

# wodtke Pellet Primärofen<sup>®</sup> - Technology



easy.nrg



crazy.nrg



family.nrg

## Assembly and Operating Instructions Control S5

Ofentyp PO 03-2 "easy.nrg<sup>®</sup>", PO 03-5 "crazy.nrg" and PO 03-7 "family.nrg", Airplus from software S5 007

Thank you for deciding to purchase our product. Please be sure to read the instructions before installing and commissioning your furnace. By doing so, you will prevent damages which can be caused by improper installation or operation. Your furnace will reward you and the environment with optimal functionality.

We wish you cozy warmth and many comfortable hours with your wodtke Pellet Primärofen furnace.

Sincerely, wodtke GmbH

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# 1 Important General Notices



**Please read all instructions and information before installation and commissioning. By doing so, you will prevent malfunctions and operating errors.**

The **operator** must become informed regarding the particular features of the heating system and the appropriate fuels **before commissioning the heating system** based on the instructions.

The local, applicable regulations and rules (e.g. state building codes, FeuVo (fire-heating installations ordinance), industry rules for heating and hot air heating system construction, etc.) must be observed. We unfortunately can accept no liability for changes which occur after printing of this documentation, or for typographical errors. We reserve the right to make changes without notice. These units are not intended for use by people (including children) who have impaired physical, sensory or mental capabilities or lack experience and/or knowledge, unless they are supervised by a person responsible for their safety or have received instructions from said person regarding how the units are to be used. Children must always be supervised in order to ensure in particular that they do not play with the units or come into contact with hot surfaces.

In Germany, the heating system may only be commissioned after the authorised district chimney sweep has issued an operating permit. Inform the authorities promptly if you are planning the installation or modification of a heating system. Your authorised district chimney sweep will be happy to advise and assist you in advance.

**Work**, such as particularly **installation, assembly, initial commissioning** and **service work** as well as repairs may only be performed by a trained, specialist company (heating or hot air heating construction). In the case of improper interventions, all warranties and guarantees are void. See also the chapter Proper Use.

During **final acceptance**, the specialist company must always instruct the operator of the system in the operation, cleaning and maintenance of the system, in a thorough and qualified manner. In particular, the use of appropriate fuels, regularly

required cleaning by the operator, required maintenance and safety instructions must be addressed. All warranties and guarantees are void particularly in the case of non-compliance with instructions, as well as with specified cleaning and maintenance requirements.

Before commissioning, ensure that all **accessories have been removed from the combustion chamber and ash pan** and that the pellet container is free of residue (e.g. construction debris, screws...).

The operator must regularly **clean** the heating system.

We recommend the completion of a maintenance contract between a specialist dealer and the operator for **maintenance** of the heating system. Regular maintenance can also be performed by the operator, if the operator is technically experienced and soundly instructed by a specialist company.



**Disconnect power plug before working on the furnace!**

The power plug and the related socket must be easily accessible at all times. Operation of the unit with a damaged power cable is prohibited. If the power cable is damaged, it must be immediately replaced by a qualified engineer or wotdke customer service, in order to prevent dangers.

**Do not pull power plug during operation! First shut down the unit and wait for the fan stop delay to complete (G OFF).**

**With correct operation / control and good maintenance / service, you will increase the value retention and extend the service life of your wotdke Pellet Primärofen. You will save valuable resources and protect both our environment as well as your wallet.**



**The "crazy.nrg" model PO 03-5 is delivered with separate side covers. These must be installed before commissioning. The unit may not be operated without side covers. See the enclosed assembly instructions!**

## 2 Explanation of Symbols

### Danger Symbols:



**Attention! This refers to a danger.**



**Warning of hot surface.**



**Warning of heavy load.**



**Warning of tipping.**



**Warning: risk of fire.**



**Warning of electrical voltage**

### Notice Symbols:



**Notice: See operating instructions!**



**Notice: Disconnect power plug!**



**Notice: Wear heat-resistant gloves!**



**Notice: This section contains additional important information!**

## 3 System Requirements

wodtke products are manufactured and inspected according to the latest standards and EU guidelines. Our Pellet Primärofen are furnaces inspected according to DIN 18894 or EN 14785. They are always connected to other structural equipment / products and therefore, like all technical devices, place certain system requirements on these external equipment / products to ensure smooth and faultless interaction. To this end, the interfaces between all participating components must be precisely coordinated with each other. Some particularly important requirements follow below. This listing makes no claim to being complete. Please observe and read all instructions / documentation included with the furnace during installation and before operation. By doing so, you will prevent malfunctions and operating errors.

### 3.1 Possible Applications of AIR-PLUS Air Units

**Single room heating** (Hot air heating of the installation room or a unit of rooms)

Output range 2-6 kW: Application limit = maximum producible energy = 9,000 kWh per year at 1500 h with 6 kW. This corresponds to an annual consumption of approx. 1.8 t of wood pellets (= approx. 900 l heating oil).

Rule of thumb for sizing: calculated heating demand of the room <sup>1</sup> x factor of 1.2.

**Example:**

**3 kW heat demand in installation room.**

Required output of air unit = 3 kW x 1.2 = 3.6 kW peak output

<sup>1</sup> The heating demand can be estimated at 0.15 kW/m<sup>2</sup> of living space for buildings from before 1977, 0.10 kW/m<sup>2</sup> for normal buildings after 1977 and 0.08 kW/m<sup>2</sup> for well insulated buildings after 1977, and 0.05 kW/m<sup>2</sup> for low energy houses. This method does not replace a heat demand calculation! Application examples: Old building from before 1977; 60 m<sup>2</sup> → required heating output 60 x 0.15 kW/m<sup>2</sup> = 9 kW. New construction from 2003; 60 m<sup>2</sup> → 60 x 0.05

kW/m<sup>2</sup> = required heating output 3 kW; that is, series with 2-6 kW output range ideally suited. Our units can also be used in small rooms (required heating output of < 2 kW). Combined with a room thermostat, the air units are activated only long enough so that the room does not become too hot. A great advantage of the wodtke Primärofen technology over cut firewood.

### 3.2 Installation Room

Wodtke Pellet Primärofen furnaces may only be installed in **residential spaces** with ordinary impurities, normal relative humidity (dry rooms according to VDE 0100) and with **room temperatures from +5 °C to +30 °C** (environmental temperatures during operation).

The furnaces are not splash-water protected and may not be installed in wet rooms. Due to the operating and flame noises of the furnaces, we do not recommend installation in bedrooms or relaxation rooms. Operating sounds, such as pellets dropping and flame/air current and drive motor noises, are audible during operation. In temperatures of <5 °C (e.g. in summer cottages), certain minimum settings must be made on the furnace and appropriate frost protection devices (e.g. electrical heat monitors) must be provided for. Safety equipment can be effective in operation at temperatures >30 °C. Please observe the respective notices on heating operation in the unit's instructions. The installation room or combustion air connection for all furnaces must have at least 4 m<sup>3</sup> of volume per kW nominal heating output: 6 kW → 24 m<sup>3</sup>.

Please observe the specifications on fire protection regulations. The furnaces must be installed on a sufficiently load-bearing and non-flammable base. At least 20 cm of free space must be available to the rear and sides of the furnaces after installation for assembly work. Please also note that the units should be equipped by the customer with flexible connections (electrical lines) so that they can be subsequently moved for possible assembly work / repairs and are easily accessible.

### 3.3 Connection of External Controllers

All units can be conveniently and easily activated and deactivated by hand. In addition, wodtke offers **compatible room and clock thermostats** for automatic activation of the units (see price list). Solid fuels, such as wood pellets, require **more time for ignition than liquid or gaseous fuels**. The ignition process leading to the first flame already requires several minutes and **the furnace's full output is not available until about 15 minutes after starting**, when the warm-up programme is complete.

**When the furnace is shut off, it also takes several minutes** - in contrast to oil or gas furnaces - **until all pellets have been burned and the flame goes out**. Consequently, a **fan stop delay** of several minutes is programmed into the furnace, which should elapse before the furnace is restarted.

**Due to the required warm-up programme and the fan stop delay, there is therefore less output available during frequently cycling operation in comparison to oil or gas furnaces.**

In the case of automatic activation of the units with **other controllers**, a **minimum unit run time of 30, preferably 60 minutes** should be observed. This means that the controller must be configured so that **too-frequent cycling (on-off) of the unit is prevented**. The **hysteresis of the external controller** should be selected to be large enough that at least 15 minutes pass for the fan stop delay between the "shut-off" and "restart" signals.

For installation of the required electrical connection lines, we recommend two empty conduits with at least Ø 30 mm be provided by the customer (separated into empty conduit for 230V and 24V connection lines).

### 3.4 Important Notices Regarding Room Air Dependent and Room Air Independent Operation

#### 3.4.1 General Notices

Please always observe the respective local regulations and rules, in consultation with your authorised district chimney sweep. We can accept no liability for changes which occur after printing of these instructions. We reserve the right to make changes without notice.

#### 3.4.2 Room Air Dependent Operation

The furnace is standard-delivered as a room air dependent pellet furnace. That is, the furnace extracts all of the combustion air from the installation room via the central air intake on the rear side of the furnace. A sufficient combustion air supply is mandatory (approx. 25 m<sup>3</sup>/h at full output).

### 3.4.3 Room Air Independent Operation

The required combustion air is supplied to the furnace directly via a sealed connection line from the outside, and not extracted from the installation room of the heating system.

The furnace is suitable for room air independent operation (DIBt approval). The following must be observed:

- The combustion air line and the flue pipes must be sealed.
- In addition, a negative pressure no greater than 8 Pa relative to the outside may occur in the installation room, the residence or a comparable usage unit due to room air extracting systems.

The general building approval by the DIBt is number **Z-43.12-240**.

### 3.4.4 Combination with Controlled Venting and Ventilation Systems

If the furnace is installed in the effective range of a controlled venting and ventilation system, §4 of the fire-heating installations ordinance (FeuVo) applies in Germany. The following options therefore exist, among others, for operation of the furnace in combination with room air technology systems:

- A room air independent connection or operating method must be ensured (see above).
- The exhaust gas routing must be monitored by special safety equipment (this can be done with the wotke differential pressure controller DS01, for example; see price list).
- Use of a ventilation system which ensures that negative pressures no greater than 4 Pa relative to the outside occur in the installation room and that the required combustion air (approx. 25 m<sup>3</sup>/h) is additionally supplied for the heating system.

## 3.5 Chimney Connection

A chimney calculation must be performed before installation (EN 13384). The chimney provides for the safe removal of flue gases from the furnace, particularly in case of power failure, and is thus responsible for an important safety function and must be properly sized. In the case of a chimney draught that is too high, we recommend installing a draught limiter. The conveying pressure (= chimney draught) must be between 3 Pa at minimum and 20 Pa at maximum.

**The heating system must be connected to a chimney which is suitable for solid fuels. The connection piece must be made of metal and fulfil the corresponding requirements according to the DIN / EN standard.** The authorised district chimney sweep will be happy to advise you in advance.



**Additional safety equipment is required when connecting Pellet-Primärofen to chimneys which have multiple connections.**

Please always observe the respective local regulations and rules, in consultation with your authorised district chimney sweep. We can accept no liability for changes which occur after printing of these instructions. We reserve the right to make changes without notice.

## 3.6 Combustion Air Connection

If the furnace is intended for room air independent operation, the combustion air line must be gas-tight. wotke combustion air lines with sealing rings (see wotke price list) can be used for this.

To reduce cooling losses and to thereby save energy, wotke has the special motorised flue gas damper, which can be used as **intake and flue gas damper**.



### 3.7 **Cleaning, Maintenance and Service**

In contrast to liquid or gaseous fuels, **ash and soot** are always created when using solid fuels. The combustion quality and operating convenience of wodtke Pellet-Primärofen units are far higher than the level of comparable cut firewood furnaces, but **cleaning of the burner plate (by the operator) at regular, short intervals and service/inspection at longer intervals** are nevertheless required in order to free the units of soot and ash. Without these measures, malfunctions can occur, for which we can accept no liability. Regular service, cleaning and maintenance also increase the efficiency of your system (because soot in particular is an exceptional insulator and can therefore significantly reduce thermal output / efficiency) as well as prevent unnecessary emissions to the environment.

Cleaning interval: daily visual inspection of the burner pot, with manual cleaning as required.

Maintenance interval: 1,500 kg pellet consumption (at 0.25% ash content). Please therefore observe the following chapter and Chapter 11 in these instructions.

### 3.8 **Pellet Quality**

According to the 1st Federal Immission Control Act (1st BImSchV), only **natural wood pellets** are permitted in Germany.

**Pellet quality significantly influences cleaning and maintenance cycles.** We define all of our specifications and test values based on **pellet qualities with 0.25% ash content, a bulk density of 650 kg/m<sup>3</sup> and a heating value H<sub>u</sub> > 4.9 kWh/kg.** 500 litres of heating oil thus approximately correspond to 1,000 kg of such wood pellets. 1,000 kg of these pellets required approx. 1.54 m<sup>3</sup> of storage space volume.

**Deviations** from the values specified above cannot be avoided, due to the **tolerance ranges** of the relevant standards for pellets (incl. ENplus-A1, DINplus and DIN EN 14961-2 Class A1) for ash content, bulk density, composition and size/geometry, and necessarily lead to deviations in different systems. For example, this means that a doubling of the ash content from 0.25% to 0.5% will also result in a doubling of the cleaning and maintenance frequency.

For our wodtke Pellet-Primärofen technology, the ash content of the pellets is therefore the most important parameter by far.

**Consequently, we only approve pellets which are inspected according to ENplus-A1, DINplus or DIN EN 14961-2 Class A1 and have an ash content of < 0.7% for use in our units.** Good commercially available brand-name pellets consistently have an ash content of << 0.3% today. **Ask your pellet supplier about ash content. The less, the better.** The use of approved, natural binding agents in the pellets can cause slagging of the pellet ash in the burner pot, despite inspection according to the standards above. We therefore recommend avoiding binding agents containing silicate, such as potato starch, and using wheat starch, for example. Contact your pellet supplier in case of questions.

In the case of **high bulk density** and special geometry or a high pellet heating value, internal safety equipment can temporarily reduce unit output until the target values are reached again. This is not a defect. The unit modulates in this case.

In the case of pellets with extremely **low bulk density** or **low heating value**, the specified nominal output and performance ranges may be slightly undershot. This is also not a defect, but instead due to the nature of pourable and dispensable fuels.

Using the control system, the specialist company can adjust the furnace within certain ranges to various bulk densities and pellet qualities.

Cut firewood or other burnable or waste materials may never be used!

**If the furnace is not operated with approved fuels, any warranty or guarantee claims are void and dangerous operating conditions may result. Do not perform any experiments.**

**A pellet diameter between 5 and 8 mm is permitted<sup>2</sup>.** The length of the pellets should not exceed 30 mm. Pellets with high dust content (>5%) should likewise not be used.

<sup>2</sup> The recommended pellet diameter is 6 mm; in case of deviations, the fuel throughput may need to be adjusted. The same also applies for differing lengths.



### 3.9 Pellet Supply / Pellet Storage

Wood pellets are delivered in an absolutely dry state. In order to maintain the quality of the pellets, the pellets must be stored dry and free of contaminants. Our units are normally (more than 90%) loaded conveniently by hand using bagged goods (15 kg bag). In the case of 3 t of pellet consumption per year, this makes 200 bags over the course of a year; that is, only 1/2 bag per day on average.

Pellets can also be delivered by tank trucks and blown into a warehouse / silo in the case of greater annual consumption. For storage of pellets and transportation of pellets from the warehouse to the furnace, wodtke offers corresponding conveyance technology systems (see wodtke price list).

The wodtke **"Vario" pellet gate** is available for connection to an individually constructed, external pellet storage facility (constructed by the customer). **We recommend feeding the pellets by gravity, by positioning the pellet stock above the furnace.** The advantages of this are lower construction costs and simple, reliable and sturdy design without additional drive units and motors. With the "Vario," the pellet connection can also be closed and the furnace can be separated from the storage facility for maintenance purposes.



If pellet conveyance technology is connected to the wodtke Pellet-Primärofen of the PO 03 series, room air independent operation is no longer possible, since by design, fabric silos and conveyance systems cannot be sealed. In that case, a wodtke DS01 differential pressure controller must be installed for monitoring.

### 3.10 Voltage Supply

Required voltage supply: 230 VAC / 50 or 60 Hz. Voltage ranges from 195 V to 255 V are permitted. All furnaces have automatic frequency recognition and change-over from 50 Hz to 60 Hz networks (e.g. Japan).

## 4 ID Plate and Serial Number

The ID plate and the serial number of the furnace are located in the pellet drawer (inside; open pellet drawer with turning handle on the rear side of the furnace and swing open the pellet drawer). Please record the serial number of your furnace here and be sure to keep this document. If you should require spare parts, you must always specify the serial number of your furnace so that we can supply you with the correct parts.



Please enter the **serial number** from the pellet drawer (inside) here and keep this document:

Ser. No.: \_\_\_\_\_



wodtke GmbH, Rittweg 55-57, 72070 Tübingen, Germany  
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DIN EN 14785: 2006

**Typ PO 03-5 air+ "crazy.nrg"**

Raumheizer für Holzpellets

#### Ofen Fertigungsnummer:

Abstand zu brennbaren Bauteilen:

vorne: 80 cm

seitlich: 15 cm

hinten (mit vertikalem Abgasrohr): 25 cm

hinten (mit horizontalem Abgasrohr): 20 cm

Nennwärmeleistung: 6 kW

Wasserwärmetauscher:

Maximale Betriebstemperatur: - °C

Maximaler Betriebsdruck: - bar

Mittlere Abgasstutztemperatur: 189 °C

zulässige Brennstoffe:

Holzpellets nach ENplus-A1, DINplus oder DIN EN 14961-2 Klasse A1

Mittlere CO-Emission (13% O<sub>2</sub>): 0,006 % (Nennwärmeleistung)

Energieeffizienz: 92,6 % (Nennwärmeleistung)

Elektrische Stromversorgung: 230 VAC; 50/60 Hz; I<sub>max</sub> = 5 A

**Nur die zulässigen Brennstoffe verwenden.**

**Bedienungsanleitung beachten!**

#### Raumluftunabhängige Feuerstätte nach DIBt:

Zulassungsnummer: Z-43.12-240

#### Angaben für Österreich (Art. 15a B-VG)

Wärmeleistungsbereich: 2,0 - 6,0 kW

Brennstoffwärmeleistung: 2,5 - 7,0 kW

Prüfstelle: RWVE Power AG

Prüfbericht-Nr.: FSPS-Wa 2195-A

Typenschild\_PO03-05\_crazy\_Z4M\_2013\_11\_06

Fig. 1: ID Plate

## 5 Transport / Unpacking / Inspection



The goods must be inspected for recognisable damage and/or missing quantities immediately upon delivery. Complaints of any type must be acknowledged in writing by the delivering freight forwarder and immediately reported to **wodtke**. Transport damages which are only recognisable after unpacking must be reported in writing to **wodtke** no later than 7 days after delivery. Delayed complaints cannot be considered due to insurance reasons.



**Attention:** The furnace is heavy (weighs approx. 150 kg). Inspect floor beforehand for suitability for transport and installation. The pallet may only be transported absolutely horizontally and only by forklift or lift truck.



**Attention:** Never manually unload / transport the pallet from the vehicle.

For manual transport, always first release furnace from the pallet. Proceed carefully and ensure that the feet of the furnace do not fall between the boards of the pallet, as the feet can be broken off.

**The transport lock bolts are located underneath the pallet.** These transport lock bolts must be released to lift the furnace from the pallet.

Always position hand cart or the like in front on the door side, because the centre of gravity is here. **When transporting the furnace (e.g. by hand card), always ensure that the surfaces are protected against scratching.** Place Styrofoam or the like between the furnace and the hand cart so that the paint is not damaged during transport. Recommendation: Remove covers before transport!

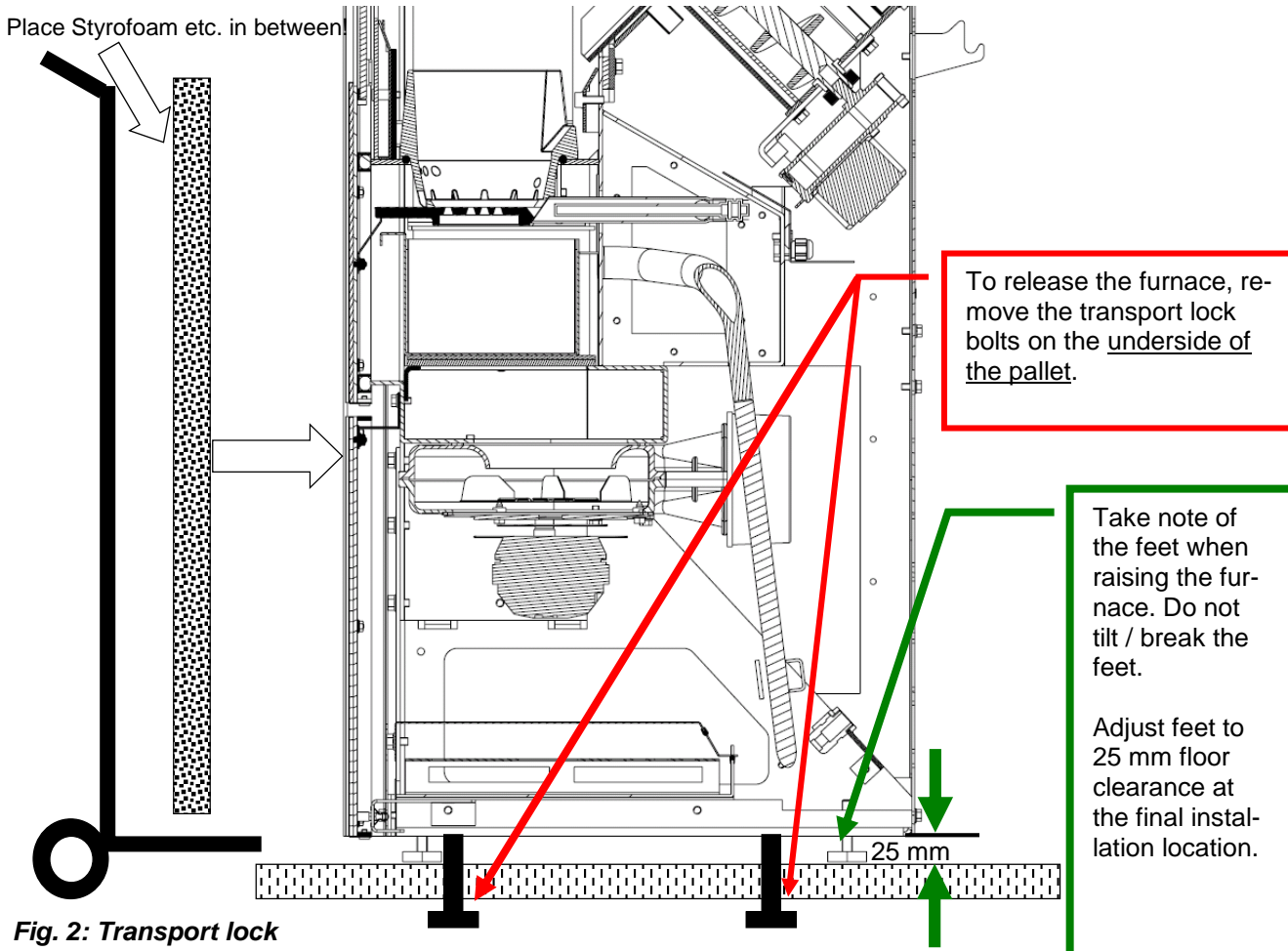


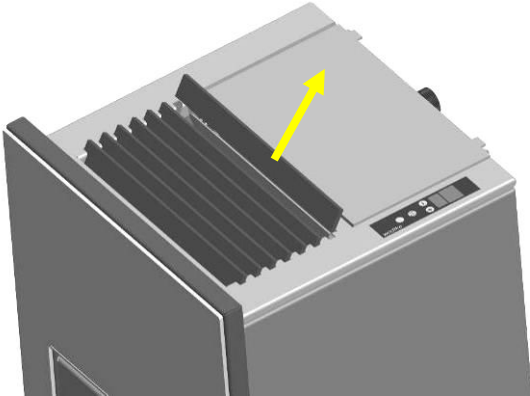
Fig. 2: Transport lock

## 6 Removal of Outer Panelling

### 6.1 Removal of Outer Panelling of easy.nrg®

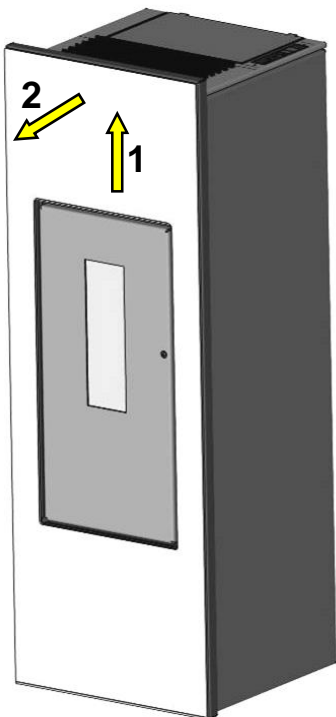
#### 6.1.1 Remove Front Panelling

1. Remove the glass slats (7 pieces) on the top side of the unit.



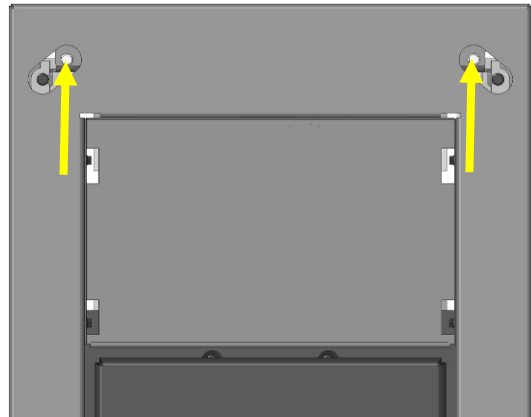
**Fig. 3: easy.nrg® slats**

2. Lift the front decorative panel (shown in white) upward out of the guide (1) and remove toward the front (2).



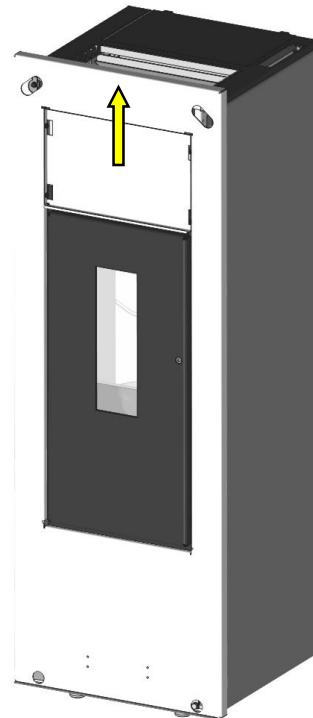
**Fig. 4: front decorative panel removal**

3. Remove the fastening screws of the panelling (Fig. 5).

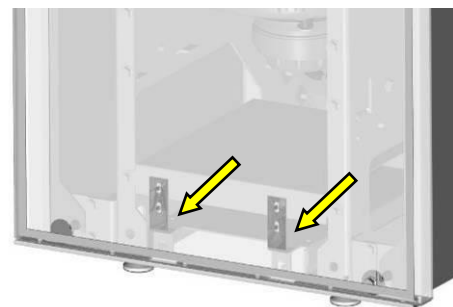


**Fig. 5: front panelling screws**

4. Lift the entire front bezel (shown in white, Fig. 6) up out of the bottom brackets (Fig. 7) and remove.



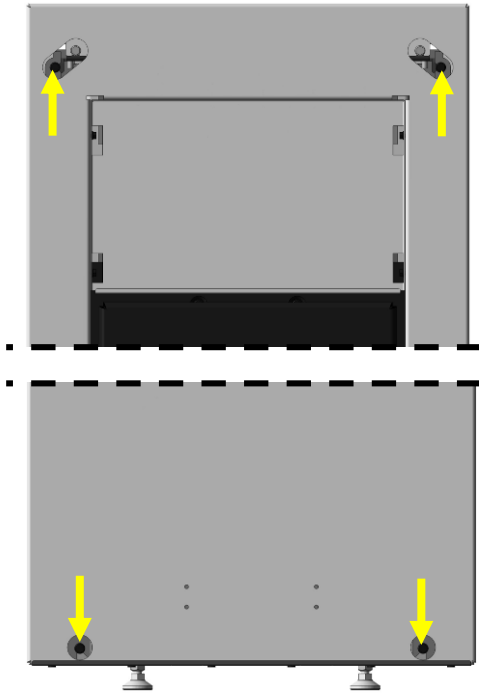
**Fig. 6: remove front bezel**



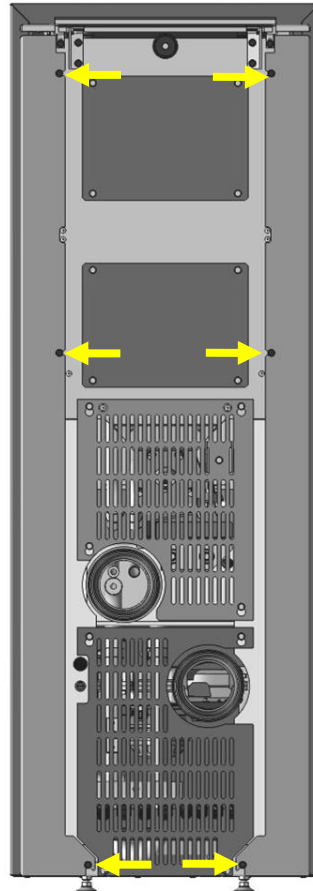
**Fig. 7: front panelling detail**

### 6.1.2 Remove Side Panelling

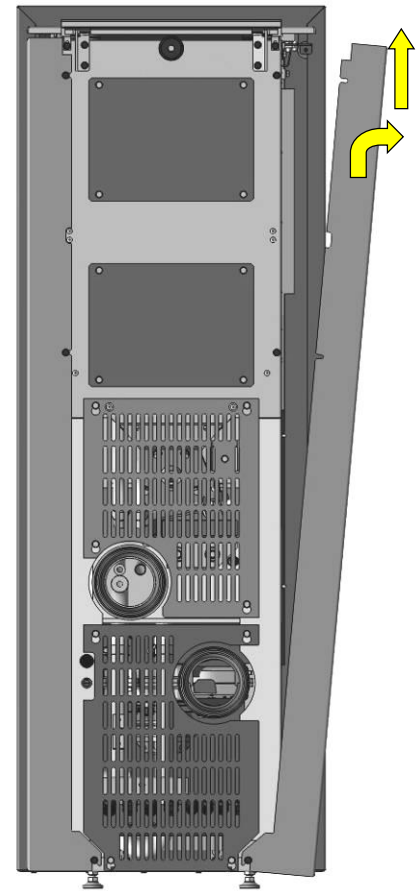
1. Remove the front decorative pane (see Chapter 6.1.1 on page 11).
2. Unscrew the fastening screws (Fig. 8).
3. Remove the 6 screws on the rear side (Fig. 9).
4. Tilt the side walls laterally and remove (Fig. 10).



**Fig. 8: Front screws**



**Fig. 9: Rear screws**



**Fig. 10: side panelling removal**

### 6.1.3 Remove Rear Top / Bottom Paneling

See Chapter 6.3.4 on page 17.

## 6.2 Removal of Outer Panelling of crazy.nrg

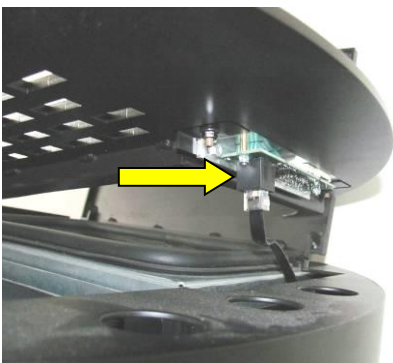
### 6.2.1 Cover Removal

1. Open pellet container and leave open



**Fig. 11: Open container**

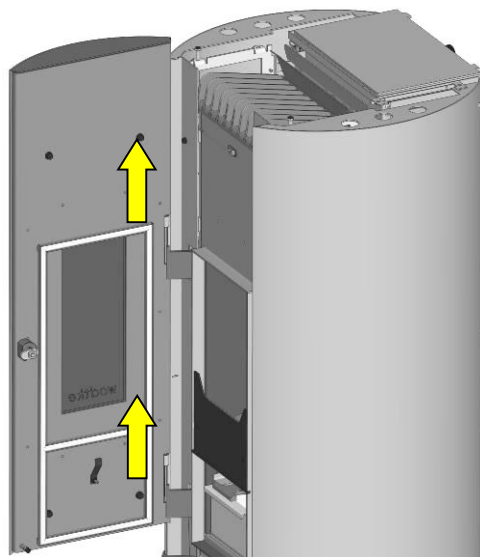
2. Lift unit cover up. Disconnect the control board cable from the control board (cable is clipped; see Fig. 12).



**Fig. 12: control board cable connection**

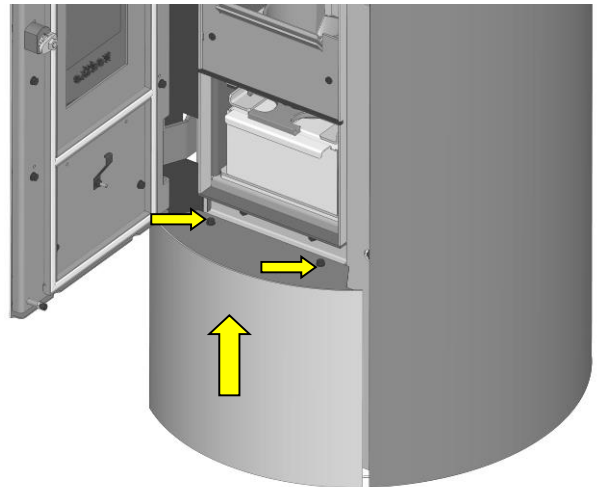
### 6.2.2 Side Panel Removal

1. Open the door with the enclosed socket hex handle and release upward (**Fig. 13**).



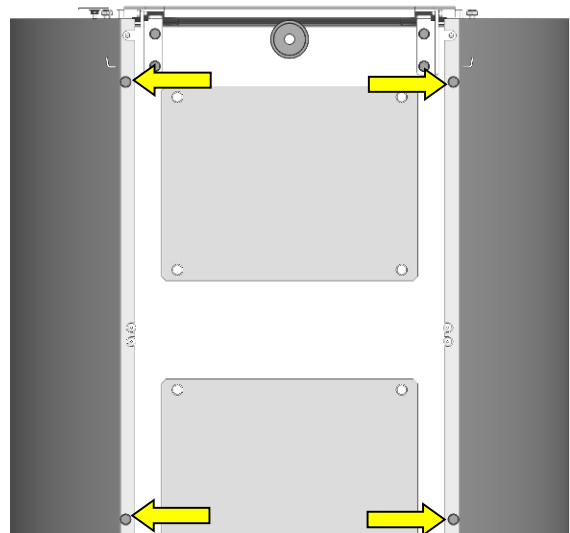
**Fig. 13: Release door**

3. Remove the lower panel. To do so, unscrew the two screws and remove panel upward.

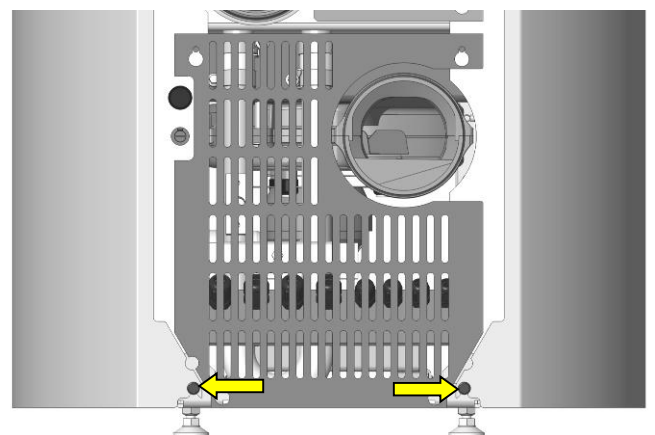


**Fig. 14: remove lower panel**

4. Remove six screws on the rear side (see Fig. 15 and Fig. 16).

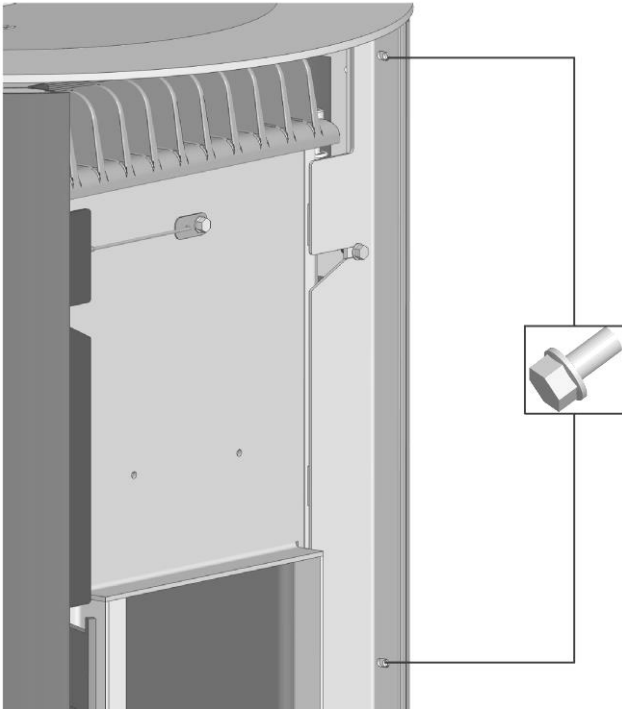


**Fig. 15: unscrew rear side screws**

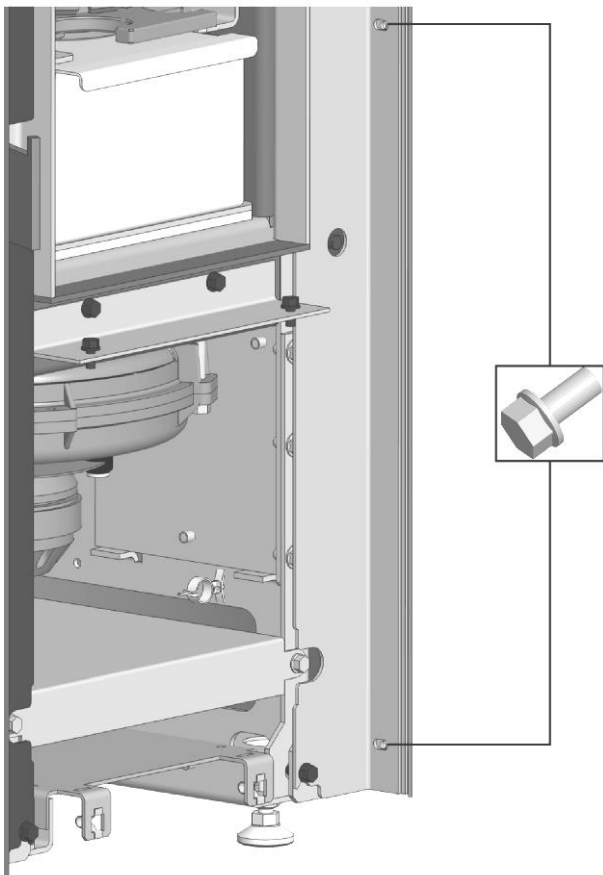


**Fig. 16: remove bottom rear side screws**

2. Unscrew four screws per side on the front (Fig. 17 and Fig. 18).

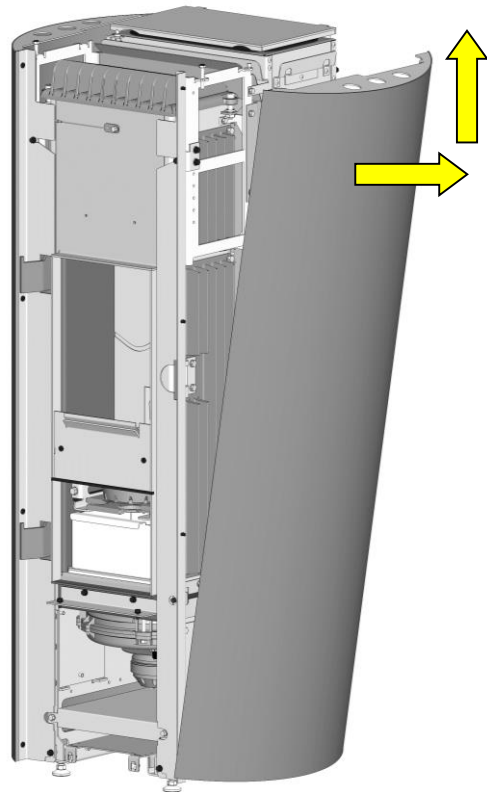


**Fig. 17: unscrew front top fastening screws**



**Fig. 18: unscrew front bottom fastening screws**

3. The side panels can now be removed. To do so, tilt the panel out in the upper area and then remove upward (Fig. 19).



**Fig. 19: Remove Side Panelling**

### 6.2.3 Remove Rear Top / Bottom Paneling

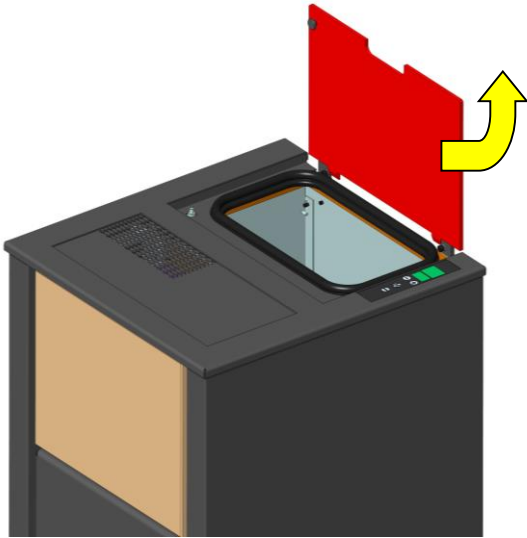
See Chapter 6.3.4 on page 17.



## 6.3 Removal of Outer Panelling of family.nrg

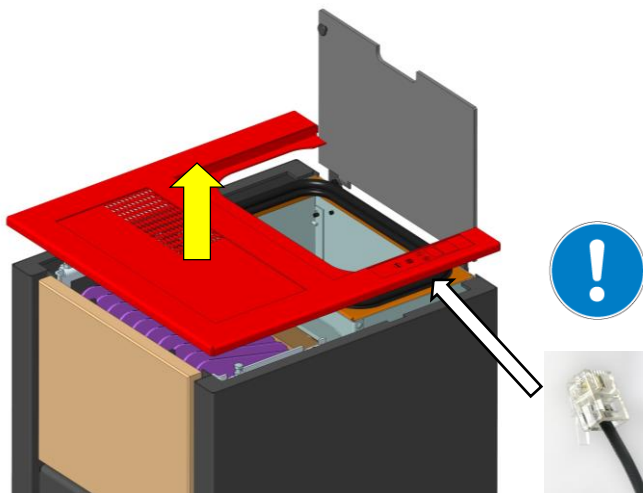
### 6.3.1 Remove Cover

1. Open pellet drawer.



**Fig20: opening pellet drawer**

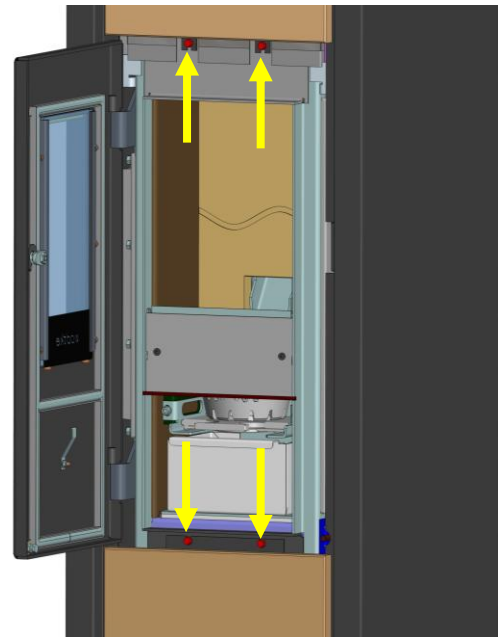
2. Lift cover somewhat, disconnect control board cable on the right-hand side (cable is clipped) and remove cover.



**Fig. 21: Cover Removal**

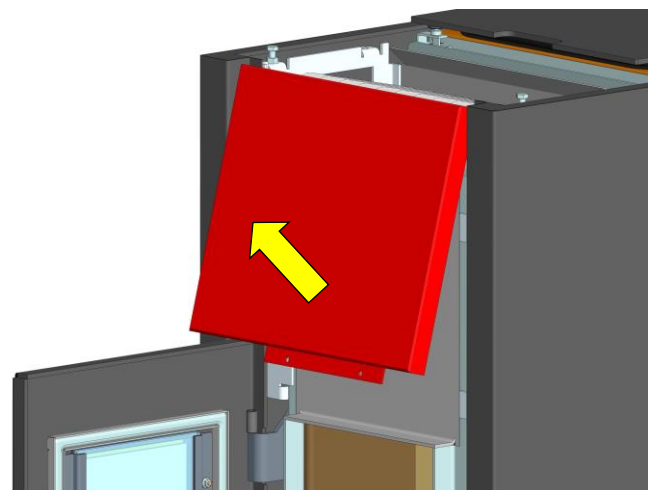
### 6.3.2 Remove Front Top / Front Bottom Panelling

1. Open combustion chamber door.
2. Remove the fastening screws of the panelling (Fig. 22).



**Fig. 22: front view, family.nrg**

3. Pivot top panel out on bottom end (Fig. 23) and remove upward.



**Fig. 23: removal of upper panel**

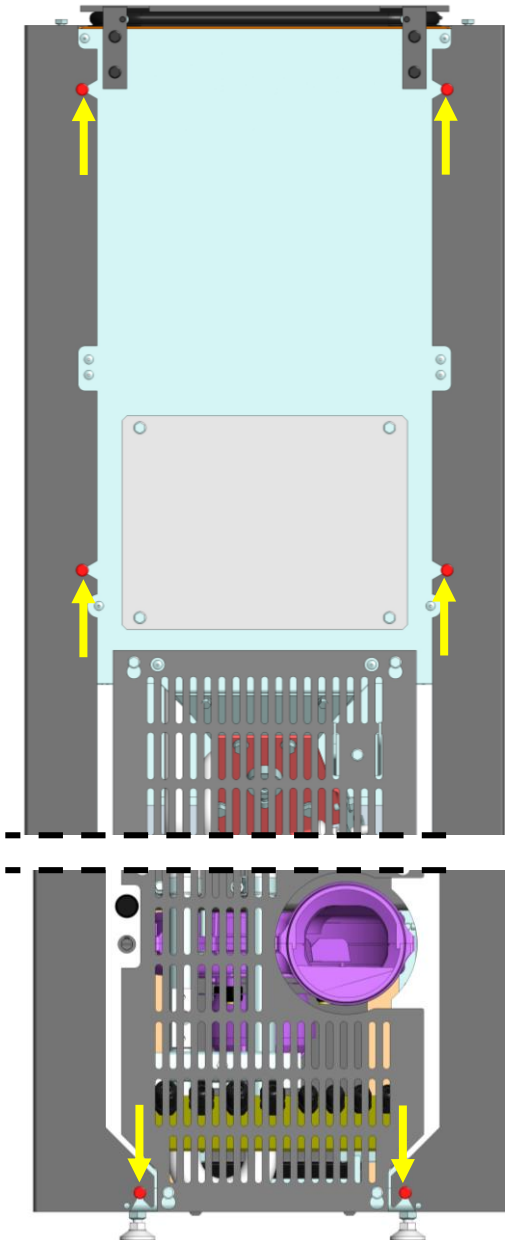
4. Remove the lower panel by pivoting the upper area out. Otherwise, proceed the same as the removal of the upper panel.



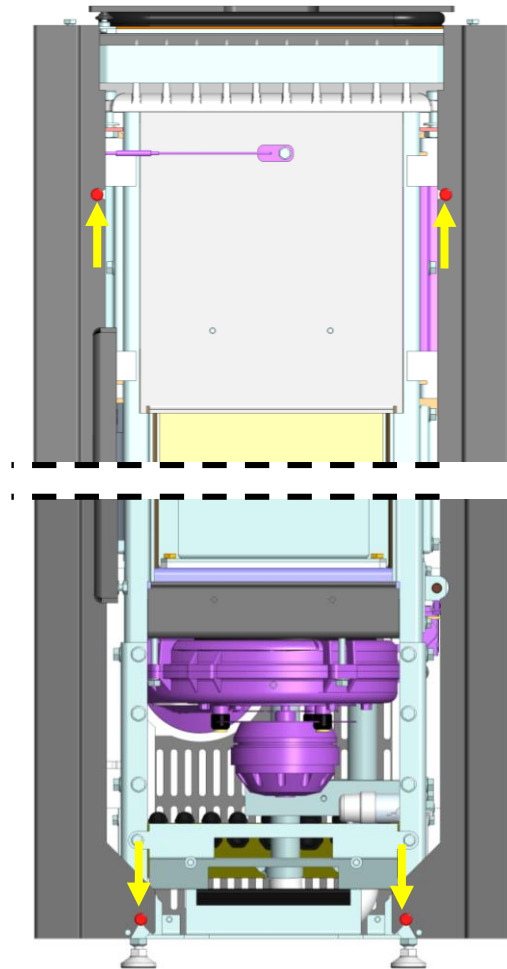
### 6.3.3 Remove Left / Right Side Panels

The front top and bottom panels must first be removed (see Chapter 6.3.2).

1. Loosen, but do not unscrew the 6 screws for the side panels on the rear side (Fig. 24).



**Fig. 24: rear view, family.nrg**



**Fig. 25: front, family.nrg**

2. Loosen the 4 front screws for the side panels, see Fig. 25 (do not unscrew).

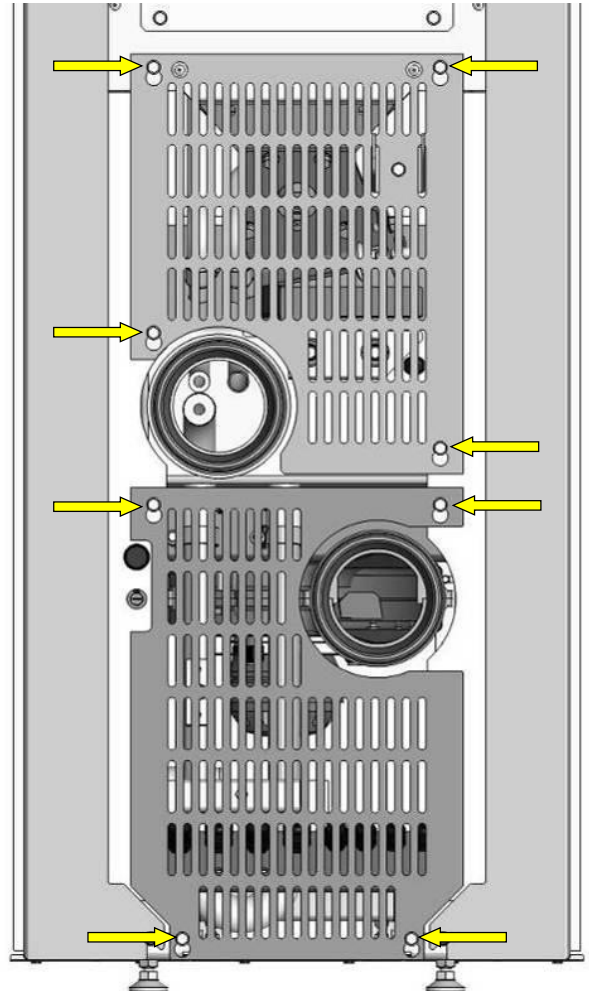
3. Pivot side panel out to the left or right and remove upward (Fig. 26).



**Fig. 26: Remove Side Panelling**

### 6.3.4 Remove Rear Top / Bottom Paneling

1. Loosen (do not unscrew!) the screws identified by arrows.
2. Lift and remove the two cover panels.



**Fig. 27: rear view, PO 03 series**

## 7 Placement of the Furnace



Please observe the specifications on fire protection regulations in Chapter 10.

The furnace must be installed on a sufficiently load-bearing and non-flammable base. At least 20 cm of free space must be available to the rear and sides of the furnace after installation for assembly work.

Adjust the feet of the furnace to 25 mm floor clearance to the bottom edge of the panelling at the installation location so that sufficient convection air can flow in from below / laterally below (see Fig. 2).

## 8 Electrical Connection / Cabling



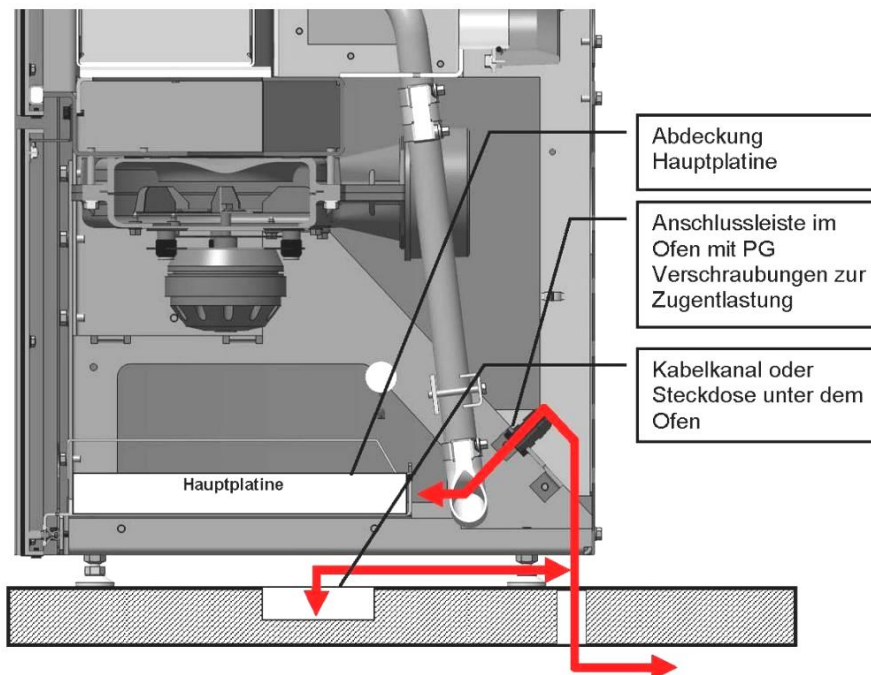
The power plug must be disconnected before performing electrical work on the unit!

Electrical connections on the unit must be made by a qualified specialist in accordance with applicable local technical rules, particularly the VDE guidelines. No liability is accepted for damage to the unit due to improper connections, and any warranty is void.

No electrical connection cables from and to the unit may contact hot exterior surfaces of the furnace or of the flue pipe. The installation may not be made over sharp edges, corners, etc. All electrical connections are located on the main board of the furnace.

The rear bottom panel and the left side panel or the front bottom panel of the furnace may have to be removed for the electrical connection, depending on the desired connection (for removal of outer panelling, see Chapter 6). The connection lines can be installed from below through the floor (hidden installation) or above the floor (see diagram below).

The guard covering over the main board may not be removed for the external electrical connection (this covering protects the main board from soot and dirt and is only removed when replacing components)! The furnace may only be operated with this cover in place!

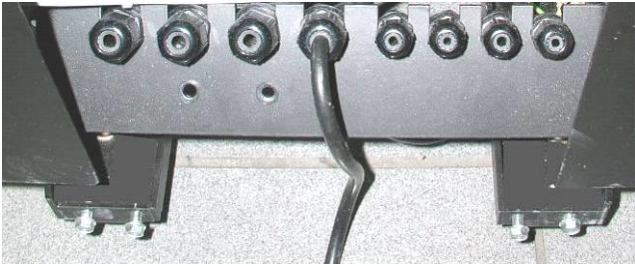


**Fig. 28: connection diagram**

## 8.1 Connector Block

The central connector block is located on the rear side of the furnace behind the lower furnace panneling. From there, the external connection lines can be installed to the connections on the main board.

In order to make the connections on the main board accessible, the left-hand panel of the unit must be removed. If the "Input "RS 485" or "BB-S5" connections are used (Chapters 8.3.3 and 8.3.6), the front panel must be removed.



**Fig. 29: central connector block, rear**



**Fig. 30: lateral connections, main board**



**Fig. 31: front connections, main board**



Install all external connection cables within the furnace properly and securely so that no hot combustion chamber parts are contacted (short-circuit risk). The cables from the central connector block (PG cable glands) can be installed in the left-hand frame profile of the furnace on the side or to the front.

## 8.2 Internal Wiring Diagram

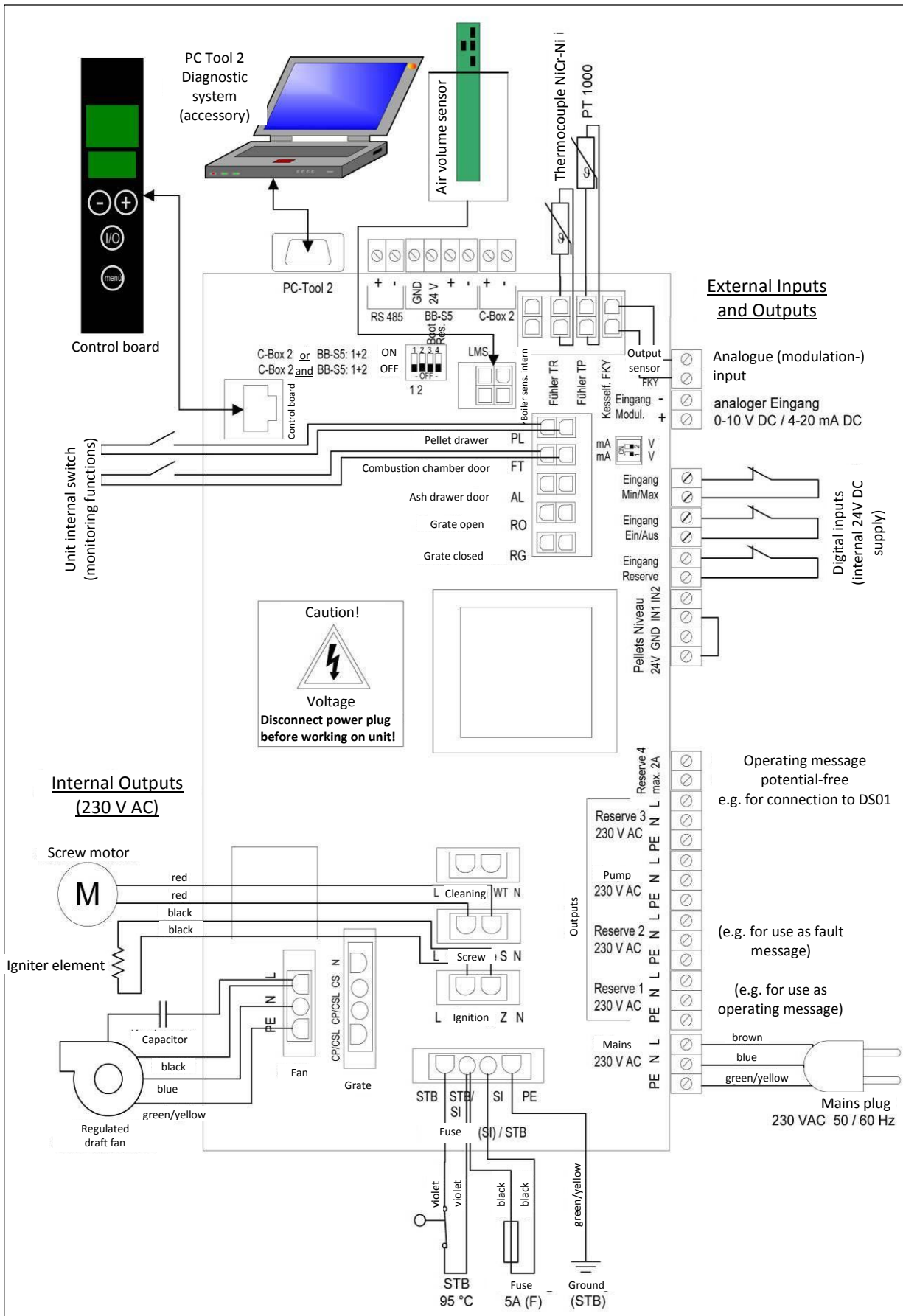


Fig. 32: wiring diagram, PO 03 series



### 8.3 Main Board Inputs

Overview of inputs / general notices

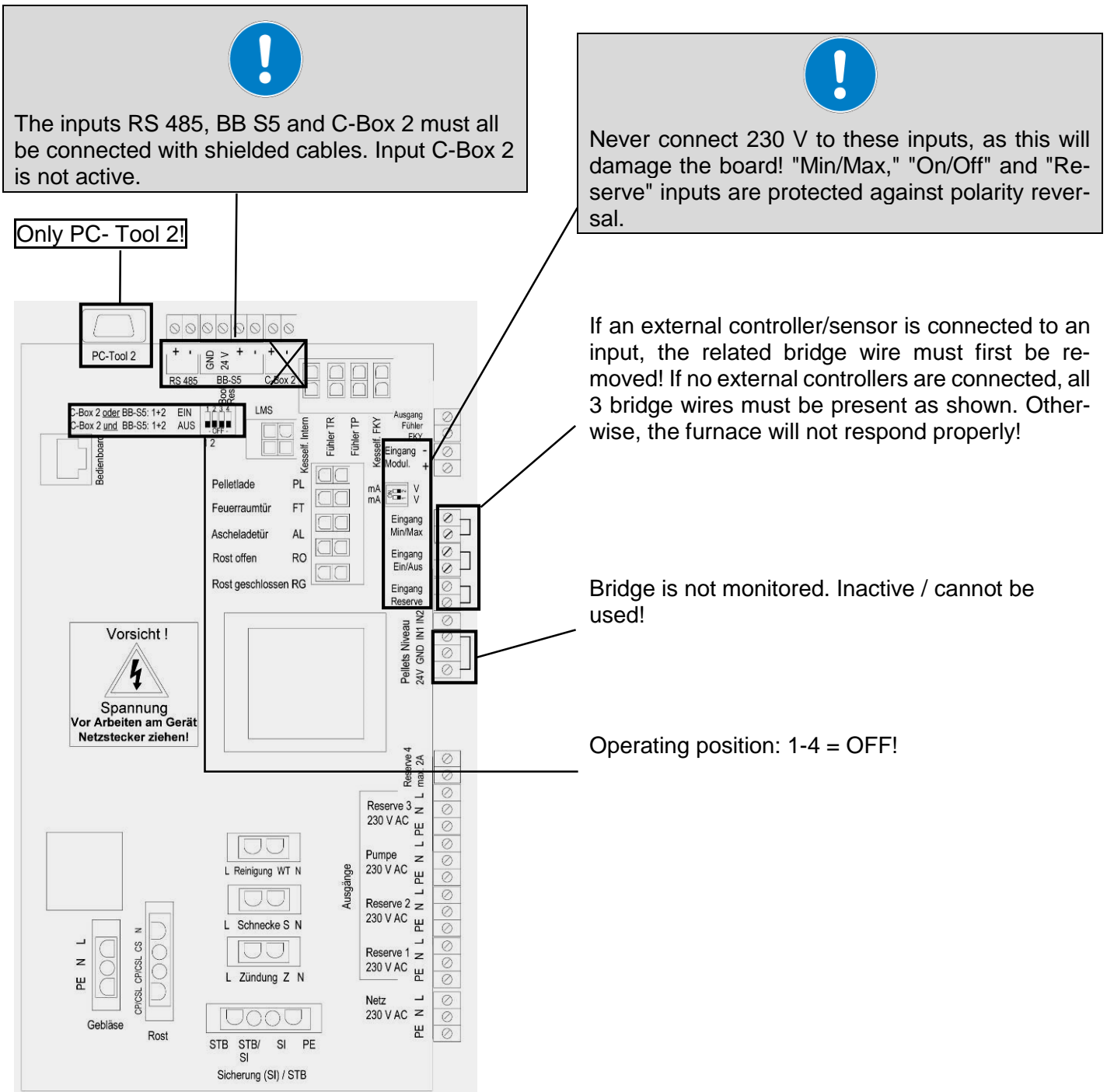


Fig. 33: main board inputs


### 8.3.1 "On / Off" (Eingang EIN/AUS) Input - Display Indicator HE ON / HE OFF

24 V digital input (bridged, protected against polarity reversal): for activation / deactivation via an external, potential-free room thermostat or heating controller.



Fig. 34: on/off input

- Bridge closed = furnace ON
- Bridge open = furnace OFF

Note: Button  on the control board has priority over the "On/Off" input.

### 8.3.2 "Modulation" Input (Eingang Modul.) – Display Indicator HE

Analogue input, 0-10 V or 4-20 mA switchable (not bridged, note polarity): for modulation of the furnace output via an external modulating room thermostat or heating controller. The "Modulation" input must first be switched active for use. The "Modulation" input only responds if the furnace is activated; that is, a combination with the "ON/OFF" input is required.

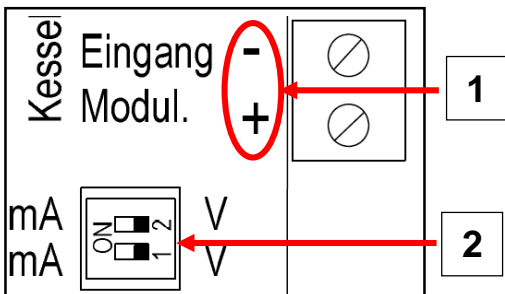



Fig. 35: modulation input



**1. Attention:**  
Note polarity


2. DIP switches: V / mA changeover for "Modulation" input




#### Priorities:



I/O button has first priority, MIN/MAX (external), ON/OFF (external), R.M (internal) have priority over modulation.



If the modulation input is switched active, the furnace no longer responds to the RS 485 interface (BUS is automatically deactivated as soon as modulation is activated) or to modulation mode/time switch mode via BB-S5 (TC1). **Notice:** a corresponding controller must be connected to the modulation input after activation, because otherwise the furnace will run permanently only at the smallest load.


Activation of the modulation input: Only permitted for specialist companies! Proceed as follows:

Press  button 1 x → change to menu level 1

Now hold  +  +  buttons simultaneously for at least 3 seconds until "S" appears in the display → change to menu level 2

Now hold  or  buttons pressed until "M OFF" indicator appears in the display.

Now press  +  buttons simultaneously until "M ON" indicator appears in the display → the "Modulation" input is now switched active.

Press  button for at least 3 seconds → return to operating level

Switch over modulation input from 0-10 V to 4-20 mA:

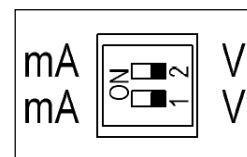


Fig. 36: modulation DIP switches

- 0-10 V = both DIP switches to V to the right;
- 4-20 mA = both DIP switches to mA to the left



### 8.3.3 "RS 485" Input (external BUS communication) - Display Indicator HE

RS 485 - BUS input for activation/deactivation and for modulation of furnace output via an external heating controller equipped with compatible bus communication (accessory). The "Bus" input must first be switched active for use.

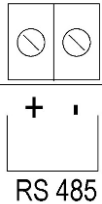






Fig. 37: RS 485 input



#### Priorities:



I/O button has first priority, MIN/MAX (external), ON/OFF (external), R.M (internal) have priority over bus. If the bus input is switched active, the furnace no longer responds to the modulation interface (modulation is automatically deactivated as soon as BUS is activated) or to modulation mode/time switch mode via BB-S5 (TC1). **Notice:** a corresponding controller must be connected to the "RS 485" input after activation, because otherwise the furnace will go to "Bu ER1" and "HE OFF" errors.


Activation of the RS 485 input: Only permitted for specialist companies! Proceed as follows:

Press  button 1 x → change to menu level 1

Now hold  +  +  buttons simultaneously for at least 3 seconds until "S" appears in the display → change to menu level 2

Now hold  or  buttons pressed until "Bu OFF" indicator appears in the display.

Now press  +  buttons simultaneously until "Bu ON" indicator appears in the display → the "RS 485" input (bus communication) is now switched active.

Press  button for at least 3 seconds → return to operating level

Currently, only the Paradigma Systa-Comfort is available as a compatible bus controller accessory. Please contact your designated dealer for further information and finally observe the instructions included with the Systa-Comfort controller. In order to connect the Systa-Comfort, a so-called gateway must be switched between the controller and the furnace board. See image below for installation location on the furnace:

1. Gateway (installation location Tmax < 50 °C) bottom, rear furnace wall
2. Cable for furnace control (PG cable gland)
3. From external controller

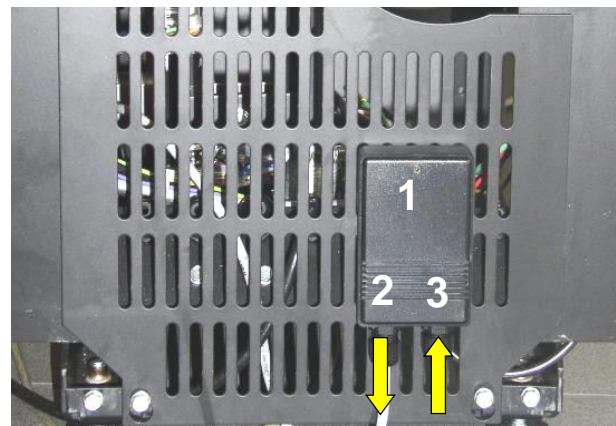


Fig. 38: gateway position

#### Behaviour in case of disrupted BUS communication (Bu Er1)

If there is no communication between the main board and the external controller via the bus for a certain period of time, "HE OFF / G OFF" (normal shutdown/burnout 15 minutes) alternates blinking with "BU Er1." The furnace shuts off because the bus communication has been disrupted (classification as error class 2).

The "BuEr1" error is archived in the error memory of the furnace. An automatic reset + restart occurs as soon as the BUS functions again (without actively required intervention by the user, error is archived in furnace memory, however). The furnace can only be manually started when there is a communication disruption of the BUS ("HE OFF" / "Bu Er1" state) if the BUS is deactivated first (see above).

### 8.3.4 "Min/Max" (Eingang Min/Max) Input - Display Indicator HM

24 V digital input (bridged, protected against polarity reversal): for switching the furnace output between smallest load and the output preset on the control board via an external, potential-free room thermostat or heating controller. The "Min/Max" input has priority over the "Modulation" input and the output preset on the control board.

- Bridge closed = furnace runs at output preset on control board
- Bridge open = furnace runs at minimum (smallest load) HM

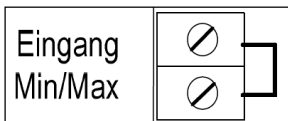


Fig. 39: min/max input

### 8.3.5 "Reserve" Input (Eingang Reserve) - Display Indicator RE Er1

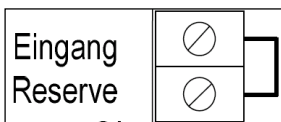


Fig. 40: reserve input

24 V digital input (bridged, protected against polarity reversal): for feedback (monitoring function) from external devices to the furnace.

- Bridge closed = everything ok, furnace responds normally
- Bridge open = external fault, furnace does not operate or goes to fault shutdown

Every time the furnace is started (manual start, automatic start or restart after power failure), it is queried after 15 seconds whether the potential-free bridge on the "Reserve" input is closed. The furnace only operates if the "Reserve" input is closed no later than after 15 seconds. It is then permanently monitored during operation whether the bridge is closed.

If the bridge is opened during operation, a fault shutdown occurs ("RE Er1" indicator blinking in alternation with "G OFF" or "Stand-By-Dot") and heating operation is not possible. A reset of the "RE Er1" error message and a restart as a result is only possible if the external error is resolved and the "Reserve input" is bridged (closed) again.

### Application examples:

Interlocking furnace with ventilation system / fume hood (furnace off if ventilation on)  
 Flue gas damper for flue gas / inlet damper for combustion air (wodtke AK1)

### 8.3.6 "BB-S5" Input - Connection of wodtke Touch-Control TC1 (Accessory)

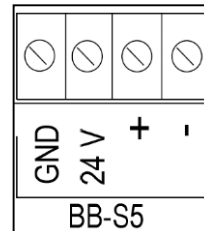


Fig. 41: Touch Control input

See the separate instructions for the wodtke Touch Control TC1. The TC1 can additionally be connected to the control board or to the furnace alone. When connecting the TC1 to the main board of the furnace, set the DIP switches 1+2 to "ON."

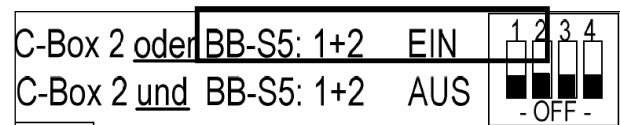


Fig. 42: Touch Control DIP switches

The furnace automatically recognises the TC1 and then responds to its commands.

### 8.3.7 "Pellets Level" (Pellets Niveau) Input (Inactive)

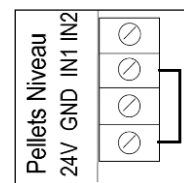


Fig. 43: pellets level input

Inactive / cannot be used

### 8.3.8 "PC- Tool 2" Input

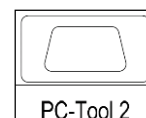


Fig. 44: PC Tool 2 Input

RS 232 interface with 9-pin SUB-D coupling: for connection of the wodtke PC-Tool 2 diagnostic system (only for specialist companies).

## 8.4 Main Board Outputs

Overview of outputs / general notices:

The status of these outputs Reserve 1 – Reserve 4 can be queried via the menu level 1 on the display. See Chapter .

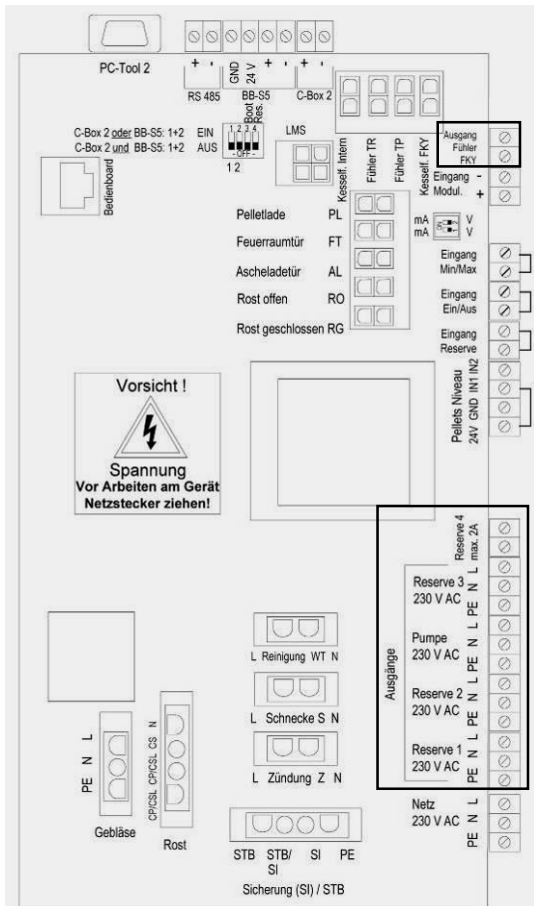


Fig. 45: main board outputs

### 8.4.1 "Sensor FKY" Output (Inactive)

Inactive / cannot be used



Fig. 46: sensor FKY output

### 8.4.2 "Pump" Output (Inactive)

Inactive / cannot be used

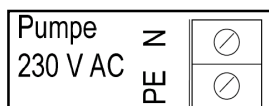


Fig. 47: pump output

### 8.4.3 "Reserve 1" Output (Operating message)

3-pole relay output (normally open) with mains voltage / 230 V AC (unregulated): for connection of external devices which require a signal with mains voltage during operation of the furnace (e.g. wotdke flue gas damper AK1).

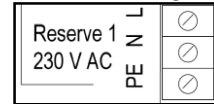


Fig. 48: Reserve 1 output

- Output R1 ON = 230 V / mains voltage = furnace in operation Note: G OFF applies as operation.
- Output R1 OFF = 0 V = furnace off or furnace not ready (e.g. voltage failure, fur-

nace shut down via button or furnace shut down via external / internal controller).

### 8.4.4 "Reserve 2" Output (Collective fault message)

3-pole relay output (normally open) with mains voltage / 230 V AC (unregulated): for connection of external devices which require a signal with mains voltage in case of furnace fault.

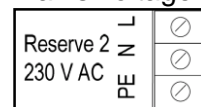


Fig. 49: Reserve 2 output

- Output R2 ON = 230 V / mains voltage = fault-free operation
- Output R2 OFF = 0 V = fault, voltage fail-

ure or unit shut down via button.

### 8.4.5 "Reserve 3" Output (Fault Message, Pellet Chute Temperature TP)

3-pole triac output (normally open) with mains voltage / 230 V AC (unregulated): for connection of external devices which require a signal with mains voltage in case of temperature too high in the pellet chute (e.g. visual or acoustic warning signal, bell, etc.).

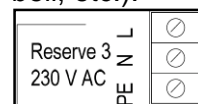


Fig. 50: Reserve 3 output

- Output R3 ON = 230 V / mains voltage = TP temperature too high
- Output R3 OFF = 0 V = TP temperature OK

### 8.4.6 "Reserve 4" Output (Operating Message with Monitored Safety Relay)

2-pole, potential-free, forcibly actuated and monitored relay output (normally closed); max. 2 A load capacity: for connection of external devices which require a potential-free opening signal during operation of the furnace (e.g. wodtke DS01 differential pressure controller or wodtke C-Box 1).

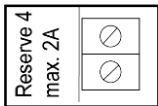



Fig.. 51: Reserve 4 output

- Output R4 ON = relay open = furnace in operation. Note: G OFF applies as operation.
- Output R4 OFF = relay closed = furnace off or furnace not ready (e.g. voltage

failure, furnace shut down via  button or furnace shut down via external / internal controller).

Notice regarding "Reserve 4" output:

- The "Reserve 4" output switches simultaneously with the "Reserve 1" output because both outputs represent an operating message of the furnace. Difference: R1 = normally open contact with 230 V; R4 = normally closed contact, potential-free and monitored.
- If there is a malfunction on the "Reserve 4" output (relay does not open or close), the control recognises this, shuts the furnace down and reports "R4 Er1"

## 9 Furnace and Functional Description, Components, Descriptions

A wodtke AIRPLUS Pellet Primärofen is a specialised heating unit for burning wood pellets only. During heating operation, the furnace generates hot air which is emitted to the installation room. In addition, comfortable radiant heat is generated from the panelling and the viewing window. For heating operation, simply switch on the Pellet Primärofen and select the desired output stage. When using an external controller, the wodtke Pellet Primärofen can also be automatically activated and deactivated and the output stage automatically modulated.

The wood pellets are fully automatically conveyed to the burner pot and ignited by an electrical igniter.

The controlled transport screw automatically delivers the correct volume of fuel according to the selected heating output. The air required for combustion flows to the burner pot in a controlled manner. The gases combust in the combustion chamber and the downstream hot gas flues and emit their energy to the heat exchanger.

An exhaust fan is located at the end of the hot gas flues which safely conduct the flue gases to the chimney, coordinated with the fuel volume and combustion air. An air volume sensor in the air intake pipe measures the incoming combustion air volume and compares it to the related target air volume. In case of deviations, the exhaust fan is regulated up or down accordingly. Operating sounds, such as pellets dropping and flame/air current and drive motor noises, are audible during operation. By pulling out the cast grate, ash can fall out of the burner pot / combustion chamber into the ash drawer below. The ash drawer must be regularly removed and emptied. If the ash drawer is full, faults can occur.

The furnace is also prepared for room air independent, sealed installation. Consequently, there is a contact switch on the combustion chamber door which registers when the combustion chamber door is opened for too long during operation, and triggers corresponding safety functions. The storage container is also correspondingly safeguarded and should likewise only be opened briefly.



#### Attention:

If an external loading system is connected, room air independent operation / installation is no longer possible or permitted, as the seal tightness of the furnace is no longer guaranteed as a result of the customer-provided attachments. The same applies in the case of changes to the furnace made by the customer, such as the drilling of holes in the furnace casing. This voids approval.

The operator must clean the furnace of ash and slag at regular intervals. The viewing window must also be cleaned of ash coating which is always created during combustion of solid fuels. In addition, regular maintenance is required, which should be performed by a specialist company but can also be carried out by an instructed operator.



### 9.1 Cross-Section and Components

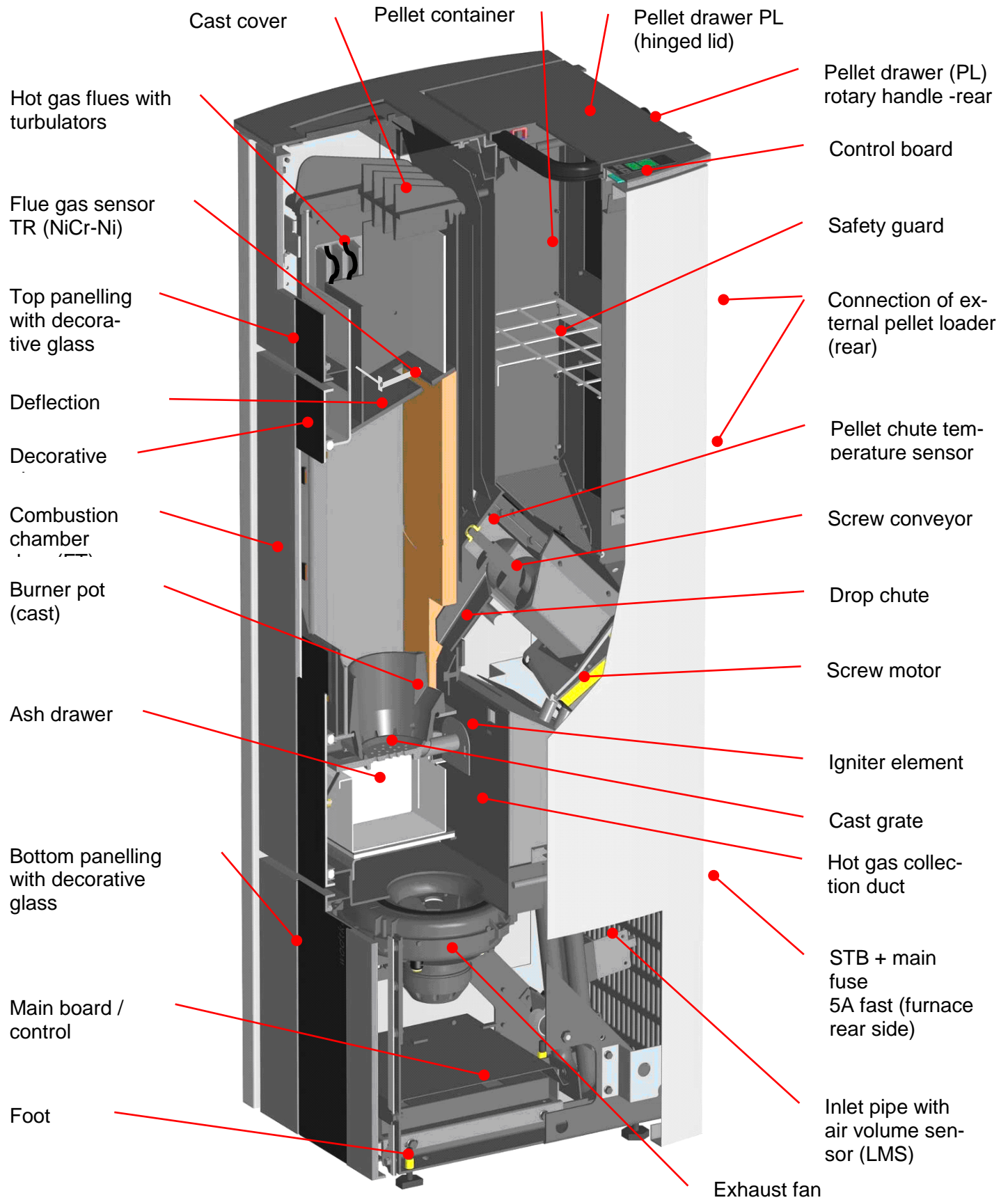


Fig. 52: cross-section

## 9.2 Back-Burn Protection

Back-burn protection is implemented by means of various devices, some of which are registered designs and patented. With fuel chute cooling, air guide plates underneath the fuel chute, wotdke air volume sensors, a safety temperature limiter (STB) and a temperature sensor in the pellet chute, all wotdke units have unique, 5x protection against back-burns in the pellet container. The far exceeds the most stringent of current legal requirements.

## 9.3 Safety Temperature Limiter (STB) + Main Fuse (5A Fast)

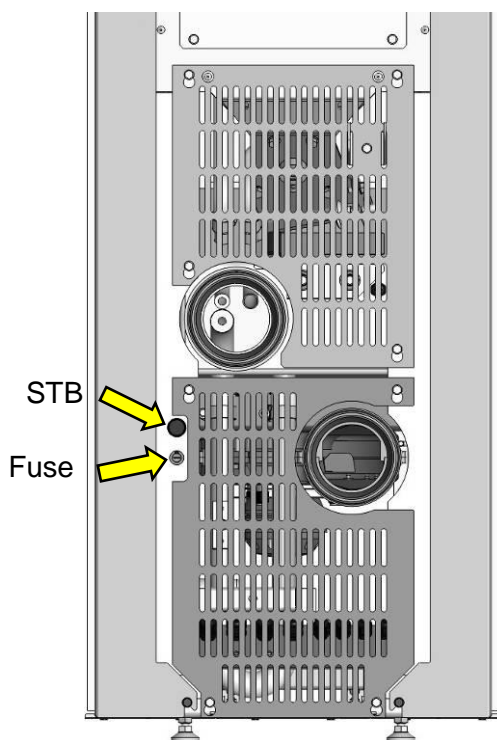


Fig. 53: location of STB and fuse

The safety temperature limiter is a mandatory safety device which shuts off the device in case of excessive overheating and must then be manually released again. The STB is located on the rear wall of the unit, next to the unit's main electrical fuse.

To release the STB, the black screw cap must be removed. The release knob under the screw cap can be pressed / released with a pointed object as soon as the unit has sufficiently cooled.

If the release knob of the STB cannot be permanently pressed, the temperature is still too high and you must wait until the unit has sufficiently cooled.

The main fuse (5A fast) is located directly under the STB. The fuse holder can be opened by turning counter-clockwise with a screwdriver and the fuse can then be removed.



Attention, voltage! Disconnect the mains plug before working on fuse holder / main fuse.

## 9.4 *wodtke Air Volume Sensor*

An air volume sensor sits in the central air intake which measures the current flow velocity of the combustion air in the intake, compares it to the target value specifications and, in case of deviations, automatically corrects the speed of the exhaust fan up or down. This allows the unit to automatically adjust itself within the possible adjustment range to changes to the chimney draft, changes to the internal resistances (e.g. due to contamination of the hot gas flues or the burner pot) and differing resistance in the air intake. The unit is thus always supplied with the optimal air volume.

### Note:

In the case of differing draft ratios in the chimney and differing air temperatures, the wodtke air volume sensor can also cause differences in the flame pattern because the fan speed necessarily changes. This is completely normal, however, and does not represent a defect. Instead, this provides for optimal combustion.

The air volume sensor also responds if the door of the unit is opened, and interrupts the pellet feed. This, together with the additional contact switch of the combustion chamber door, prevents operation with the door open and the units are classified as type 1 (self-closing door).

The temperature of the air volume sensor (TL) in the intake is also measured via the air volume sensor. If this temperature is above the target value, the unit is switched to fault. The same occurs if the temperature rises too quickly (gradient).

## 9.5 *Pellet chute temperature sensor (TP)*

A temperature sensor sits directly in the pellet chute and monitors the temperature to the pellet container. If the target temperature stored in the programme is exceeded, a safety shut-down of the unit occurs. The unit can only be reactivated following sufficient cooling.

If the sensor should be defective and require replacing, the adjusting stop ring (A) of the defective sensor must be installed on the new sensor. Push the adjusting stop ring of the old sensor over the new sensor and position precisely (22 mm from the sensor tip), as measurement errors can otherwise occur. Never install sensor without the adjusting stop ring! Tighten all adjusting screws by hand only (not with force / screwdriver) as the sensor can otherwise be damaged.

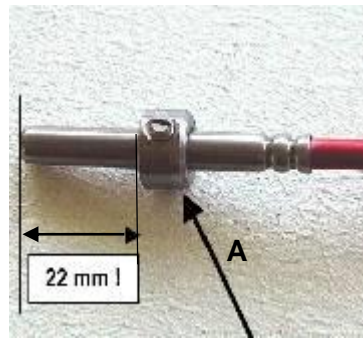


Fig. 54: TP sensor

## 9.6 *Flue Gas Temperature Sensor (TR)*

A temperature sensor sits directly in the flue gas (above the deflection plate of the combustion chamber) and monitors the temperature for ignition and continuous operation. After starting, it is monitored here whether the ignition was successful. If no more pellets are supplied (e.g. container empty), this is also detected via this TR sensor and the unit shuts down. When operating with pellets having a heat value / bulk density that is too high, the output released from the unit can be above the rated heating output. This is also detected and balanced by the TR. The unit modulates to low-load until the specified values are upheld again.



# 10 Fire Safety Regulations



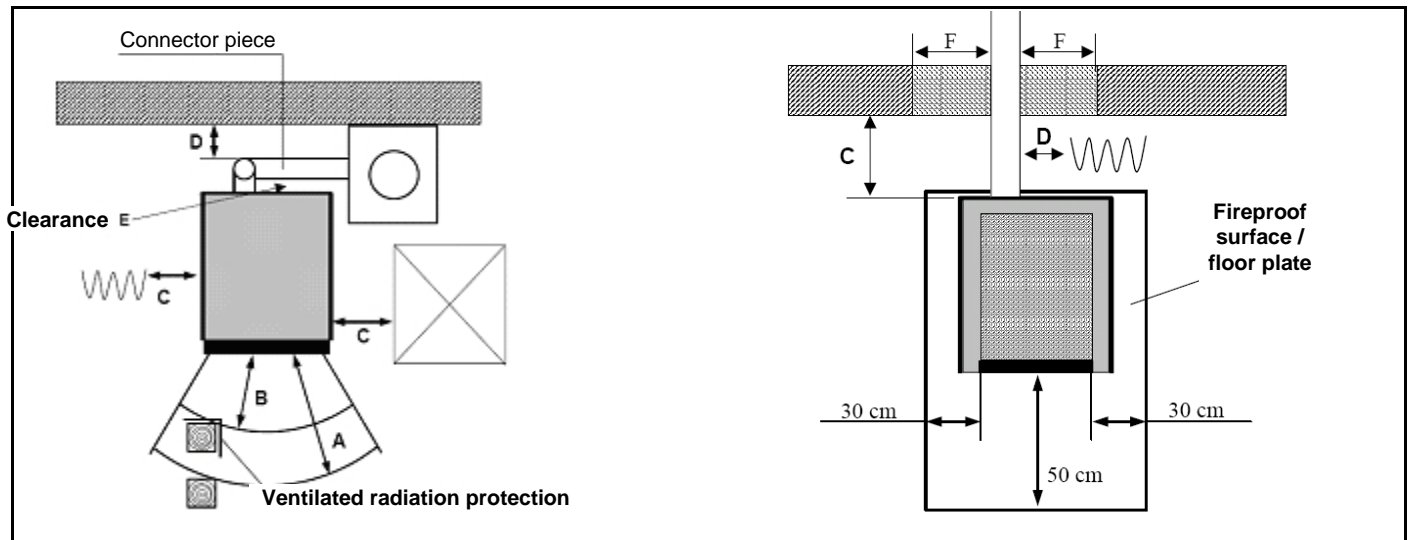
**Attention:**

All flammable components, furniture or furnishing fabrics, for example, in the immediate vicinity of the furnace must be protected against the effects of heat. In particular, the applicable local fire safety regulations and provisions must be observed.

**The following fire safety clearances must be maintained at minimum:**

Di- men- sion	Value	Explanation
A	80 cm	Minimum distance in radiation area / to hot air outlets
B	40 cm	Minimum distance in radiation area / to hot air outlets with ventilated radiation protection

Di- men- sion	Value	Explanation
C	20 cm or 15 cm	Minimum clearance <b>outside the radiation area and outside the area of hot air outlets:</b> <ul style="list-style-type: none"> <li>• to the rear: 20 cm</li> <li>• to the sides: 15 cm</li> </ul>
D		Minimum clearance of flue pipe to flammable components according to specifications of the flue pipe manufacturer
E	5 cm	Minimum clearance of flue pipe to rear furnace wall.
F	20 cm	Minimum thickness of non-flammable, dimensionally stable thermal insulation in the perimeter of the flue pipe or clearance of a protective tube to the flue pipe in case of lead-through in a wall with flammable components
No Fig.	100 cm	A minimum clearance to components / objects to be protected of 100 cm is required above the furnace.



Example with connector piece to chimney within the installation room

Example with connector piece through wall with flammable components to chimney

**Fig. 55: fire safety clearances**

The rear wall of the furnace does not become hot. No minimum distance must be maintained for fire safety reasons. Nevertheless, we strongly recommend maintaining a distance of 20 cm to the rear (e.g. for maintenance work) in order to ensure accessibility.

Floors made of flammable material, such as carpet, parquet flooring or cork, must be replaced or protected by a surface of non-flammable materials, such as ceramic, stone, glass or a floor plate made of steel, under the furnace as well as in front of the combustion chamber opening at least 50 cm to the front and at least 30 cm to the sides beyond the furnace opening (not the outside edge of the unit, but rather the inside edge of the combustion chamber opening).

**No additional thermal insulation is required underneath the furnace; a load-bearing and fire-safe surface is sufficient**, as there is no downward heat emission. All air intake and outlet openings must be kept completely free and may not be blocked or covered: **danger of the furnace overheating!**

The **minimum clearance** between the hot flue pipe (connection piece to the chimney) and components to be protected must be designed according to the specifications of the manufacturer of the flue pipe (**Dimension D**).

If the **flue pipe** is not connected directly horizontally as recommended, but rather led vertically behind the furnace, the vertical part of the flue pipe must have a minimum clearance of **5 cm to the rear wall of the furnace (dimension E)**.

If the flue pipe is run through a wall with flammable components to the chimney, either a non-flammable, dimensionally stable thermal insulation is required in a **perimeter of 20 cm** to the flue pipe, or a protective tube at a **distance of 20 cm** to the flue pipe is required (**Maß F**).

## 11 Approved Fuels

According to the 1st Federal Immission Control Act (1st BImSchV), only **natural wood pellets** are permitted. Cut firewood or other burnable or waste materials may never be used.

**Only pellets which have been certified according to ENplus-A1, DINplus or DIN EN 14961-2 Class A1 may be used in wodtke Pellet-Primärofen units. Wood pellets with an ash content of > 0.7% may also not be used, as otherwise the cleaning and maintenance expense is too high. Be sure to observe the notices regarding pellet quality in Chapter 3.8!**

**Cut firewood or other burnable or waste materials may never be used. Other fuels also lead to damage to the wodtke Pellet Primärofen and burden our environment.**

**If the furnace is not operated with approved fuels, any warranty or guarantee claims are void and dangerous operating conditions may result. Do not perform any experiments.**

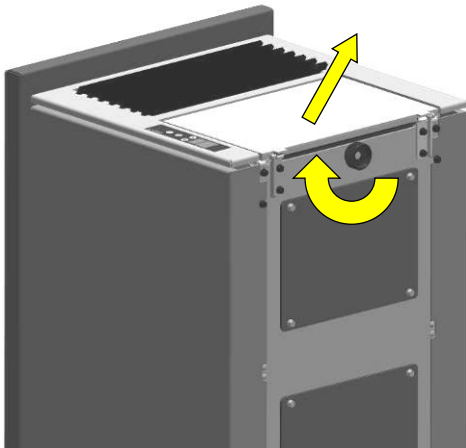
**A pellet diameter between 5 and 8 mm is permitted<sup>3</sup>. The length of the pellets should not exceed 30 mm. Pellets with high dust content (>5%) should likewise not be used.**

<sup>3</sup> The recommended pellet diameter is 6 mm; in case of deviations, the fuel throughput may need to be adjusted. The same also applies for differing lengths.

## 12 Filling Pellet Container / Pellet Container is Completely Empty

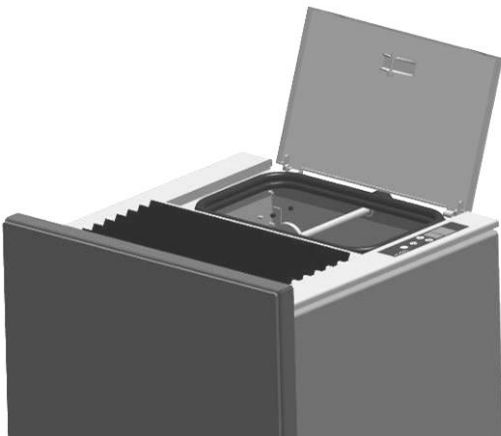
Note: Always refill pellets in a timely manner!

Turn the rotary handle of the pellet drawer, if present, until it opens. Then open the pellet drawer.



**Fig. 56: opening pellet drawer**

Fill pellets up to the lower edge of the seal. Close pellet drawer. Seal the pellet drawer with the rotary handle (the closure hook is rotated to the locking bolt by the rotary handle).



**Fig. 57: open pellet drawer**



**Fig. 58: refilling pellets**





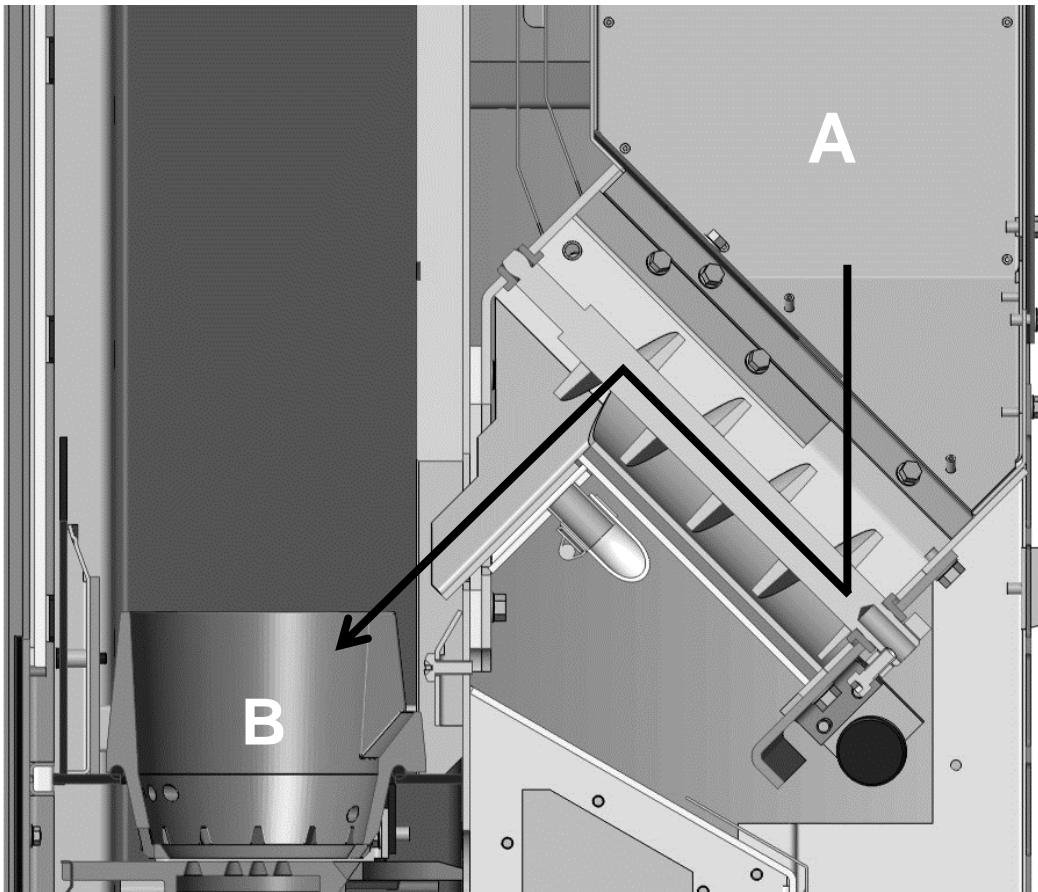
**Fig. 59: full pellet container**

**Note:**

If pellets have been filled for the first time or the screw conveyor has run completely empty, the pellets (Fig. 60) must first be transported by the screw conveyor until they can fall into the burner pot (B). In this case, the starting process / ignition may fail because the pellets fall into the burner pot too late. Proceed as described below in order to prevent this. This process takes approx. 3-4 minutes and must also be repeated if the pellet container (A) has run completely empty.

Proceed as follows to fill the screw conveyor with pellets for the first time or after running empty:

- Fill pellets.
- Press button  1x and wait approx. 3 minutes until pellets audibly drop into the burner pot (a distinct clicking can be heard).
- As soon as the first pellets drop into the burner pot, press the  button again.
- The unit is now ready for operation and can be started (see following chapter).



**Fig. 60: pellet transport in PO 03**

## 13 Initial Commissioning

Once the furnace has been properly installed, connected and accepted by the authorised district chimney sweep or the responsible local authority, as well as filled with pellets, initial commissioning can be carried out.

You must first be instructed by your designated specialised dealer, as well as study the enclosed instructions.

Be absolutely sure that there are no more accessories in the ash drawer, as they can melt / burn and damage the furnace.

The following accessory parts are part of the scope of supply of the furnace and must be removed before commissioning:

Combustion chamber (Fig. 61):

- Glass cleaner
- Instructions
- Quick-start instructions
- Cleaning brush

Rear wall:

- Cleaning brush
- Snake design handle (for opening the combustion chamber door)



**Fig. 61: accessories in the combustion chamber**

### 13.1 Important Notices

- Before commissioning in Germany, the heating system must be accepted by the authorised district chimney sweep. This authority issues the operating permit.
- Always keep combustion chamber door closed, even when in a cold state.
- Never use combustible or highly flammable liquids for igniting.

- The door with the ceramic glass pane becomes very hot during operation. Take care not to touch the pane.
- The panelling can also become hot during continuous operation. Use the supplied heat-resistant glove.
- Do not leave children or young people near the furnace unattended!
- All steel and cast parts of the furnace have been coated in the factory with highly heat-resistant paint and fired. When heating up the new furnace for the first time, the paint undergoes a final drying process, which can create odour and smoke! Please observe the following suggestions:
  - No people or pets should remain in the room during this process, as the vapours emitted can be hazardous to health!
  - Ventilate the room well so that the vapours that are released can be removed.
  - During the curing period, the paint is still soft. Do not touch painted surfaces in order to prevent damage to the paint surface.
  - The paint finishes curing after operating for a while at high heating output.



#### Attention:

- the furnace may never be operated without the cast grate!
- the cast grate may not be removed / pulled during operation of the furnace!

Do not insert cast grate skewed (door will not close)



## 14 Operation and Heating

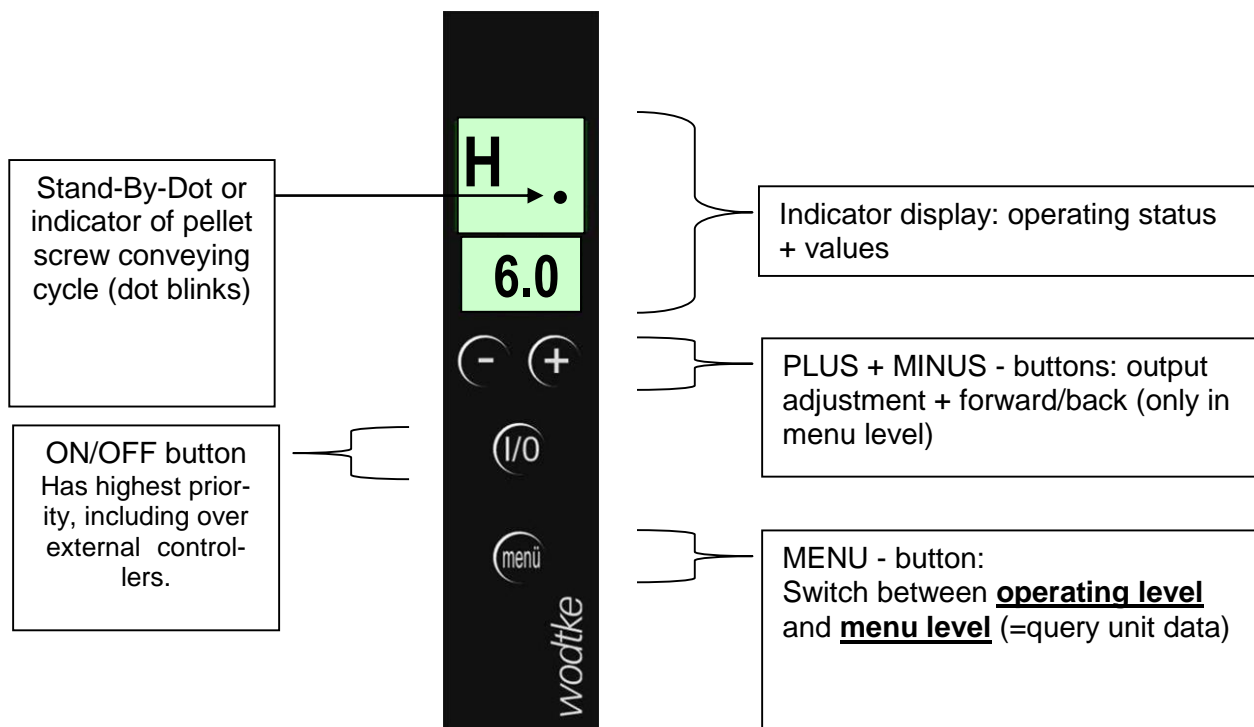


Fig. 62: Control board

Operation of the furnace is very simple:

**Activation:** → Press  1x. The following indicators appear:

- **ON / P5 400**<sup>4</sup> blinking in alternation with **TESt**
- **A** (warm-up programme) + minutes (negative sign, counting backward)
- **H** (heating programme) + kW. e.g. H 5.0 = heating programme, output 5.0 kW

**Deactivation:** Press  1x. The following indicators appear:

- **OFF** (furnace switches off) → **G OFF** (fan stop delay 15 minutes) → Stand-By-Dot

**Preselect output:** Press  or  button until the desired heating output H is set. The heating output is adjusted in 0.5 kW steps.

<sup>4</sup> In addition to ON, a different text may appear depending on the programme which is set and the programme version.

Note: Depending on which programme is set on the furnace, the following output ranges can be set:

Programme P5: heating output H = 2.0 - 6.0 kW

The following indicators can appear on the display during operation of the furnace:

Display indicator	Meaning
•	Stand-By-Dot Furnace has been manually deactivated via the I/O button. The I/O button must be pressed to activate the furnace. In stand-by mode, the furnace is not operationally ready for external controllers.
ON	ON start signal (displayed briefly upon activating the furnace) The furnace was started and enters the warm-up programme shortly after displaying the programme and an internal test.
OFF	OFF stop signal (displayed briefly upon deactivating the furnace) The furnace was deactivated and enters the fan stop delay G OFF.
P5 400	Indicates the programme and the programme version (displayed for several seconds upon starting) P5 = Programme 2-6 kW 400 = Programme version 400, 401 = Programme version 401 etc.
A -15	WARM-UP PROGRAMME + indication of remaining duration in minutes The furnace begins to throw in pellets, the igniter element is started, the ignition is monitored (after correctly warming up, the furnace switches to the heating programme H). The warm-up programme takes 15 minutes. The display counts down by minutes.
AI -15	WARM-UP PROGRAMME IN + display in minutes (blinks in alternation with G OFF). The furnace is still in G OFF. However, the furnace has registered that the I/O button was pressed again. The furnace indicates that it will automatically resume operation in x minutes (after G OFF elapses). AI 11 = warm-up in 11 minutes.
H ...	HEATING PROGRAMME + display of adjusted output in kW The furnace is in heating mode. H 6.0 = heating programme 6 kW.
R.M 2.0	Internal modulation on flue gas side + display of output in kW <ul style="list-style-type: none"> <li>The flue gas temperature "TR" was exceeded. The furnace is run at the lowest output (2 kW) via the internal control. Once the temperature lowers sufficiently, the furnace returns to the heating programme H.</li> <li>The temperature on the air volume sensor was exceeded. The furnace regulates to the lowest output (2 kW) Once the temperature lowers sufficiently, the furnace returns to the heating programme H.</li> </ul>

R 120	CLEANING PROGRAMME R + indication of remaining duration in seconds An automatic cleaning cycle of 120 seconds is started after each hour of continuous operation in heating programme H. Pellet conveyance is reduced and the fan speed is increased in order to reduce the pellet volume in the burner pot and to centrifuge the flue ash out of the burner pot.
G OFF	FAN STOP DELAY (= furnace shut-down. Duration 15 minutes) The furnace shuts down. The fan runs for 15 more minutes in order to fully burn away the remaining pellets and to remove the heating gases. Attention: the furnace only actually goes into Stand-By after G OFF when G OFF does not blink in alternation with HE OFF or TW OFF. In other cases, the furnace can / will be automatically restarted after G OFF.
WA ...	Maintenance indicator (displayed briefly) The furnace must be serviced. Display WA 0.1 = maintenance 0.1 d overdue
•• •••	Display "Function not available" This display appears if the desired button function cannot be performed or has no function assigned.
HE ...	HEATING PROGRAMME EXTERNAL (only possible with externally modulating controller) The furnace is adjusted to the displayed output via an external modulating controller. e.g. HE 5.2 = heating programme external 5.2 kW
HM 2.0	HEATING PROGRAMME MINIMUM (only possible with external controller) The furnace is adjusted to lowest output (2 kW) via an external controller (via the MIN/MAX input).
HE OFF	HEATING PROGRAMME EXTERNAL (only possible with external controller) The furnace is shut down via an external controller (via the ON/OFF input or BUS)
OF ...	Processing remaining time: the furnace was shut down via an external controller (via the ON/OFF input). The remaining time is displayed as a countdown in minutes, in alternation with the current operating state. This function is only possible if the remaining time was set to >0 (menu level 2).
PL OPEN	Pellet drawer open. The pivoting lid of the pellet container is open. If it is opened for longer than 3 minutes without interruption during furnace operation (mode = A, H, HM, R.M, HE, G OFF), the furnace goes into fault (PL, Err).
FT OPEN	Combustion chamber door open. The combustion chamber door is open. If the combustion chamber door is opened for longer than 1 minute without interruption during furnace operation (mode = A, H, HM, R.M, HE, G OFF), the furnace goes into fault (FT, Err). Only open combustion chamber door when the furnace is not operating!



## 15 Cleaning

In contrast to oil or gas, ash and soot are always created when burning solid fuels. As a result, regular cleaning by the operator is required for operation without malfunctions.



### Attention / Danger:

Units which are not cleaned according to our specifications may not be operated. All warranty claims are void in case of non-compliance.

The number of cleanings of the burner pot / cast grate is dependent on the ash content of the pellets and cannot be changed by settings on the unit, because the ash is a non-combustible component of the pellets and therefore cannot be influenced by the combustion parameters!  
We therefore recommend using only wood pellets with an ash content of < 0.7%.

Solid fuels create a window coating on the viewing window, particularly in the case of the very fine ash of wood pellets, which can appear as very light or dark black (especially at low output), depending on the pellet quality and output settings of the unit. This is a natural process during the combustion of wood pellets and is not a defect.



### Caution!

Before beginning cleaning / maintenance work, shut down the furnace and allow it to cool. Please also observe the safety instructions under the container cover. All components in the combustion chamber may still be hot. Embers may be concealed in the ash. Never put unburned pellets or ash from the combustion chamber back into the storage container – risk of fire!

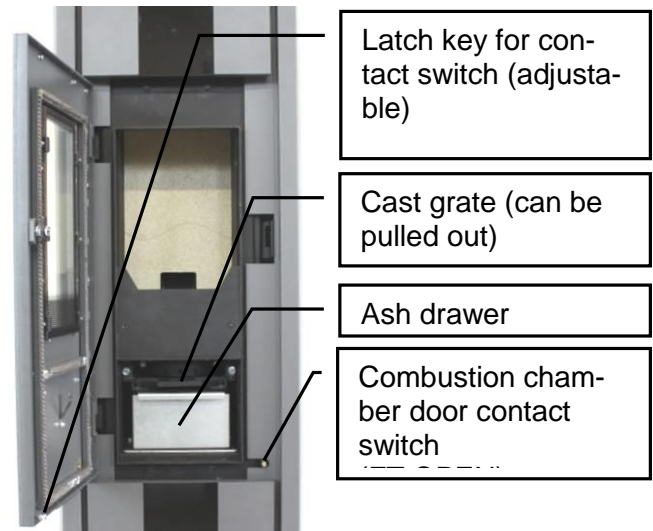


Fig. 63: front view, family.nrg

The ash drawer must be emptied no later than when the ash is up to the top edge of the ash drawer.

**Do not open the combustion chamber door during operation if possible; if necessary, open it only briefly (< 1 minute).** Viewing window and combustion chamber door may be hot – risk of injury. Before opening, allow the furnace to cool sufficiently. Use heat resistant glove.

**Our tip:** place newspapers or the like in front of the furnace before opening the doors, so that the flue ash that falls from the doors lands on top of them.

## 15.1 Cleaning the Viewing Window / Vacuuming the Combustion Chamber

**Only clean the viewing window when it is cold!**

A window coating (see Fig. 64) is normal and is not a defect! The viewing window can be easily cleaned with a damp cloth. Heavy soiling can be removed with wodtke's Special Glass Cleaner. Attention: wodtke's Special Glass Cleaner may only be used for cleaning the inside of the viewing window. Please observe the safety instructions on the packaging.

Flue ash deposits in the combustion chamber (see Fig. 65) are normal and do not negatively influence the functionality of the furnace. Crater-like accumulations of flue ash form around the burner pot, which can be easily vacuumed away during cleaning / maintenance. We recommend the wodtke Ash Box for this purpose.



**Fig. 64: window coating**



**Fig. 65: ash in the combustion chamber**

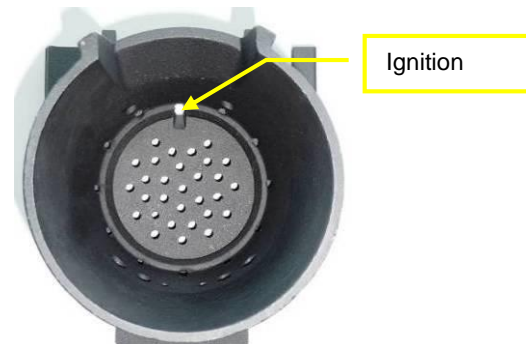


**Embers remaining in the ash represent a fire hazard. Only vacuum ash into a vacuum cleaner bag if you are absolutely certain that there are no more embers within it.**

## 15.2 Inspection and De-Ashing of the Burner Pot

Please inspect the burner pot for combustion residue (ash/slag) daily, but no later than after a container filling. The cleaning/functionality limit has been reached by 30 g ash/slag in the burner pot (approx. 3 cm high of residue – see image below) and the burner pot must be cleaned.

Clean burner pot / cast grate



**Fig. 66: clean grate**

Combustion air openings in the floor (cast grate) and ignition gap are clear

- Good ignition
- Proper combustion
- Long maintenance intervals
- High efficiency

Dirty burner pot / cast grate, cleaning required!

- Burner pot full with 30 g ash / slag
- Cleaning limit reached
- (Ignition gap is no longer visible / ash is up to the top edge of the combustion chamber openings)



**Fig. 67: dirty grate**

- Ignition gap clogged
- No/poor ignition
- Poor combustion
- Frequent maintenance

### 15.3 Cleaning Burner Pot / Cast Grate and Ash Drawer

#### Important Notices:



The furnace must be deactivated in order to de-ash the burner pot (furnace in "Stand By"). Attention, parts of the furnace (particularly the burner pot, cast grate and ash drawer) may still be hot or contain embers → Risk of fire!



The furnace may never be operated without the cast grate. The cast grate may not be removed / pulled during operation of the furnace!

#### Cleaning:



Hot surfaces!  
Use the provided glove:

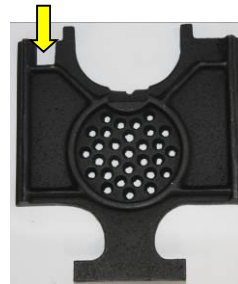
1. Open combustion chamber door
2. Pull out cast grate toward the front (Fig. 68) and clean it (expose holes).
3. Empty ash drawer (Fig. 69).
4. Reinsert cast grate, with the flat side up (Fig. 71), and ash drawer.



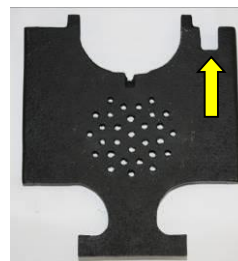
**Fig. 68: remove cast grate**



**Fig. 69: remove ash drawer**



**Fig. 70: cast grate incorrect**



**Fig. 71: cast grate correct**

## 15.4 Correct Position of the Cast Grate

1. Always insert cast grate (Fig. 72 Part A) up to the stop (without force, flat side up!) so that the door closes correctly.
2. If necessary, remove ash residue behind the ash drawer and behind the cast grate, as otherwise the ash drawer cannot be completely inserted and the doors could jam.
3. The edge of the cast grate must close off circumferentially with the edge of the burner pot (Part B).  
There may be a maximum clearance of 1 mm between the cast grate and the burner pot Fig. 72 (C).

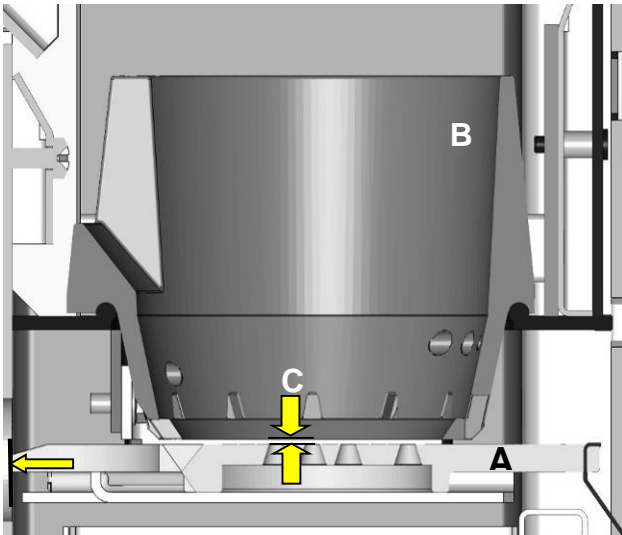


Fig. 72: cross-section, grate and burner pot

## 15.5 Cleaning Surfaces

**Powder-coated surfaces** should be wiped with a damp cloth; do not scrub. Do not use scouring agents or acidic/alkaline cleaning agents. Stubborn spots can normally be removed with conventional glass cleaner.

**Galvanised parts** are best cleaned with our special stainless steel cleaning spray or specialised stainless steel cleaners. Wipe with a damp cloth; do not scrub. Do not use scouring agents or acidic/alkaline cleaning agents.

**Decorative glass panes and glass panels** should be wiped gently with a damp cloth with normal glass cleaner, do not scrub. Stubborn spots can normally be removed with conventional glass cleaner.



**Do not use wotke's Special Glass Cleaner for this**, this is only usable for cleaning the viewing window and could affect/damage coloured printing.

## 16 Maintenance (WA Display)

The functionality of your unit depends decisively on proper and regular maintenance. Maintenance frequency, in turn, depends decisively on your pellet quality and regular cleaning by the operator. Soot is an excellent insulator, which means that units which are not maintained can emit continually less heat to the outside or to the heat exchanger and efficiency drops as a result. Following maintenance, energy is optimally utilised again and you will save on heating costs, as well as protect the environment.

**Maintenance of the unit must be performed no later than after consuming 1.5 t of pellets (or earlier, depending on pellet quality), or when the WA indicator appears.**

Maintenance may also be necessary at an earlier time, particularly if the ash content of the pellets exceeds a value of 0.5% or the burner pot is not regularly cleaned.



**Attention / Danger:**

**Units which are not maintained according to our specifications may not be operated. All warranty claims are void in case of non-compliance**

**Our tips:**

- **Have the ash content of your pellets confirmed in writing by the supplier, it is the essential characteristic for maintenance frequency. Quality pellets generally have only about 0.2 to 0.3% ash content!**
- **Regularly clean the burner pot.**
- **We recommend having maintenance performed by a qualified installer. Enter into a maintenance contract with your qualified installer.**

### **Example of the influence of pellet quality on maintenance frequency:**

The maintenance interval of 1,500 kg of pellet through-put is based on quality pellets with 0.25% ash content. If the ash content is 0.5% (that is, twice as high), the maintenance interval reduces to 750 kg, because twice as much ash and soot occurs. If the ash content were to even equal 1% (that is, 4x higher than normal), the through-put between maintenance would likewise reduce by a factor of four, or to about 375 kg. This is not taken into consideration in the unit's display, because this assumes the use of standard pellets.

Our company defines standard pellets in the formulas stored in the control electronics for calculation of the maintenance indicator as follows: Standard pellets have a **diameter of 6 mm**, a uniform **length of 1 cm**, a **bulk weight of 650 kg/m<sup>3</sup>** and an **ash content of 0.25%**. Because these values can differ in practice from pellet type to pellet type and batch, the volume of pellets actually put through can differ from the displayed value. Note: due to the internal data processing in the unit (rounding of operating cycles), a maximum numerical error deviation of all meter readings of 10% is possible.



## 16.1 Scope of Maintenance

Maintenance comprises the following actions, which are described in detail in the following chapters:

- Expanded basic cleaning - cleaning of **burner pot, cast grate and ash chamber (for scope, see Cleaning chapter)** with additional actions
- Cleaning of **heating gas flues**
- Cleaning of **flue gas fan and connector**
- Inspection and cleaning of **air volume sensor and air intake**
- Inspection and cleaning of **electrical components/contacts**
- Inspection and cleaning of **convection air routing**
- Inspection and cleaning of **pellet chute and TP sensor**
- Completion of maintenance work, **test run** and **maintenance reset**

In addition to our special brushes enclosed with the units, you will require the following for maintenance:

- Vacuum cleaner (we recommend our Ash Box as the attachment)
- Screwdriver (Phillips head), socket and fork wrench set
- Pliers
- Paint brush

**Do not perform maintenance work until the unit is in Stand-By mode and the fan stop delay has completed.**

**Tip:** place newspapers or the like in front of the furnace before opening the doors, so that the flue ash that falls from the doors lands on top of them.



### Caution!

Embers remaining in the ash represent an acute fire hazard. Only vacuum ash into a vacuum cleaner bag if you are absolutely certain that there are no more embers within it.

### Attention / Warning:



### Risk of fire, short-circuit and mortal injury



Operation of the unit is only permitted with all panelling components properly assembled, as otherwise the unit's approval as well as any warranty or guarantee are void, because there is risk of contacting electrically live or hot parts.

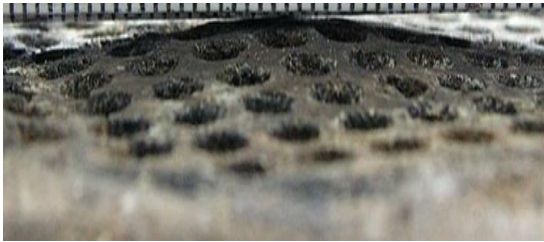


**Disconnect the power plug before beginning work and do not plug the power plug back in for the test run and maintenance reset until all panelling parts have been completely and properly reassembled.**

## 16.2 Basic Cleaning with Additional Actions

First carry out a complete basic cleaning according to Chapter 15. Then perform the following additional actions:

1. Inspect the cast grate for wear and replace it as required. In case of curvature / warping of the grate of more than 1 mm (Fig. 73). In case of cracks in the material (Fig. 74).

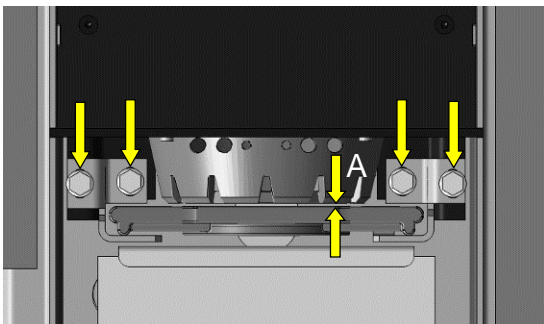


**Fig. 73: grate with curvature / warping**



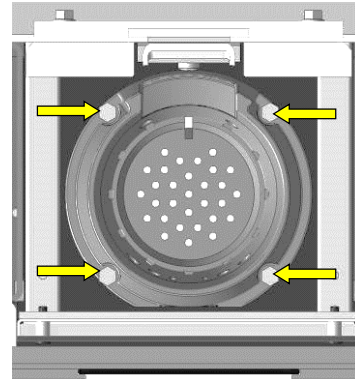
**Fig. 74: cracked grate**

2. Check the vertical distance (A) between the burner pot and the cast grate (Fig. 75). The distance may not be greater than 1 mm. Adjust gap / clearance as required. To do so, loosen the four screws marked by arrows.



**Fig. 75: cast grate-burner pot clearance**

3. If applicable (in case of stubborn soiling), unscrew the burner pot for cleaning. The burner pot is fastened by 4 screws. Clean all air holes of the burner pot, such as with a screwdriver.



**Fig. 76: burner pot screw connections**



**Fig. 77: unscrewing burner pot**

4. Inspect the seal under the burner pot for wear and replace it as required. The assembly is carried out in reverse sequence.

### 16.3 Cleaning Heating Gas Flues family.nrg

1. Open combustion chamber door and remove cover and panels on front, top and bottom → see Chapter 6.3.
2. Unscrew the 4 fastening screws for the cast cover and remove cast cover. The same hex wrench used to open the doors can be used to remove the screws.

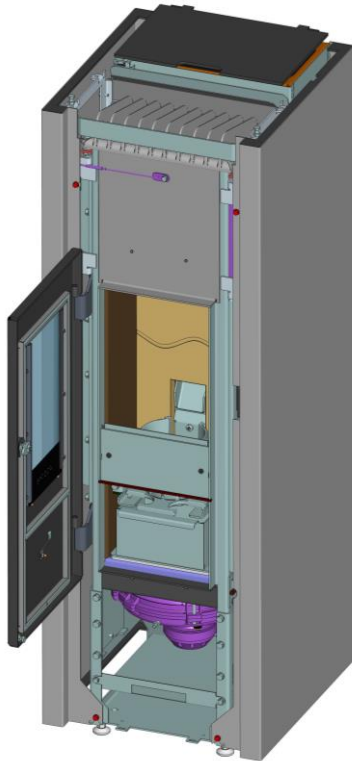


Fig. 78: view without covers

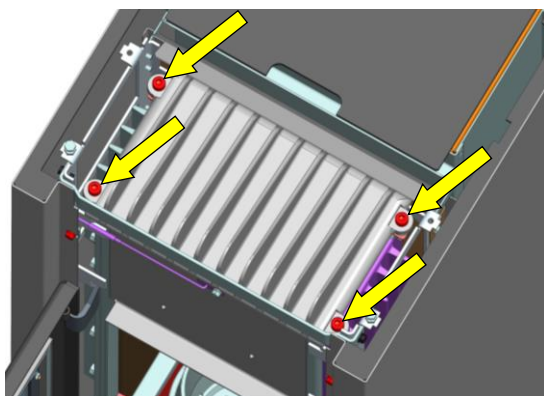


Fig. 79: cast cover screws

3. Pull out all 12 turbulators upward out of the heating gas flues and clean with a cloth.

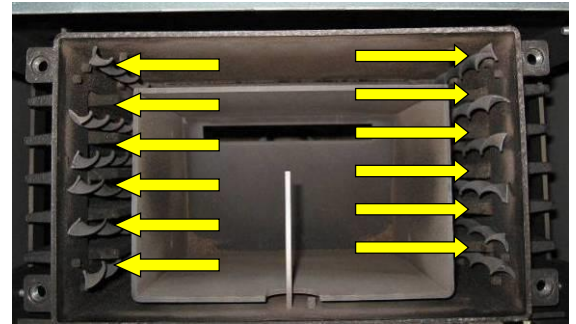


Fig. 80: turbulators



Fig. 81: turbulator removal and cleaning

4. Thoroughly clean all 12 heating gas flues over the entire length with the cleaning brush. The soot falls down into the heating gas collection duct on the fan and is then vacuumed out below. After brushing, replace all turbulators.

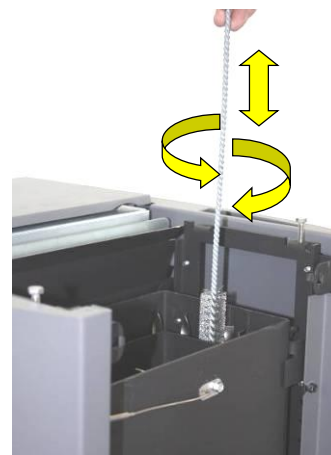


Fig. 82: cleaning of heating gas flues

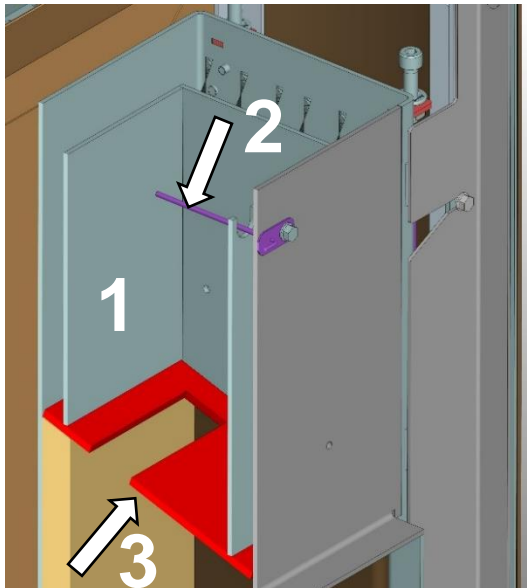
#### Notice/Tip:

the turbulators are slightly buckled on top at the last approx. 10 cm so that they are taut in the heating gas flues and do not rattle.

The buckling must therefore be up, as otherwise the turbulators are difficult to insert.

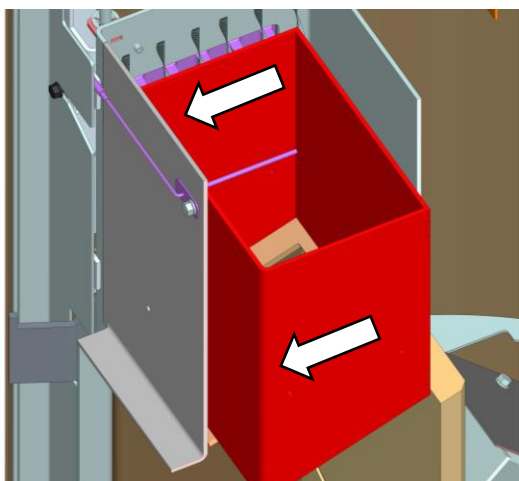
5. Clean the chamber above the deflection plate of flue ash (**Fig. 83 item 1**). Large volumes of flue ash accumulate here. Clear the temperature sensor – TR (**Fig. 83 item 2**) of accumulations / soot with a cloth. Check the sensor for wear (surface / cracks) and replace as required.

Replace the deflection plate (**Fig. 83 item 3**) as required (significant warping / damage / wear).



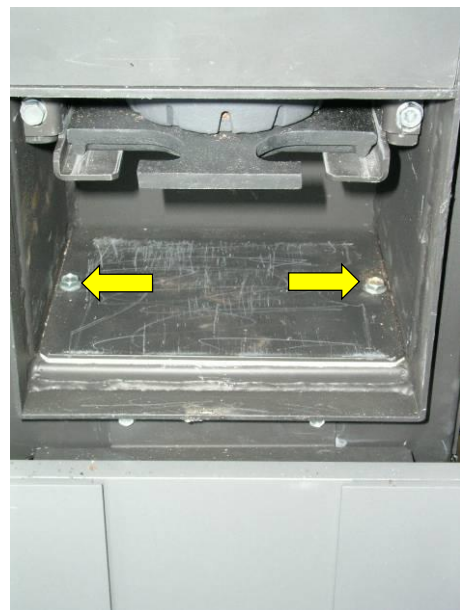
**Fig. 83: top ash chamber**

**Important:**  
Ensure that the box in the upper area sits as far forward as possible (**Fig. 83**).



**Fig. 84: box in ash chamber**

6. Clean the heating gas collection duct. To do so, remove the 2 screws of the floor plate underneath the ash drawer (**Fig. 85**). Remove floor plate with seal and thoroughly vacuum out heating gas collection duct (**Fig. 86**). Attention, do not bend the impellers of the fan! Visually inspect the flue gas fan for contamination. Only if required: clean the flue gas fan; see Chapter.
7. The assembly is carried out in reverse sequence.



**Fig. 85: fan floor plate**



**Fig. 86: fan cleaning**



## 16.4 Cleaning Heating Gas Flues, *easy.nrg*<sup>®</sup>

1. The front panelling and the glass slats must be removed (see Chapter 6.1).
2. Unscrew the four fastening screws of the cast cover and remove the cover toward the front (Fig. 88).
3. Then perform cleaning, the same as for the *family.nrg* (Chapter 16.3 from step 3).

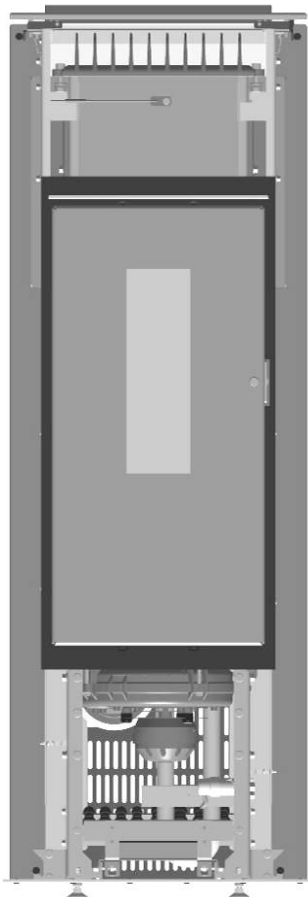


Fig. 87: *easy.nrg*<sup>®</sup> without front bezel

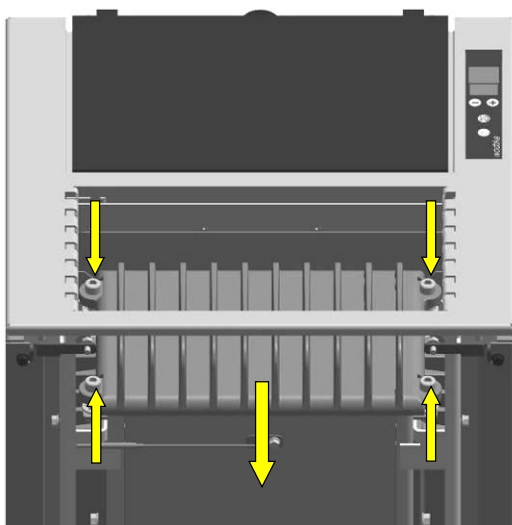


Fig. 88: removal of cast cover

## 16.5 Cleaning Heating Gas Flues *crazy.nrg*

1. Remove cover and open combustion chamber door → see Chapter 6.2 steps 1 to 2.
2. Unscrew the four fastening screws of the cast cover using the enclosed hex handle and remove the cover upward (Fig. 89).
3. Then perform cleaning, the same as for the *family.nrg* (Chapter 16.3 from step 3).

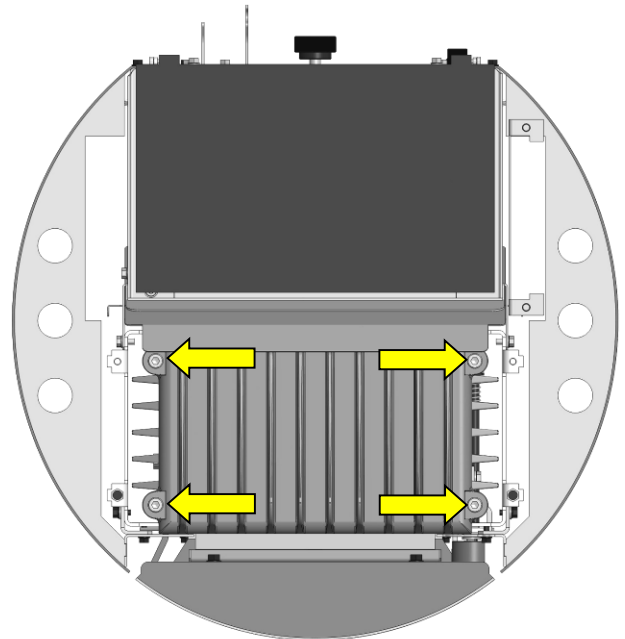


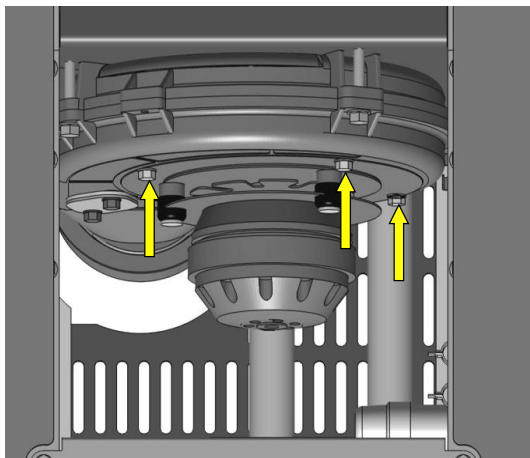
Fig. 89: removal of cast cover, *crazy.nrg*



## 16.6 Cleaning Flue Gas Fan and Connector

If the impellers of the fan or the housing itself should be contaminated with strongly adherent soot or tar, they must be cleaned; otherwise, bearing damage can occur to the fan due to imbalance or the impeller can scrape / become blocked on the housing. Proceed as follows:

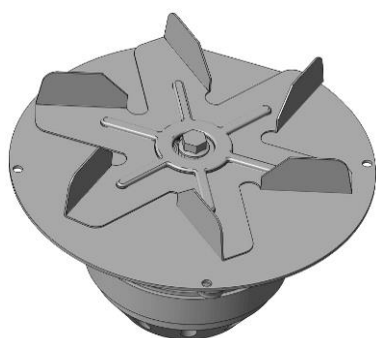
1. Unscrew the four outer screws of the fan motor. Not the inner screws (with rubber dampers)! Important: Only clean flue gas fan when it has been removed in order to prevent damage.



**Fig. 90: fan screws**

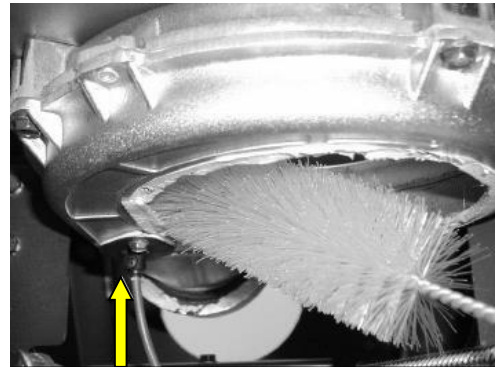
2. Clean all fan impellers with a rag or brush.

**Caution: Do not bend impellers → risk of imbalancing!**



**Fig. 91: fan removed**

3. Clean fan housing and connector to chimney.



**Fig. 92: cleaning fan housing**

4. The assembly is carried out in reverse sequence.



### Attention / Important:

Also remove the **connector to the chimney** and **clean** with the cleaning brush. If the connector is clogged or blocked by ash or soot, general maintenance of the unit will be ineffective because the flue gases cannot escape.

Observe the country-specific regulations for cleaning connectors and chimneys!

## 16.7 Inspection and Cleaning of Air Volume Sensor and Air Intake

**Important notice:** If an **external combustion air line** is connected to the unit, this line should **first be visually inspected over the entire length for clogs before inspecting the air intake pipe and air volume sensor**, so that it is ensured that sufficient combustion air can even be supplied to the air intake pipe/air volume sensor of the unit. Any clogs or deposits (e.g. dust balls) must be completely removed.

**Combustion air lines should be arranged so that their openings outside the building are protected against wind pressure.**

For removal of the air volume sensor (LMS), the rear bottom panel must first be removed. The air volume sensor can then be removed from the unit and visually inspected and carefully cleaned of dust and contaminants with a paint brush if necessary.



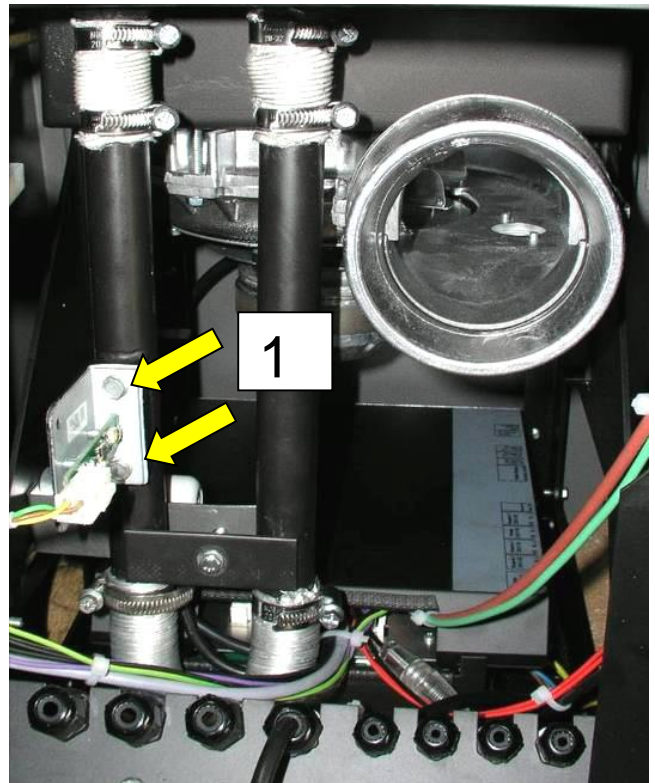
**Attention:**  
Never clean air volume sensor with scouring brushes, etc. This would destroy the sensor's electronics.

Always remove air volume sensor (LMS) completely with the carrier plate. To do so, remove the two hex screws (Fig. 93 item 1)

Do not remove the small screws which secure the air volume sensor (circuit board) to the carrier plate.



**Attention:**  
When reinstalling, note the flow direction (arrow in Fig. 93), as otherwise incorrect measurements can occur! Install air volume sensor as shown, with the carrier plate on the left.



**Fig. 93: air volume sensor screw connections**

Sooted or burned air volume sensors indicate on-site installation defects (e.g. negative pressure) or a lack of cleaning/maintenance and must be replaced. The on-site defects must first be resolved, as otherwise the new LMS will be immediately damaged as well.

**If the LMS was heavily soiled / contaminated, it is also recommended that the air intake pipe be inspected for contamination and cleaned so that the combustion air can flow without disruption.** To do so, the aluminium flex hoses must be disconnected and the air intake pipe removed from the holder.



Work on the air intake pipes and the aluminium flex hoses in the furnace may only be performed by a qualified installer, as improper procedures can negatively influence the seal tightness of the furnace. The aluminium flex hoses may not be damaged, as this would result in leaks and malfunctions.

The assembly is carried out in reverse sequence.

After assembly, be sure to verify that all connections are completely sealed!

After completing the maintenance work, carry out a **brief function test of the air volume sensor**.

Open door while furnace is operating (furnace must have been in operation for at least 1 minute). The furnace display must show the indicator "L-LO" (lack of air) within 20 seconds after opening the door. After closing the door, this indicator must disappear immediately. Note: Do not hold the door open for longer than 1 minute, as otherwise a fault shut-down will occur.

### 16.8 Inspection of Seals and Mechanical and Electrical Components

Inspect all seals on the unit and replace if worn. Visually inspect the installation of the electrical cables. **In particular, cables may not be installed over sharp edges or hot spots and may not have cracks / blank spots.** Replace cables in case of breakage, cracks, etc. Carefully dust electrical components with a paint brush in case of heavy dust contamination and clean electrical contacts with scratches or the like of corrosion residue and apply contact spray.

### 16.9 Inspection and Cleaning of Convection Air Routing

It is recommended that all convection air spaces (including under the side panelling and between the guide plates) be inspected once per year and cleaned with a vacuum cleaner or paint brush in case of heavy dust contamination.

### 16.10 Inspection and Cleaning of Pellet Chute

The pellet chute from the storage container to the burner pot must be thoroughly cleaned of residue (especially tar or dust encrustations, pellet residue, burned-in pellet residue) with a wire brush or the like so that the chute is smooth, pellets slide properly into the burner pot and only a small amount of dust remains on the chute.

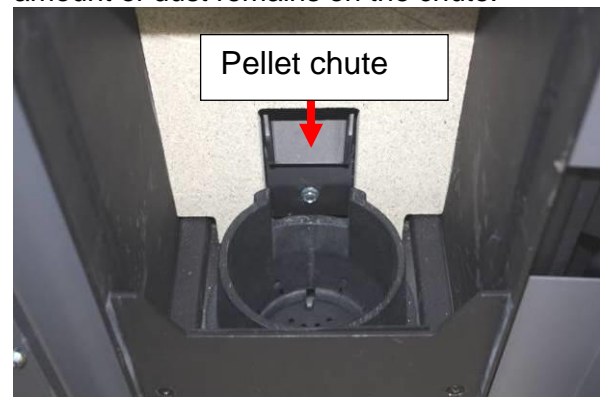


Fig. 94: Pellet chute

### 16.11 Inspect and Lubricate Moving Parts

Moving parts, such as door hinges, door locks, etc. must be inspected for ease of movement and lubricated as applicable.

Use only highly heat resistant oil (e.g. Neoval spray, wotdke part no. 000 945) or copper paste.



**Attention: Never spray oil while furnace is hot or firing; allow furnace to completely cool first!**

## 16.12 Completion of Maintenance Work, Test Run and Maintenance Reset

After completing the maintenance work, restore all connections and perform a test operation.

The maintenance reset (counter reset) may only be carried out via the control board once all of the maintenance steps above have been fully completed.


After each maintenance, record the value displayed for "BG" (total operating hours) and "PG" (total pellet consumption) on a piece of paper or in a log book so that you can provide an overview of performed maintenance in case of customer service, and keep this document.



### Our tip:

Have you really completely and uniformly cleaned the combustion chamber, heat exchanger, all heating gas flues, flue gas fan and connector? **Maintenance was only successful if the flue gases have "free passage" over the entire route from the burner pot to the chimney.** This is not for appearances; **a single bottleneck** over this route prevents the escape of flue gases, causing possible malfunctions. As a result, it is ineffective to clean individual spots to high polish but to leave other spots uncleaned, or improperly cleaned. All cross sections should be uniformly cleaned and cleared of contaminants.

### Maintenance Reset

Once maintenance is complete, the counter for the maintenance indicator (PW) must be reset.

To do so, press the  1x.

Then press  or  until the indicator PW appears.

Then press and hold  and  until the display jumps to PW – 1.5.

The maintenance reset is then complete.

## 17 Menu Level / Unit Data Query

The unit values can be queried by pressing the "Menu" button. Whenever you go to the menu level, the **display of the installed software** (e.g. S5 002), shown adjacent, first appears. The other menu displays can be reached with the +/- buttons.

To leave the menu level for the operating level, press the "Menu" button again. The system automatically returns to the menu level if no button is pressed for longer than 60 seconds.

**Notice: Whenever indicator codes from the following table appear in the display, you are in the menu level. It is not possible to control the unit from here (exceptions: "ON/OFF" via the I/O button, as well as maintenance reset in the PW menu item).**



Fig. 95: Control board

Display indicator	Meaning	Remarks
S5 001, 002...	Currently installed software version	Displays the basic software installed on the board (like a computer operating system). This is not the program version which determines the furnace output.
Z ON / OFF	Z ON = ignition on Z OFF = ignition off	Indicates whether the "Ignition Z" output has voltage (ON) or not (OFF).
S ...	Screw cycle in seconds	Indicates the current activation duration of the pellet screw conveyor in seconds = pellet through-put default value
U ...	Exhaust fan revolution in %	Indicates the % of nominal voltage currently applied to the "fan" output.
L ...	Airflow on air volume sensor	Indicate the combustion airflow currently measured on the air volume sensor (LMS).
TP ...	Pellet chute temperature in °C	Indicates the temperature currently measured by the TP sensor in °C.
TL ...	Air volume sensor temperature in °C	Indicates the combustion air temperature currently measured by the LMS in the air intake pipe.
TR ...	Flue gas temperature in °C	Indicates the combustion temperature currently measured by the TR sensor in the combustion chamber.
R1 ON / OFF	Relay "Reserve 1" (normally open) R1 ON = 230 V or mains R1 OFF = 0 V	Operating message. ON = unit is operating (even if error is present). OFF = unit is not operating
R2 ON / OFF	Relay "Reserve 2" (normally open) R2 ON = 230 V or mains R2 OFF = 0 V	Collective fault message. ON = no fault OFF = unit has fault / is manually deactivated.
R4 ON / OFF	Safety relay "Reserve 4" (normally closed, potential-free, max. load capacity 2 A) R4 ON = Relay open R4 OFF = Relay closed	Operating message (by means of monitored safety relay without output voltage) ON = unit is operating (even if error is present). OFF = unit is not operating
BW ...	Operating hours since maintenance in hours x 10	E.g. BW 56 = 560 hrs since last maintenance.
BG ...	Operating hours total in hours x 100	E.g. BG 56 = 5,600 operating hrs. total. Indicator cannot be reset.
PW ...	Pellet consumption until maintenance in tonnes	E.g. PW -1.2 = 1.2 t of pellets can still be burned before next maintenance is due. E.g. PW 0.2 = maintenance 0.2 d overdue
PG ...	Total pellet consumption in tonnes	E.g.: PG 66.5 = 66.5 t Pellets have been consumed in total. Reset not possible.
SG ...	Total heating programme starts	E.g.: SG 123 = the heating programme was started a total of 123 times. Because the indicator on the control board can only display 999 at maximum, the start counter continues at 001 with the next start. SG 123 can therefore also mean 999 + 123 (or 999 + 999 + 123, etc.) Indicator cannot be reset.
SD ...	Heating programme starts during the last 24 operating hours	E.g.: SD 5 = the heating programme was started 5 times during the last 24 operating hours.



## 17.1 Output of Operating and Collective Fault Messages (Relay Table)

As can be seen from the following table, the relay outputs R1, R2 and R4 are switched according to operating state and any unit errors. This can be used to provide feedback from the wodtke unit to external controllers or modems, for example. This makes remote querying of unit values possible. Operating states and collective faults are hereby defined as follows.

### Notice:

**15-minute fan stop delay "G OFF" is considered operating time.**

**Relays R1 and R2 are designed as normally open (not normally closed); that is, phase bypass**

**Relay R4 is designed as normally closed (potential-free, max. 2 A load capacity)**

### R1 = operating message:

R1 = 0 V → = furnace off → Display "R1 OFF"

R1 = 230 V → = operation → Display "R1 ON"

### R2 = Collective fault message:

R2 = 0 V → = fault → Display "R2 OFF"

R2 = 230 V → = no fault → Display "R2 ON"

### R4 = potential-free operating message (monitored safety relay as normally closed):

R4 = closed → = furnace off → Display "R4 OFF"

R4 = open → = operation → Display "R4 ON"

State Matrix	Normal operation	Operating fault	"Off" via external / internal controller without fault	"Off" via external controller with fault	"Off" via control board and therefore not operationally ready or power failure
I/O button state on control board	ON = ready	ON = ready	ON = ready	ON = ready	OFF = not ready
State of external controller HE on "ON/OFF" input (if connected)	ON or bridged	ON or bridged	OFF (Display HE OFF)	OFF (Display HE OFF)	ON or OFF irrelevant
There is a fault or the unit is not ready	NO	YES	NO	YES	YES or NO irrelevant, because not ready = fault
Voltage Output R1	230 V	230 V	0 V	0 V	0 V
Voltage Output R2	230 V	0 V	230 V	0 V	0 V
State Output R4 (normally closed)	Open	Open	Closed	Closed	Closed

### Note:

I/O button on the control board has highest priority = "Furnace emergency switch!" for the wodtke Pellet Primärofen.

## 18 Fault Analysis, Fault Codes, Safety Functions and Safety Equipment

The units are equipped with a variety of safety equipment. There are Class 1 and Class 2 errors. **Class 1 errors must be manually reset by pressing the I/O button. Class 2 errors are automatically reset.**

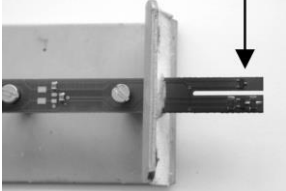
### 18.1 Overview of Class 1 Error & Fault Codes (Safety-Related)



In the case of Class 1 errors, the display indicator blinks in alternation with the error code(s). Based on the error codes (see table), the causes for faults can be clearly defined as component errors or external errors (customer's sphere). The cause of the fault must then be resolved. The possible causes are described in the following. In the case of external errors, the system requirements our units require are not being complied with. Note: If error codes "TL," "TP," "ST" or "RE Er1" are displayed, there is always an external error.

**Attention: In case of a fault, do not disconnect the power plug so that the internal safety functions can always fully process! Disconnect the power plug before working on the unit.**

In the case of **Class 1 errors**, the following **safety function** is triggered:

- The unit **switches** to "G OFF" or "Stand-By", the fire slowly goes out. Any automatic operation is aborted.
- The **error code** and the "G OFF" or "Stand-By-Dot" indicators **blink** in alternation.
- **The unit must be restarted via the I/O button after the error is resolved.**
- **Restart / reset in the case of Class 1 errors is only possible if the cause of the error has been resolved!** In case of the error code "ST," the STB must also be unlocked.
- **The I/O button must be pressed once per error ("Reset" = acknowledge error),** that is, press I/O button 2x in the case of 2 errors.

Fault code Class 1	Cause of fault	Target values	Resolution of fault
<p><b>TL HI =</b> air volume sensor temperature in intake too high</p> <p><b>or</b></p> <p><b>TL Grd =</b> TL temperature rise greater than 40 °C in 120 seconds (gradient).</p> <p>Measurement point: in the intake pipe [unheated resistor (see arrow) of the air volume sensor]</p>  <p>Image of sooted sensor</p>	<p><b>External error (installation or operating error) Caused by flow reversal in the intake pipe.</b></p> <p>The air sensor is being heated over the allowed value. TL also responds if the temperature rises too quickly, as this indicates a flow reversal in the intake pipe.</p> <p>Caused, for example, by negative pressure or ventilation system or dust extraction hood or lack of chimney draught or wind pressure via exhaust pipe (if no chimney) or failure of mains voltage (fan). Fault usually occurs together with sooted air volume sensor – see image. This also possible in the case of a storm and simultaneous failure of the mains power, if no chimney is connected (in an unauthorised manner) and the storm can blow directly into the exhaust pipe.</p>	<p>TL &lt; 85 °C or TL rise not greater than 40 °C in 120 s</p> <p>Note: In the case of standstill of the exhaust fan in Stand-By mode, radiation from the heated resistor can increase the values for TL over the room/unit temperature. Error code TL HI is therefore not switched active during Stand-By mode.</p>	<p><b>There is not a unit defect!</b></p> <p><b>Allow unit to cool and wait until TL no longer rises and is under the threshold.</b></p> <p><b>Find and resolve external cause.</b> Only afterwards, manual reset via I/O button</p> <p>Note: if the temperature of the air volume sensor rises due to exhaust back-flow to values &gt; 120 °C, this is evaluated as a component error and the indicator LM Er1 appears in the display (see below). After cooling, the error can be cleared if the sensor is still okay.</p>

Fault code Class 1	Cause of fault	Target values	Resolution of fault
<p><b>TR =</b> Flue gas temperature too low. Measurement point: Combustion chamber. Sensor NiCrNi</p> <p>Image / case 1</p>  <p><b>Do not ignite! Empty pot first. See to the right</b></p> <p>Image / case 2</p>  <p><b>Do not ignite! Empty pot first. See to the right</b></p>	<p>Flue gas fan temperature TR too low. There are often also unburned pellets in the burner pot.</p> <p>Case 1: <b>False start</b>; burner pot filled with pellets, no flame. TR temperature not reached:</p> <ul style="list-style-type: none"> <li>• Burner pot / unit not cleaned → false start</li> <li>• Negative pressure in installation room (resulting in flow reversal in the ignition) → false start (often associated with flue gas escaping from the unit)</li> <li>• Ignition cartridge defective → false start</li> </ul> <p>Case 2 cause: <b>Shut-down in operation</b>, because there aren't enough pellets in the storage container or container has run empty (there are only a few pellets in the burner pot)</p>	<p>TR ≥ 150 °C</p> <p>Query occurs 18 minutes after the start signal for the furnace for the first time, and is then monitored continually. Upon restart, the query waits 18 minutes again.</p>	<p>Always clean / empty burner pot before restarting. Attention: Never empty content of burner pot into the storage container – risk of fire from embers!</p> <p>Troubleshooting: Inspect, verify combustion air supply. Negative pressure in the installation room of the furnace due to exhaust hood, residential ventilation or pneumatic conveyance systems is not permitted and dangerous. Also see country-specific regulations and separate technical information. Inspect ignition cartridge. Only afterwards, perform manual reset via I/O button</p> <p>Remedy for case 2: refill pellets, empty / clean burner pot. Reset and restart.</p>
<p><b>TP =</b> Pellet chute temperature too high</p> <p>Measurement point: Pellet chute Measurement sensor: TP 1000</p>	<p><b>External error!</b></p> <p>Caused for example by negative pressure due to ventilation system or extraction hood. Or chimney draught much too low with voltage failure (fan). Or pellets with through-put/heating value that is much too high.</p>	<p>TP &lt; 200 °C</p>	<p><b>There is not a unit defect! Allow unit to cool until TP is below threshold. Find and resolve external cause.</b> Only afterwards, manual reset via I/O button See above regarding negative pressure</p>
<p><b>ST =</b> safety temperature limiter STB has triggered!</p> <p>Measurement point of air units: capillary sensor on storage container radiation plate</p> <p>STB measurement sensor according to DIN 3440. <b>Notice, the STB is a mandatory, autonomous safety component with its own switch housing and operates decoupled from the control.</b></p>	<p><b>External error!</b></p> <p>Unit temperature is too high. STB triggered because temperature is too high (safety function). Normally an external cause, not a unit fault, because STB is only triggered if the heat generated by the unit is not withdrawn.</p> <p>Causes: <b>Overheating</b></p>	<p><math>T_{STB} \leq 95 \text{ °C}</math></p> <p>no query possible.</p>	<p><b>There is not a unit defect.</b> Find and resolve external cause. <b>Inspect convection air inlets and outlets. Reduce heating output if the room temperature is too high.</b></p> <p><b>Allow unit to cool until STB is below threshold.</b> Only afterwards, <b>unlock the STB+</b> manual reset via I/O button</p>

Class 1 fault code	Cause of fault	Resolution of fault
<b>LM Er1 =</b> air volume sensor break	<b>Case A:</b> air volume sensor break (= component error) <b>Case B:</b> external error due to exhaust gas back-flow. Sensor element temperature > 120 °C (also see error description for TL). If the sensor is heated to values > 120 °C due to exhaust back-flow, this is evaluated as a component error (break) and the display switches to LM Er1. If the unit/the sensor has cooled and the sensor is not permanently damaged, the unit can be switched on again.	<b>Case A:</b> Replace air volume sensor + reset via I/O button. <b>Case B:</b> Air volume sensor does not need to be replaced. Find / resolve external error (for reasons, see errors TL, Hi / TL Grd) then reset via I/O button.
<b>LM Er2 =</b> Air volume sensor short-circuit	Short circuit = component error	Test / replace air volume sensor + reset via I/O button.
<b>TR Er1 =</b> Flue gas sensor break	Break = component error	Test / replace TR + reset via I/O button.
<b>TP Er1 =</b> Pellet chute sensor break	Break = component error	Test / replace TP sensor + manually reset via I/O button.
<b>TP Er2 =</b> Pellet chute sensor short-circuit	Short circuit = component error	Test / replace TP sensor + manually reset via I/O button.
<b>HB Er1 =</b> control board break or break in connection cable from control board to main board or communication with Touch Control TC1 (option) disrupted	Break = component error	First test connection cable for continuity/polarity, etc. and only thereafter test/replace control board/TC1 and manual reset via I/O button. If the display is broken, the error is displayed even if the new control board is already connected. Then briefly press the I/O button so that the unit recognises the new control board.
<b>RE Er1 =</b> Bridge on "Reserve input" is open	Bridge wire on "Reserve input" open or error on external component/unit. Notice: The "Reserve input" serves for feedback from external accessories. It is verified 15 seconds after each start whether this input is bridged; that is, closed. Only then does the unit go into the heating programme. The "Reserve input" is then continually inspected. If the bridge on the "Reserve input" is opened, a fault shut-down / safety function occurs (Class 1 error). <b>Application examples (also see assembly instructions):</b> 1) Flue gas damper for flue gas: if a mechanical motorised flue gas damper is used, the normally open contact of this damper can be connected to the Reserve input. The wotdke Pellet Primärofen then only operates if the flue gas damper is opened. If an error occurs on the flue gas damper, the unit is deactivated via the safety function. The flue gas damper must open completely by motor within 15 sec, as otherwise there is an error message because the feedback to the unit occurs too late. 2) Intake damper for combustion air: for the combustion air: function, application and wiring like in a flue gas damper. 3) Interlock with ventilation system / extraction hood: if the ventilation system or extraction hood has a <b>potential-free output</b> as the operating signal, this output can be connected to the Reserve input as normally closed. The wotdke Pellet Primärofen only operates if the extraction hood/ventilation is not operating. All described examples can be connected electrically in series so that the wotdke Pellet Primärofen only operates if all external devices are functioning, or deactivates as soon as one single device has a malfunction.	Check wire bridge on "Reserve input" and insert correctly. If an external component is connected, check external component for correct wiring/function (especially normally open contact) and replace if necessary.  Afterwards, manual reset via I/O button.  <b>Attention: A reset of the "RE Er1" error message and a restart as a result is only possible if the "Reserve input" is bridged (closed) again.</b>  Note: In the case of external devices connected in series, <b>all</b> external devices and the <b>entire</b> external wiring must be inspected.

Fault code Class 1	Cause of fault	Resolution of fault
--------------------	----------------	---------------------

<p><b>HP Er1 =</b> Main board defective (24 V digital inputs "ON/OFF," "MIN/MAX," "Reserve input") or one or more of these 24 V digital inputs wired incorrectly.</p>	<p>The board-internal 24 V supply voltage is no longer connected to digital inputs "ON/OFF," "MIN/MAX" or "Reserve input." <b>Case A:</b> One or more of the digital inputs were connected incorrectly externally connected (connected to ground) or external controllers are defective. <b>Case B:</b> One or more of the digital inputs are defective or broken (cold soldering points, etc.)</p>	<p><b>Case A:</b> Inspect cabling and external controllers of all 3 inputs (testing possible with simple bridge wire), replace as applicable + reset via I/O button <b>Case B:</b> Replace main board. <b>Attention:</b> Ensure that a board which is compatible with the respective unit is installed (note correct kW number and program version).</p>
<p><b>HP Er2 =</b> Main board reference temperature sensor defective</p>	<p>Component error, reference temperature sensor of main board</p>	<p>Replace main board</p>
<p><b>HP Er3 =</b> Main board EEPROM write/read error</p>	<p>Data cannot be correctly read (one-time transfer error when writing/reading data to EEPROM of main board) or cannot be read at all (EEPROM error).</p>	<p>Replace main board.</p>
<p><b>R4 Er1 =</b> "Reserve 4" output defective</p>	<p>Component error, safety relay</p>	<p>Replace main board</p>
<p><b>PL Err =</b> pellet drawer (pellet container) open too long</p>	<p>Pellet drawer opened for longer than 3 minutes at a time during operation or not closed correctly. Or pellet drawer contact switch defective.</p>	<p>Close pellet drawer. Inspect switch / wiring as necessary.  Reset via I/O button.</p>
<p><b>FT Err =</b> combustion chamber door open too long during operation</p>	<p>Combustion chamber door opened for longer than 1 minute at a time during operation or not closed correctly.</p>	<p>Close combustion chamber door. Inspect switch / wiring as necessary.  Reset via I/O button.</p>
<p><b>L - Err =</b> continuous air shortage</p>	<p>Minimum air volume threshold in intake pipe underrun multiple times.</p>	<p>Allow furnace to cool, find and resolve external cause. Not a furnace defect. Check whether all openings / doors on furnace are closed. Check combustion air supply / lines and heating gas draughts / pathways as well as furnace seals.</p>



## 18.2 Overview of Class 2 Error & Fault Codes (Not Safety-Related)

Class 2 errors are of subordinate importance (not safety-related) and manual reset is not required after resolving the cause of the fault. The automatically returns to normal operation after resolving the cause of the fault.

Fault code Class 2	Cause of fault	Target values	Resolution of fault
<b>L- LO =</b> Air volume in intake pipe underrun, L-LO indicator blinks in alternation with the respective programme indicator.  Measurement point: Air volume sensor in intake pipe [= two resistors in bridge circuit, one resistor continuously heated. Cooling = function of flow speed]	External error / operating error! Minimum air volume in intake pipe underrun longer than 5 seconds.  This occurs due to opening of the combustion chamber doors, for example → no air through-put through the intake pipe  Another cause: if the air through-put through the unit is no longer possible due to extreme contamination of the heating gas flues / connector or the resistance in the combustion line is too high or the combustion air line is closed/clogged.	L > 2.0 Value is queried continually starting 1 minute after start. After a restart, the query also does not happen until after 1 minute.	<b>There is not a unit defect!</b> Close combustion chamber door (if open) or find other cause (e.g. access panel open, door not sealed). Perform maintenance/cleaning as required. Unit continues to operated in the previous programme after error is resolved. Exception: Flue gas temperature has dropped. Then the indicator "TR" appears → see Cl. 1 error code
<b>BU Er1 =</b> BUS error (RS 485 - interface)	BUS error on input "RS 485" with normal shutdown HE OFF / G OFF / BU ER1. Bus communication with external heating controller disrupted for longer than 60 seconds or external heating controller/gateway incorrectly connected/defective or RS 485 input defective.  Error can only occur if the "BUS" input is switched active (activation / deactivation via menu level 2 - see Chapter 8.3.3).		Inspect BUS cabling (continuity, polarity, installation) to the external gateway/controller. Error is reset automatically + furnace restarted as soon as the BUS connection is active again.  <b>Attention:</b> with "BU Er1," the furnace can only be manually operated if the "BUS" input is deactivated (activation / deactivation via menu level 2 - see Chapter 8.3.3).

## 18.3 Internal Regulation Function "R.M"

This function is summarised here because it partially also serves for technical safety monitoring of the units and is significantly influenced by external parameters. These are regulation functions - the units respond to external influences / operating parameters here.

Regulation function / display indicator	Cause	Target values	Resolution of fault
<b>R.M =</b> Internal modulation No error in an actual sense (regulation function)	<b>Case A:</b> Value for flue gas temperature TR was exceeded, the unit switches back to lowest load until the values are met. This is a regulation function (not a defect), which can be triggered by operating with pellets with a high heating value (average output of the unit is over the rated heating output as a result).  <b>Case B:</b> The temperature on the air volume sensor was exceeded. The furnace regulates to the lowest output. Once the temperature lowers sufficiently, the furnace returns to the previously adjusted output. This is a regulation function (not a defect) which can be triggered by the combustion air temperature being too high, for example.	$TR_{max} < 999 \text{ }^{\circ}\text{C}$ with hysteresis 6 C   $T_L < 90 \text{ }^{\circ}\text{C}$	There is an automatic return from modulation "R.M" to the preset output as soon as the device values have lowered by the cited hysteresis.

## 19 Technical Data / Certifications

Pellet furnace type:	PO 03-7 "family.nrg", PO 03-2 "easy.nrg®", PO 03-5 "crazy.nrg"
Inspected according to:	EN 14785; Art.15a B-VG (Austria), DIBt room air independence criteria
Approved fuels:	ENplus-A1, DINplus or DIN EN 14961-2 Class A1 inspected natural wood pellets. Ø 5-8 mm. Ash content < 0.7%.
Nominal heating output (NHO) according to EN 14785:	6 kW
Lowest heating output: Heating output range:	2 kW 2 kW to 6 kW
Voltage supply:	230 V AC; 50 Hz or 60 Hz (automatic changeover)
Fuses:	Main fuse (5 A fast) Safety pilot (2 A slow)
Allowable ambient temperatures during operation:	+ 5 °C to + 30 °C
Allowable intake air temperatures during operation:	- 15 °C to + 50 °C
Allowable altitude of installation site (with basic settings):	0-1,500 m above sea level (if higher, modifications to the air volume by a specialist company are required)
Multiple connection (connection to common chimney)	Additional safety equipment is required when connecting Pellet-Primärofen to chimneys which have multiple connections.
Room air independent according to DIBt approval no.	Z-43.12-240 (family.nrg pending)
Weight, easy.nrg® base body with decorative glass (empty): Weight, crazy.nrg base body (empty): Weight, family.nrg base body with decorative stone (empty): Fill weight, pellets/pellet container:	Approx. 150 kg Approx. 137 kg Approx. 137 kg soapstone and approx. 134 kg sandstone Approx. 20 kg

Values according to EN 14785, according to inspection report of furnace supervisory authority RWE Power:

Nominal heating output (NHO)	6 kW	2 kW (low load)
Efficiency [%]	92.6	94.0
Average CO <sub>2</sub> – content [%]	11.3	6.1
Average CO – content [mg/Nm <sup>3</sup> ] ref. 13%O <sub>2</sub>	75	275
Average dust – content [mg/Nm <sup>3</sup> ] ref. 13%O <sub>2</sub>	24	28
Average NO <sub>x</sub> – content [mg/Nm <sup>3</sup> ] ref. 13%O <sub>2</sub>	109	114
Average C <sub>n</sub> H <sub>m</sub> – content [mg/Nm <sup>3</sup> ] ref. 13%O <sub>2</sub>	< 3	4
Average exhaust gas outlet temperature [°C]	189	104
Average exhaust gas mass flow [g/s]	4.7	3.0
Required delivery pressure [Pa]	3	

## 20 Dimensions

### 20.1 Dimensions of PO 03-2 "easy.nrg®"

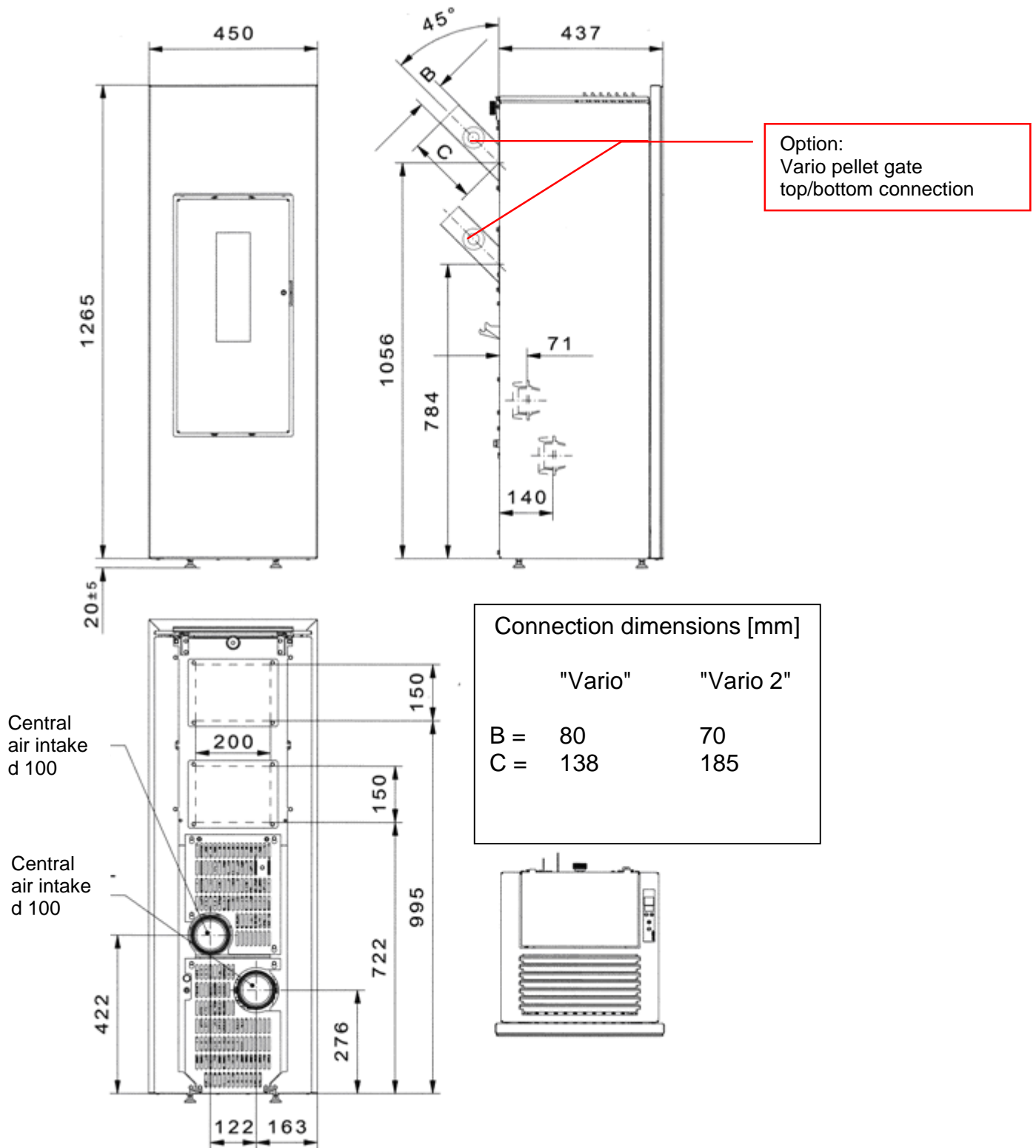


Fig. 96: PO 03-2 dimensional drawing

20.2 Dimensions of PO 03-5 "crazy.nrg"

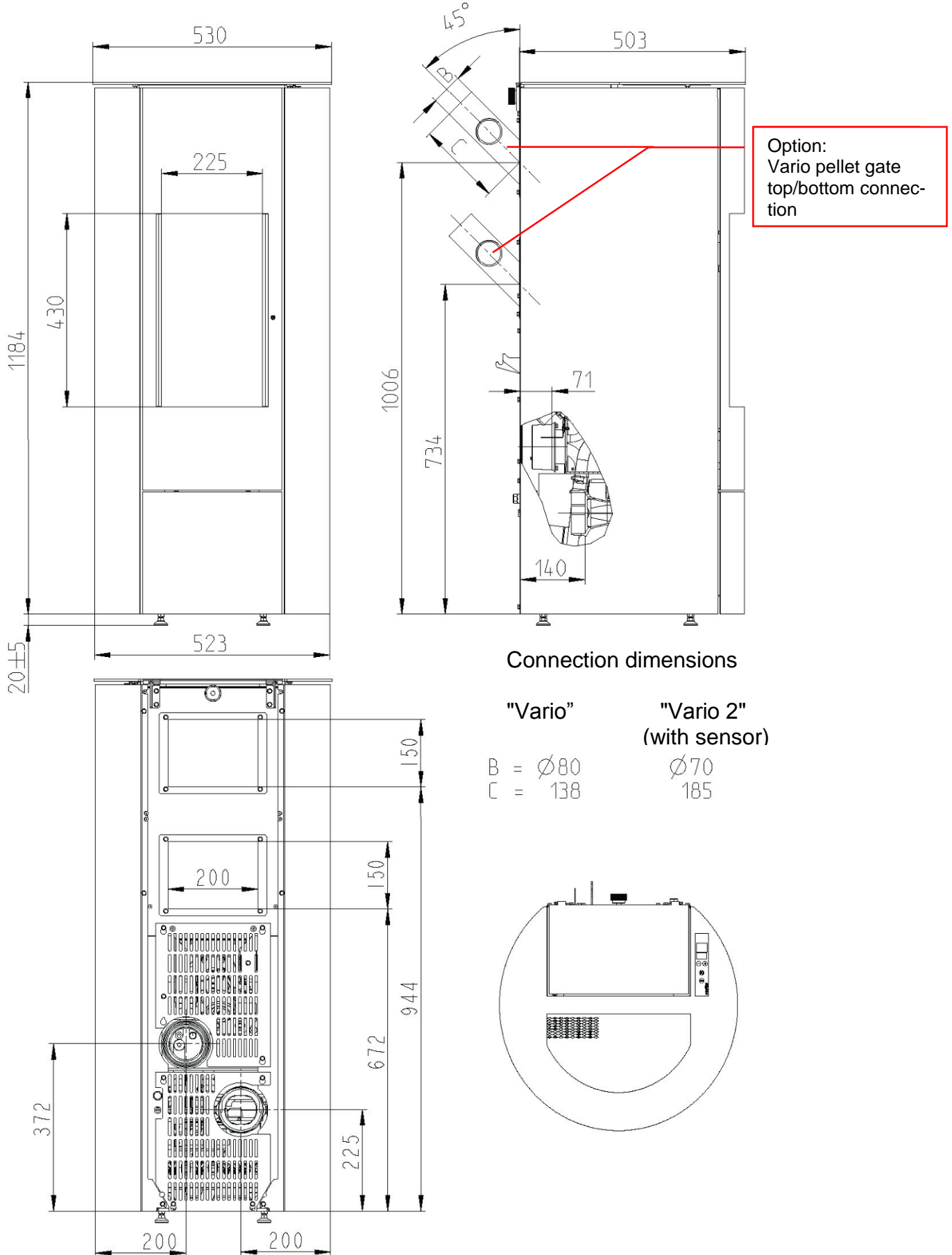
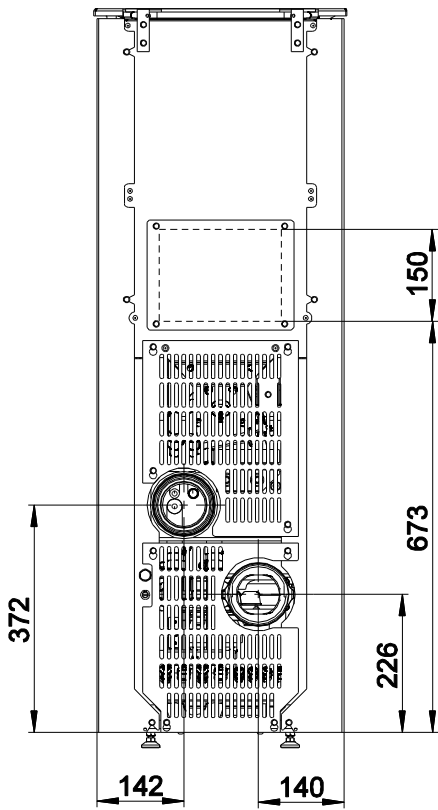
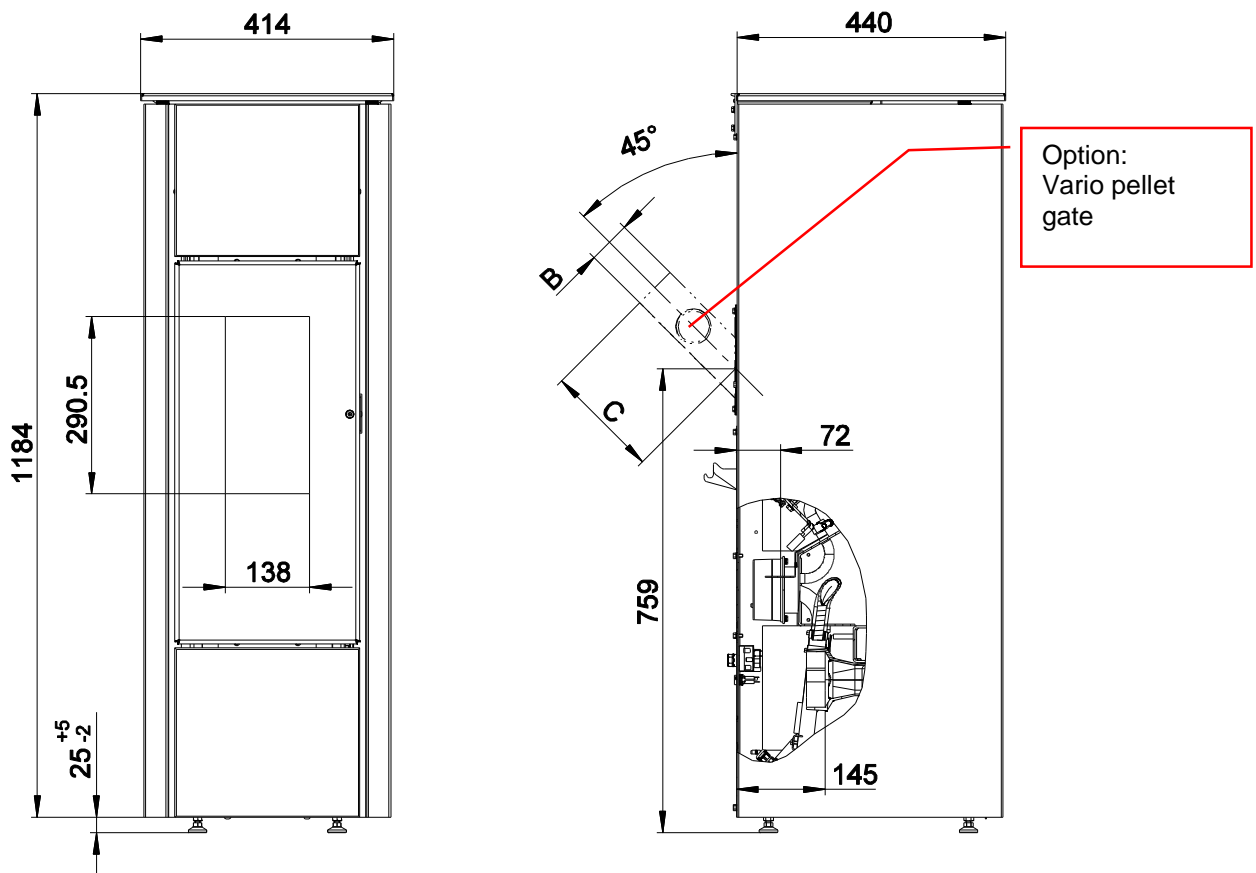


Fig. 97: PO 03-5 dimensional drawing

20.3 Dimensions of PO 03-7 "family.nrg"



Connection dimensions

"Vario"	"Vario 2" (with sensor)
B = $\varnothing$ 80	B = $\varnothing$ 70
C = 138	C = 185

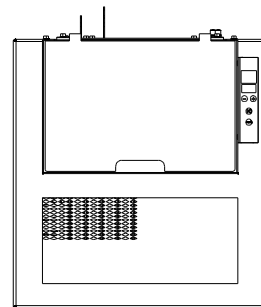


Fig. 98: PO 03-7 dimensional drawing



## 21 Declaration of Performance

CE-Declaration of Conformity according to LVD, EMC and MD as well as the guide to declare performance EN 14785 according to Regulation (EU) 305/2011 of a residential space heating appliance fired by wood pellets

This CE- Declaration of Conformity applies to the product described below and describes the compliance with the following guidelines:

2004/108/EC: Electromagnetic compatibility (EMC Directive)  
 2006/95/EC: Electrical equipment within certain voltage limits (Low Voltage Directive)  
 2006/42/EC: Machinery Directive

### Declaration of performance

No.: Declaration\_of\_performance\_easy.nrg\_2014\_02\_21

1. PO 03-2 "easy.nrg "
2. 051 700
3. residential space heating appliance fired by wood pellets without hot water supply
4. wotke GmbH, Rittweg 55-57, 72070 Tübingen, Germany
6. System 3 and system 4
7. The notified laboratory "RWE Power AG Feuerstättenprüfstelle, Notified Body number : 1427" performed the determination of the product type on the basis of type testing under system 3 and issued test report FSPS-Wa 2035-EN.

8. Declared performance

Harmonized technical specification	EN14785:2006
Essential characteristics	Performance
<b>Fire safety</b>	
Reaction to fire	A1
Distance to combustible materials	Minimum distances front = 800 mm sides = 150 mm rear = 200 mm
Risk of burning fuel falling out	Pass
Emission of combustion products	CO [0,006 %] at nominal heat output CO [0,022 %] at reduced heat output
Surface temperature	Pass
Electrical safety	Pass
Cleanability	Pass
Maximum water operating pressure	---
Flue gas temperature at nominal heat output	T [189 °C]
Mechanical resistance (to carry a chimney/flue)	NPD
<b>Thermal output</b>	
Nominal heat output	6 kW
Room heating output	6 kW
Water heating output	---
Energy efficiency	77 [92,6 %] at nominal heat output 77 [94 %] at reduced heat output

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Christiane Wotke, chief executive: .....

Signature

Tübingen, 21/02/2014



Stand 22.04.2015

**CE-Konformitätserklärung nach LVD, MD, EMV und RoHS sowie Leistungserklärung gemäß der Verordnung (EU) 305/2011 für Raumheizer zur Verfeuerung von Holzpellets EN 14785**

CE-Konformitätserklärung	
Diese CE-Konformitätserklärung gilt für das unten beschriebene Produkt und beschreibt die Übereinstimmung mit den nachfolgenden Richtlinien:	
<b>2004/108/EG: Elektromagnetische Verträglichkeit (EMV-Richtlinie)</b>	
<b>2006/95/EG: Elektrische Betriebsmittel innerhalb bestimmter Spannungsgrenzen (Niederspannungsrichtlinie)</b>	
<b>2006/42/EG: Maschinenrichtlinie</b>	
<b>2011/65/EU: Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (RoHS)</b>	

Leistungserklärung																																					
Nr.: <u>Leistungserklärung_wodtke_family.nrg_2015_04_22</u>																																					
1.	PO 03-7 "family.nrg Sandstein", PO 03-7 "family.nrg Speckstein"																																				
2.	052820, 052810																																				
3.	Raumheizer zur Verfeuerung von Holzpellets ohne Wamwasserbereiter																																				
4.	wodtke GmbH, Rittweg 55-57, 72070 Tübingen, Deutschland																																				
6.	System 3 und System 4																																				
7.	Das notifizierte Prüflabor "RWE Power AG Feuerstättenprüfstelle, Notified Body number: 1427" hat nach System 3 die Erstprüfung durchgeführt und im Prüfbericht FSPS-Wa 2297-EN dokumentiert.																																				
8.	<table border="1"> <thead> <tr> <th>Harmonisierte technische Spezifikationen</th> <th>EN14785:2006</th> </tr> <tr> <th>Wesentliche Merkmale</th> <th>Leistung</th> </tr> </thead> <tbody> <tr> <td colspan="2"><b>Brandsicherheit</b></td> </tr> <tr> <td>Brandverhalten</td> <td>A1</td> </tr> <tr> <td>Abstand zu brennbaren Materialien</td> <td>Mindestabstand Front = 800 mm Seite = 150 mm Hinten = 200 mm</td> </tr> <tr> <td>Brandgefahr durch Herausfallen von brennenden Brennstoffen</td> <td>Erfüllt</td> </tr> <tr> <td><b>Emission der Verbrennungsprodukte</b></td> <td>CO [0,006 %] bei Nennwärmeleistung CO [0,022 %] bei reduzierter Heizleistung</td> </tr> <tr> <td><b>Oberflächentemperatur</b></td> <td>Erfüllt</td> </tr> <tr> <td><b>Elektrische Sicherheit</b></td> <td>Erfüllt</td> </tr> <tr> <td><b>Reinigbarkeit</b></td> <td>Erfüllt</td> </tr> <tr> <td><b>Maximaler Wasser-Betriebsdruck</b></td> <td>---</td> </tr> <tr> <td><b>Abgastemperatur bei Nennwärmeleistung</b></td> <td>T [189 °C]</td> </tr> <tr> <td><b>Mechanische Festigkeit (zum Tragen eines Schornsteins)</b></td> <td>Nicht erfüllt</td> </tr> <tr> <td colspan="2"><b>Wärmeleistung</b></td> </tr> <tr> <td>Nennwärmeleistung</td> <td>6 kW</td> </tr> <tr> <td>Raumwärmeleistung</td> <td>6 kW</td> </tr> <tr> <td>Wasserwärmeleistung</td> <td>---</td> </tr> <tr> <td><b>Wirkungsgrad</b></td> <td><math>\eta</math> [92,6 %] bei Nennwärmeleistung <math>\eta</math> [94 %] bei reduzierter Heizleistung</td> </tr> </tbody> </table>	Harmonisierte technische Spezifikationen	EN14785:2006	Wesentliche Merkmale	Leistung	<b>Brandsicherheit</b>		Brandverhalten	A1	Abstand zu brennbaren Materialien	Mindestabstand Front = 800 mm Seite = 150 mm Hinten = 200 mm	Brandgefahr durch Herausfallen von brennenden Brennstoffen	Erfüllt	<b>Emission der Verbrennungsprodukte</b>	CO [0,006 %] bei Nennwärmeleistung CO [0,022 %] bei reduzierter Heizleistung	<b>Oberflächentemperatur</b>	Erfüllt	<b>Elektrische Sicherheit</b>	Erfüllt	<b>Reinigbarkeit</b>	Erfüllt	<b>Maximaler Wasser-Betriebsdruck</b>	---	<b>Abgastemperatur bei Nennwärmeleistung</b>	T [189 °C]	<b>Mechanische Festigkeit (zum Tragen eines Schornsteins)</b>	Nicht erfüllt	<b>Wärmeleistung</b>		Nennwärmeleistung	6 kW	Raumwärmeleistung	6 kW	Wasserwärmeleistung	---	<b>Wirkungsgrad</b>	$\eta$ [92,6 %] bei Nennwärmeleistung $\eta$ [94 %] bei reduzierter Heizleistung
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9.	Die Leistung des Produktes gemäß den Nummern 1 und 2 entspricht der erklärten Leistung nach Nummer 8. Verantwortlich für die Erstellung dieser Leistungserklärung ist allein der Hersteller gemäß Nummer 4.																																				

Unterzeichnet für den Hersteller und im Namen des Herstellers von:

Christiane Wodtke , Geschäftsführerin:   
Unterschrift

Tübingen, den 22.04.2015

wodtke GmbH, Rittweg 55-57, 72070 Tübingen Deutschland, www.wodtke.com

**CE-Declaration of Conformity according to LVD, EMC and MD as well as the guide to declare performance EN 14785 according to Regulation (EU) 305/2011 of a residential space heating appliance fired by wood pellets**

This CE- Declaration of Conformity applies to the product described below and describes the compliance with the following guidelines:

2004/108/EC: Electromagnetic compatibility (EMC Directive)  
 2006/95/EC: Electrical equipment within certain voltage limits (Low Voltage Directive)  
 2006/42/EC: Machinery Directive

**Declaration of performance**

No.: Declaration\_of\_performance\_crazy.nrg\_2014\_02\_21

1. PO 03-5 "crazy.nrg "
2. 052 500
3. residential space heating appliance fired by wood pellets without hot water supply
4. wodtke GmbH, Rittweg 55-57, 72070 Tübingen, Germany
6. System 3 and system 4
7. The notified laboratory "RWE Power AG Feuerstättenprüfstelle, Notified Body number : 1427" performed the determination of the product type on the basis of type testing under system 3 and issued test report FSPS-Wa 2195-EN.

8. Declared performance

<b>Harmonized technical specification</b>	<b>EN14785:2006</b>
<b>Essential characteristics</b>	Performance
<b>Fire safety</b>	
Reaction to fire	A1
Distance to combustible materials	Minimum distances front = 800 mm sides = 150 mm rear = 200 mm
Risk of burning fuel falling out	Pass
<b>Emission of combustion products</b>	CO [0,006 %] at nominal heat output CO [0,022 %] at reduced heat output
<b>Surface temperature</b>	Pass
<b>Electrical safety</b>	Pass
<b>Cleanability</b>	Pass
<b>Maximum water operating pressure</b>	---
<b>Flue gas temperature at nominal heat output</b>	T [189 °C]
<b>Mechanical resistance (to carry a chimney/flue)</b>	NPD
<b>Thermal output</b>	
Nominal heat output	6 kW
Room heating output	6 kW
Water heating output	---
<b>Energy efficiency</b>	$\eta$ [92,6 %] at nominal heat output $\eta$ [94 %] at reduced heat output

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Christiane Wodtke, chief executive: .....

Signature

Tübingen, 21/02/2014

## 22 Proper Use

### 22.1 Fuel

The Pellet Primärofen units of the PO 03 series may only be operated with wood pellets that conform to the DIN EN 14961-2 Class A1, ENplus-A1 or DINplus standards/quality criteria and have an ash content of less than 0.7%.

The following may not be used: cut firewood or other combustible or waste materials. If the furnace is not operated with approved fuels, any warranty or guarantee claims are void and dangerous operating conditions may result.

### 22.2 Installation Room

The Pellet Primärofen units of the PO 03 series may only be installed in residential spaces with ordinary impurities, normal relative humidity (dry rooms according to VDE 0100) and with room temperatures from +5 °C to +30 °C (environmental temperatures during operation). The installation room or combustion air connection for the Pellet Primärofen units of the PO 03 series must have at least 4 m<sup>3</sup> of volume per kW nominal heating output. Please observe the specifications on fire protection regulations in the enclosed assembly instructions!

### 22.3 Installation and Assembly

Work, such as particularly installation, assembly, initial commissioning and service work as well as repairs may only be performed by a trained, specialist company (heating or hot air heating construction).

### 22.4 Modifications



#### **Attention, risk of fire!**

In case of modifications to the unit!

No modifications may be made to the unit. In case of modifications, any warranty or guarantee claims are null and void and dangerous operating conditions can arise.

## 23 Warranty and Guarantee

The new, EU-harmonised warranty periods apply for all wotke products/components as of 1/1/2002 (delivery). Products are sold solely through local installers. The warranty period for end customers for products straight from the factory vis-a-vis the vendor equals 24 months. Damages from normal wear and tear are excluded from the warranty because they do not represent product defects (cf. automobile tires, brake pads, spark plugs, filters, etc.) Lubricants and operating resources (cf. gasoline, engine oil, etc.) are likewise excluded from the warranty, as well as defects due to improper handling, installation, control, operation, service, cleaning, maintenance, etc.

Independently of the legal specifications for the vendor's warranty, wotke provides a factory warranty on consumable parts for the duration of 6 months after delivery by wotke.

Consumable parts of Pellet Primärofen units & accessories are, in particular:

Components in contact with fire, such as fireclay, insulation, seals, plates/cast plates, burner pots, grates, combustion chamber glass, ignition elements.

Any damage due to mechanical, chemical or thermal overload, electrical overload as well as defects due to faulty operation or improper installation, handling, use, cleaning, maintenance or operation in particular are also excluded from the warranty and guarantee. Water heat exchangers rusting through due to oxygen diffusion, operating below the dew point or due to chlorinated hydrocarbons or other metal-damaging substances/gases in the environment/fuel represent defects due to improper operation and are likewise excluded from the warranty and guarantee. The same applies when using unapproved fuels and in the case of improper / unskilled interventions on the unit.

All of our components (including glass components) have been design-tested according to regular operating conditions during extensive quality and approval inspections by neutral testing institutes as well as via strict internal quality criteria before leaving our facilities. If defects should nevertheless occur, please report this immediately to your designated specialist company with specification of the date of purchase and the serial number of the unit. With specification of the serial number, are are unfortunately unable to correctly process claims.

Correct control / operation and good service / maintenance increases the value retention of your furnace, you will save valuable resources and protect both our environment and your wallet.




## **24 Customer Service / Spare Parts**

Customer service, maintenance and spare parts can be acquired via your dealer. They will also inform and support you regarding all other questions about your wotke Pellet Primärofen. If you should ever have a problem with your unit or are unable to resolve faults, please contact your specialist company.

**Please be sure to specify the installation date and the serial number from the ID plate of your unit in case of claims or when ordering spare parts so that you can receive qualified help and the proper spare parts are used.**

## 25 Your Specialist Company

Your dealer:



We wish you cozy warmth and many comfortable hours with your wodtke Pellet Primärofen furnace.  
Sincerely, wodtke GmbH

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