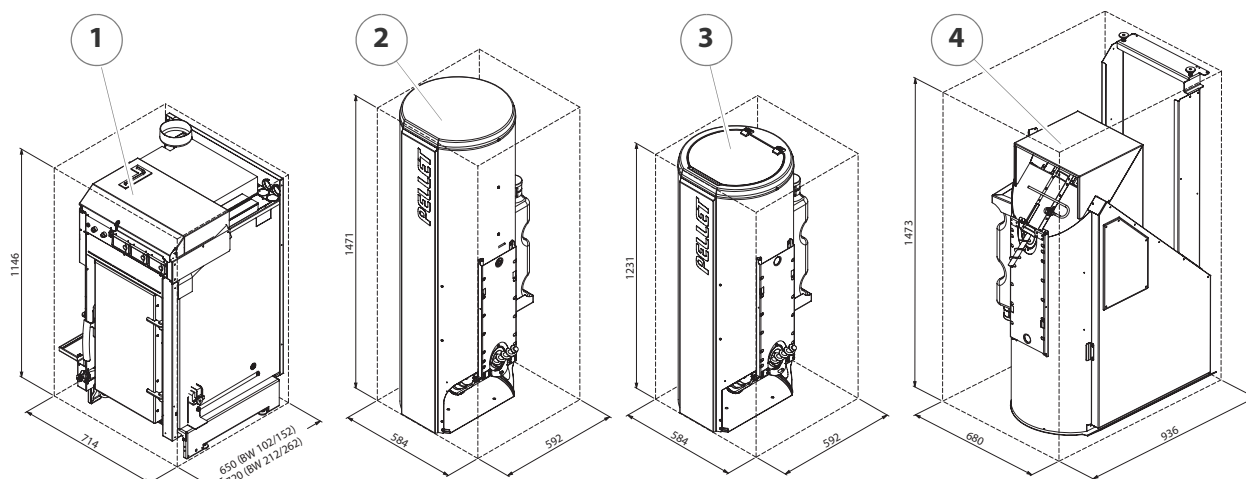


Figure 4/5 - Boiler and reservoir without crate

- 1 Boiler
- 2 Reservoir with suction system
- 3 Reservoir with suction system (day container)
- 4 Week container

## REMOVING THE TRANSPORT PALLET

**Caution!**

Danger from suspended loads

The boiler weighs over 200 kg. If the boiler is dropped during transport, persons can be seriously injured and the boiler can be damaged.

Make sure that you use appropriate lifting gear when installing the boiler.

## MANUALLY

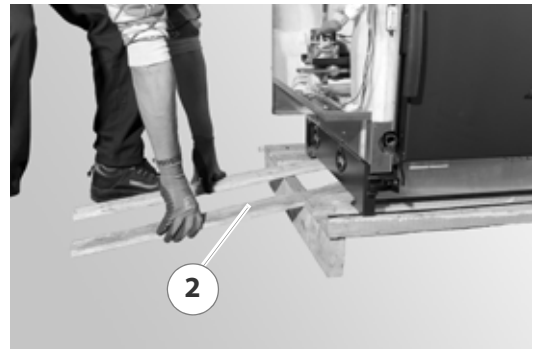
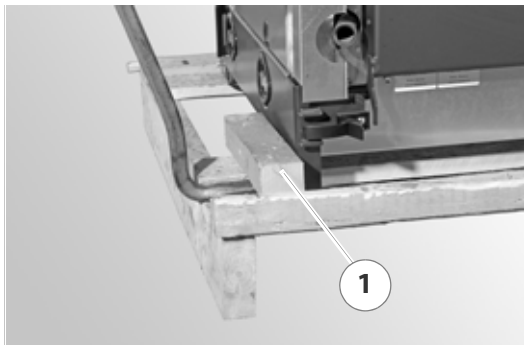


Figure 4/6 - Removing the transport pallet - 1

1. Remove the wood block at the base (1).
2. Lay the dismantled crate planks (2) on the pallet to use as a ramp.



Figure 4/7 - Removing the transport pallet - 2

3. Grip into the auger pipe (2) and the flue pipe connection (1).
4. Push the boiler (3) off the pallet.

### WITH A SACK TRUCK

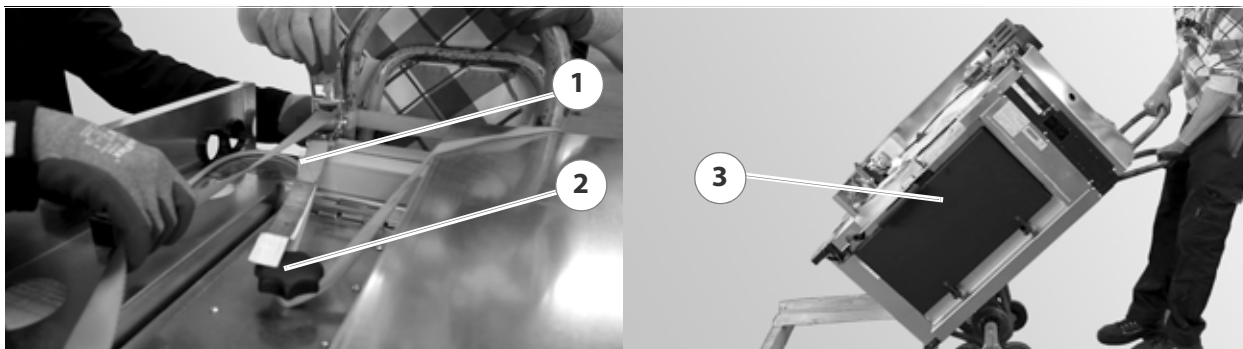


Figure 4/8 - Removing the transport pallet using a sack truck

5. Lay the ratchet strap (1) around the star-grip screw (2) on the cleaning shaft lid.
6. Fasten the ratchet strap (1) to the sack truck.
7. Lift the boiler (3) off the pallet with the sack truck.

### BY CRANE

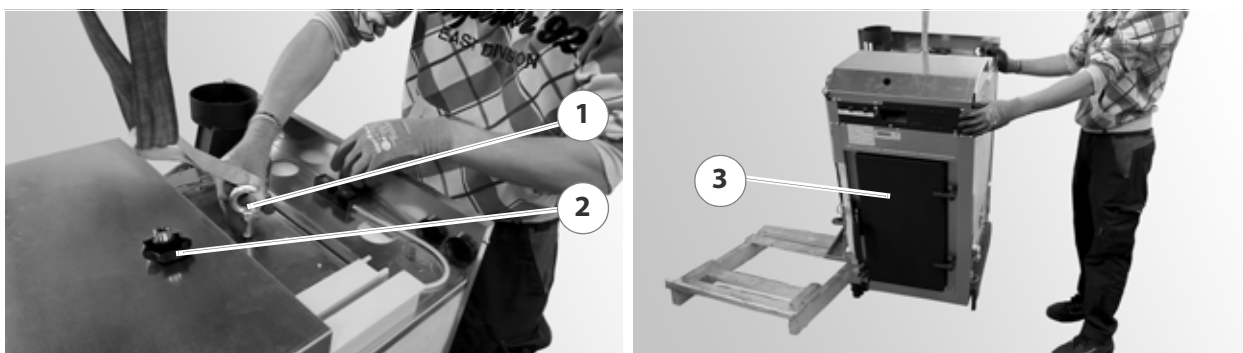



Figure 4/9 - Removing the transport pallet using a crane

8. Remove the star-grip screw (2) from the cleaning shaft lid.
  9. Screw an M12 crane eyelet (1) (not supplied) into the threaded pin.
  10. Lift the boiler (3) off the pallet by crane.
- ✓ The transport pallet has been removed.

### INSTALLING THE BOILER

1. Place the boiler in the planned location.
  2. Ensure the minimum clearances.
-  See section “4.1 Planning the heating system”, under “Required room sizes and minimum clearances”.

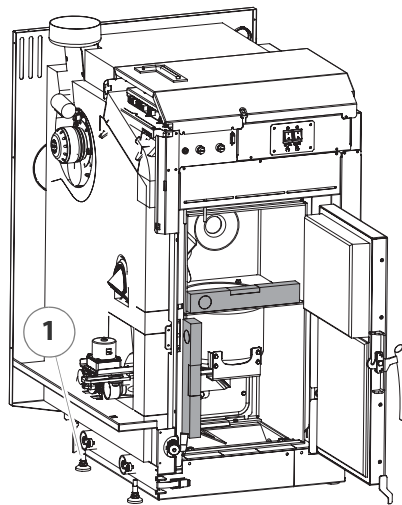


Figure 4/10 - Aligning the boiler

3. Adjust the boiler horizontally or slightly sloping upwards to the rear using the four positioning screws (1).

✓ The boiler is erected.

#### FITTING THE FILLING AND DRAIN COCK

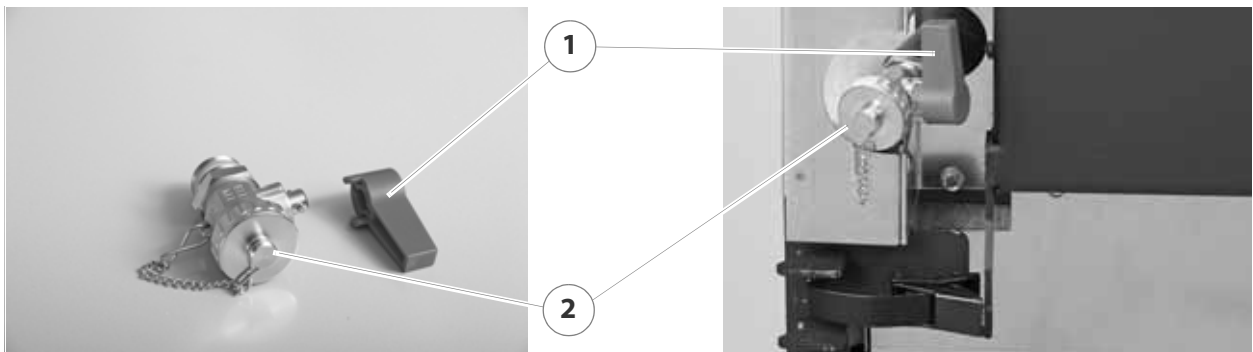


Figure 4/11 - Fitting the filling and drain cock

1. Pull the handle (1) off the filling and drain cock (2).
  2. Screw the filling and drain cock (2) into the bottom left connection on the boiler.
  3. Make sure the handle is on the right.
  4. Push the handle (1) back onto the filling and drain cock (2).
- ✓ The filling and drain cock is now fitted.

#### CONVERTING THE FLUE PIPE CONNECTION



On delivery, the flue pipe connection is at the top. If necessary, the flue pipe connection can be moved to the rear.

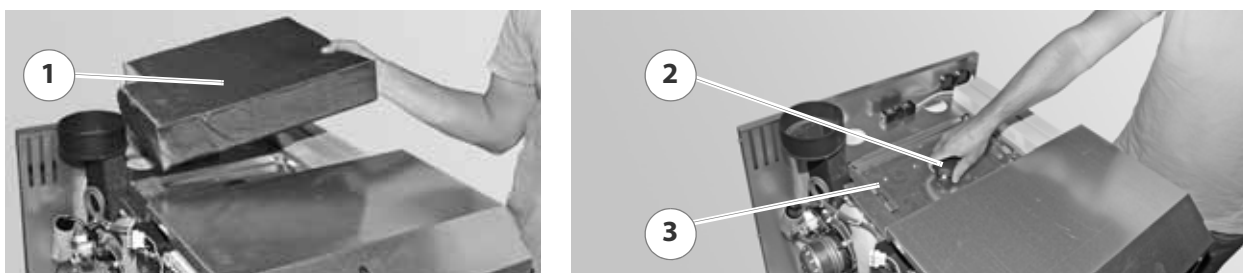


Figure 4/12 - Opening the cleaning shaft lid

1. Remove the insulation (1) above the cleaning shaft lid.
2. Release the star-grip screw (2).
3. Lift off the cleaning shaft lid (3).

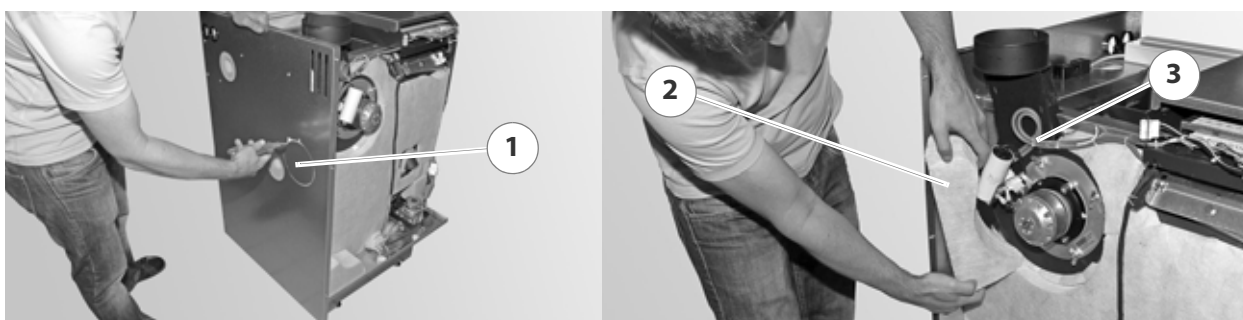


Figure 4/13 - Removing the rear wall

4. Break out the perforation (1) on the rear wall.
5. Remove the insulation around the (2) flue gas casing.
6. Cut the cable ties (3) on the fan cable.

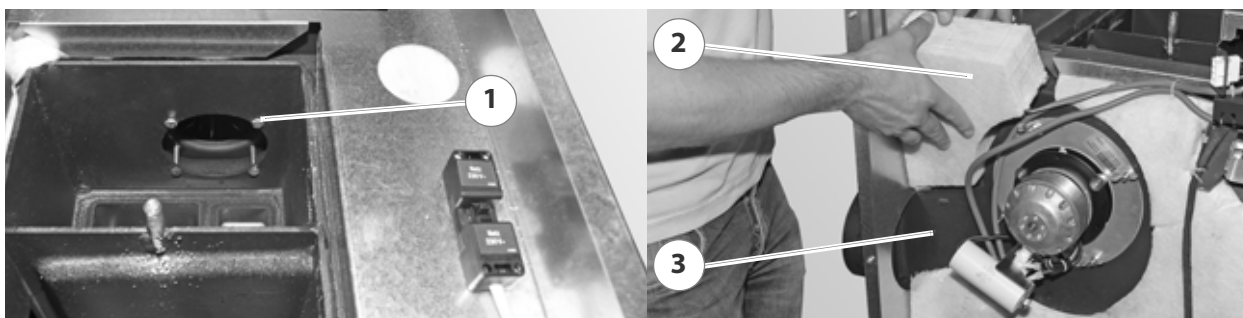


Figure 4/14 - Turning the flue gas housing



#### Important!

The seal between the flue gas housing and the boiler must not be damaged.

7. Undo the four hex socket screws (1) in the cleaning shaft lid.
  8. Carefully take off the flue gas housing.
  9. Turn the flue gas housing (3) by 90° and screw it on again.
  10. Put the insulation (2) back in on the left (enclosed, on the side below the flue gas housing).
- ✓ The flue gas connection has been converted.

## INSTALLING THE RESERVOIR



The auger motor is installed under the reservoir on the auger.

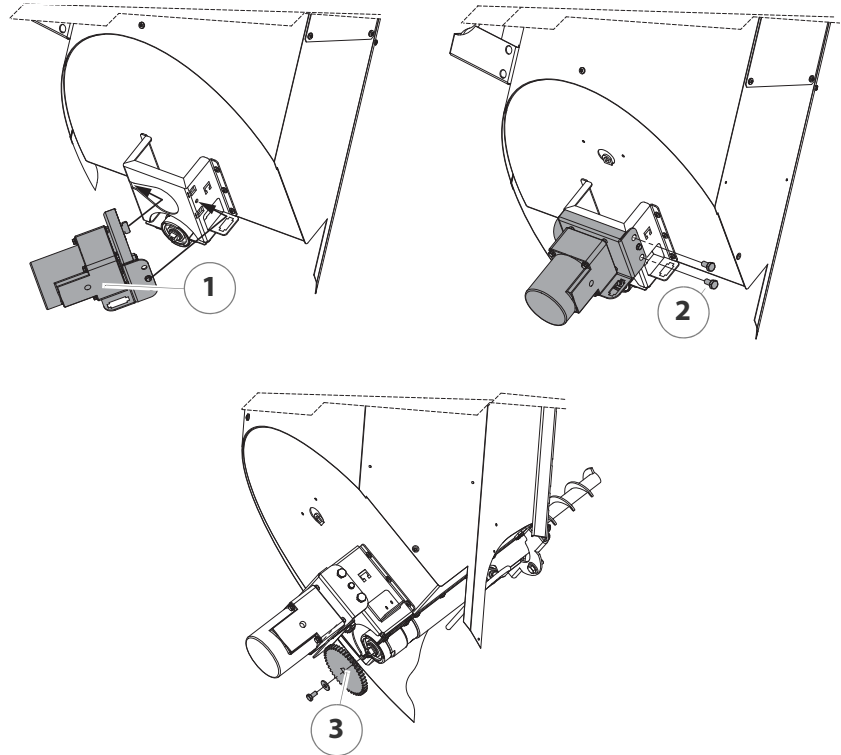


Figure 4/15 - Installing the auger motor

1. Attach the auger motor (1) (contained in the combustion chamber on delivery) to the holder with the lug at the back and the centring screw at the front.
2. Fasten the auger motor with the two M8 screws (SW13) (2).
3. Screw the gear wheel (3) using the M6 screw (SW10) and a washer onto the auger at the bottom of the reservoir.



Figure 4/16 - Attaching the reservoir

4. Thread the in the reservoir with the conveyor auger (2) into the auger pipe (1).
5. Attach the reservoir at the top by the yellow markings into the two hooks (3).





Figure 4/17 - Fastening the reservoir

6. Screw the upper fastening screws (2) all the way in (to the marking).
7. At the bottom, fasten the reservoir using the M8 screw (SW13) (enclosed in a plastic bag in the reservoir) (3).



Figure 4/18 - Installing the safety thermostat

8. Push the sensor (1) for the auger pipe safety thermostat all the way into the holder.

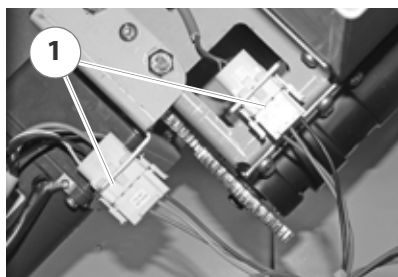


Figure 4/19 - Connecting the plugs

9. Connect the plugs (1) of the auger motor and the proximity switch.



Depending whether or not the reservoir is fitted with a suction system, either the mains plug and the upper proximity switch, or corresponding plugs with jumpers must be connected to the automatic burner.

#### RESERVOIR WITH SUCTION SYSTEM



Figure 4/20 - Connecting the vacuum fan mains plug

10. Lay the mains plug (2) from the vacuum fan to the automatic burner.

11. Lay the cable from the upper proximity switch (1) to the automatic burner.



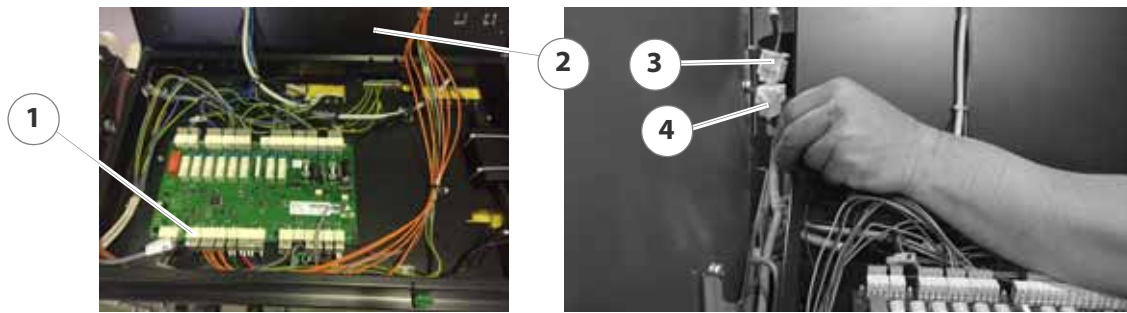


Figure 4/21 - Connecting in the plugs and jumpers

#### RESERVOIR FOR MANUAL FILLING

12. Fold back the cover (2) of the control panel.
  13. Connect the line from the upper proximity switch to the plug X22 (1).
  14. Connect the mains plug (2) of the vacuum fan to the plug (4) of the connecting line to the automatic burner.
  15. Connect the plug (3 pin) with a jumper to the socket X22 (1).
  16. Connect the plug (6 pin) with a jumper to the socket (4) for the vacuum fan mains plug.
- ✓ The reservoir is installed.

#### FITTING THE CLADDING

##### RESERVOIR CLADDING

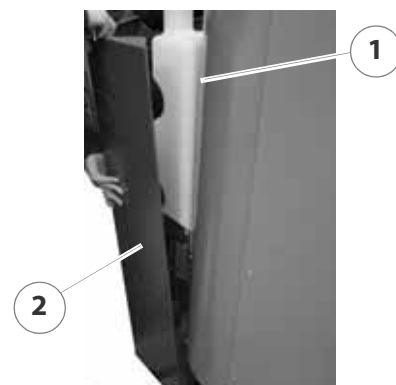


Figure 4/22 - Fitting the rear cladding

1. Attach the rear cladding (2) to the pins (1) on the reservoir and the rear cladding of the boiler.



If the flue pipe connection is fitted at the top, the upper cladding of the reservoir must be broken out.

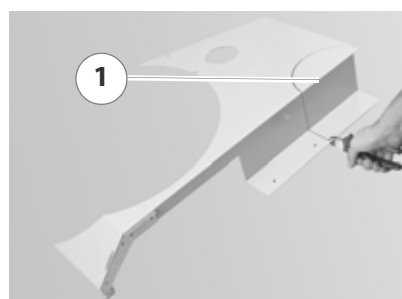


Figure 4/23 - Breaking out the upper left cladding

2. Break out the perforation (1) on the rear wall if necessary.

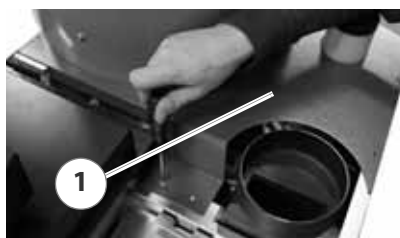


Figure 4/24 - Installing the upper cladding

3. Place the upper cladding (1) above the water tank onto the boiler.
4. Mount the upper cladding (1) with the Phillips screws.

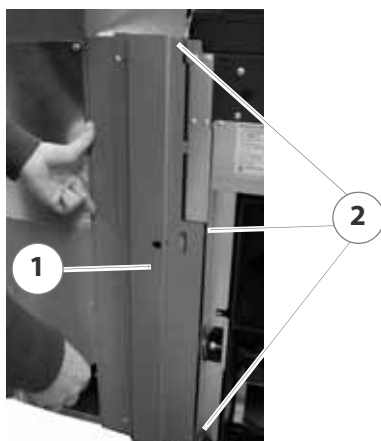


Figure 4/25 - Mounting the middle orifice plate

5. Push the middle orifice plate (1) under the cladding or sideways into the recesses on the boiler.
6. Fasten the middle orifice plate (1) with the Phillips screws (2).

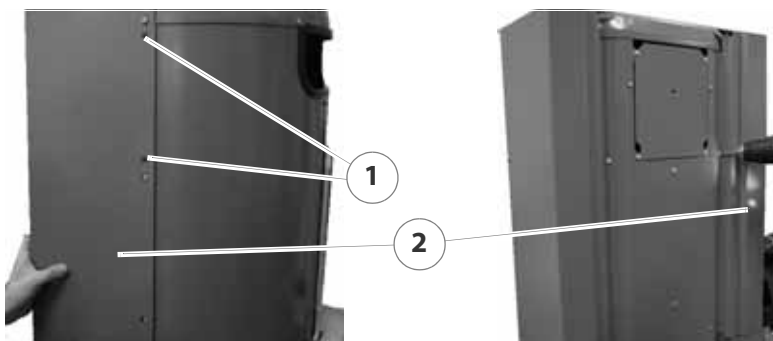


Figure 4/26 - Mounting the right container cladding

7. Mount the right container cladding (2) to the side of the reservoir on the 2nd and 3rd hole (1) from the top with the Torx screws.
8. Mount the right container cladding (2) to the front of the reservoir with the Torx screws.



Figure 4/27 - Installing the front cladding at the bottom

9. Mount the lower front cladding (1) with the coated Torx screws on the middle orifice plate and the left container cladding.

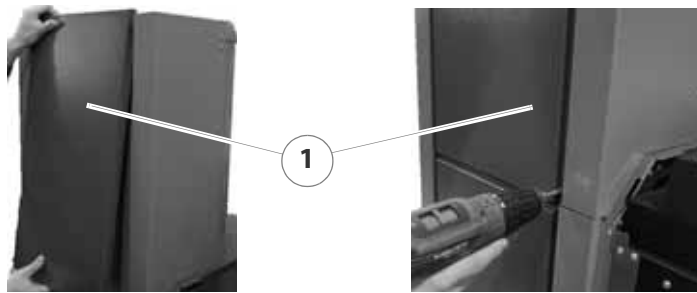


Figure 4/28 - Installing the front cladding at the top

10. Hang the front cladding (1) in the left and right container cladding and fasten it at the bottom with the Torx screws.

#### BOILER CLADDING

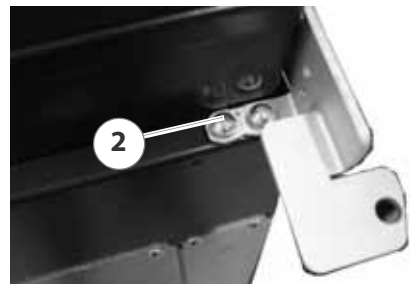
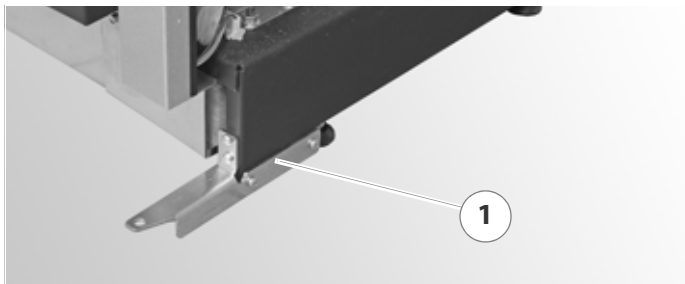


Figure 4/29 - Mounting the door hinges

11. Mount the lower door hinge (1) with the four Torx screws.
12. Mount the upper door hinge (2) loosely - so that it can still move - with the two Phillips screws.



Figure 4/30 - Attaching the side wall

13. Attach the side wall (1).

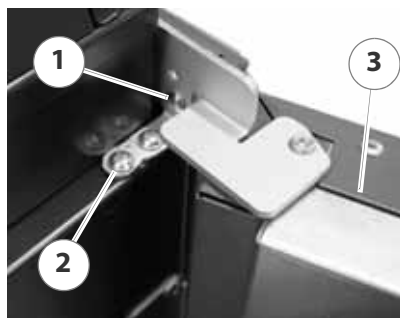


Figure 4/31 - Mounting the housing door and the side wall

14. Hang the housing door (3) in the upper and lower hinge.
15. Tighten the Phillips screws (2) of the upper door hinge.
16. Fasten the side wall with the Phillips screw (1).




Figure 4/32 - Installing the control unit

17. Fit the control panel (1) on the support plate from the rear with the four Phillips screws.

18. Plug the outside temperature sensor – if present – into the control unit.

19. Connect the connecting lines according to the control unit (1).

 See “Electrical plans for HDG K10 - 60”.

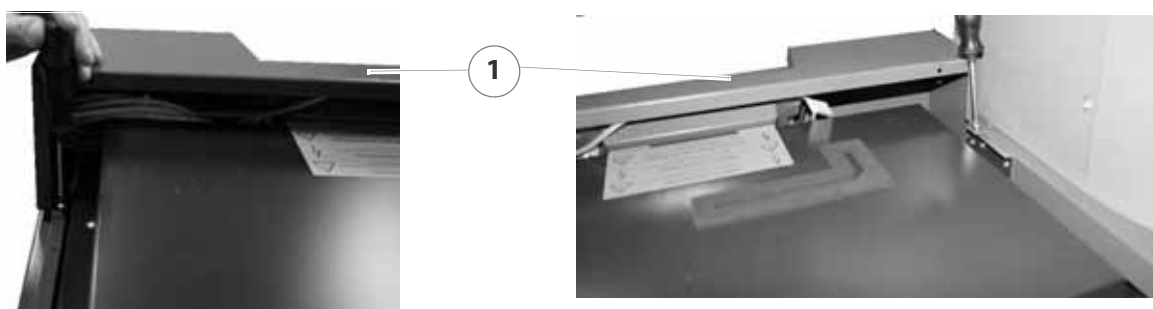


Figure 4/33 - Mounting the support plate

20. Mount the support plate (1) with the Phillips screws.



If the flue pipe connection is fitted at the top, the upper cover must be broken out.

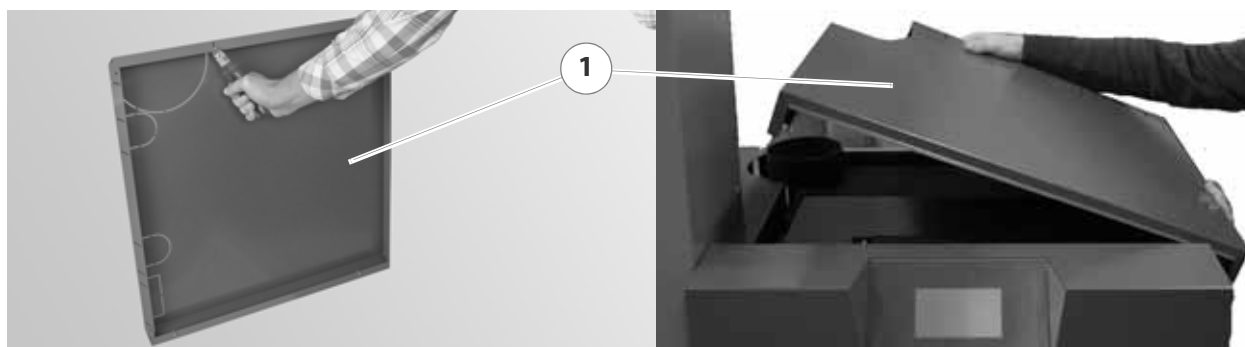


Figure 4/34 - Installing the upper cover

21. Break out the perforation on the upper cover (1) if necessary.

22. Place the upper cover (1) on the boiler.

✓ The cladding is installed.

### INSTALLING THE ASH CONTAINER

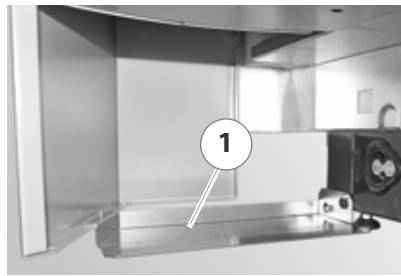


Figure 4/35 - Mounting the base plate

1. Attach the base plate (1) under the reservoir on the boiler and bend the front part down to the ground.

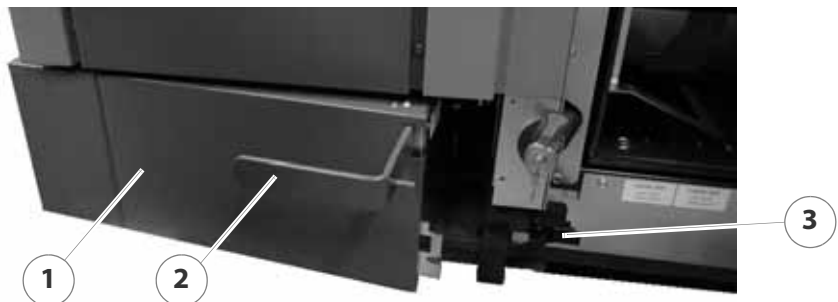


Figure 4/36 - Mounting the support plate

1. Push the ash container (1) diagonally from the left under the reservoir.
2. Push the handle (2) all the way in.
- ✓ The opening s in the ash container are open.
3. Close the clamp lock (3).

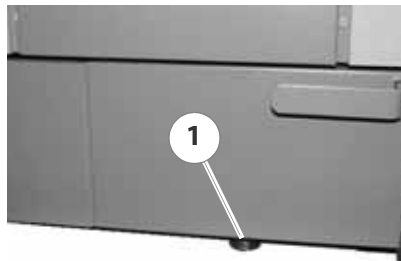


Figure 4/37 - Adjusting the foot

4. Adjust the foot (1) of the ash container.

✓ The ash container is installed.

### MOUNTING THE EXPANSION MODULES




#### Important!

If an EM4 or EM8 expansion module is used, these can be mounted directly on the plate above the automatic burner.

✎ For connecting the expansion module, see the “Electrical plans for the HDG K10 - 60”.



Figure 4/38 - Mounting the expansion modules

1. Mount the EM4 expansion module (2) if necessary.
  2. Mount the EM8 expansion module (1) if necessary.
  3. Connect the EM4 expansion modules (1 + 2).
-  See "Electrical plans for HDG K10 - 60".
4. Install the cables and sensors on the expansion modules according to the hydraulic wiring diagram.
- ✓ The EM4 / EM8 expansion modules are fitted.

### SERVICE PLUG



Figure 4/39 - Service plug



### Important!

The service plug (1) is only intended for HDG customer service and may not be connected to any module!

## CONNECTING THE SUCTION AND RETURN HOSES

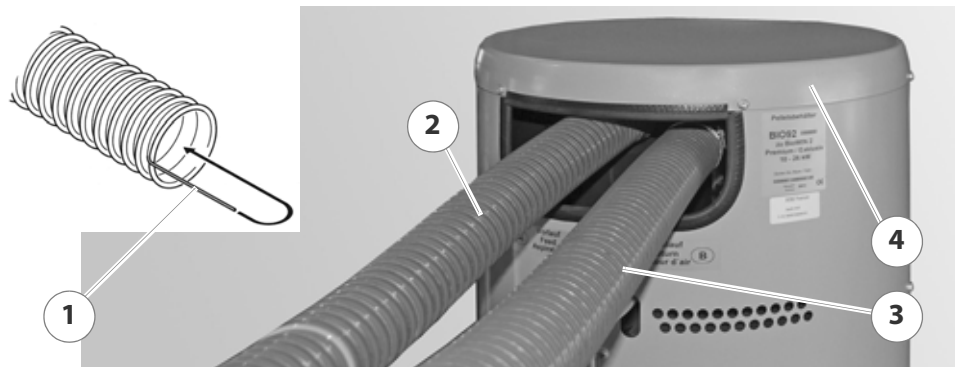


Figure 4/40 - Removing the packaging

1. Lay bare about 10 cm of the end of the braid (1) embedded in the return hose.
2. Bend the braid (1) inwards into the hose.
3. Undo the four screws and remove the cover (4) of the reservoir.



In the event that the connections do not move easily when attached, only moisten with water (do not use grease).

4. Fit the suction hose (2) with a hose clip on the left connecting port of the reservoir.
5. Fit the return hose (3) with a hose clip on the right connecting port of the reservoir.

✓ The suction and return hose is connected.

## 4.5 Connecting the chimney

1. Connect the flue gas pipe to the chimney connection.
2. Make sure that the connecting piece does not protrude into the chimney.
3. Seal the connection to the chimney with highly fireproof silicone or with a suitable mortar.

✓ The boiler is now connected to the chimney.

## 4.6 Electrical system

The electrical connections should be made in accordance with VDE guideline 0100, "Electrical systems in buildings".

✎ The technical details are described in chapter "3 Mode of operation", section "3.3 Technical data".

✎ The circuit diagrams for the HDG K10 - 33 can be found in "Electrical plans for the HDG K10 - 60". The connections for the mains supply line can also be found in this document.

## 4.7 Water



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### **Important!**

The heating system must be filled with water in accordance with VDI guideline 2035, "Avoiding damage in hot water heating systems".

The diaphragm expansion vessel must be constructed in accordance with DIN EN 13831 "Closed expansion vessels with built-in diaphragm for integration in water installations". Before putting the system into operation, the pressure of the diaphragm expansion vessel must be adjusted for the conditions in the heating system and in the building.

After putting the system into operation, heat up the system to the maximum boiler temperature and bleed air from the system again to make sure that there are no air pockets.

The safety devices must be implemented in accordance with DIN EN 12828 "Heating systems in buildings" and the correspondingly harmonised national standard DIN 4751, Part 2 "Closed, thermostatically safeguarded heat generating systems with supply temperatures of up to 120°C; safety equipment".

In Germany, the requirements of the German energy conservation ordinance (EnEV) must be met.



# 5 Commissioning the system

The heating system is initially commissioned by specialists from HDG Bavaria or from an authorised HDG partner.

The commissioning includes an introduction to the operation and maintenance of the heating system as well as performing measurements on the system to determine exhaust emissions and firing performance.



## **Danger!**

Material damage and injury due to incorrect commissioning

Commissioning the system requires comprehensive expertise. If this commissioning is done by an untrained person, the heating system could be damaged.

Only allow authorised specialists to perform the commissioning.

## 5.1 Requirements

### SWITCH OFF THE MAINS SUPPLY

### CHECK THE MECHANICAL ASSEMBLY

### CHECK THE HYDRAULIC CONNECTIONS

### CHECK THE ELECTRICAL CONNECTIONS

The following conditions must be met before the system can be commissioned without faults:

- Is the circuit breaker of the mains supply to the heating system switched off?
- Have the system components been correctly installed?
- Have all of the mechanical components been firmly screwed together?
- Does the mechanical structure of the boiler meet the specifications of this operating manual?
- Has the water tank been filled with water?
- Do the hydraulic connections meet the specifications of this operating manual?
- Has the safety equipment been installed to conform to the applicable standards and guidelines?
- Has the system been flushed, filled and bled (heat transfer must be possible)?



## **Danger!**

Dangerous electrical current or voltage

Isolate the mains cable to the heating system.

- Are all of the sensors and actuators correctly connected and properly plugged in to the control panel?
- Has the mains power supply cable been correctly connected?

FUEL

- Is there a sufficient quantity of fuel?

## 5.2 Procedure




---

### Important!

Commission the HDG K10 - 33 heating system in accordance with the specifications from the supplied commissioning protocol.

---

 See also operating manual "HDG Control", Chapter "4 Commissioning the system".

### SETTING THE FUEL QUANTITY

1. Start the conveyor auger in manual mode.
- 



One cycle of the conveyor auger lasts 6 mins.

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2. Collect the pellets with a suitable container.
3. Repeat the cycle two (with HDG K21/26/33) or three times (with HDG K10/15).
4. Weigh the amount of pellets collected in the second or third cycle.
5. Multiply the weight by a factor of 10 (= fuel quantity in kg/h).
6. Enter the calculated value in the boiler control system.

 See operating manual "HDG Control", chapter "7 HDG K10 - 60 parameters".

✓ The fuel quantity has been calculated.

### PERFORM ACTUATOR TEST

In addition to the automatic self-test, individual actuators can also be manually activated as required.

 See operating manual "HDG Control", chapter "7 HDG K10 - 60 parameters".


### ADAPTING PARAMETERS

If the heating system does not work correctly, the parameters must be adjusted accordingly.

 See operating manual "HDG Control", chapter "7 HDG K10 - 60 parameters".

# 6 Using the heating system


## 6.1 Control unit for HDG Control

 You can find all information and instructions for setting up and operating the boiler and weather-compensated heating control of the HDG Control in the “HDG Control” operating manual.

## 6.2 Filling the pellet storage room

### REQUIREMENTS

The following requirements must be met before the pellet storage room can be filled:

- The pellet storage room has been initially approved by an authorised specialist.
  - The pellet storage room is dry and free of any foreign bodies.
  - Thick layers of dust must be removed.
-  See chapter “3 Mode of operation”, section “3.4 Fuel quality requirements”.
- The requirements of government safety organisations must be met.

### PROCEDURE

1. Switch the heating system off.
- ✓ See the “HDG Control” operating manual, chapter “5 Using the control unit”, section “5.3 Switching off the heating system”.
2. Double check that the heating system is switched off.



To prevent negative pressure from being created in the boiler during filling of the pellet storage room, you can open the combustion chamber door.

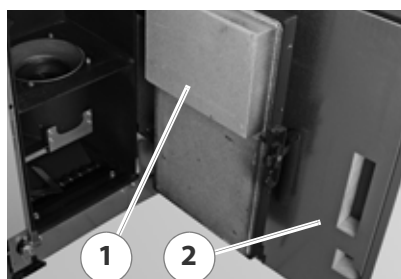


Figure 6/1 - Opening the doors



3. Open the housing door (2).
4. Open the combustion chamber door (1).

5. Inform the tanker driver that the pellet storage room can be filled.
6. After filling is completed, close the injection and extraction nozzles.
7. Close the reservoir inspection hatch.

[illegible]

8. Document the filling of the storage room on the "Filling the fuel storage room" sticker.

Figure 6/2 - Filling the fuel storage room

9. Switch the heating system on.
  -  See the “HDG Control” operating manual, chapter “5 Using the control unit”, section “5.2 Switching on the heating system”.
  -  The filling of the pellet storage is completed.

### 6.3 Filling the reservoir

## MANUAL FILLING

When operating without an automatic pellet suction system, the reservoir is manually filled.

1. Open the reservoir cover.
  2. Fill the reservoir with pellets up to a maximum of 1 cm below the rim.
- ✓ The reservoir is filled.

## PELLET SUCTION SYSTEM

The reservoir is filled by the automatic pellet suction system. Initial filling is performed during commissioning of the system. Each further filling is automatic as required by the boiler control system.

## 6.4 Performing a chimney sweep measurement

- 🔧 See the “HDG Control” operating manual, chapter “5 Using the control unit”, section “5.8 Performing a chimney sweep measurement”.

## 6.5 Switching off the heating system for repair work

1. Allow the fire in the boiler to burn out and cool off.




### Important!

Frost danger

Only completely shut off the power to the heating system if the danger of frost can be ruled out.

2. Switch the heating system off.

 See the “HDG Control” operating manual, chapter “5 Using the control unit”, section “5.3 Switching off the heating system”.



There is still electrical voltage in the system.

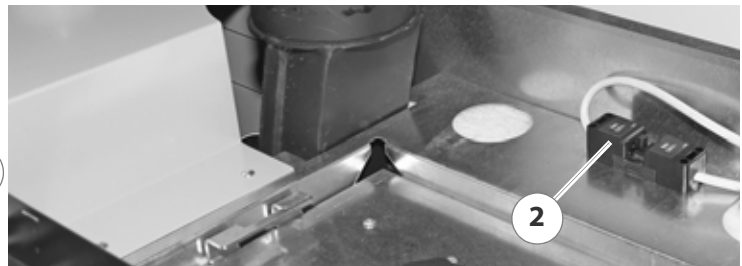


Figure 6/3 - Removing the mains plug

3. Lift off the top right cover (1) of the boiler.
  4. Pull out the machine's mains plug (2).
- ✓ The heating system is switched off and without current.

# 7 Cleaning and servicing the heating system

## GENERAL INFORMATION

To ensure fault-free and safe operation, certain cleaning and maintenance work is necessary. This effort will also help you avoid expensive repairs, provided you observe the recommended intervals.

The cleaning and maintenance work can also be performed by an authorised specialist heating company where a servicing contract has been concluded.

The HDG K10 - 33 heating system is fitted a cleaning and de-ashing interval display. The "clean" or "main cleaning" prompt appears on the boiler control system display and must be reset after cleaning/de-ashing.

## SPARE PARTS



Only use genuine HDG spare parts. You can obtain HDG spare parts from your specialist heating company.

## 7.1 Cleaning and servicing schedule



The specified cleaning intervals are guidelines. Depending on the quality of the pellets and the power used by the heating system (more frequent on/off operation) the intervals may be extended.

Interval	Component	See page ...
Indication in display: Cleaning	• Empty the ash box	48
Emergency cleaning	• Clean the combustion chamber and burner pot (Confirm cleaning)	49
Indication in display: Main cleaning	• Clean flue gas fan and cleaning shaft	52
Emergency main cleaning	• Clean the flue gas pipe	53
or	• Check the fill level of the water tank	53
At least 1 x per heating period	• Check and clean the reservoir and flap of the delivery unit	54
	• Clean the pellet storage room (Confirm main cleaning)	56
Indication in display: Mainten.	• Have maintenance carried out by HDG or an authorised specialist heating installer within 3 months	

Table 7/1 - Cleaning and servicing schedule

## 7.2 Procedure

### GENERALLY APPLICABLE SAFETY INSTRUCTIONS



#### Warning!

Danger of asphyxiation due to lack of oxygen

If the boiler is in operation, carbon monoxide can be emitted through the open doors, lids or other cleaning openings.

When performing cleaning and maintenance work, do not leave the cleaning openings, doors and lids open any longer than necessary.



#### Caution!

Danger of burns from hot surfaces

During operation, the boiler surfaces under the cladding are hot. Even when turned off, they only cool down slowly.

Switch the heating system off and only start with the cleaning and maintenance work when the surfaces have cooled down.



#### Caution!


Danger of fire from combustion residues

Hot combustion residues (ash, coal etc) can pose the danger of fires.

Allow the hot combustion residues to cool down in the cleaning and maintenance work before pouring these into a non-flammable container.




Turn the heating system off **before** carrying out the tasks described below.

 See chapter "6 Using the heating system", section "6.5 Switching off the heating system for repair work".



Only turn the heating system back on again **after** carrying out the tasks described below.

 See the "HDG Control" operating manual, chapter "5 Using the control unit", section "5.2 Switching on the heating system".

### CLEANING TOOLS

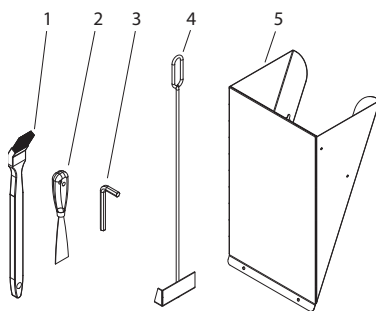


Figure 7/1 - Cleaning tools

- 1 Cleaning brush
- 2 Scraper
- 3 Allen key
- 4 Scraper
- 5 Pellet scuttle (optional)

### EMPTYING THE ASH CONTAINER



#### Important!


Observe the “Generally applicable safety instructions” in this section.



#### Important!

The combustion chamber door must not be opened during continuous operation. Always switch off the boiler first and wait until burn-out mode has finished.

1. Switch the heating system off.

 See the “HDG Control” operating manual, chapter “5 Using the control unit”, section “5.3 Switching off the heating system”.

2. Allow the fire in the heating system to burn out and cool down.

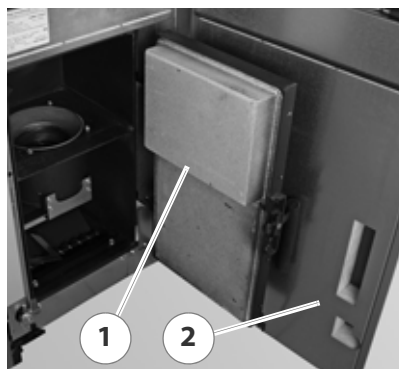


Figure 7/2 - Opening the doors

3. Open the housing door (2).
4. Open the combustion chamber door (1).



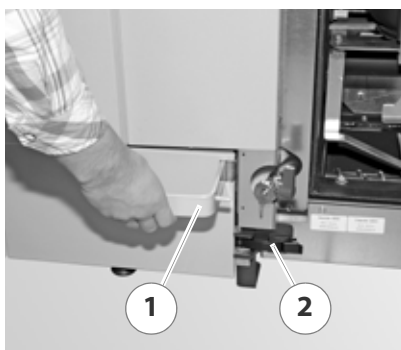


Figure 7/3 - Locking the ash container

5. Pull the handle (1) of the ash container all the way out.

✓ The side openings of the ash container are locked.

6. Release the lower right clamp lock (2).

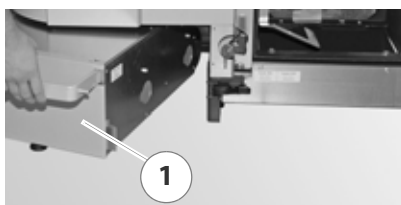


Figure 7/4 - Removing the ash container

7. Push the ash container (1) slightly to the left.

8. Pull out the ash container (1).

9. Open the lid of the ash container (1) and empty the combustion residues into a non-flammable container.

10. Reinstall the ash container (1) in the reverse sequence.

11. Re-starting the heating system.

🔗 See the "HDG Control" operating manual, chapter "5 Using the control unit", section "5.2 Switching on the heating system".

✓ The ash container has been emptied.

### CLEANING THE COMBUSTION CHAMBER AND BURNER POT



#### Important!

Observe the "Generally applicable safety instructions" in this section.



#### Important!

The combustion chamber door must not be opened during continuous operation. Always switch off the boiler first and wait until burn-out mode has finished.

1. Switch the heating system off.

🔗 See the "HDG Control" operating manual, chapter "5 Using the control unit", section "5.3 Switching off the heating system".

2. Allow the fire in the heating system to burn out and cool down.

3. Open the housing door and the combustion chamber door.

### CLEANING THE COMBUSTION CHAMBER



Figure 7/5 - Cleaning the combustion chamber temperature sensor

4. Clean the combustion chamber temperature sensor (1) using the cleaning brush.

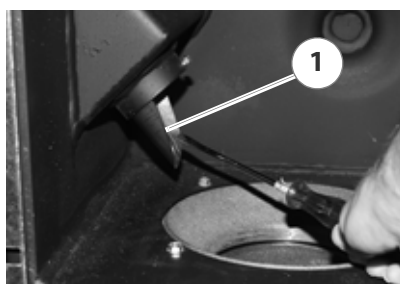


Figure 7/6 - Cleaning the drop chute

5. Clean the drop chute (1) if necessary, for example using a screwdriver.

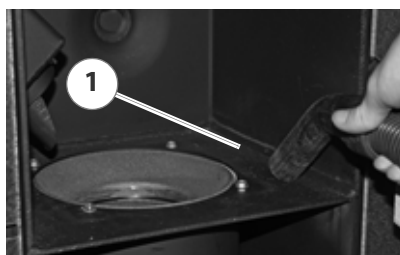


Figure 7/7 - Cleaning the combustion chamber

6. Remove the combustion residue from the combustion chamber with a vacuum cleaner.

### CLEANING THE BURNER POT



Figure 7/8 - Removing the upper part of the cone

7. Lift the upper part of the cone (1) out of the burner pot.



Figure 7/9 - Removing the lower part of the cone

8. Lift the lower part of the cone (1) out of the burner pot.

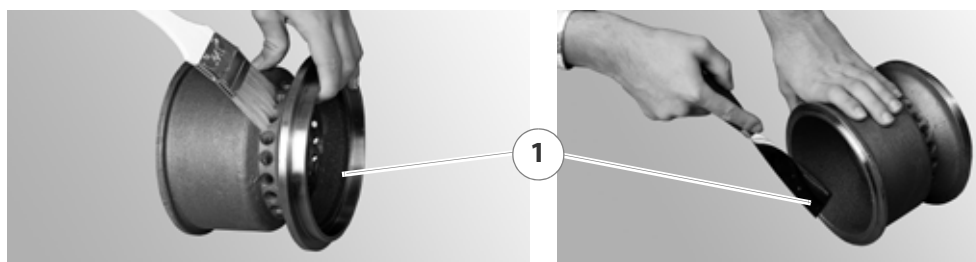


Figure 7/10 - Cleaning the cone

9. Clean the cone (1) on all sides using a brush and remove any hard deposits with a scraper.

**Important!**

Always remove all the ash from the combustion chamber and burner pot first. Only then can you take out the primary air pin for cleaning.



Figure 7/11 - Cleaning the combustion chamber and primary air pin

10. Clean the burner pot (1) with a vacuum cleaner.
11. Make sure that the secondary air openings in the burner pot (1) are free.
12. Take the primary air pin (2) out of the burner pot.
13. Carefully clean the primary air pin (2) and the primary air holes with a suitable tool (such as a screwdriver).
14. Make sure that the primary air holes are free.



Figure 7/12 - Cleaning the primary air pipe

15. Use the cleaning tool to remove any combustion residue from the bottom of the burner pot (1).
16. Clean the remaining combustion residues in the burner pot and the primary air pipe (1) using a vacuum cleaner.
17. Ensure that there are no more combustion residues in the primary air pipe since otherwise the ignition element can be damaged.

18.If necessary clean the primary air pipe once again with a vacuum cleaner.

19.Reinstall the burner pot in the reverse order.

20.Reset the cleaning prompt in the boiler control system for the combustion chamber and burner pot.

✓ The combustion chamber and the burner pot are now clean.

### CLEANING THE FLUE GAS FAN AND CLEANING SHAFT

---



#### Important!

Observe the “Generally applicable safety instructions” in this section.

1. Switch the heating system off.

 See the “HDG Control” operating manual, chapter “5 Using the control unit”, section “5.3 Switching off the heating system”.

2. Allow the fire in the heating system to burn out and cool down.

3. Remove the top right cladding.

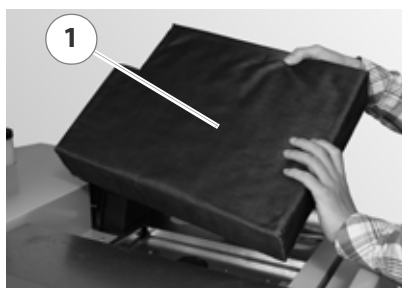


Figure 7/13 - Removing the insulation

4. Remove the insulation (1) from the cleaning shaft lid.

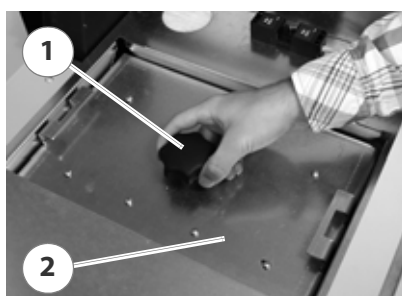


Figure 7/14 - Dismantling the cleaning shaft lid

5. Release the star-grip screw (1) and lift off the cleaning shaft lid (2).

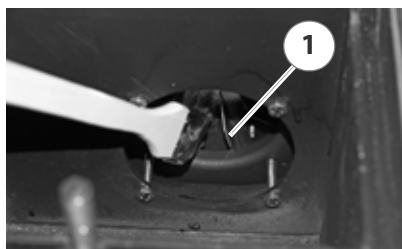


Figure 7/15 - Cleaning the fan wheel

6. Clean the fan wheel (1) with a brush or a vacuum cleaner.



Figure 7/16 - Cleaning the cleaning shaft

7. Clean the cleaning shaft lid (1) using a scraper.
8. Remove the flue ash in the cleaning shaft (1) with a vacuum cleaner.
9. Close the boiler in the reverse order.

✓ The flue gas fan and the cleaning shaft are now clean.

### CLEANING THE FLUE GAS PIPE



#### Important!

Observe the "Generally applicable safety instructions" in this section.

1. Switch the heating system off.
- 🔧 See the "HDG Control" operating manual, chapter "5 Using the control unit", section "5.3 Switching off the heating system".
2. Allow the fire in the heating system to burn out and cool down.

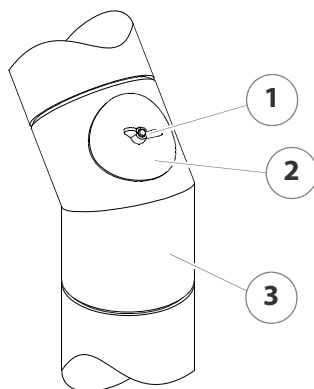


Figure 7/17 - Clean the flue gas pipe

3. Unscrew the wing nut (1) on the inspection hatch lid (2).
4. Remove the inspection hatch lid (2) from the flue gas pipe (3).
5. Check whether the flue gas pipe (3) needs cleaning.
6. If necessary, suction the ash out of the flue gas pipe using a vacuum cleaner (3).

7. Screw the inspection hatch (2) securely onto the flue gas pipe (3) with the wing nut (1).

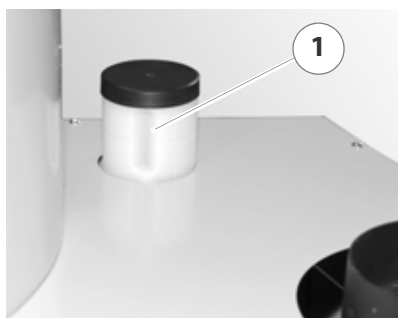
✓ The cleaning of the flue gas pipe is completed.

### CHECK THE FILL LEVEL OF THE WATER TANK



#### Important!

Observe the "Generally applicable safety instructions" in this section.



1. Check the fill level of the water tank (1) (volume approx. 8 l).
- ✓ If the minimum fill level indicator is not reached, water must be added.
2. Top up the water tank (1).

Figure 7/18 - Water tank fill level

✓ The fill level of the water tank has been checked.

#### CHECKING AND CLEANING THE RESERVOIR AND FLAP OF THE DELIVERY UNIT




##### Important!

Observe the “Generally applicable safety instructions” in this section.

The reservoir and the flap of the delivery unit have to be cleaned when too much dust has accumulated or there is a foreign body in the reservoir. If no pellets can be delivered to the reservoir by the pellet suction system, emergency manual filling is possible via the inspection hatch.

1. Switch the heating system off.

 See the “HDG Control” operating manual, chapter “5 Using the control unit”, section “5.3 Switching off the heating system”.

2. Allow the fire in the heating system to burn out and cool down.



##### Caution!

Risk of serious injury if the stoker auger starts up

The stoker auger can start up unexpectedly. When the inspection hatch is open, your hands or fingers can be crushed.

Before opening the inspection hatch on the reservoir, always disconnect the boiler from the power supply (pull out the mains plug) and secure it against being switched on again.



3. Lift off the top right cover (1) of the boiler.

Figure 7/19 - Removing the upper cover

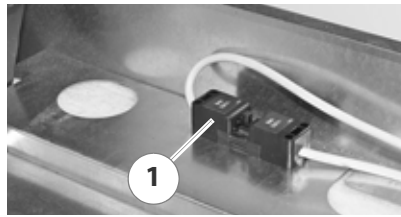


Figure 7/20 - Removing the mains plug

4. Pull out the mains plug (1).

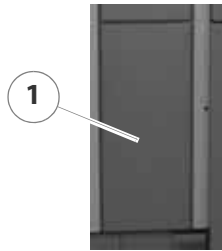


Figure 7/21 - Removing the lower front cladding

5. Undo the four screws and remove the lower front cladding (1) of the reservoir.

6. Have a container ready for the pellets.

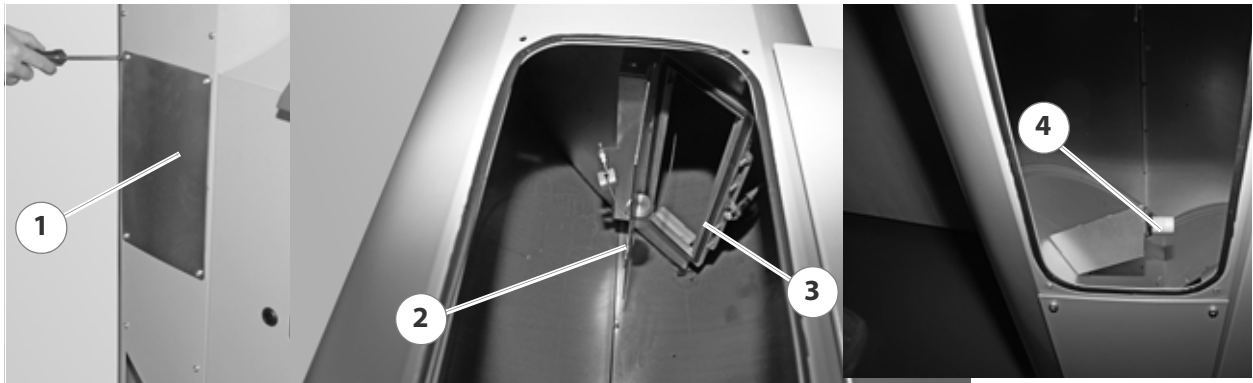


Figure 7/22 - Checking and cleaning the reservoir and flap of the delivery unit

7. Undo the four screws of the inspection hatch (1) and remove them.

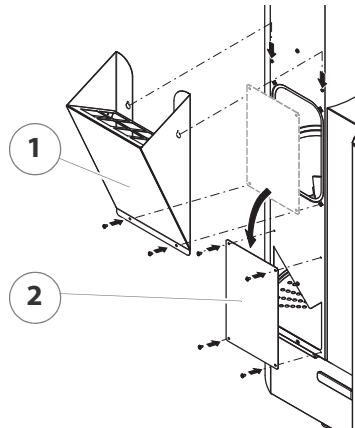
8. Remove the pellets and dust from the reservoir.

9. Remove the dust in the on the flap (2) of the delivery unit and the proximity switch (4) with a vacuum cleaner.

10. Check that the flap (2) moves smoothly.

11. Ensure that the entire surface of the flap (2) touches the seal (3).

### EMERGENCY FILLING OF THE RESERVOIR



12. Mount the inspection hatch (2) as touch protection on the opening for the conveyor auger.

13. If necessary, fasten the pellet scuttle (1) to the reservoir.

14. Fill the pellets into the reservoir (using the pellet scuttle (1) if necessary).

Figure 7/23 - Emergency filling

15. Close the reservoir and the boiler in the reverse order.

✓ The reservoir and the flap of the delivery unit have been cleaned.

### CLEANING THE PELLET STORAGE ROOM

#### HDG AUGER



#### Caution!

Danger of injury from the rotating auger!

When the heating system is turned on, the auger rotates in the pellet storage room. Hands and feet could thereby be crushed.

Switch the heating system off before you enter the pellet storage room.

#### HDG SUCTION SYSTEM WITH SUCTION PROBES



#### Caution!

Material compression at the suction probes

If the pellet storage room is entered, there can be material compression in the suction probes. This can lead to the pellet delivery being impaired.

When you enter the pellet storage room, be sure not to stand on the pellets in the area of the suction sensors.

#### GENERAL INFORMATION

1. Switch the heating system off.

🔧 See the "HDG Control" operating manual, chapter "5 Using the control unit", section "5.3 Switching off the heating system".

2. Allow the fire in the heating system to burn out and cool down.

3. Open the access hatch of the pellet storage room.


4. Remove the wooden boards inside the access hatch.



5. Check the pellet storage room for foreign objects and remove them if necessary.
6. Clean the pellet storage room with a vacuum cleaner.
7. Check that no pellets are swollen, if moisture has gotten inside the pellet storage room.
8. Close the access hatch in the reverse sequence.



Leading pellet suppliers recommend completely emptying the pellet storage room every 2–3 years. When operating the heating system with HDG suction system and suction probes, you can deactivate the automatic changeover between the three suction probes using the boiler control system.

 See chapter “6 Using the heating system”, section “Operator level”, paragraph “Sensor changeover”.

In this way you can completely empty the fuel storage room at a probe (that is, 1/3 of the fuel storage room) and continue heating with the other two suction probes. If you repeat this process every year with one of the other sensors, “renew” your entire pellet supply every three years.

---

✓ The pellet storage room has been cleaned.

# 8 Notes on dismantling and disposal

## 8.1 Dismantling



---

### **Danger!**


Material damage and injury due to incorrect dismantling.

Dismantling the system requires comprehensive specialist knowledge. If the heating system is dismantled by an untrained person, injuries are possible.

Only allow authorised specialists to dismantle the system.

---

The heating system can be dismantled as follows.

1. Allow the fire in the boiler to burn out and cool off.
  2. Switch the heating system off.  
 See chapter “6 Using the heating system”, section “6.5 Switching off the heating system for repair work”.
  3. Switch the circuit breaker for the heating system off.
  4. Disconnect the heating system from the electrical power supply.
  5. Once it has cooled down, drain the heating water from the system.
  6. Observe the safety regulations for personnel when disconnecting the boiler from the heating system.
  7. Dismantle the individual components of the heating system.
- ✓ The heating system has been dismantled.

## 8.2 Disposal

The following components are made of steel and can be recycled via a local recycling centre.

- Boiler
- Cladding
- Reservoir
- Conveyor auger without motor
- Transfer station without motor
- Delivery system
- Pressure relief baffle
- Sloping floor supports

The electrical components can also be recycled via a local recycling centre.

Fibreglass, mineral wool and plastic parts such as suction hoses etc. should be handed in to the respective waste disposal centres.

The geared motors used consist largely of materials which can be recycled. If a geared motor cannot be handed over complete to a suitable company for proper disposal, proceed as follows:

1. The gear oil must be drained into a suitable container.
2. The geared motor should be dismantled into its separate components and cleaned if necessary.
3. Metal parts should be recycled.



---

Oily or greasy components and condensers may only be disposed of through a specialist waste disposal centre.

---

# 9 Declaration of Conformity

## EC Declaration of Conformity

in accordance with Section A of Part 1 of Annex II of the  
EC Directive 2006/42 on machinery



**Producer:**

HDG Bavaria GmbH

Heating system for wood  
Siemensstraße 22

D - 84323 Massing

Resident of the EC authorized to assemble the  
adequate technical documentation

Stefan Holfelder

HDG Bavaria GmbH

Heating system for wood  
Siemensstraße 22

D - 84323 Massing

**Description and identification of the machinery**

Product HDG pellet boiler

Type HDG K10/15/21/26/33

**We definitely declare hereby that the machinery complies with each and every relevant provision of the following EC Directives.**

2006/42/EC

Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (1)

2004/108/EC

Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC

**In accordance with section 2 of article 7 the applied harmonized regulations are to be found under**

EN 303-5:2012

Part 5: Heating boilers for solid fuels, hand and automatically fired, nominal heat output of up to 500 kW. Terminology, requirements, testing and marking

Massing, 02.08.2017

Place, date

Signature  
Martin Ecker  
CEO

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