Installation manual

HKD 13 / HKD 13 Tunnel

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made in germany.

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1 BASIC INFORMATIONS



All instructions delivered with products must be observed. We do not accept any warranty claim or liability for damage resulting from failure to observe these installation instructions!
Improper installation can cause injury and material damage!

The installation may only be carried out by a registered specialist.

Fireplaces equipped with a water boiler must be pressure-tested after hydraulic connection to the heating system. Masonry work may follow only after this pressure test. Ulrich Brunner GmbH does not cover any costs incurred by necessary dismantling of masonry for rework at water boiler installation or replacement of the boiler.

The floor space of the room must have a suitable structure and sufficient dimensions to ensure proper functioning of the fireplace.

Please note that other installation and assembly instructions are included in other packaging units!

Dimensioning of downstream heat accumulator must be according to valid stove-setting rules.

During installation of the fireplace, all dimensions and minimal clearances of the fireplace casing must be held as specified by the manufacturer.

Fireplaces that meet the requirements of DIN EN 13240 or DIN EN 13229 and that can only be operated as intended with closed combustion chamber door or that have a self-closing firebox door are suitable for multiple occupancy.

All binding national or EU standards and local regulations for the installation of fireplaces must be observed.

All valid stove fitting rules and regulations of local construction law must be observed and followed.

Please follow the relevant regulations of your country.

When these instructions are followed and all works are done properly, this will ensure a safe, energy-saving and environmentally friendly operation of the stove. Pictures shown are not to be considered as complete representations of any kind.

Subject to technical and assortment changes.

Please notify your supplier of any damage which might have occurred during transport.

Please keep these instructions.

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2 SAFETY PRECAUTIONS

Fireplaces may be set up only in rooms or areas with no risk of danger due to their location, structure or intended use.

Working on the stove	Installation, commissioning, servicing and maintenance works on the product may be carried out only by an authorized stove-fitter. Safety and efficiency of the system depend on this!
Working with electronics	Switch off the emergency switch or circuit breaker, and secure them against switching on again.



Fireplaces with external air supply are not independent from room air supply and must be considered and designed as roomsealed fireplaces. In connection with a ventilation or extraction system, we recommend the use of a negative pressure safety device USA.



If additional parts are installed on the fireplace which are not approved for this appliance by Ulrich Brunner GmbH (for example, an external control unit), it is a customized product that meets customer requirements. The resulting fireplace insert is not type-tested; the declaration of performance of this fireplace insert will be no longer valid.

The CE mark must be removed from the heating insert!

The responsibility for installation (according to TROL) and operation lies exclusively with the specialist craftsman!

Installation must be carried out by an authorized stove-fitter, because safety and efficiency of the system depend mostly on proper installation of the product. All valid stove fitting rules and regulations of building law must be observed and followed. Make sure to instruct the owner or user about the functions and controls of the system and possibly installed safety devices.

Fireplaces must be built to ensure safe operation and fire safety in order to eliminate possible risks and unacceptable loads. They have to be ready for use over an adequate period of time.

Make sure to instruct the owner or user about the functions and controls of the system and possibly installed safety devices.

Remember to use only genuine replacement parts.

Stoves with water boilers are ready for use only with a fully functional boiler section.

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3 EQUIPOTENTIAL BONDING AND LIGHTNING PROTECTION



ATTENTION - lightning protection, earthing, equipotential bonding.

When connecting fireplaces with / without power connection to metallic exhaust systems (stainless steel exhaust systems, metal chimneys, refurbished chimneys, ...), the national regulations and existing association guidelines must be observed. The requirements and the design of lightning protection systems, surge protection as well as earthing and equipotential bonding for exhaust systems are regulated.

Equipotential bonding and surge protection (“internal lightning protection”) have been mandatory in new buildings since 2016. Equipotential bonding is therefore required by law for metallic exhaust systems. Metallic chimneys must always be integrated into the building's earthing system. If there is also a lightning protection system (“external lightning protection”), the exhaust system must be integrated into the lightning protection system.

The measures provided in individual cases must be carried out by qualified electricians and / or lightning protection specialists.

Overvoltage protection measures for electrical and information technology systems are not dealt with in the standards mentioned and must be created individually on site via the fine protection / terminal device protection.



The legally provided equipotential bonding is not covered by the connection of the fireplace with / without a power connection to the protective conductor!



In case of damage to current-carrying components caused by non-professional measures for lightning protection, earthing and equipotential bonding, there is no entitlement to guarantee and warranty.

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4 COMBUSTION AIR

Sufficient combustion air supply

A fireplace may be installed only in rooms, where sufficient combustion air supply is guaranteed. Normal operation requires sufficient air supply using a separate **combustion air connection** for the fireplace.

Sufficient combustion air supply is present, when by natural means or using technical equipment a combustion air volume of 12,5 m^3 per 1 kg fuel throughput can stream into a room with wood-burning fireplace over a period of 1 hour at calculated negative pressure below 0,04 mbar (4 Pa) against outside air pressure. This is equivalent to a speculative heating power (PLF) of 8 kW per 1 kg fuel throughput.

When other fireplaces are in operation in the same room or different rooms included in one room combination, these fireplaces require at least 1.6 m^3 of combustion air per hour for each kW of their total rated heating power. When a room combination contains only a small volume of air and the building is relatively airtight, a separate combustion air supply from outdoors is required.

Combustion air supply is ensured in rooms with at least one window or one door which can be opened to outside of the building, or when these rooms are directly connected or interconnected with other rooms of such type. Rooms considered as directly connected or interconnected, can be only parts of one apartment or one facility of other kind. Particular attention to combustion air supply is to be paid, when exhaust fans and other heat generators in the same room combination are operated, or when multiple heating devices are connected to one single chimney.

Ventilation systems in this room combination cannot create negative pressure, which could affect the functioning of the fireplace. Exhaust ventilation systems operating in the same room or room combination together with fireplaces, can cause many problems.

Combustion air ducts

Stoves and fireplaces with BRUNNER heating inserts are classified by law as indoor air-dependent fireplaces.

The combustion air can be supplied from outside via a sufficiently dimensioned pipework. This for BRUNNER heating inserts are fitted with a combustion air connection piece. To avoid draughts in the room, the outside air connection should be routed to this combustion air connection piece. The outside air connection can also be established via a suitable chimney with integrated combustion air duct. Corresponding products have a separate combustion air shaft or an air duct between the casing brick and flue gas pipe

The combustion air duct must have sufficient cross-section. It must be laid using the shortest way and without unnecessary bends, to reduce flow resistance. Combustion air duct dimensioning must be according to EN13884; flow resistance has to be estimated by calculation and must be taken into account!

Components of combustion air duct must be made of non-flammable, dimensionally stable and abrasion resistant materials (DIN 4102 A1 or Class A1(B2) according to DIN EN 13501-1); they must ensure tightness und be accessible for inspection and cleaning.

Thermal insulation is necessary from the fire-protection point of view, if air temperatures >85°C are possible.

Temperatures below dew point can cause water condensation, therefore appropriate insulation must be used.

For buildings with more than two storeys and when crossing fire protection walls, the construction of these ducts must prevent fire and smoke from penetrating other fire protection zones (their components must have a fire resistance rating of >90 minutes (F90)). See also national building law.

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If the external air supply duct has a separate flap for closing, the position of this flap must be recognizable. It must be ensured, that the external air supply flap is open until the fire is burning. Air suction grilles or flaps cannot narrow the free cross section.

Remember about noise protection!

5 PRODUCT DESCRIPTION

The fireplace has been approved according to EN 13229 and can be combined with a metallic radiator or ceramic accumulator for greater efficiency and heating power. It can be fitted with the optional electronic stove control system (EAS/EOS) at delivery or after the fireplace installation has been completed.

Combustion air can be supplied from outside by connecting to a separate air duct.

Combustion air is supplied through a provided connecting piece. The volume of air supplied for combustion can be controlled by using a combustion air regulator.

The HKD series are designed for closed installation without any vents (hypocaust principle). Design of a hypocaust must ensure uninterrupted transfer and even distribution of heat inside the casing, preventing all parts of the heating chamber from overheating. Dimensioning of heat projecting walls of the casing must by adjusted to performance data of the heating device. Thickness of insulation for building walls surrounding the fireplace stated in technical data has been determined during continuous operation with open air vents (safety test according to EN 13229 - heat transfer coefficient of the tested wall at 0,7 W/m2K), and must be amended accordingly for different conditions (for example, by providing air ventilation for walls).

When installing electric or electronic parts (controllers, sensors, cables...) or water-conducting parts, please consider the max. permitted surrounding temperatures for these components.

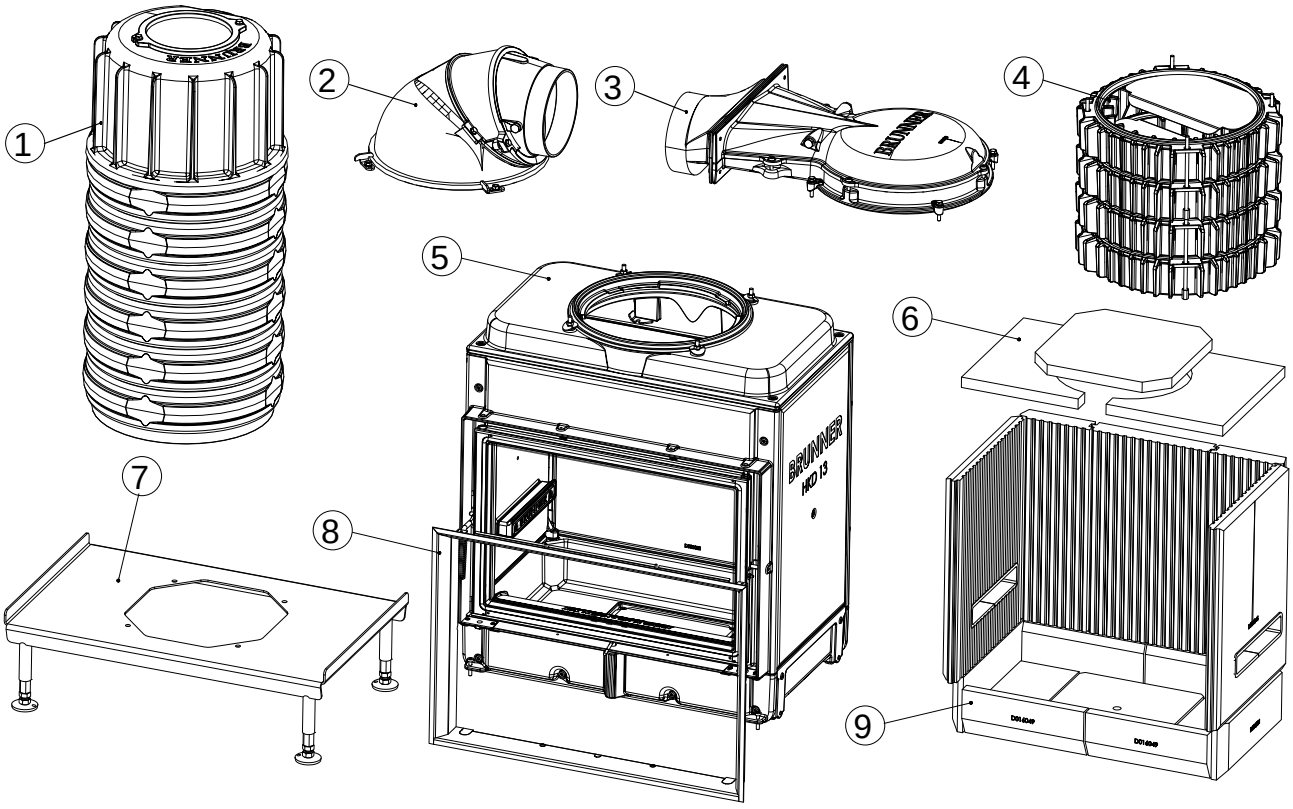
You can optionally upgrade the device with an electronic control system (EAS/EOS).

6 DELIVERY CONTENTS

The delivery consists of different packaging units depending on the configuration of the system.

7 DESCRIPTION OF PARTS

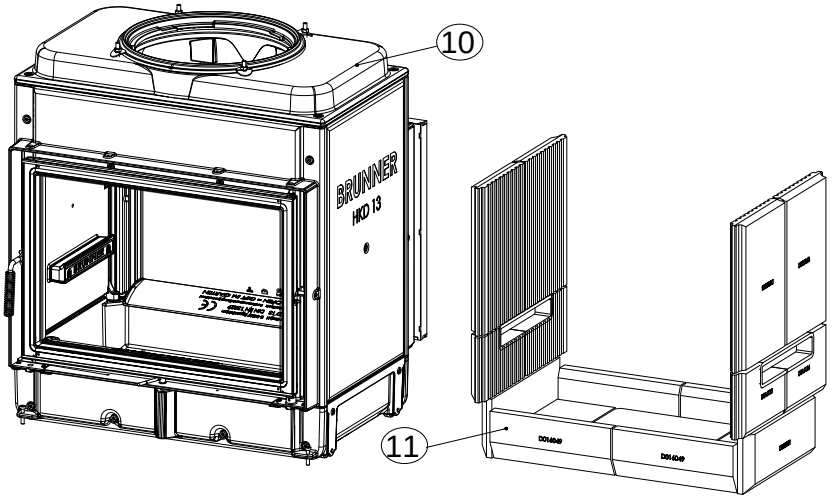
7.1 ASSEMBLY OVERVIEW



Pos.	Designation	Pos.	Designation	Pos.	Designation
1	MAS with cast iron dome	4	Cast heat exchanger ring	7	Support bearing
2	Cast iron dome	5	Body HKD 13	8	Cover/mounting frame
3	Flat cast iron dome	6	Deflection	9	Fireclay combustion chamber

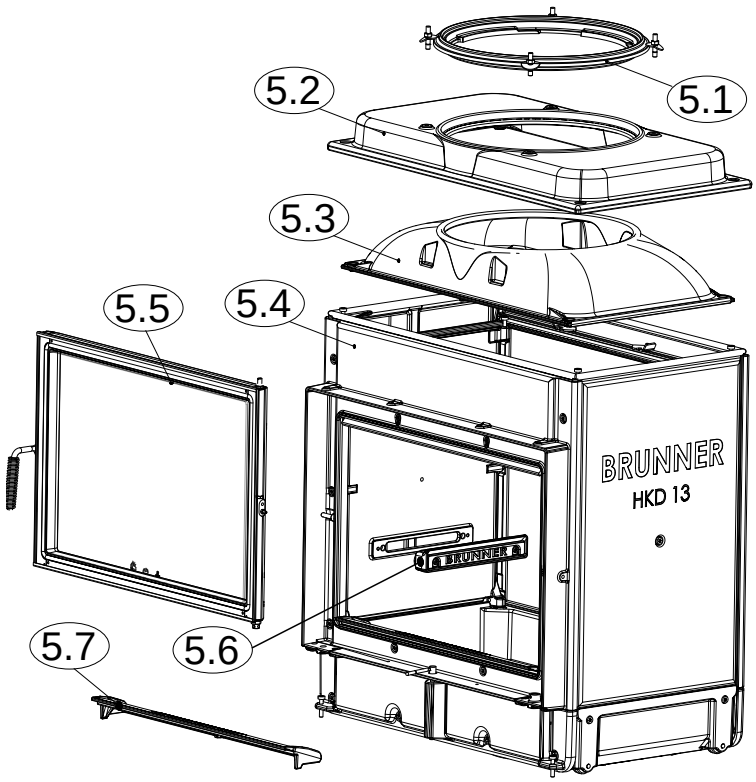
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Pos	Designation
10	Tunnel body
11	Fireclay combustion chamber Tunnel

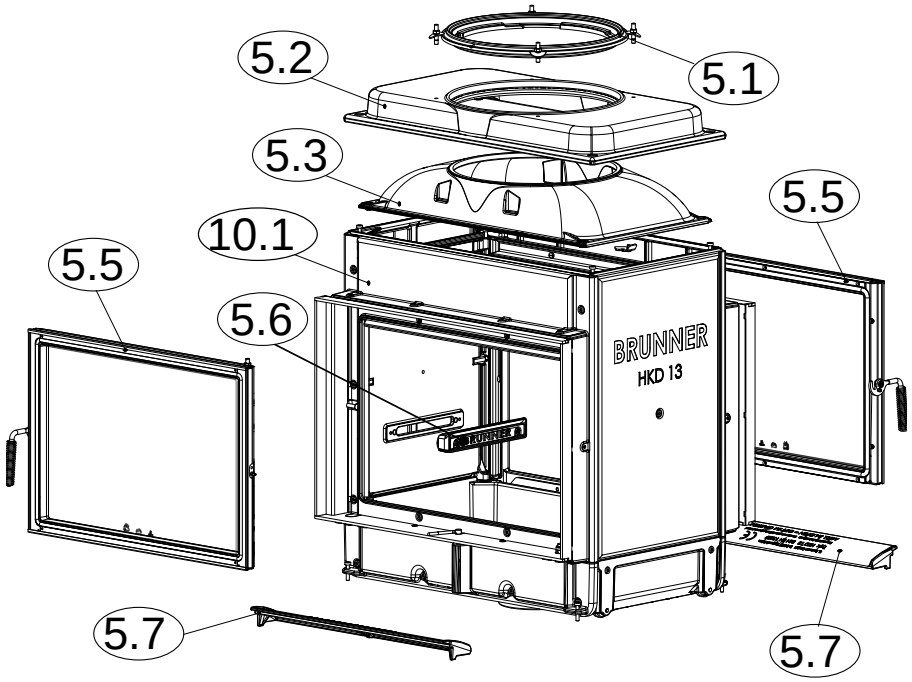


7.2 BODY ASSEMBLY

HKD 13



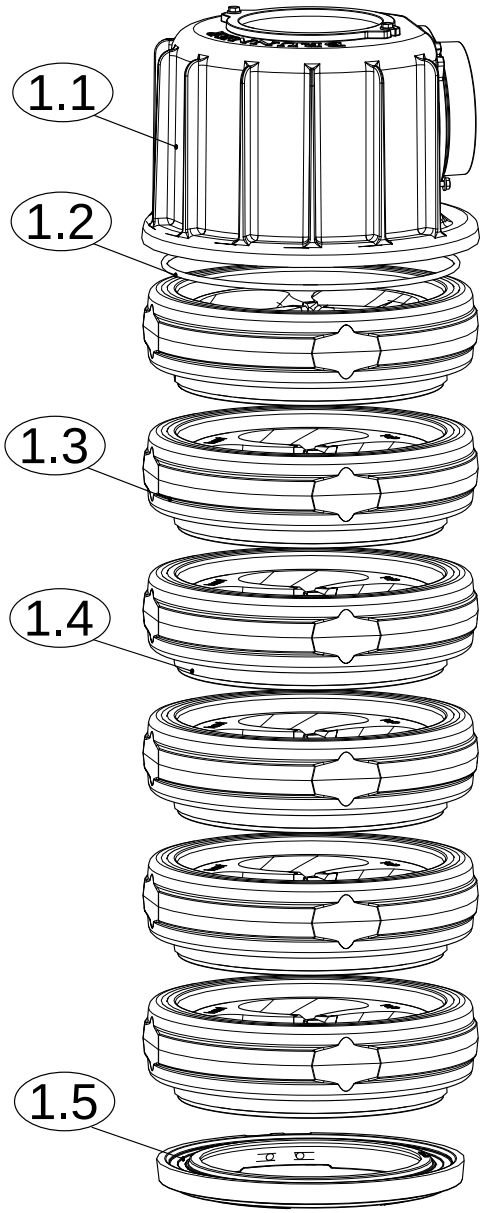
HKD 13 tunnel



Pos.	Designation	Part no.	Pos.	Designation	Part no.
5.1	KAT mounting ring	HK000200	5.5	BG Door flat	D03006-0X
5.2	BG Hood dome connection	D030016	5.6	BG Air inlet	C010058
5.3	Inner hood	D030024	5.7	Text plate	D030032
5.4	Standard body	D030XXX	10.1	Tunnel carcase	D030XXX

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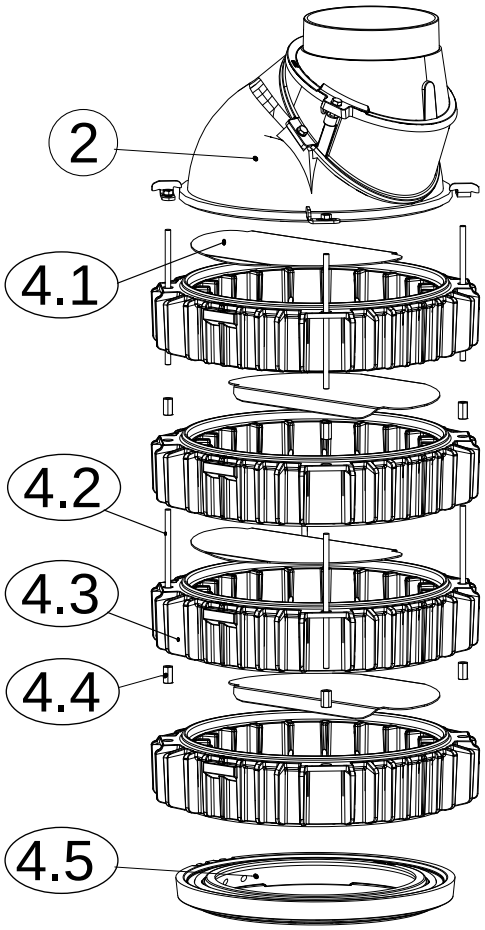
7.3 MAS ASSEMBLY WITH CAST IRON DOME



Pos.	Designation	Part no.
1.1	Cast iron dome cover MAS	R009095-0X
1.2	Sealing cord D8 cast iron dome	R009096
1.3	MAS 444 outer ring	R009107
1.4	MAS 444 inner ring	R009107
1.5	Intermediate ring module storage	R009020

7.4 HEAT EXCHANGER RING ASSEMBLY

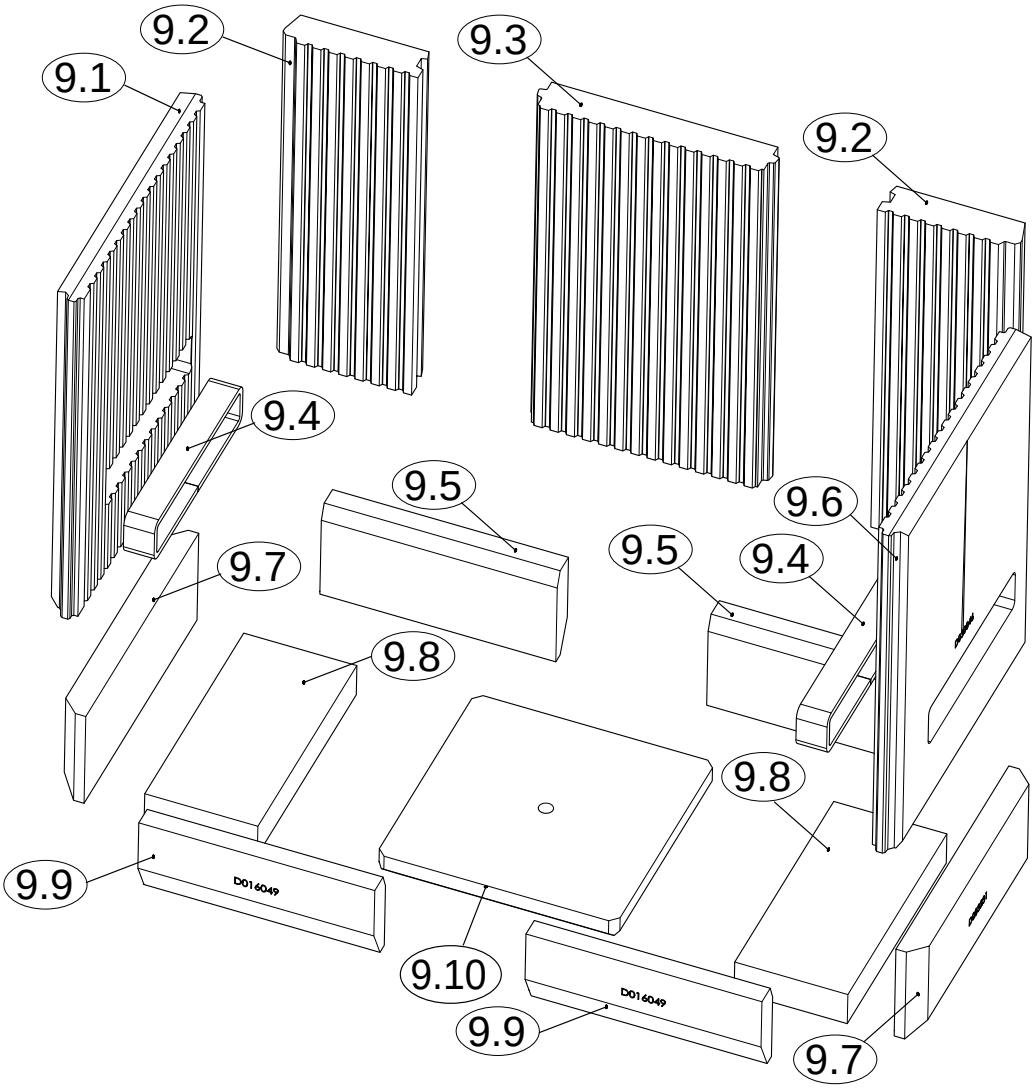
Pos.	Designation	Part no.
2	Rotatable cast iron dome	D004186
4.1	Heat exchanger baffle	R015003
4.2	Threaded rod M8x200	R015007
4.3	Cast iron heat exchanger ring	R015002
4.4	Long nut M8	DIN 6334
4.5	mounting ring MAS 440	10077



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7.5 FIRECLAY COMBUSTION CHAMBER ASSEMBLY

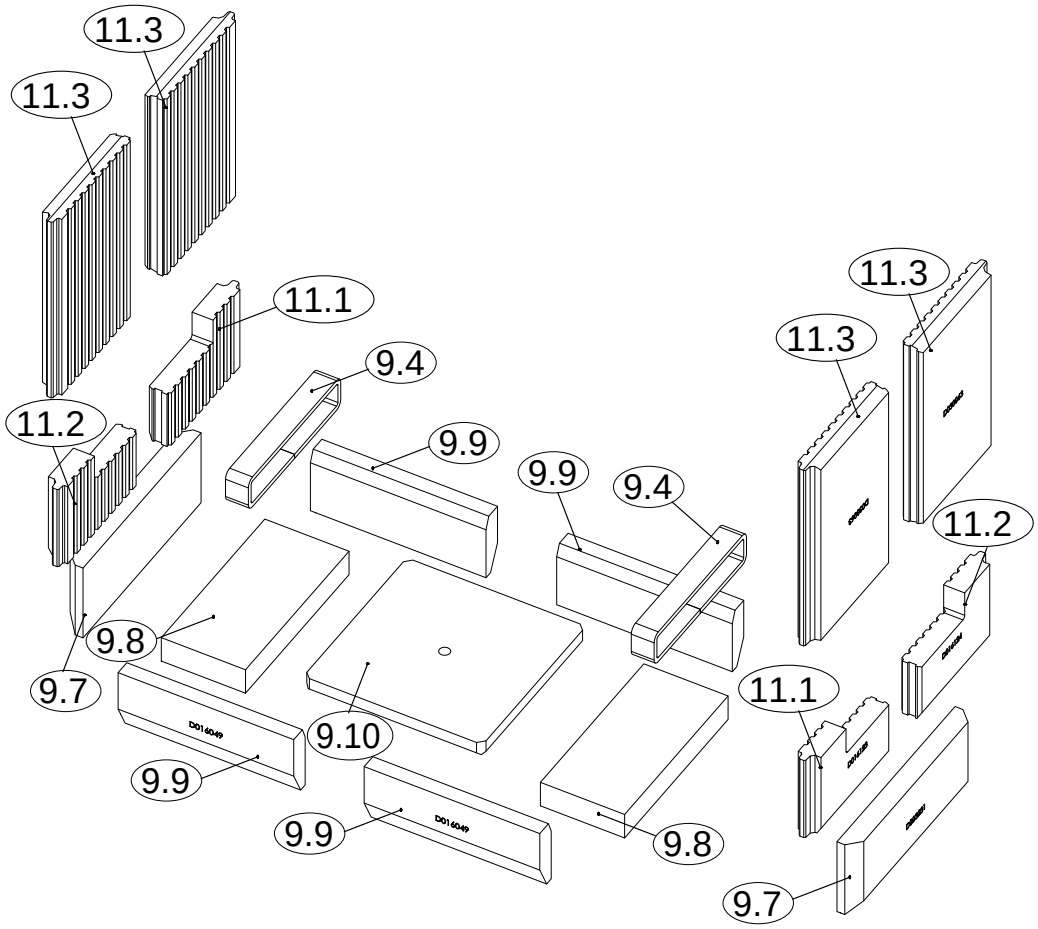
HKD 13



Pos.	Designation	Part no.	Pos.	Designation	Part no.
9.1	Side wall block left	D030108	9.6	Side wall brick right	D030046
9.2	External rear wall brick	D030109	9.7	Wedge stone side	D003231
9.3	Center back stone	D030047	9.8	Floor stone	D016045
9.4	Ceramic fiber gasket	20000	9.9	Wedge stone front	D016049
9.5	Wedge stone rear panel	D016044	9.10	Floor stone	D003232

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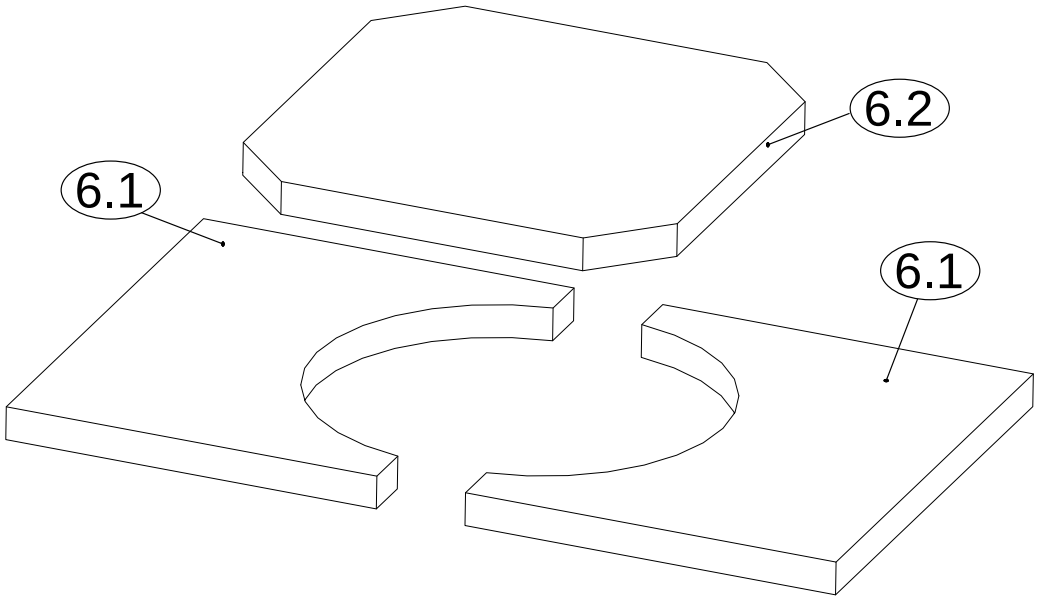
HKD 13 Tunnel



Pos.	Designation	Part no.	Pos.	Designation	Part no.
11.1	Side wall block bottom 1	D016123	11.3	Top side wall brick	D030063
11.2	Bottom side wall brick 2	D016124			

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7.6 DEFLECTION ASSEMBLY



Pos.	Designation	Part no.	Pos.	Designation	Part no.
6.1	Deflection plate	D016102	6.2	Deflection plate 2	D030099

8 REQUIREMENTS FOR LOCATION

Possible locations for a wood-burning stove or fireplace are only such rooms, where no danger can occur, if only the instructions for use are being followed and the system is properly used. The state, structure and intended use of the room must be considered, when choosing the location.

Please consider the massive weight of the system. If the floor is not strong enough to bear such load, it has to be distributed by suitable means.

A heating device **may not be located** in the following rooms:

1. Where sufficient volume of combustion air is not guaranteed.
2. Where flammable materials or explosives are stored, manufactured or processed.
3. Which are commonly accessible. Stairways in residential buildings with access from only two flats are not considered as commonly accessible rooms.
4. Where exhaust fans of ventilation or air heating systems are running, unless safe operation of the fireplace is ensured. This is ensured, when:
   - The systems are causing only circulation of air within the room.
   - The systems are equipped with safety devices, which automatically and securely prevent negative pressure in this room.
   - If simultaneous operation of fireplace and ventilation systems is prevented by safety devices.
   - If the total negative pressure level caused by the stream of combustion air of the fireplace and the airflow volume of the ventilation systems in this room and other rooms included in one ventilation system does not exceed 0.04 mbar. This must be ensured even if easily accessible controls of the ventilation system are being manipulated or removed.
   - If exhaust gas flow is being monitored by special safety devices.
   - If the construction type or dimensioning of the systems are excluding the possibility of dangerous negative pressure.

Please consult the location of your fireplace, chimney connection and combustion air supply with your local chimney sweep.

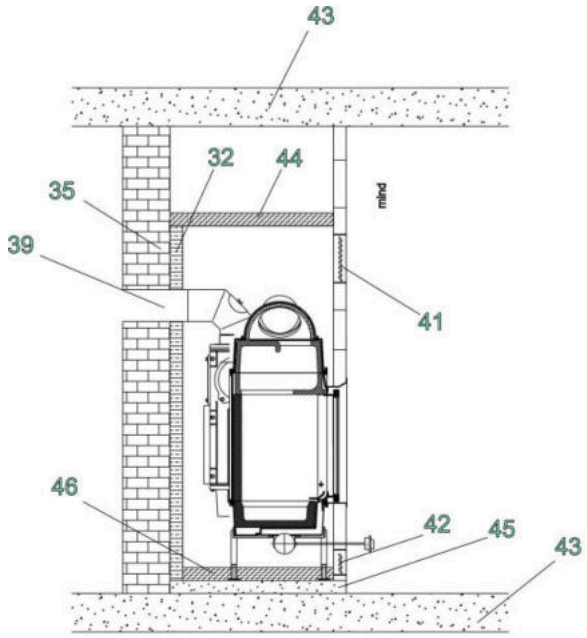
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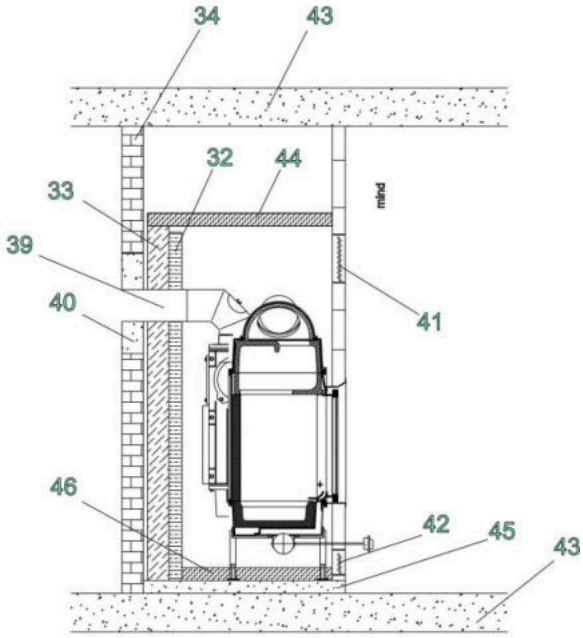
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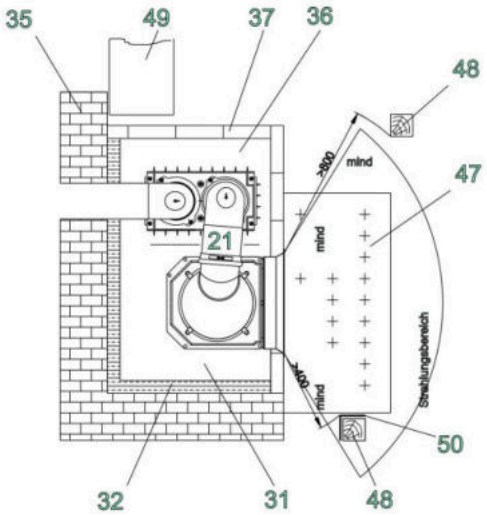
9 OVERVIEW OF FIRE SAFETY AND HEAT INSULATION GUIDELINES

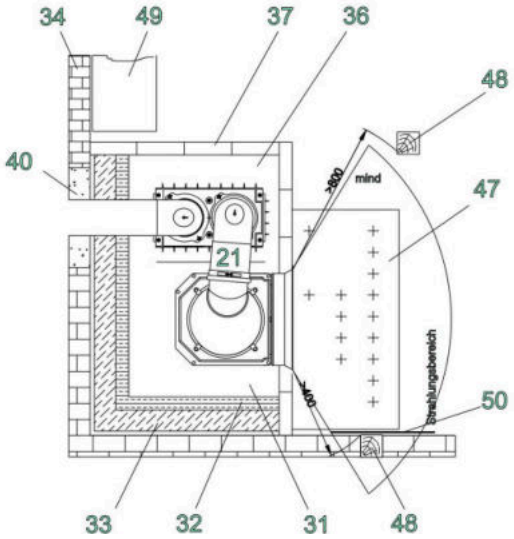
(shown on the example of an HKD stove)

Installation in front of or next to an adjacent wall: Installation in front of or next to a flammable wall



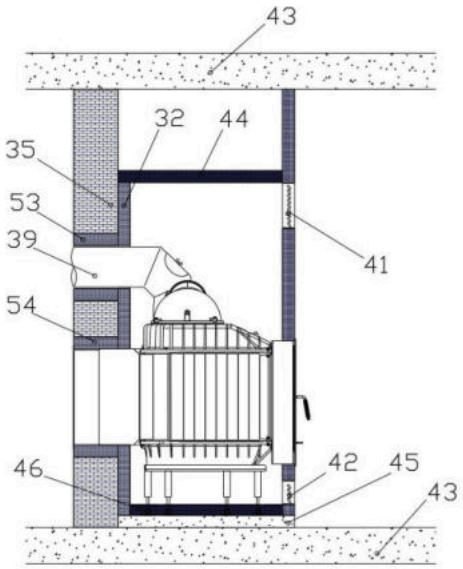


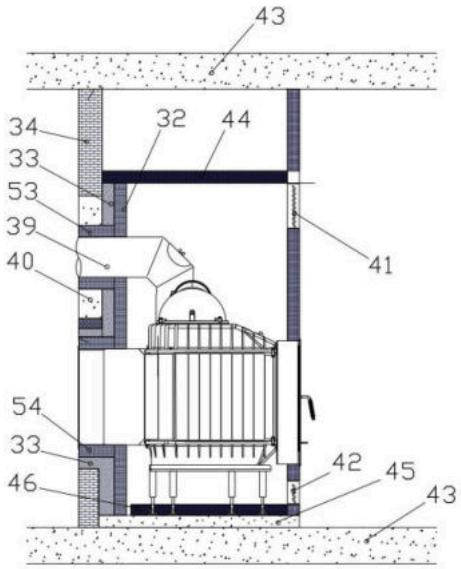


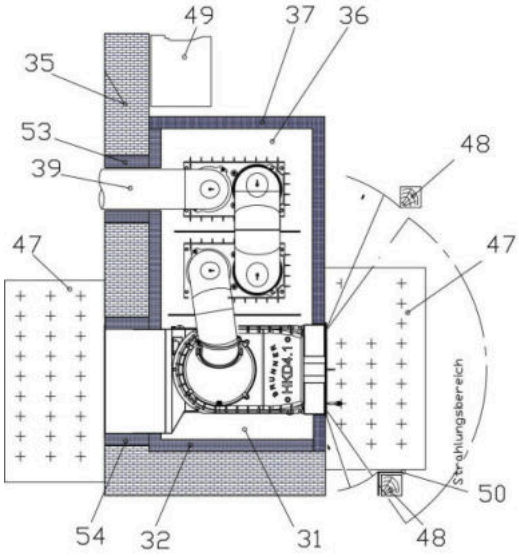


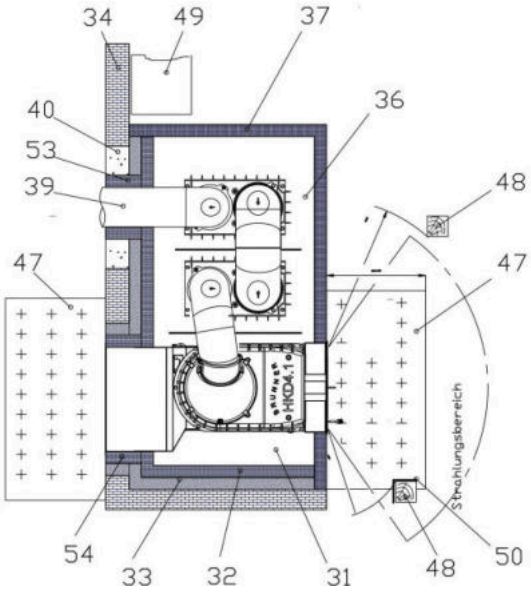
Installation in front of or next to a protected wall: Installation in front of or next to a flammable wall

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Number reference:

21	Heating gas pipe
31	Convection space, distance between fireplace surface and external cladding / thermal insulation
32	Thermal insulation; see “Approved insulation materials”
33	Brick lining, at least 10 cm, mineral building materials, such as bricks according to DIN 105 or sand-lime bricks according to DIN 106
34	Protected wall: these are walls from flammable materials or containing flammable materials, main walls from re-inforced concrete, as well as all walls with built-in furniture or wooden panels behind them (heat accumulation).
35	Adjacent walls: walls from mineral building materials, such as aerated concrete, bricks, sand-lime bricks, without flammable objects behind them.

36	Convection space, distance between reheating surface and thermal insulation
37	Active (heat-transferring) trim made of non-flammable materials (A1 class according to DIN EN 13501-1), such as ceramic stove tiles, fireclay bricks or plates.
39	Smoke pipe connecting piece
40	Fire protection on smoke pipe entrance
41	Warm air grating/opening
42	Circulating air grating/opening
43	Room ceiling
44	Thermal insulation for protection of room ceiling
45	Concrete slab, at least 6 cm thick, with sufficient reinforcement for weight distribution.
46	Thermal insulation for protection of floor
47	Non-flammable floor covering
48	Structure made of flammable materials
49	Furniture or flammable objects on adjacent wall
50	Air cooled heat protection
51	Distance between floor insulation and air intake
52	Decorative beam over fireplace door
53	Thermal insulation of the smoke pipe connecting piece
54	Heat radiation surface

10 CONNECTIONS AND ASSEMBLY

Heating flue / smoke pipe connecting piece

Heating gas pipe (21) between heating device and downstream heat radiator or storage mass, as well as the smoke pipe connecting piece (39) connected to chimney must be made of heat-resistant steel with CE mark. The connecting pipe must be connected directly to the chimney. When the connecting piece is leading through structures made of flammable materials, like protected walls (34), then the connecting piece must be insulated to specified thickness, and additionally, the surrounding area of about 20 cm around this insulated piece must be protected by mineral, non-flammable building material (40). The connecting piece must be also insulated in the area of active back ventilation with suitable insulation material to at least 3 cm thickness.

In the chimney entrance area it is necessary to provide an opening for measurements and revision.

All smoke pipe connections must be sealed tightly!

Outside air duct / combustion air pipe

If external combustion air supply is necessary, it must be connected directly to the air connecting piece of the heating device, to prevent possible drafts.

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The combustion air duct must have sufficient cross-section. It must be laid using the shortest way and without unnecessary bends to reduce flow resistance. Combustion air duct dimensioning must be according to EN13884; flow resistance has to be estimated by calculation and must be taken into account!

Components of combustion air duct must be made of non-flammable, dimensionally stable and abrasion resistant materials (DIN 4102 A1 or Class A1(B2) according to DIN EN 13501-1); they must ensure tightness und be accessible for inspection and cleaning. Thermal insulation is necessary from the fire-protection point of view, if air temperatures above 85°C (185°F) are possible. Temperatures below dew point can cause water condensation, therefore appropriate insulation must be used. For buildings with more than two storeys and when crossing fire protection walls, the structure of these venting lines must prevent fire and smoke from penetrating other fire protection zones (see regional building law).

If the outside air duct has a separate flap for closing, the position of this flap must be recognizable. It must be ensured, that the outside air flap is open until the fire is burning. Air suction grilles or flaps cannot narrow the free cross section.

Convection space

The stove/fireplace insert must be surrounded by convection space (31/36). When the room air is streaming through the convection space, the heat being set free during combustion is led away into the room. The convection space must be insulated against all surfaces, which are not parts of heat projecting walls of the fireplace. Insulation thickness: see technical data. The convection space is the distance between the fireplace insert and heat insulation and/or outside walls of the fireplace.

Convection air routing / Heating chamber / Mounting surface

The fireplace, i.e. the heating insert and the additional reheating device (if present) with the heating gas pipe and connecting piece, is enclosed by an external casing or trim, which has to be assembled on site. The external casing consists of walls, bottom plate and top cover, which together form the so called heating chamber. Appropriate external casing materials -> see TROL.

Building surfaces can form parts of the external casing (mounting surfaces = e.g. floor area, ceiling area; adjacent wall = part of building wall which is in direct contact with the fireplace casing).

The heating chamber must be insulated from all mounting surfaces and adjacent walls (inactive casing surfaces). The necessary insulation thickness depends on the material of mounting surface and the mounting conditions (see “Building protection”).

The distances between the stove components and the external casing create a convection space (31/36). Stream of air in this convection space helps to transfer some of the heat which is produced during combustion through the openings in external casing (circulating air/warm air) to the room of installation.

Convection casing

The convection casing (optional accessory) encloses the significant part of the heating insert and helps to transfer the most of hot air which is produced during combustion. Connections on the top of convection casing allow for transfer of this hot air by using dedicated air ducts. The convection casing does not include the hot air share produced by heating gas pipe, reheating systems and smoke pipe connecting piece.

Convection air ducts/shafts

All convection air ducts/shafts must be made of abrasion resistant, dimensionally stable and non-flammable materials; they must be tight and accessible for inspection and cleaning. Ducts and duct sections within the fireplace must be executed according to TROL specifications. Appropriate insulation must be provided where necessary. Construction law requirements regarding fire protection must be observed.

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External casing / Active trim

The external casing (37) of the stove/fireplace insert is used to project heat into the room and must be made of non-flammable A1 class building materials according to DIN EN 13501-1. The casing must be stable for a lifetime of the fireplace. Vertical and inclined surfaces of the stove casing, made of mineral building materials, must not exceed **120°C** (surface temperature). Surfaces of the casing, where objects of any kind may be placed for decoration or where wood is held (wood stack), as well as casing walls made of other materials, cannot exceed **85°C** (surface temperature). Use thermal insulation, if necessary. The casing cannot be affixed at any point to the fireplace itself. Its construction must be self-supporting. Between the stove/fireplace insert and the external casing, as well as between the supporting frame and the casing, an expansion strap and/or sealing tape must be used to compensate the different expansions caused by high temperature.

Convection air supply

Hot air convection system: Fireplace with openings and/or warm air gratings in external casing

- Without convection casing
  Room air (circulating air) enters at the bottom of fireplace into the heating chamber (42), it gets warm and returns to the room as convection air through the openings (41) provided in the upper part of the fireplace external casing. The necessary free cross section of the circulation air opening (42) and supply air opening (41) depends on the type of the additional reheating surface and mode of operation (see “Technical data”). Necessary insulation thickness for adjacent wall -> see Building protection.
- With convection casing
  Room air (circulating air) enters at the bottom of fireplace into the heating chamber (42). The hot air produced inside the convection casing must be returned through dedicated openings. The hot air can be transferred by ducts or shafts, which are connected at the convection casing outlets.
  The remaining heat produced by reheating systems, heating gas pipe, and smoke pipe connecting piece must be returned to the room through the openings (41) in the upper part of the external casing. The necessary free cross section of the circulation air opening (42) and warm air opening (41) depends on the type of the additional reheating surface and mode of operation (see “Technical data”). With convection casing, the adjacent wall insulation can be different than specified (see Assembly Instructions for convection casing).
- Fireplace without openings and/or warm air gratings in external casing (hypocaust principle)
  Convection air is circulating inside a closed fireplace casing. Heat is projected through “active” walls of the fireplace. Thermal load is higher as when heat is returned into the room through warm air openings. This higher load must be taken into account by using appropriate additional thermal insulation (see “Technical data” or e.g. active air cooling). The dimensions and design of active trim must be adapted to the heating power of the heating device.

11 BUILDING PROTECTION

All building areas and (adjacent) walls which are in contact with the heating chamber must be protected against overheating. Fire protection and static considerations must be taken into account. From a static point of view, the admissible temperatures must be lower than specified by fire protection requirements.

Adjacent walls cannot be exposed to temperatures above 85°C (fire protection requirement). The same is valid for built-in furniture. Required insulation measures depend on the type and design of the surface. The load bearing capacity of the mounting surface must be checked; appropriate means for load distribution must be taken if necessary.

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Heat insulation

Heat insulation layers (32/44/46/54) must be laid smoothly and overlapping. The surface must be clean and resistant to abrasion. Their planned position must be permanently stable and durable. Insulation layers from abrasive materials must have an appropriate covering (for example, using steel panels). Only approved insulation materials must be used (see “Approved insulation materials”). The insulation thicknesses specified in Technical Data for flammable materials or other materials including flammable components are valid only for components with a heat transfer coefficient (U value) ≥ 0,4W/m²K. For U value < 0,4W/m²K, additional measures for thermal insulation must be taken (see DIN 18896:2013-12).

Protection of building walls

There are two types of building walls: “protected walls” and (other) “adjacent walls”. For protected walls, a thermal insulation layer (32) and a brick lining (33) must be used. The brick lining must reach up to the insulation of ceiling or to the height of external casing, and must extend at least **20 cm (7.87 in)** above the smoke pipe connecting piece (39).

- walls to be protected are walls from flammable materials or containing flammable materials, and all walls with flammable objects behind them (e.g. built-in furniture, wooden panels).

- other walls (35), these are: walls from mineral building materials, such as aerated concrete, bricks, sand-lime bricks, with thickness of more than **10 cm (3.94 in)**. For these walls, the insulation layer (32) is enough; a brick lining (33) is not necessary.

Protection of ceiling above the fireplace

If the stove casing reaches up to the ceiling (43), it must be protected by a sufficient insulation layer (44), if only the ceiling is made from flammable materials or includes supporting elements of the building structure.

Floor protection

Floors without sufficient load distribution must be provided with a reinforced concrete slab (45) of at least 6 cm (2.36 in) thickness. The mounting surface must be protected against excessive temperatures by sufficient insulation layer (46).

Firewood storage

The surface temperature of the walls surrounding a recessed firewood storage must not exceed **85 °C**. This must be ensured by appropriate construction or insulation of walls.

Warm air vents/gratings

Warm air vents (41) must be situated at least 50 cm (19.69 in) below ceiling level and 30 cm (11.81 in) away from lateral built-in furniture, flammable materials or supporting concrete walls. Air gratings or vents must be located possibly high, to prevent heat accumulation within the external fireplace casing. Air gratings or vents must allow for easy cleaning. The required unobstructed area of air gratings depends on the type of reheating device. The air gratings or air vents must be arranged to avoid clogging up.

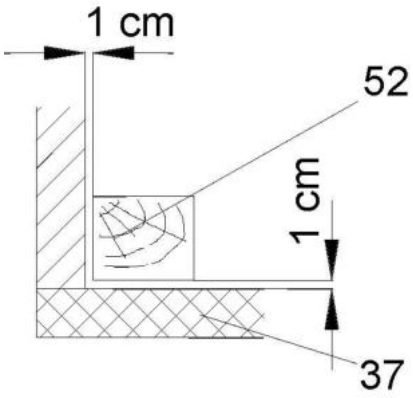
Active air cooling

Active air cooling is a permanently open, non-closing shaft, gap or empty space, where part of the heat projected by the fireplace is dissipated by convection to protect the building or flammable components in adjacent walls or mounting surface.

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Decorative beam over fireplace door

Decorative beams (52) are allowed with **1 cm** clearance between the beam and the wall of the fireplace casing (37), only outside the heat radiation range. The clearance must not allow for heat accumulation between the beam and the fireplace wall. Decorative beams cannot be parts of the building structure.



Floor before fireplace door

Floors from flammable materials must be protected by a cover (47) from non-flammable materials or replaced by non-flammable materials with the following dimensions:
- in front of the fireplace = at least **50 cm (19.69 in)**
- on both sides of the fireplace = at least **30 cm (11.81 in)**

above the fireplace door opening

Within heat radiation range of the fireplace

Structures from flammable building materials or including flammable components (48), as well as built-in furniture (49) must be separated from the combustion chamber opening in front, to the sides and above the fireplace by at least **80 cm** air clearance. When the combustion chamber door is designed without a “window with integrated heat protection”, the radiation area is maintained with a minimum distance of 55 cm. If these parts are protected by a heat protecting screen cooled by air on both sides, a distance of 40 cm must be kept.

Outside the heat radiation range

Structures from flammable materials (48) or with flammable components, as well as built-in furniture (49) must have at least **5 cm** air clearance to the outside walls of the fireplace. In this clearance, the room air must be able to circulate without any obstacles. Heat accumulation must be avoided. Structures covering only small areas of the fireplace casing walls, like flooring, adjoining wall coverings and insulation layers on ceiling and building walls, can be led right up to the fireplace casing.

Electric lines

Mounting surface must be free from typical electrical wiring, unless it is protected by special measures against permanent influence of temperatures >30°C (86°F). Special wiring with higher heat resistance is permitted (see TROL).

12 CHIMNEY AND SMOKE PIPE CONNECTION

Chimney and smoke pipe connection design must be in accordance with DIN 18160.1 or DIN EN 15287-1; dimensions must be calculated according to DIN EN 13384.

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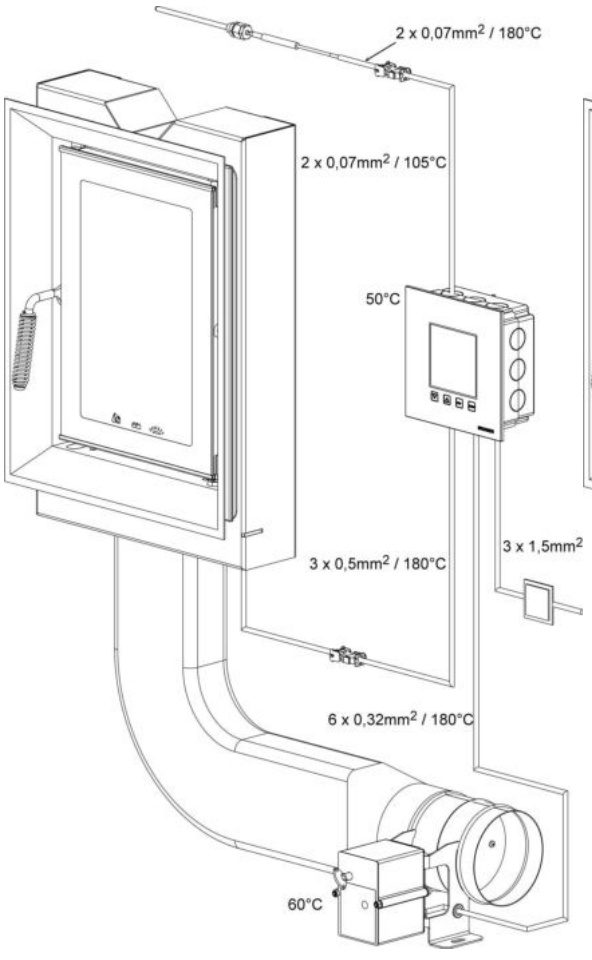
Connection of multiple fireplaces to the same chimney is possible, when it can be proven that the chimney is suitable, even if the design of these fireplaces is different (calculation of flow and thermal balance and approval from chimney sweep are necessary). However, it is not possible for fireplaces designed for open door use. Remember to use a separate chimney connection in this case.

If the connecting pipe between additional reheating devices (radiators, storage mass) and chimney is a steel flue gas pipe, it must be suitable for this application, it must conform to DIN EN 1856-2 standard and have a CE mark. The connecting pipe must be connected directly to the chimney.

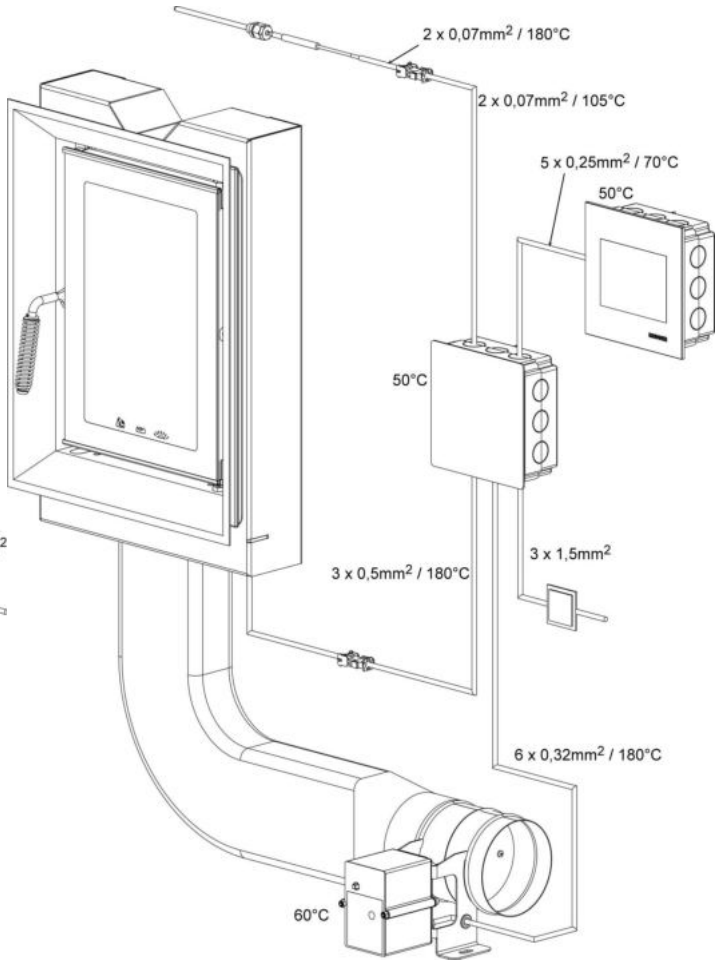
A soot fire resistant chimney of T400 type is necessary for safe operation.

All smoke pipe connections must be sealed tightly! Remember to provide access for cleaning!

13 MOUNTING INSTRUCTIONS FOR EAS / EOS VARIANTS



Im. 1: Schematic layout of EAS



Im. 2: Schematic layout of EOS

The indicated temperatures are maximal permissible temperatures of components!
The indicated cable dimensions are minimal dimensions!

Installation of electronic components must be prepared and performed carefully. Please pay attention to the following points:

• The flush-mounting box must be fitted in level and clean, to ensure easy, tension-free installation of electronics.

• Prevent any physical contact with electronic components - possible electrostatic discharge can damage them.

• Humidity can affect electronic components. Therefore, it is very important to ensure clean and dry installation of electronics.

• If possible, avoid installation of electronic components in exterior walls to prevent risk of corrosion at temperatures below dew point.

• The control unit must not be installed in hot parts of the tiled stove casing.

• The selected type of installation must ensure that temperatures do not exceed +40# (140°F) and the unit is not exposed to direct heat radiation.

For units with external air supply, the motorized combustion air flap assembly cannot be installed in such way that the motor is located under the flap. Condensate could penetrate the motor and destroy it.

To avoid risk of damage, all cable conduits leading from electronics into the heating chamber must enter at the bottom of the stove casing. Cable conduits cannot end in upper parts of the heating chamber due to excessive temperature.

All electronic components must be accessible after installation for revision and replacement. When selecting place of installation, keep in mind the max. permitted temperature for the component. Components cannot be installed in closed spaces; proper ventilation must ensure sufficient heat discharge.

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14 APPROVED INSULATION MATERIALS

Thermal insulation materials used must fulfil the following requirements according to AGI-Q 132 standard:

Material:	Group 12, 13	Rock wool or slag wool
Delivered as:	Group 06, 07, 08	slabs, stitched mats or shells
Thermal conductivity:	Group 01 - 21	
Upper temperature limit:	Group 70 - 76	equivalent to 700 °C - 760 °C
Nominal density kg/m³:	Group 08 - 18	equivalent to 80 kg/m³ - 180 kg/m³

Thermal insulation materials used must be at least equivalent to class A1 building materials according to DIN 4102, Part 1. The temperature limit for use must exceed 700°C and the density must be greater than 80 kg/m³ for these materials. The insulation material rating (heat index) must be known. In addition, insulation materials inside convection space must be abrasion-resistant and covered with non-reflecting material. Instead of brick lining and insulation materials according to AGI-Q 132, any other insulation materials approved for the given purpose by DIBt (Deutsches Institut für Bautechnik) might be used. For necessary insulation thicknesses please refer to the manufacturer's specifications.

Insulation material rating for mineral wool according to AGI Worksheet Q 132:

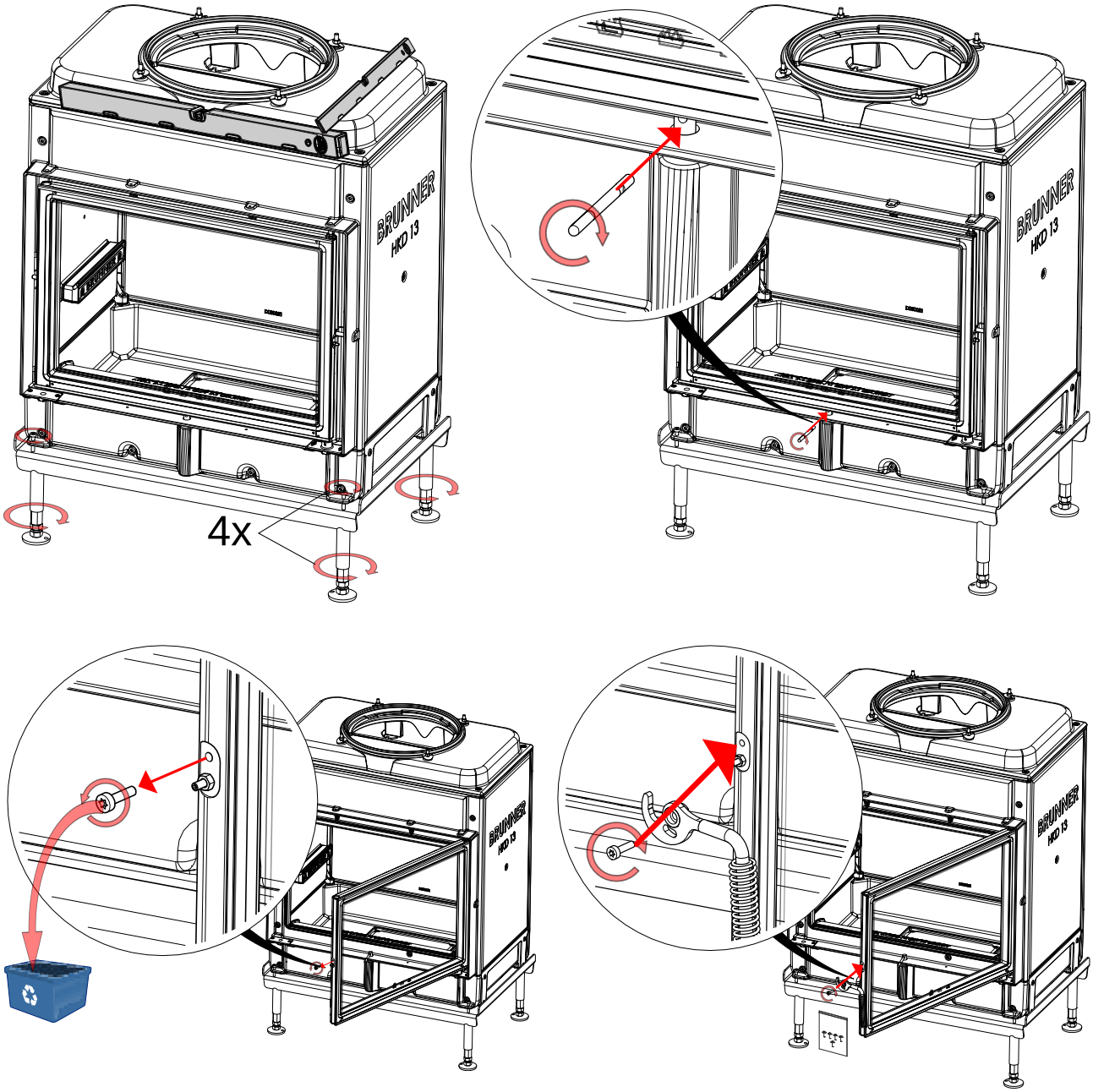
Insulation materials		**Delivered as**		**Thermal conductivity**		**Upper temperature limit**		**Nominal density**	
Gr.	Type	Gr.	Form	Gr.	Delivered as	Gr.	°C	Gr.	kg/m³
11	Glass wool	04	Felts	01	Mats, stitched, Limit 1	10	100	02	20
12	Rock wool	05	Lamella mats	02	Mats, stitched, Limit 2	12	120	03	30
13	Slag wool	06	Mats, stitched	10	Shells, Limit 1	14	140	04	40
		07	Slabs	11	Shells, Limit 2	16	160	05	50
		08	Shells	20	Slabs, Limit 1	.	.	06	60
		09	Segments	21	Slabs, Limit 2	.	.	.	.
		10	Braids	99	*)	72	720	.	.
		11	Panels			74	740	18	180
						76	760	99	**)

*) 99 is valid only for delivery forms in column 2, which have no declared limits.

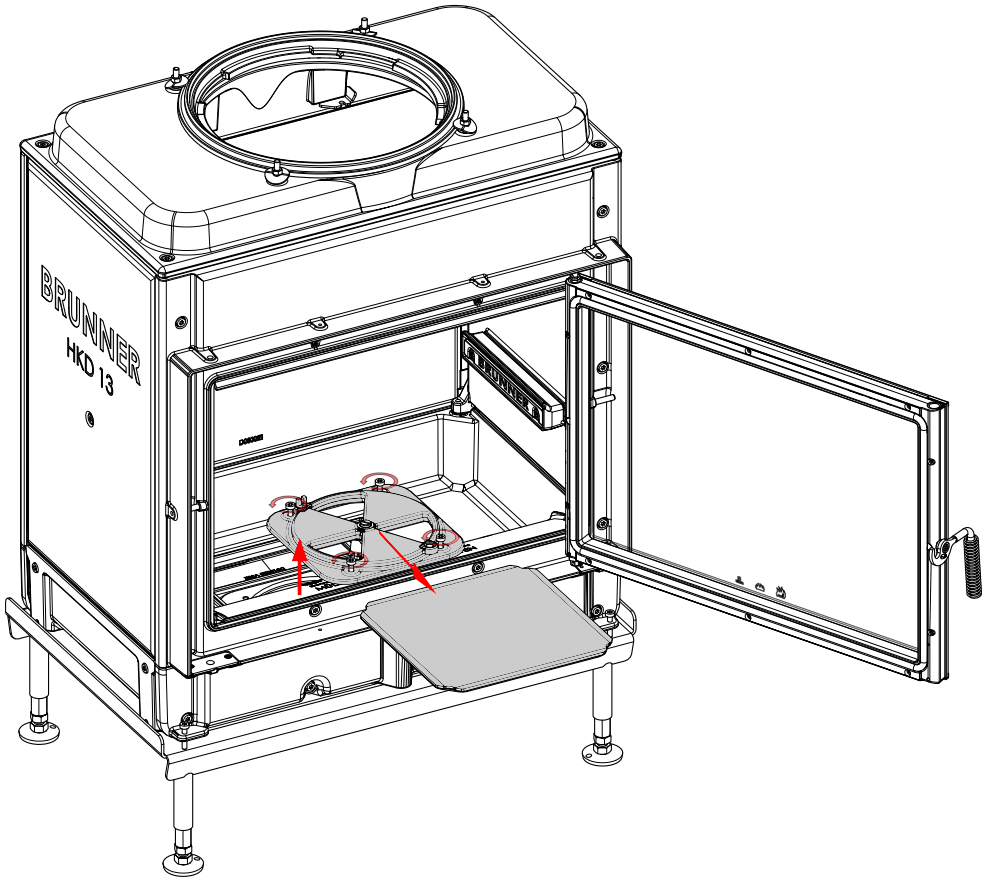
**) 99 is valid only for shells.

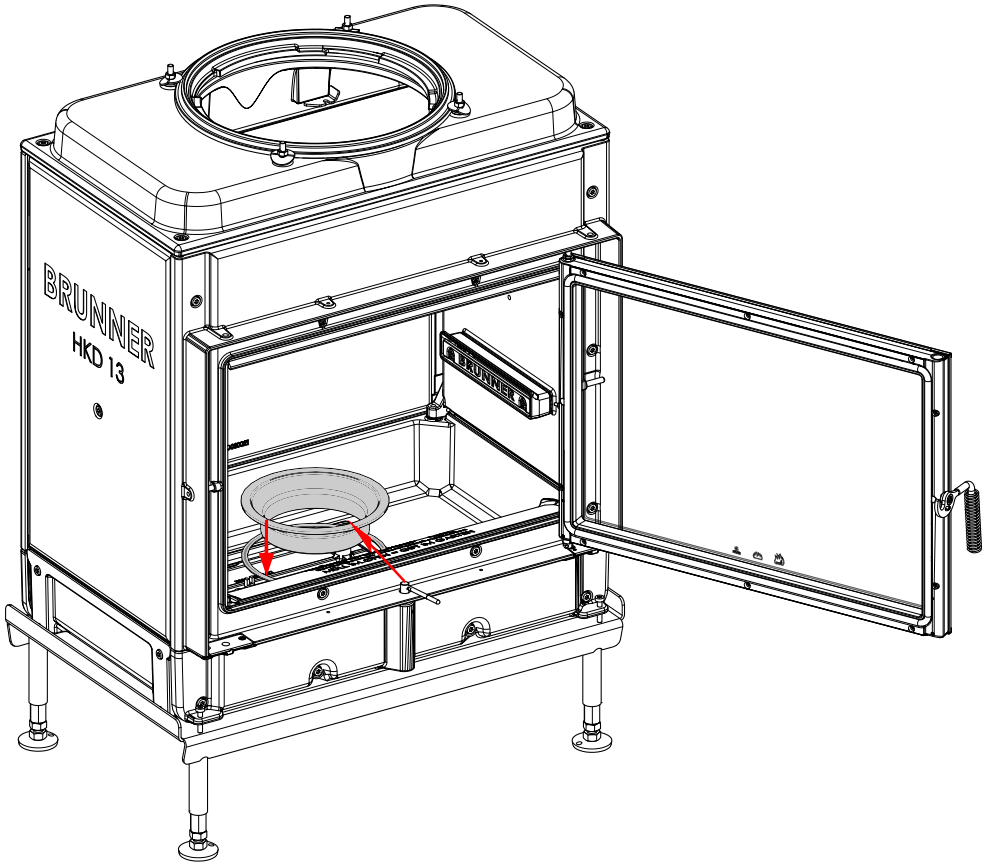
15 INSTALLATION

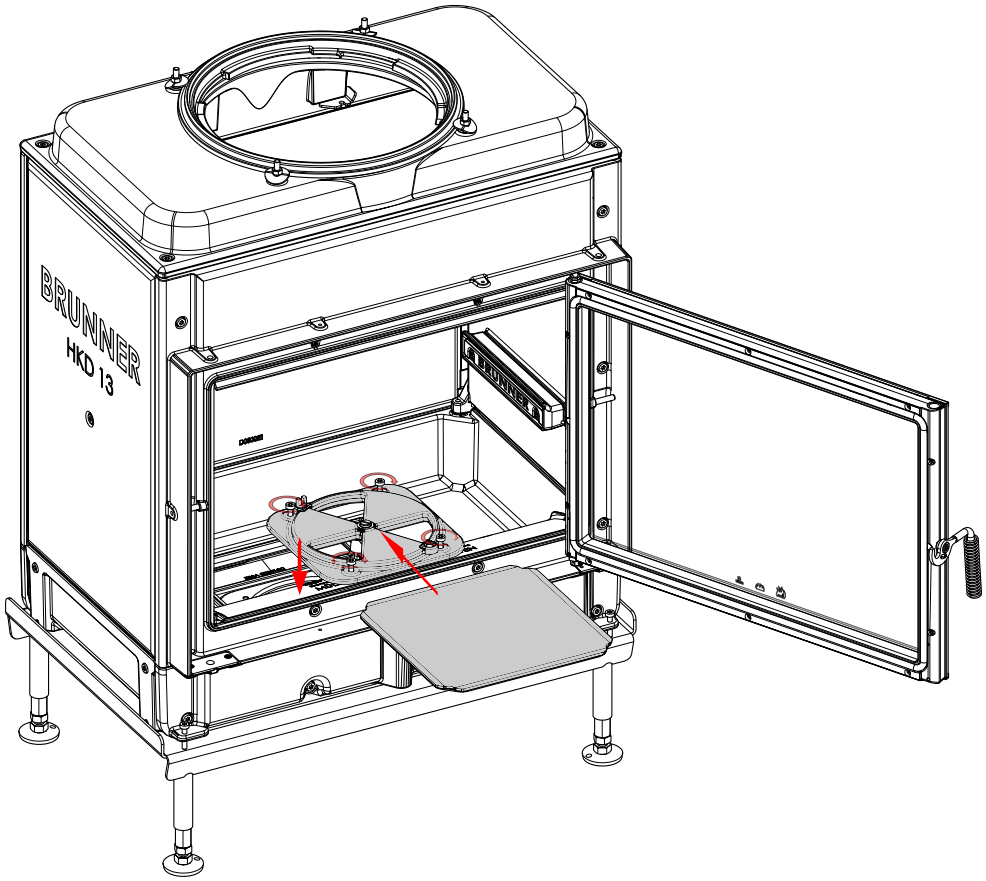
15.1 ASSEMBLY HKD 13



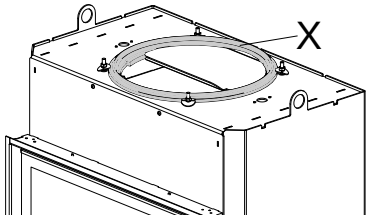
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HKD 13


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HKD 13



The catalytic converter mounting ring (X) is required to accommodate the optional catalytic converter module. Do not remove the catalytic converter mounting ring (X), otherwise retrofitting with the catalytic converter module is not possible.

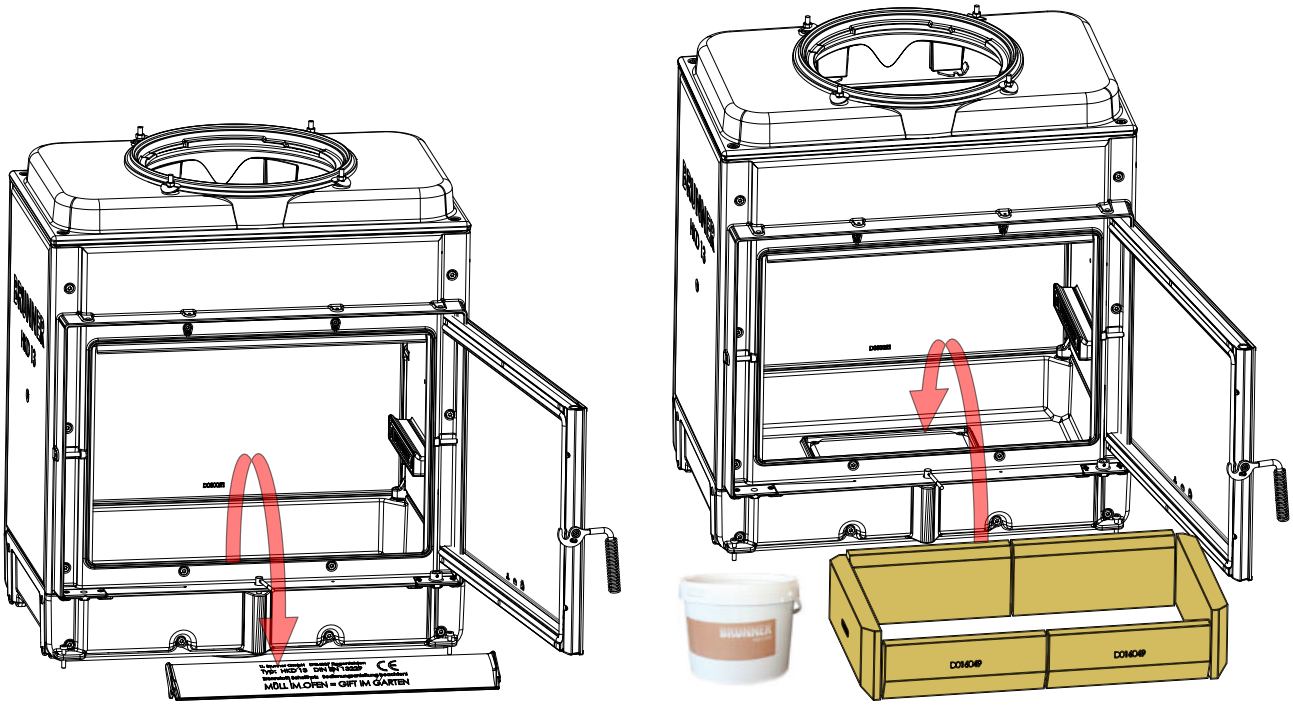


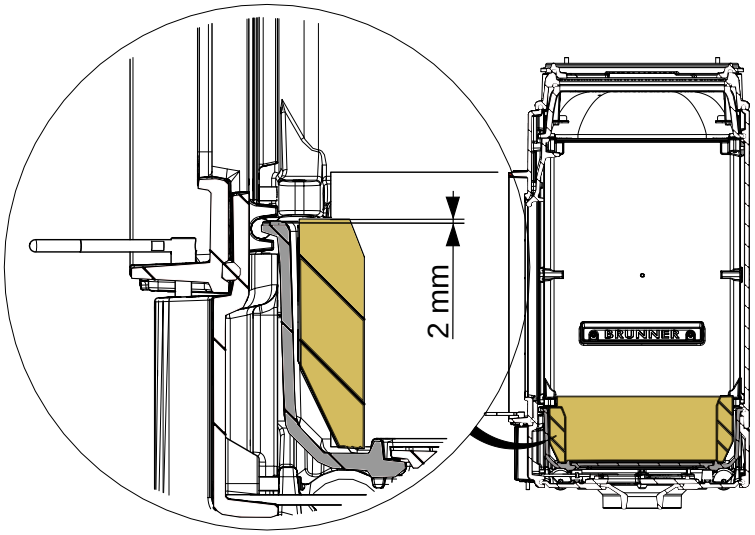
Im. 3: catalytic converter ring

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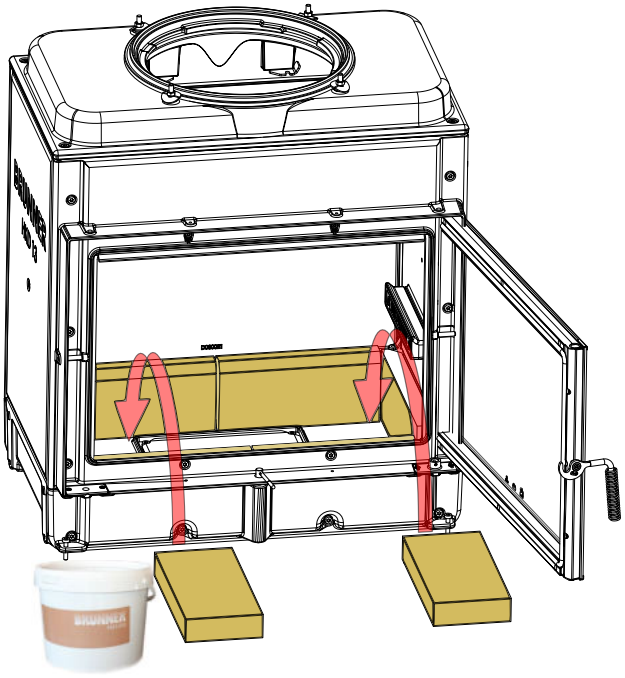
15.2 ASSEMBLY COMBUSTION CHAMBER

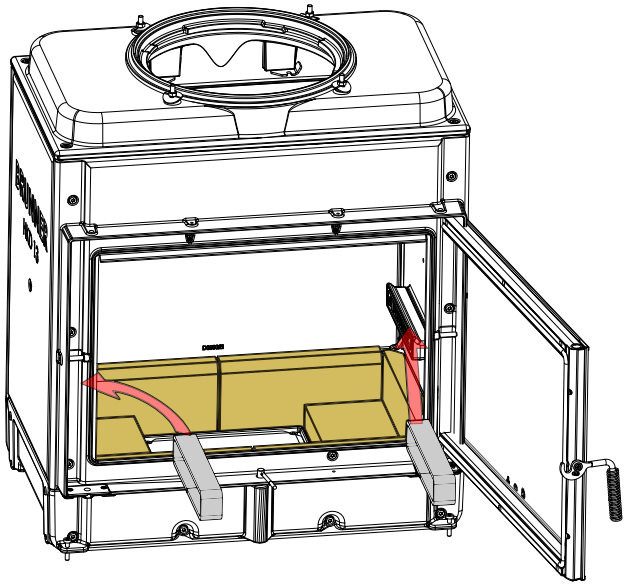
HKD 13



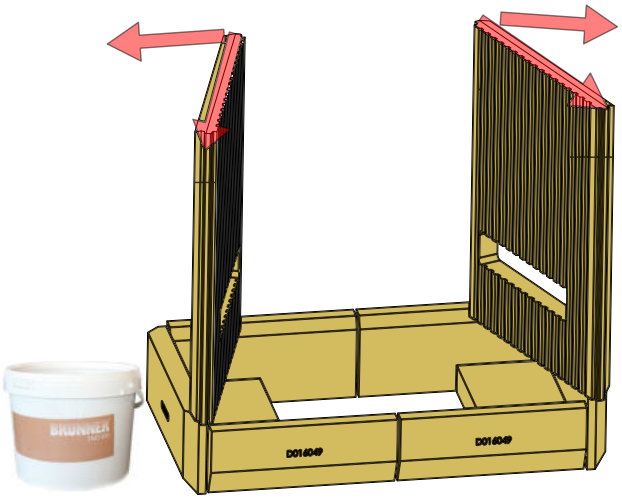


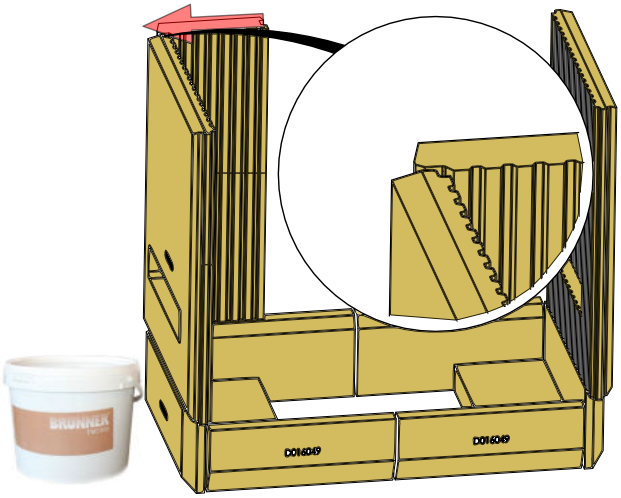
Position the wedge bricks so that the top edge is 2 mm above the cast iron floor pan!



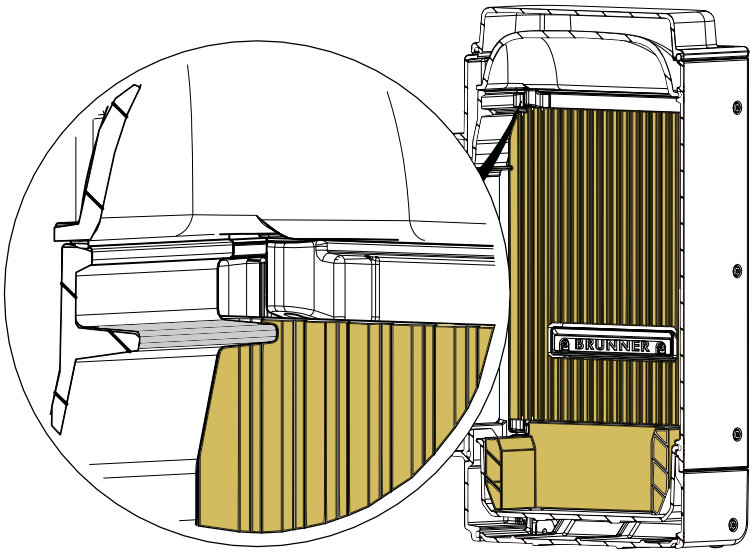


The body is hidden to illustrate the further installation steps!

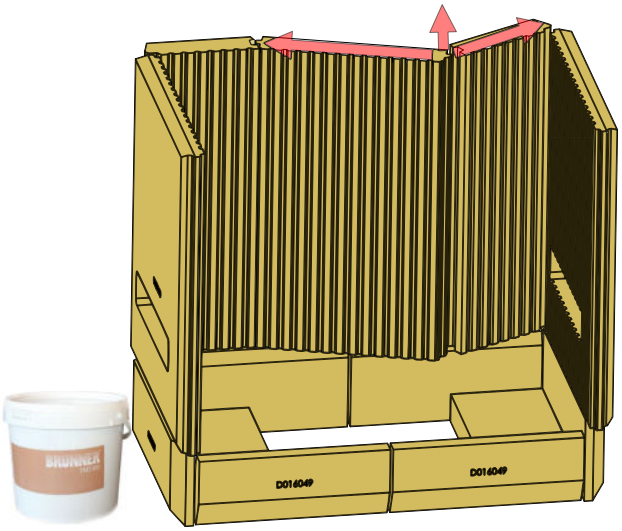


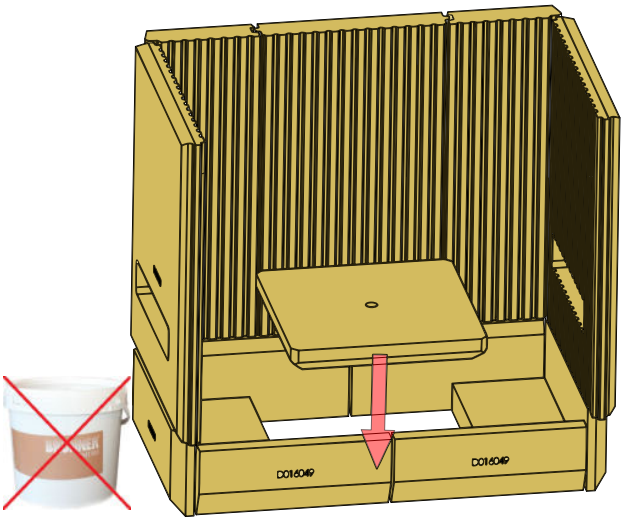


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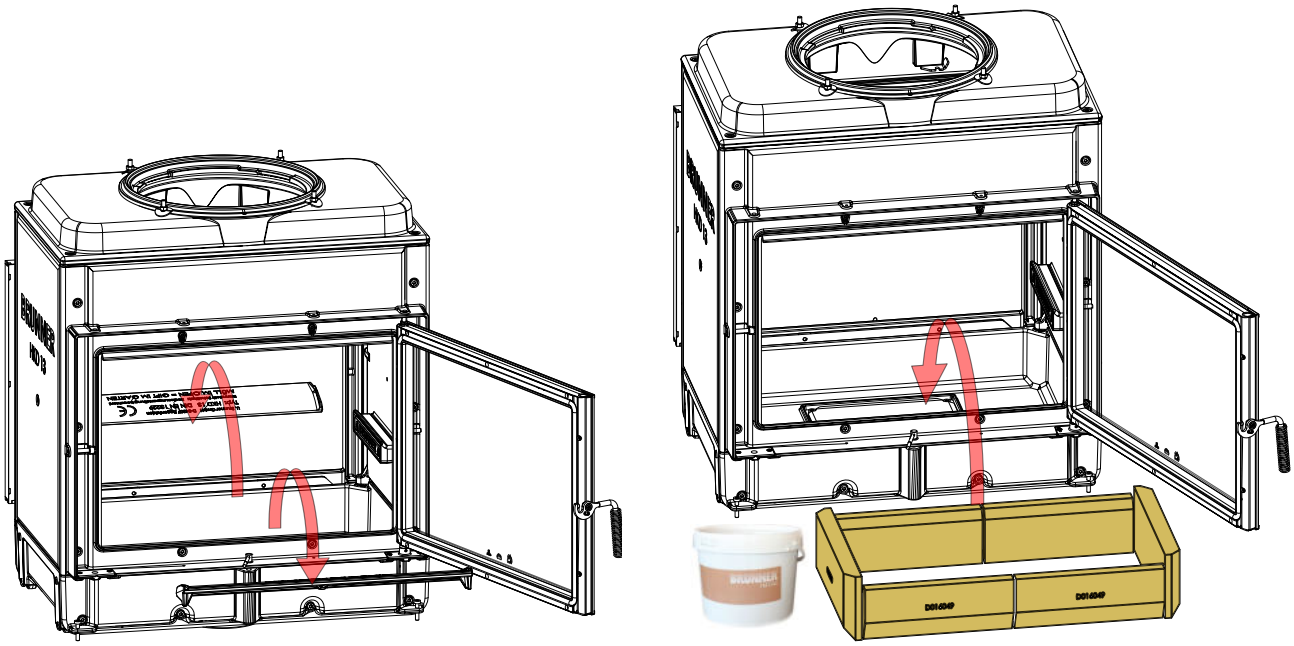


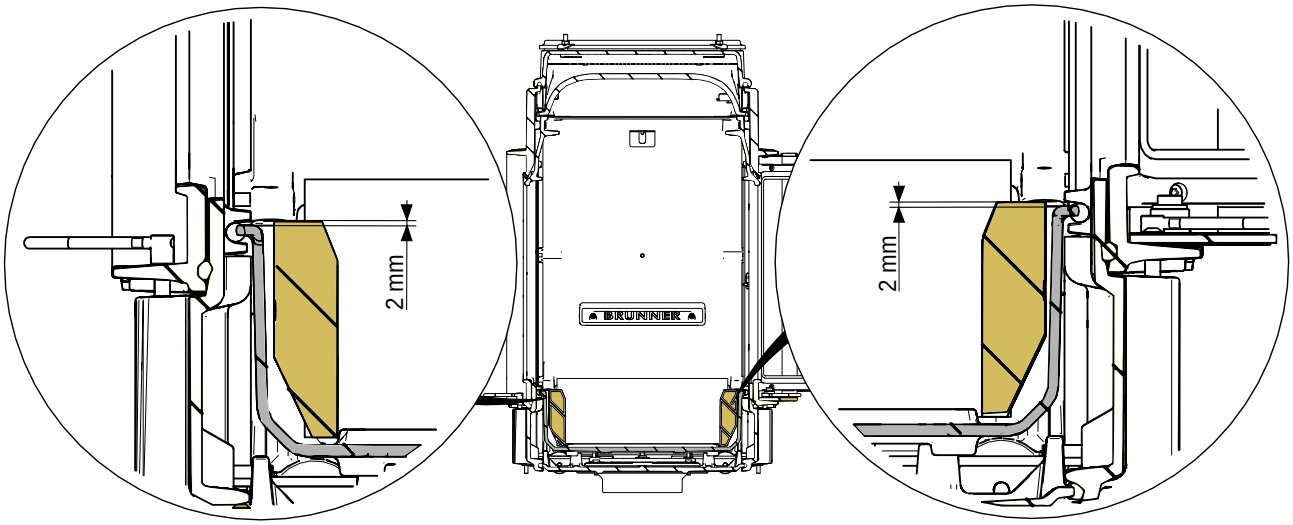
The side and rear walls, together with the support surface above the combustion door, serve as a support for the lower deflector plates.
Ensure the same installation height!





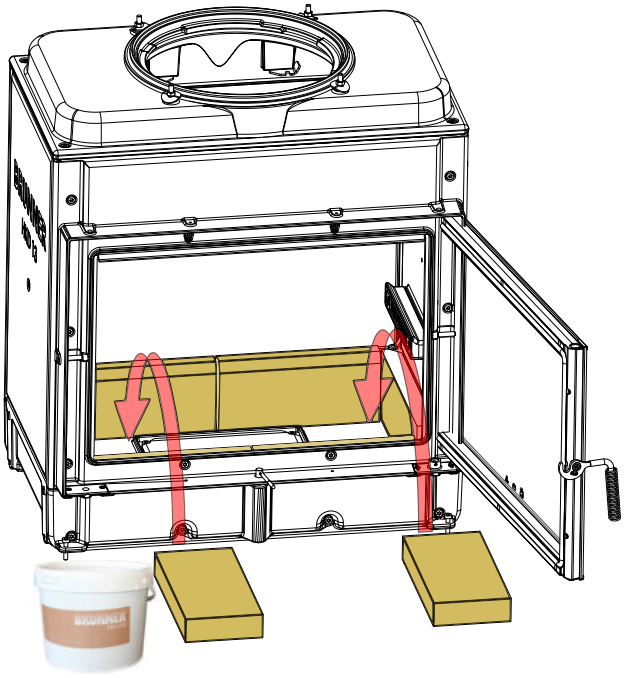
HKD 13 tunnel

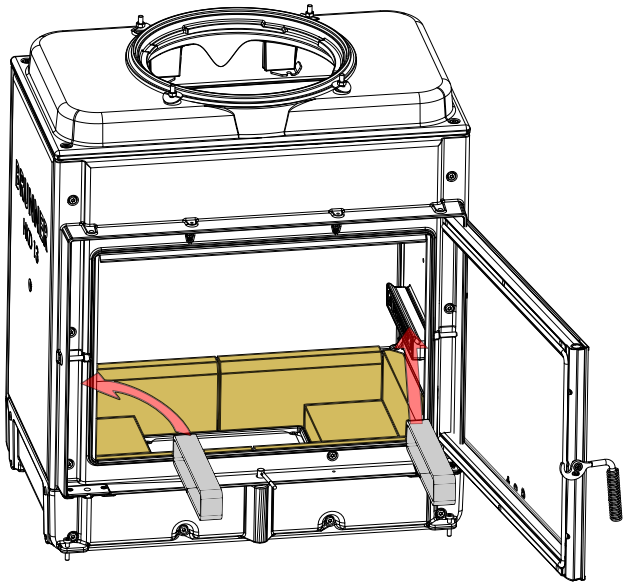




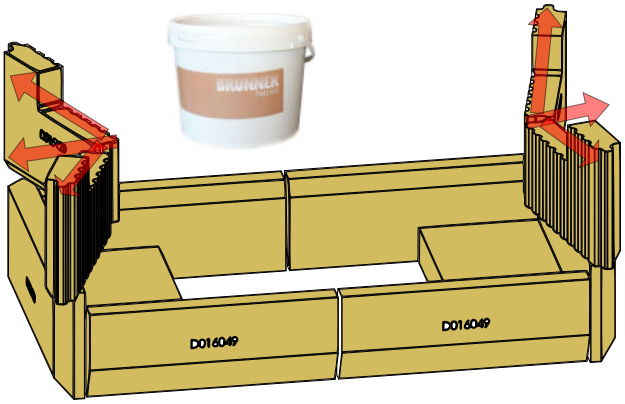
Position the wedge blocks so that the top edge is 2 mm above the cast iron floor pan!

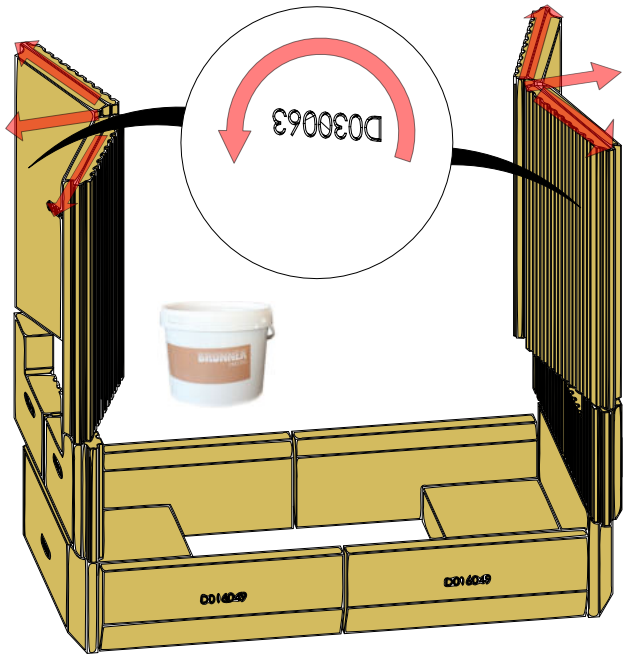
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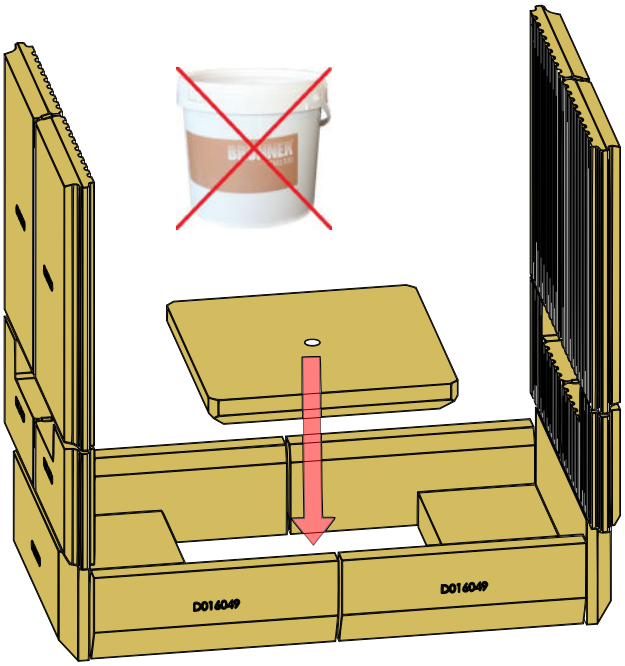




The body is hidden to illustrate the further installation steps!



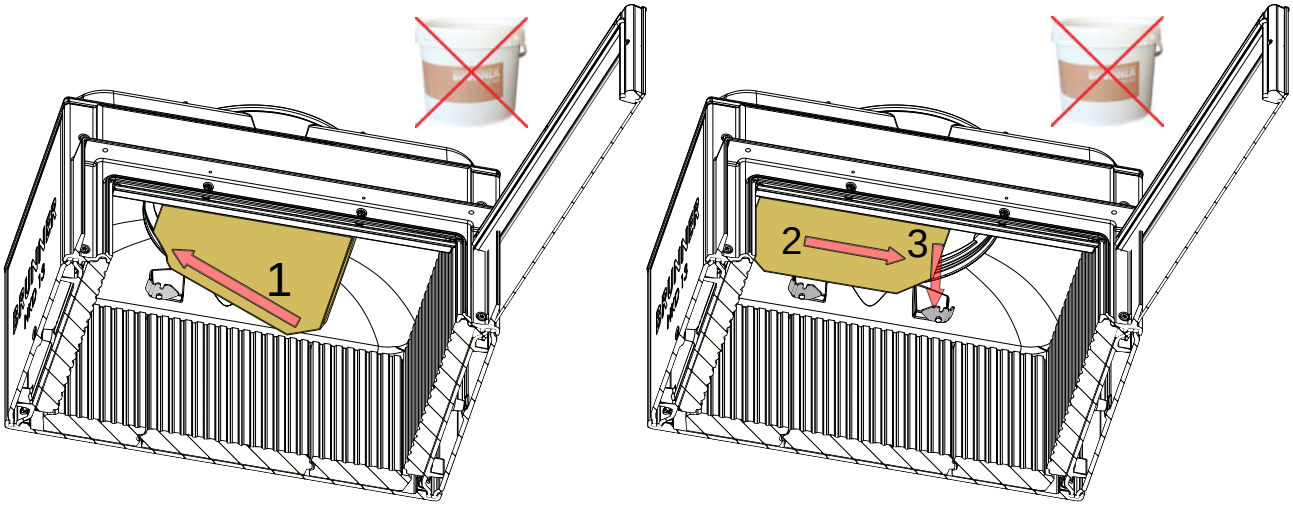




15.3 INSTALLING THE HEATING GAS DEFLECTOR

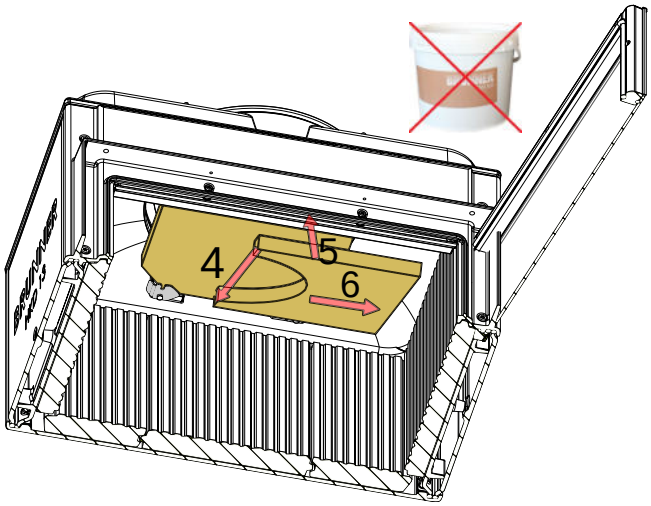
In the HKD 13, the lower components of the heating gas deflector rest on the components of the combustion chamber.
In the tunnel variant, metal sheets above the combustion doors serve as a support for the lower deflectors!

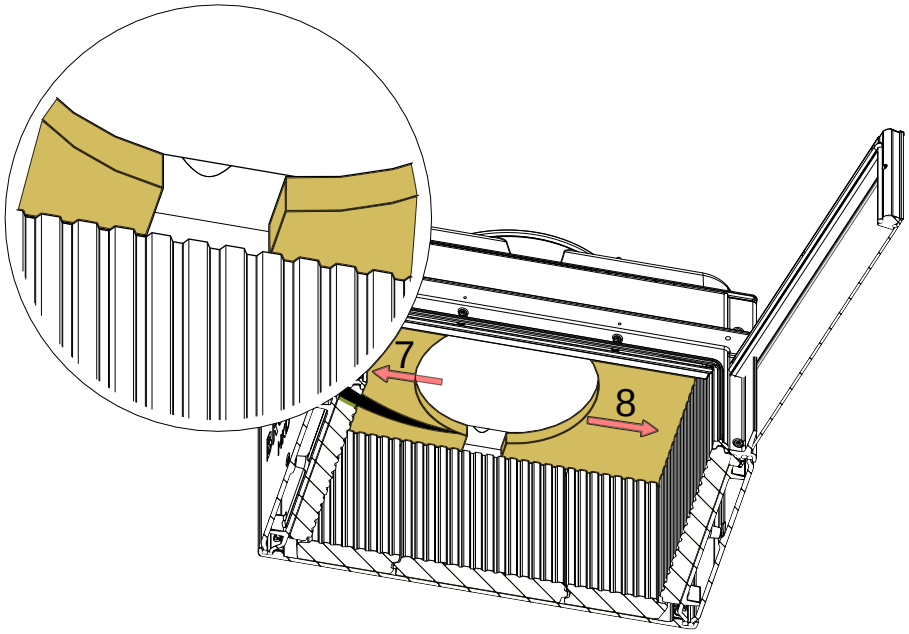
The installation in the HKD 13 is shown here as an example.



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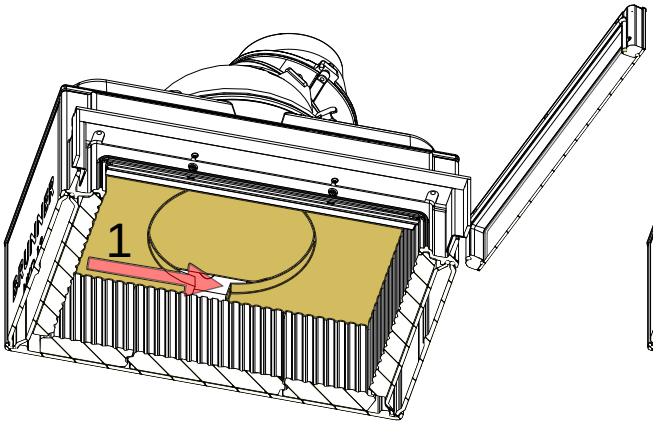
Insert the left deflector plate in the same way!

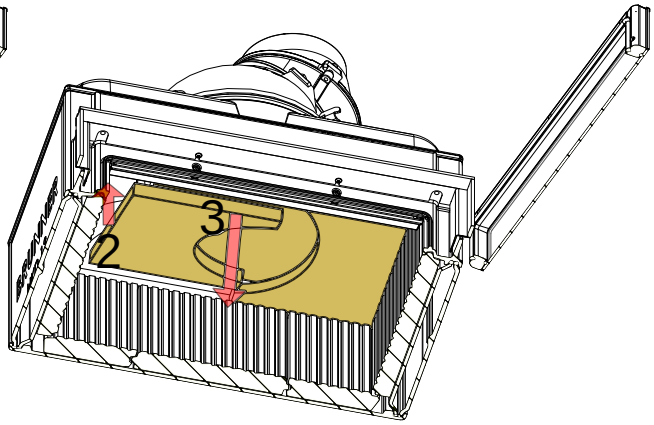




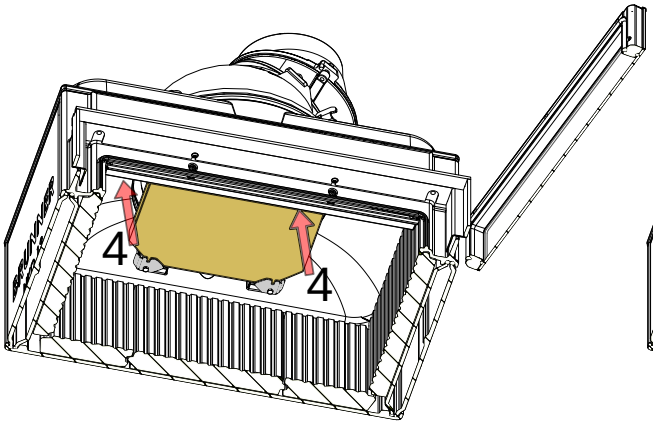
15.4 FITTING THE CATALYTIC CONVERTER (OPTIONAL)

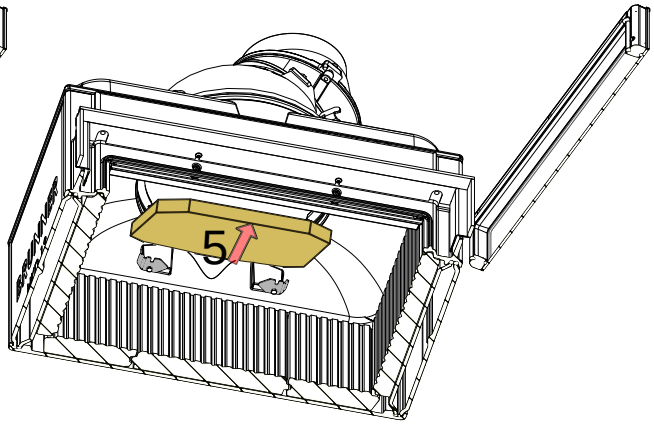
If the heating gas deflection is already fitted, it must be removed before installing the catalytic converter.



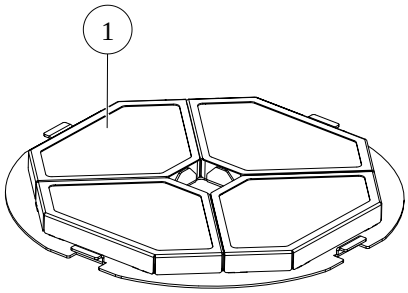


Die rechte Umlenkplatte analog ausbauen!



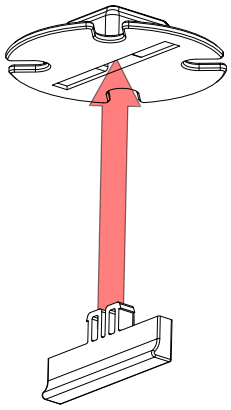


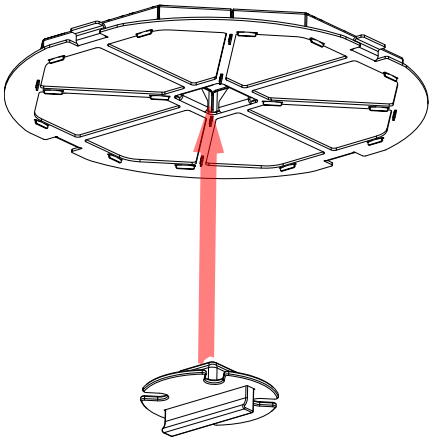
Pos.	Designation
1	catalytic converter
2a+2b	assembly tool

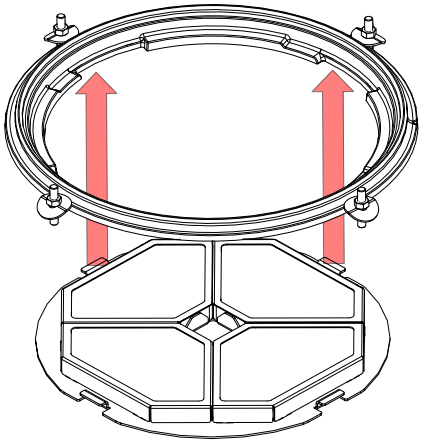




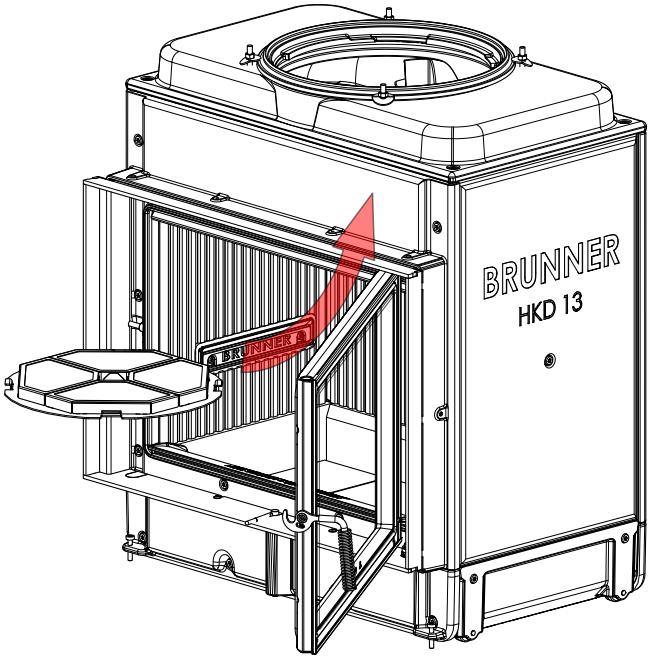
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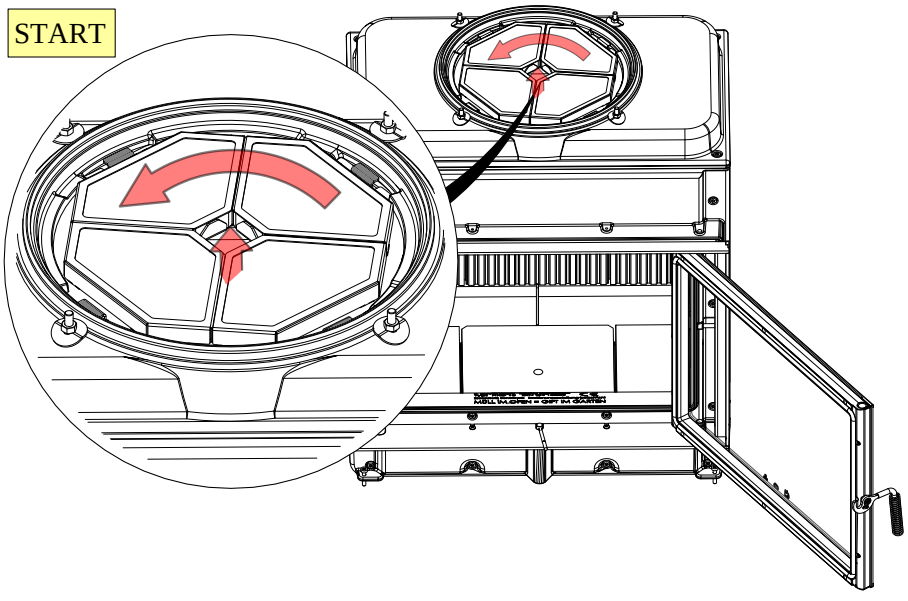


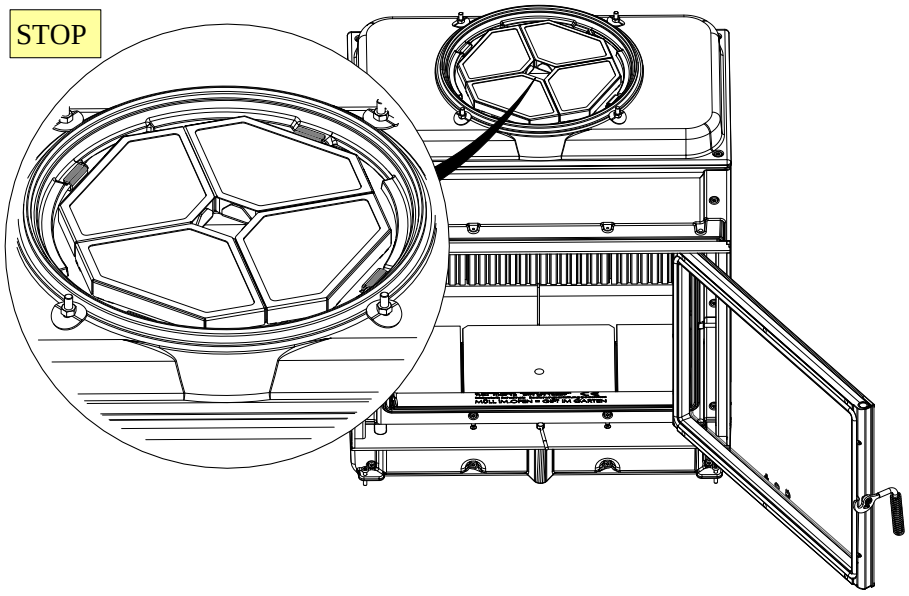




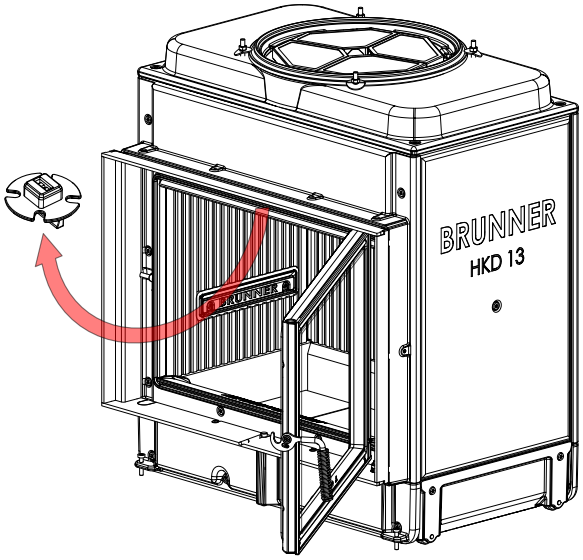



BRUNNER
HKD 13


START







15.5 MOUNTING MAS WITH CAST IRON DOME



Observe the enclosed installation manual!



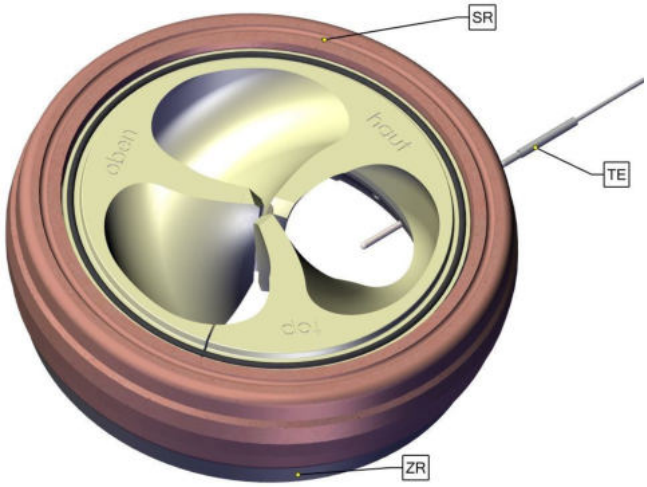
Risk of injury! Wear gloves when assembling the MAS!

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The thermocouple (TE) for devices with control unit is screwed into one of the screw connections of the mounting ring (ZR).

Set the first modular ring (SR) so that the thermocouple is in the exhaust gas flow (see picture opposite).

Check the correct fit of the thermocouple before putting on the remaining accumalator ring modules!

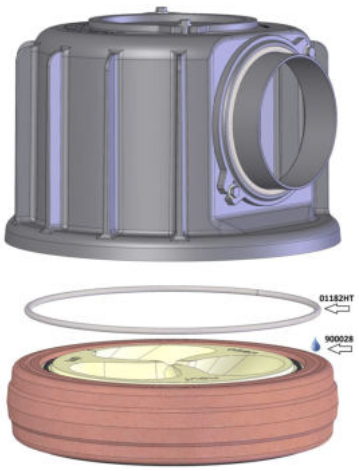


Im. 4: Position of the thermocouple

The modular accumulator MAS is completed by a casted top hood.

The top cast iron dome includes a seal packing, which is used to seal off the smoke pipe.

The enclosed sealing must be glued into the groove of the top stone. To do this, cut the sealing to fit and wrap the ends with the adhesive tape to prevent fraying of the sealing (see adjacent picture).



Im. 5: Sealing

15.6 FITTING HEAT EXCHANGER RINGS



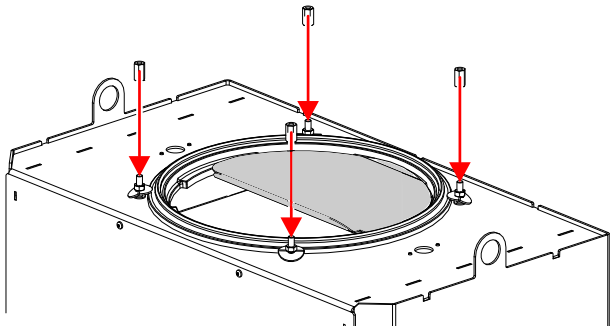
Follow the enclosed installation manual!



The deflectors of the heat exchanger (7) must be positioned in such a way that the heating gas covers the longest possible distance in the heat exchanger; i.e. the burn-through in the upper cast heat exchanger ring must be positioned so that it is opposite the outlet of the heating gases from the cast iron dome. Insert the heat exchanger (7) deflectors below with the burnout opposite each other.

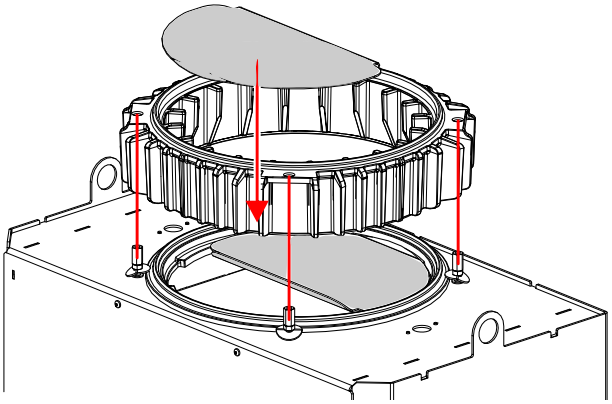
The upstand edge of the straight side of the heat exchanger (7) deflector within the cast heat exchanger rings (2) must point downwards!

1: Screw out long nuts (3).



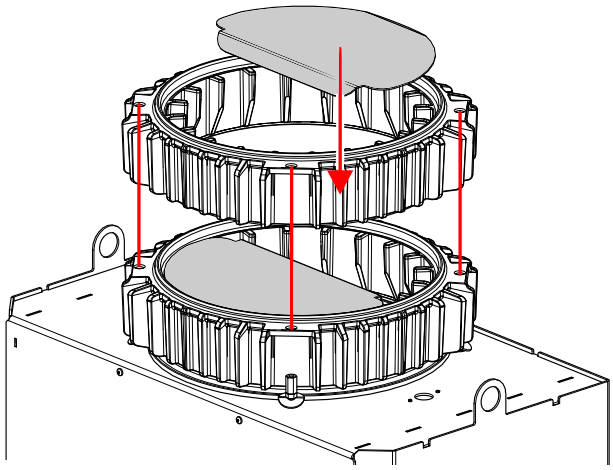
Im. 6: Long nuts

2: Put on the first heat exchanger ring (2) with the heat exchanger deflection (7). Pay attention to the position of the through holes to the long nuts!



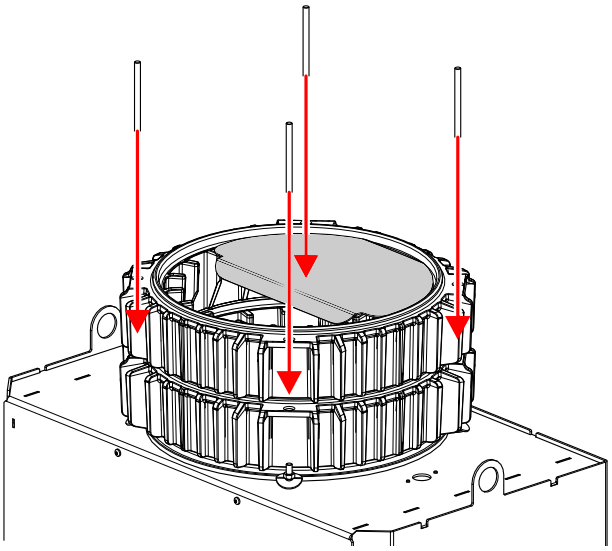
Im. 7: First heat exchanger ring with deflection

3: Put on the second heat exchanger ring (2) with the heat exchanger deflection (7). Pay attention to the position of the through holes!



Im. 8: Second heat exchanger ring with deflection

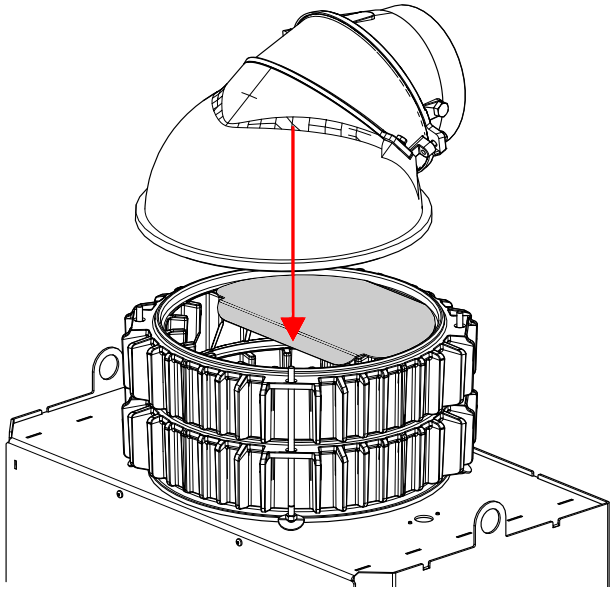
4: Screw in the threaded rods (3).



Im. 9: Threaded rods

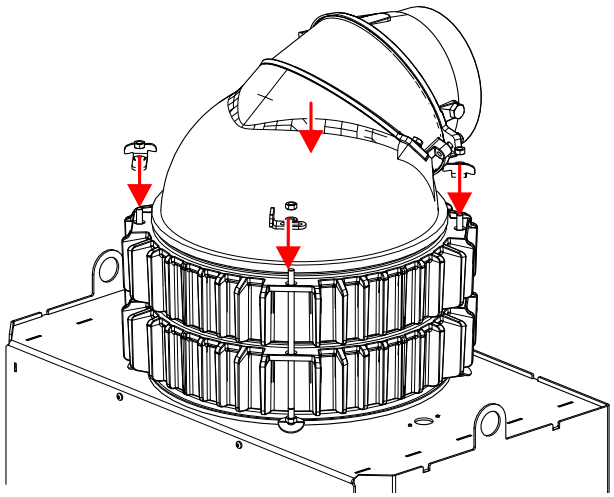
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5: Set on the cast iron dome (6)



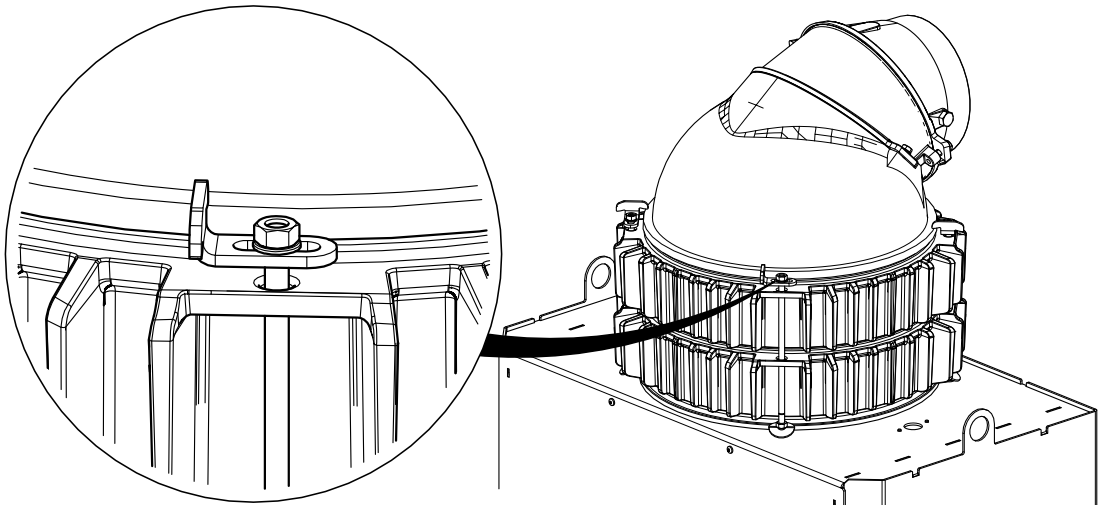
Im. 10: Set on the cast dome

6: Fix the cast iron dome (6) with clamp (4), nut M8 and washer (5).



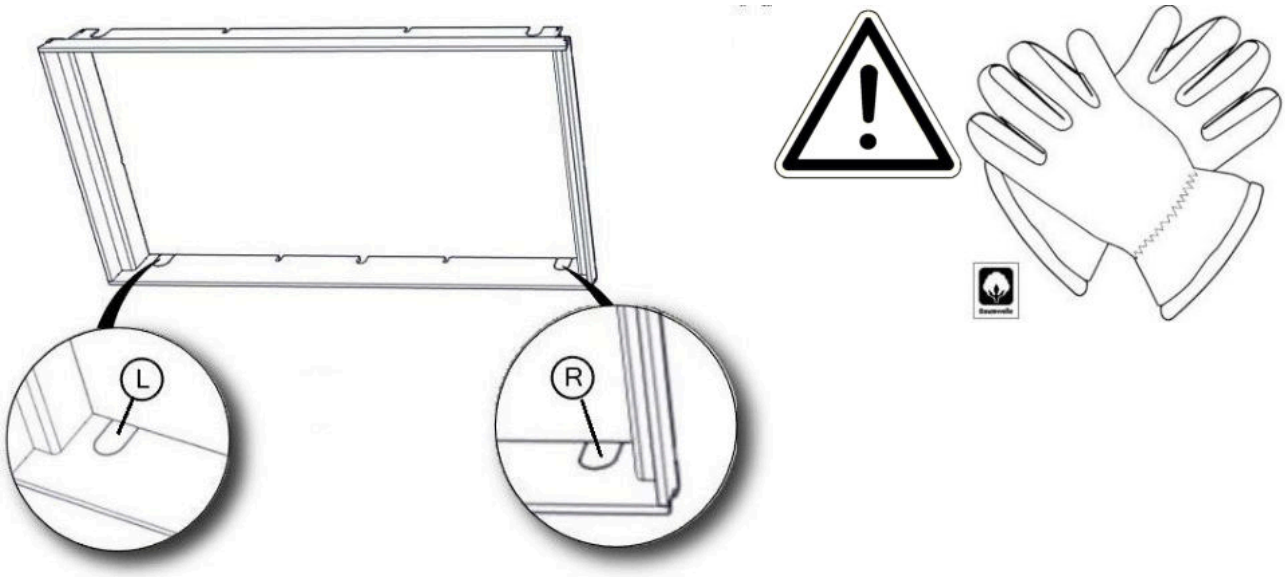
Im. 11: Clamping bracket

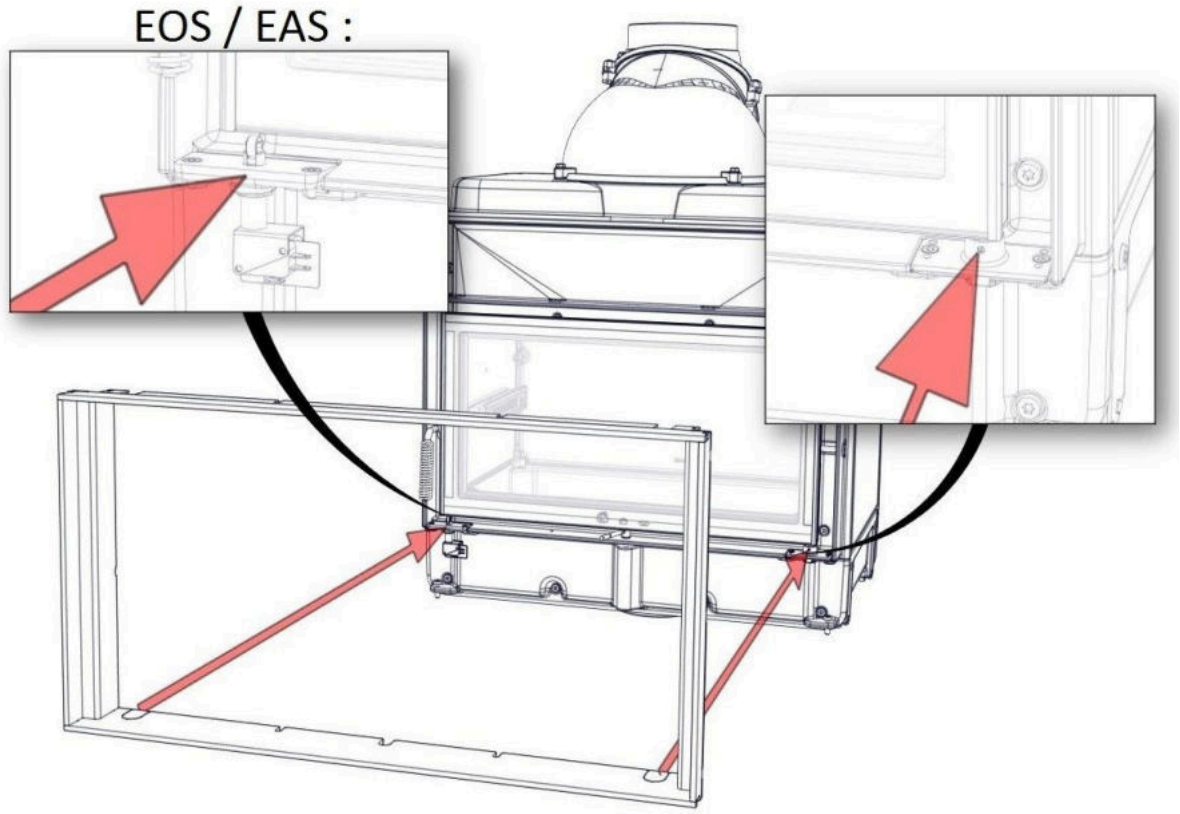
Finish!



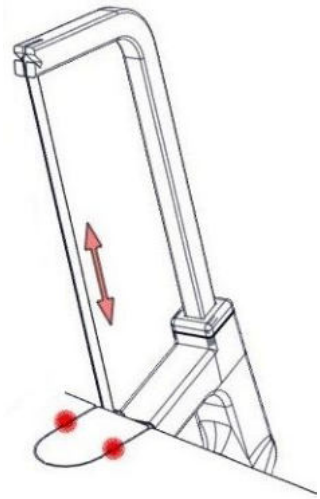
Im. 12: Cast iron heat exchanger rings and cast iron dome mounted

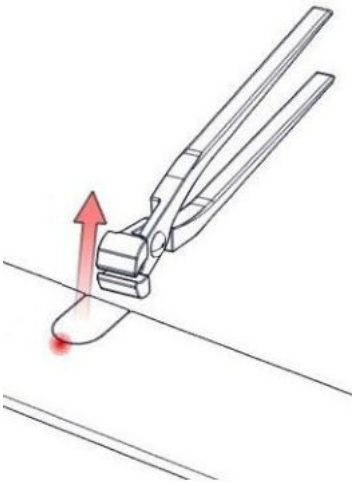
15.7 INSTALLATION OF THE MOUNTING FRAME

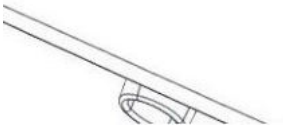


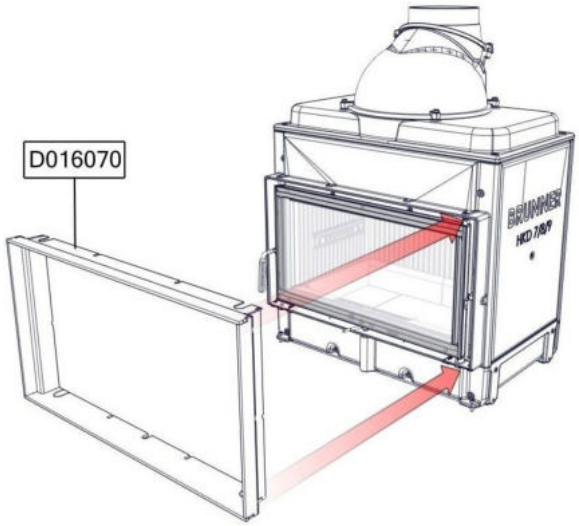


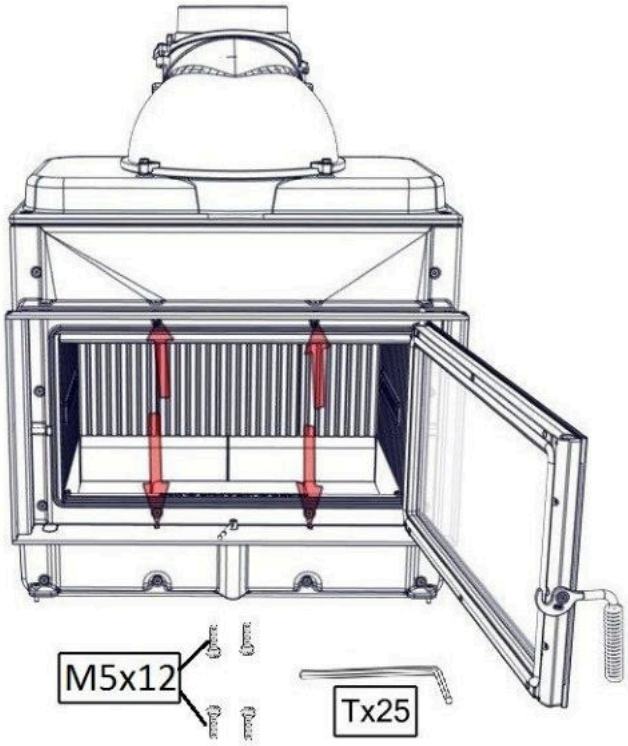
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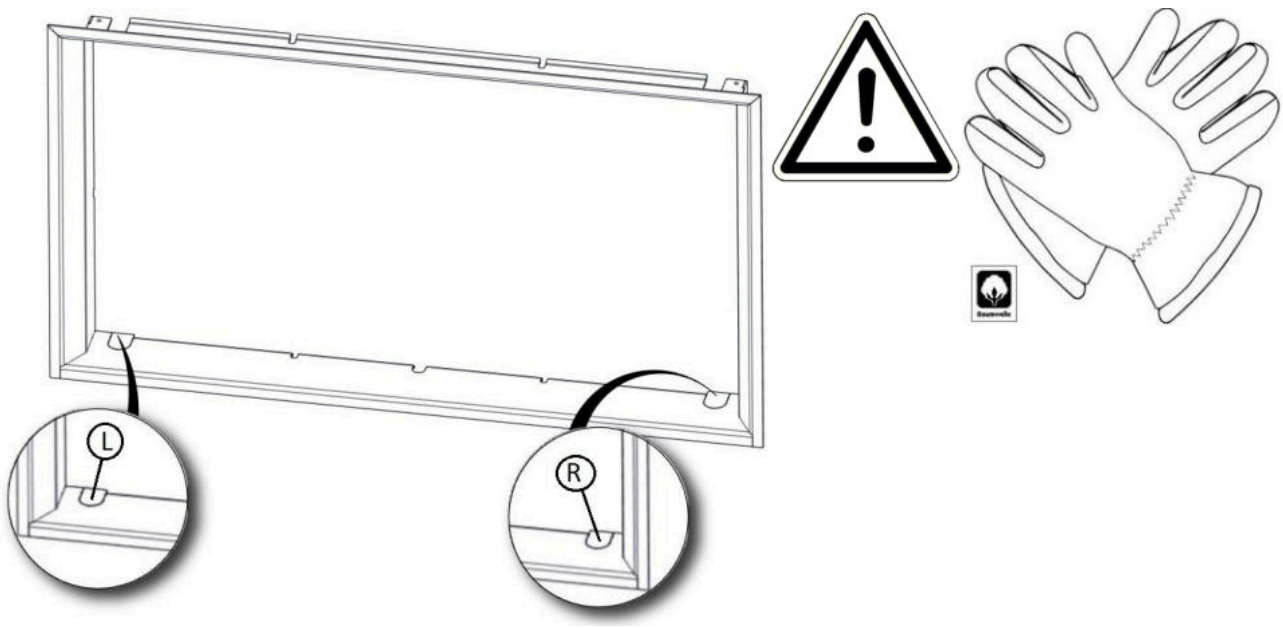


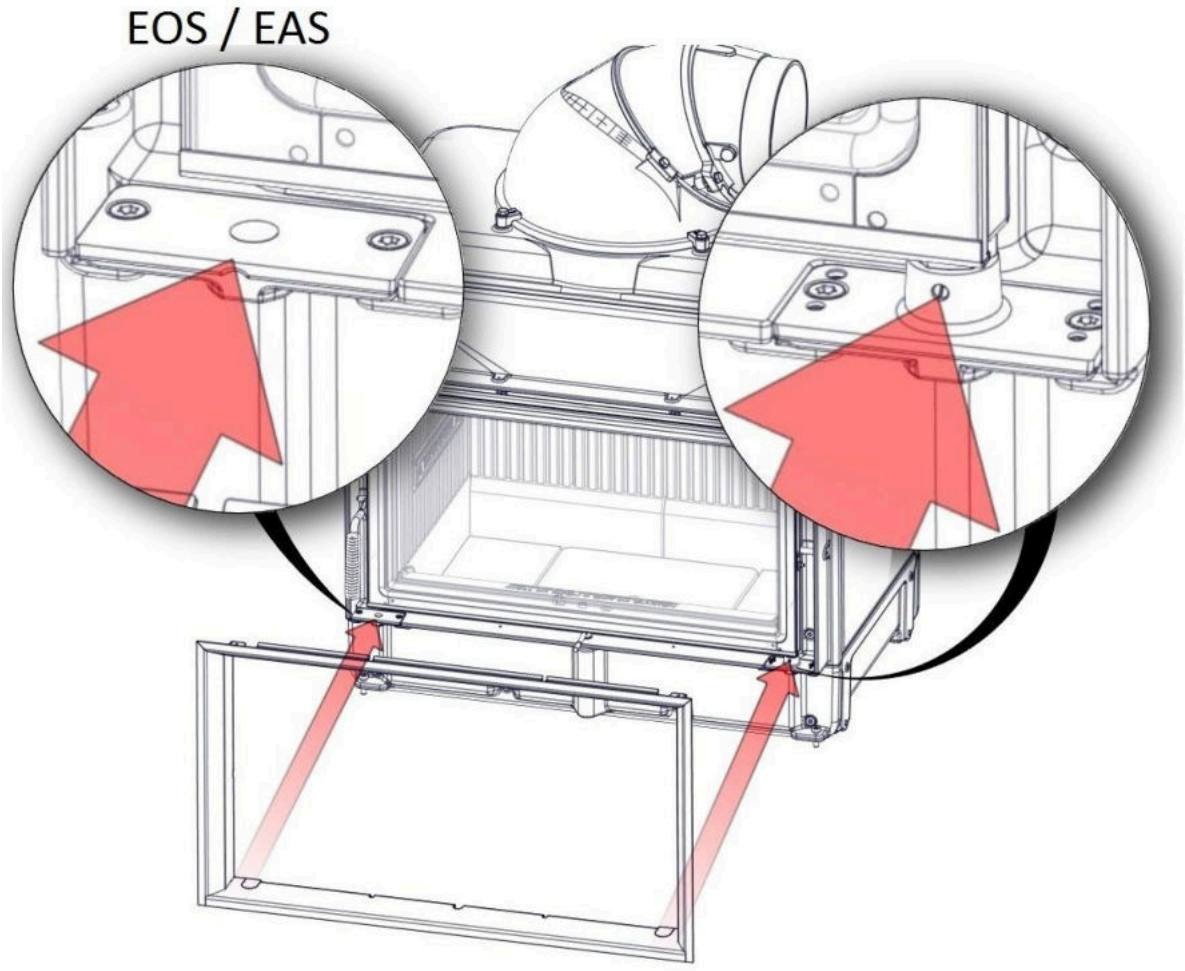



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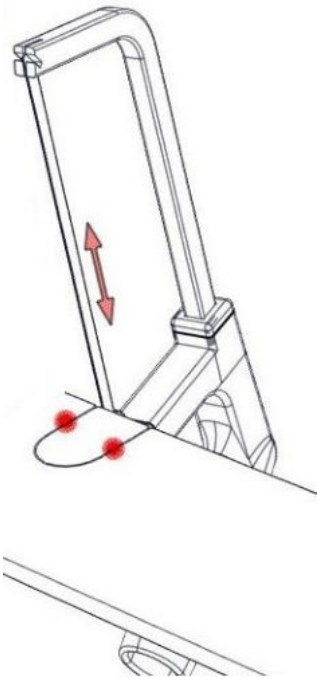

M5x12
Tx25

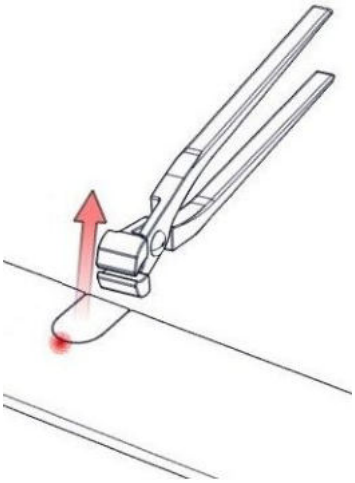
15.8 INSTALLATION OF THE DOOR FRAME

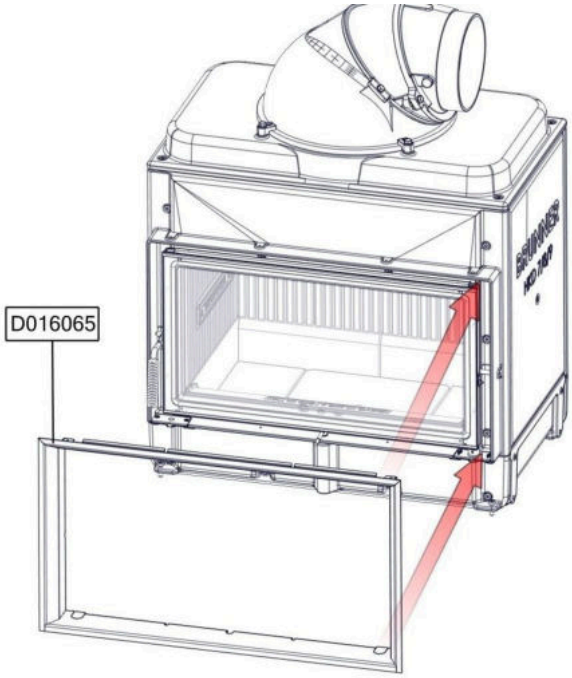


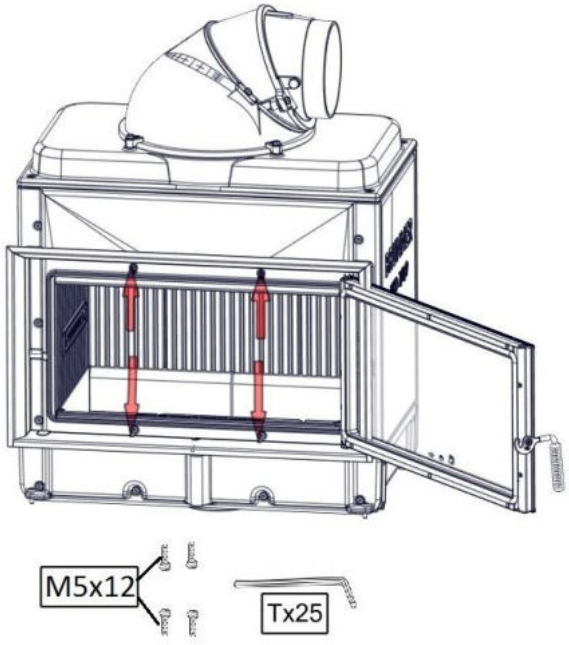


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D016065


M5x12
Tx25

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16 SETTINGS

16.1 COMBUSTION AIR SETTING

The combustion air flows into the appliance above the glass and laterally via combustion air nozzles.

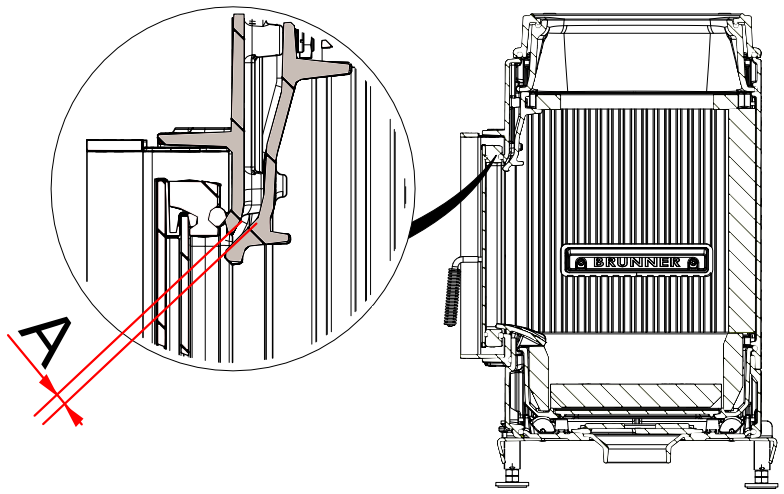
These are set at the factory, but should be checked and readjusted if necessary before commissioning the stove.

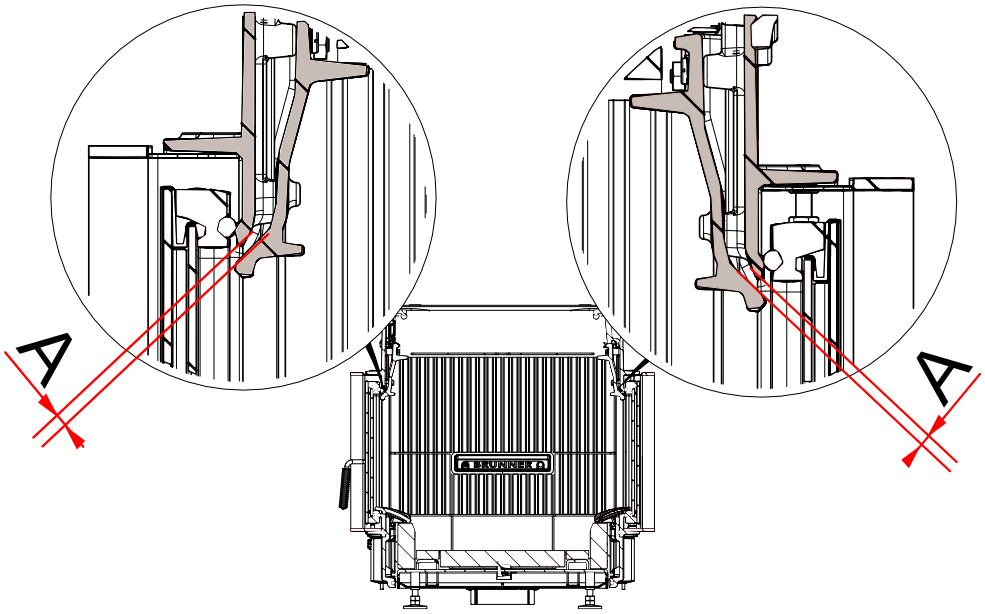
In order to obtain a symmetrical flame pattern, it is necessary to set columns A, B and C evenly and symmetrically!

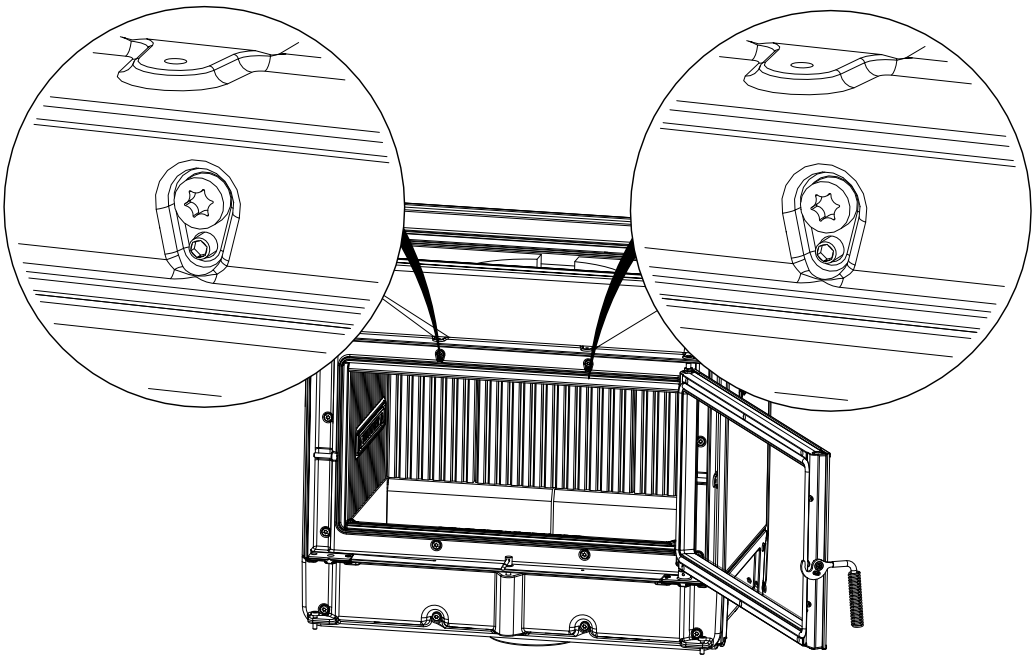
	Gap dimensions for version with one door				Gap dimensions for “tunnel” version (two doors)		
Fuel quantity	**A**	**B**	**C**		**A**	**B**	**C**
3 kg - 8 kg*	6	2	2		4	2	2
8 kg - 12 kg**	8	2	2		6	2	2

**delivery level / **storage loading*

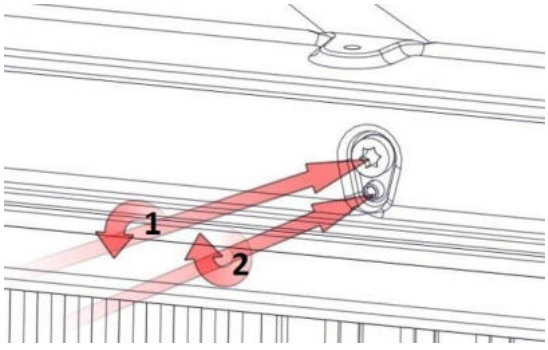
Setting the windshield purge air:



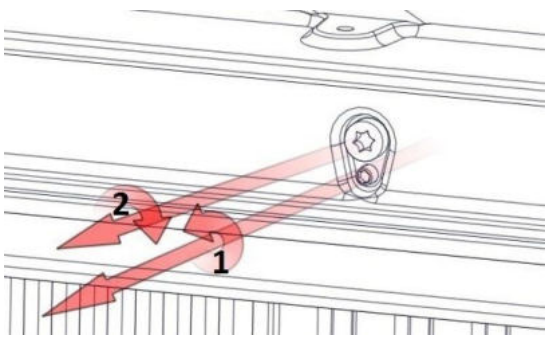




A >

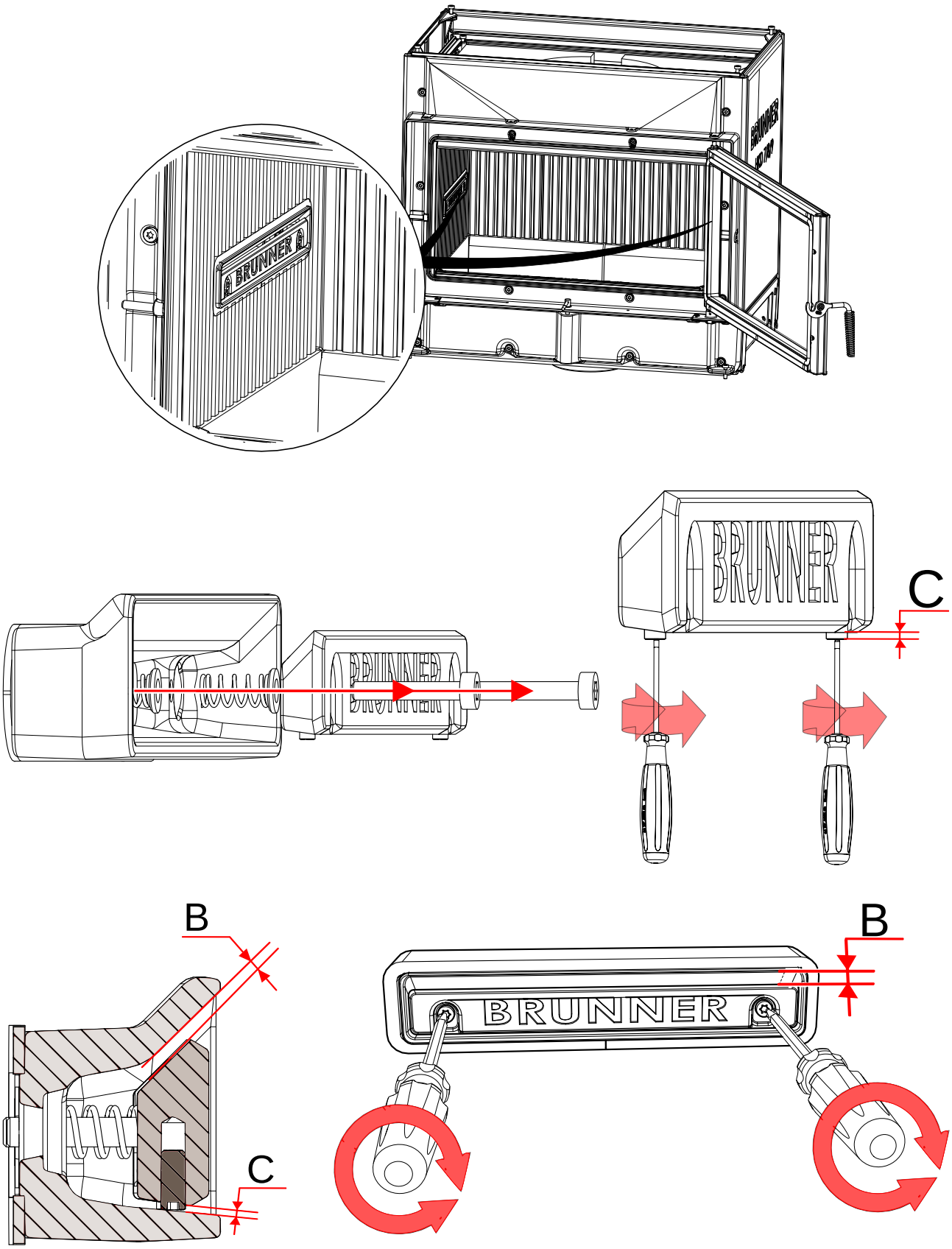


A <



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Adjusting the side combustion air nozzles:



16.2 ADJUSTING THE COMBUSTION DOOR

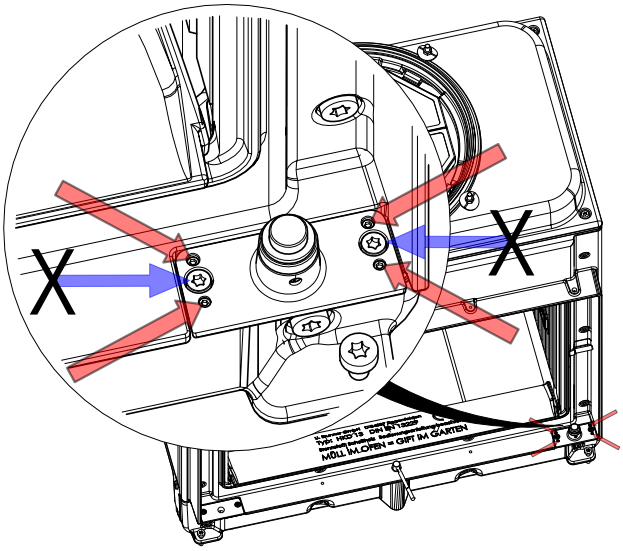
The firing door of the HKD 13 is set at the factory.

However, it can be readjusted at any time if necessary. If it is necessary to remove the combustion door, please follow the instructions in the assembly instructions. Only the adjustment option is described here.

Loosen the screws X on the 'insert hinge'.

The firing door can now be adjusted by adjusting the four stud screws in the corners of the insert.

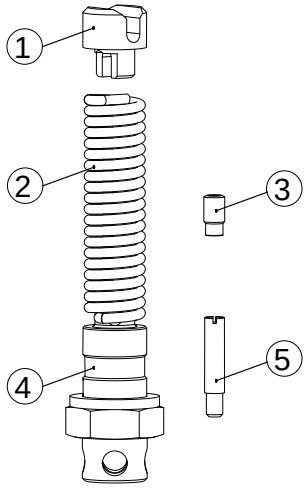
Once the adjustment has been made, tighten the screws X again.



16.3 CONVERSION TO SELF-CLOSING COMBUSTION DOOR HKD 13

The firing doors of the HKD 7 and HKD 13 can be converted to a self-closing version at any time. The accessory pack D030134 is required for this!

Pos.	Designation	Part number
1	Torque support	D016131
2	Closing spring	I013955
3	Grub screw M5x8	DIN 915
4	Spring compressor	D016132
5	Shank screw M4x20	DIN 427



Removing the cover:

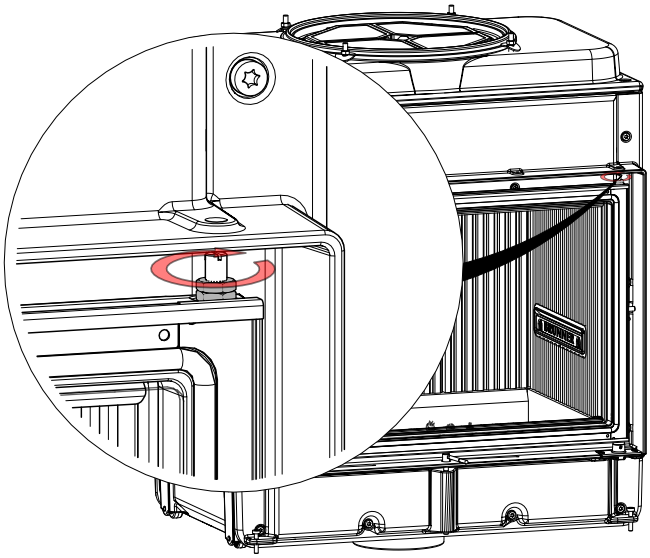
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Loosen the screws of the panel fastening and remove the panel. See also the installation instructions for the stove or the installation instructions for the panel.

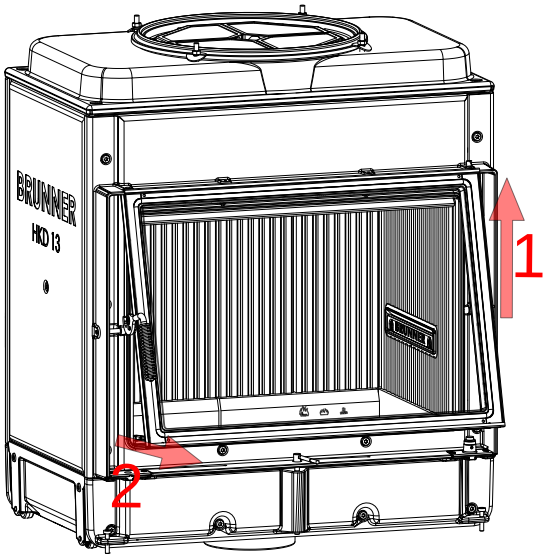
Unhinging the fire door:

To be able to unhinge the fireplace door, the upper door stop must first be loosened. To do this, unscrew the two countered screws completely, as shown in the picture 'Loosening the door stop'. The furnace door can now be lifted and removed.

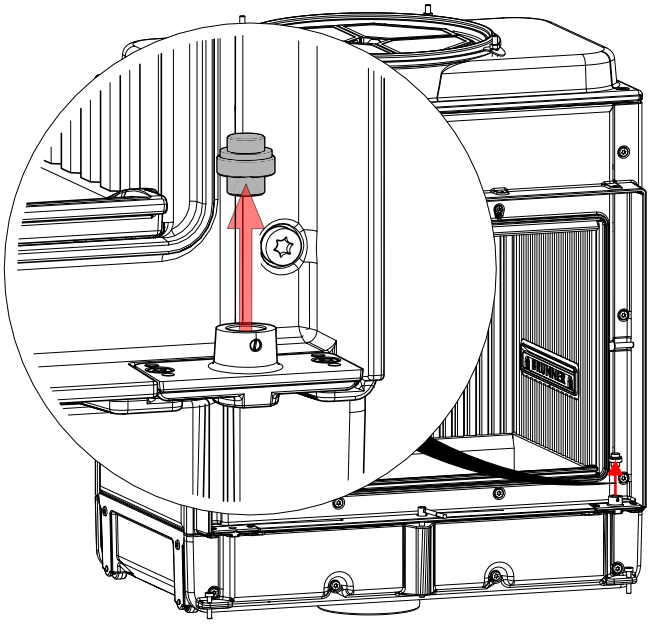
Releasing the door stop



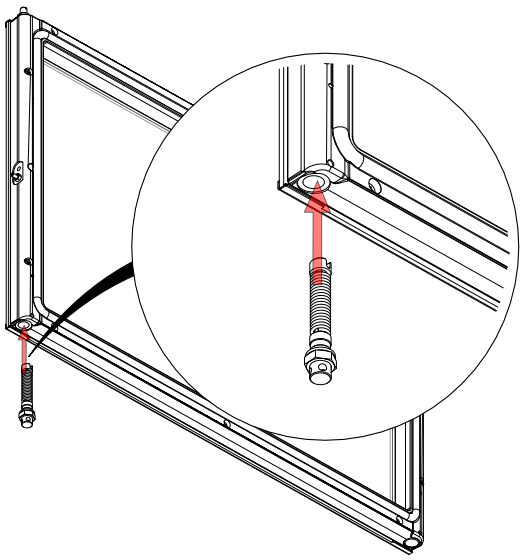
Lift out the firing door



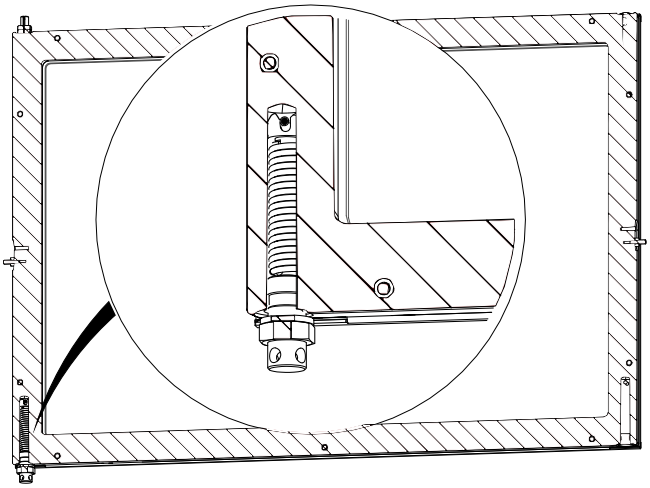
Remove the door hinge



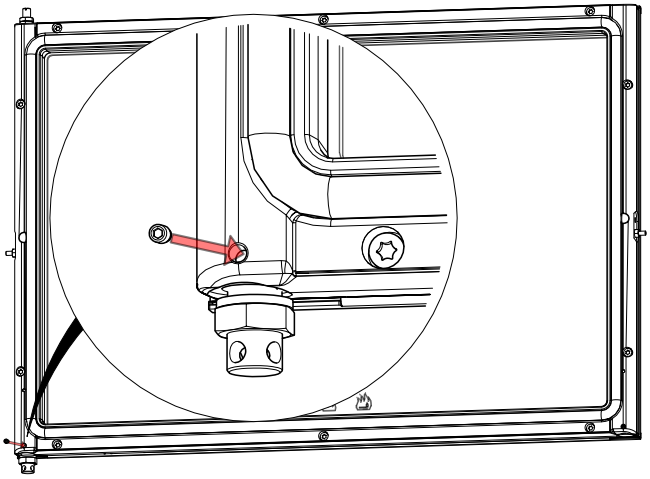
Insert the torque support (1), closing spring (2) and spring tensioner (4) into the underside of the door frame.



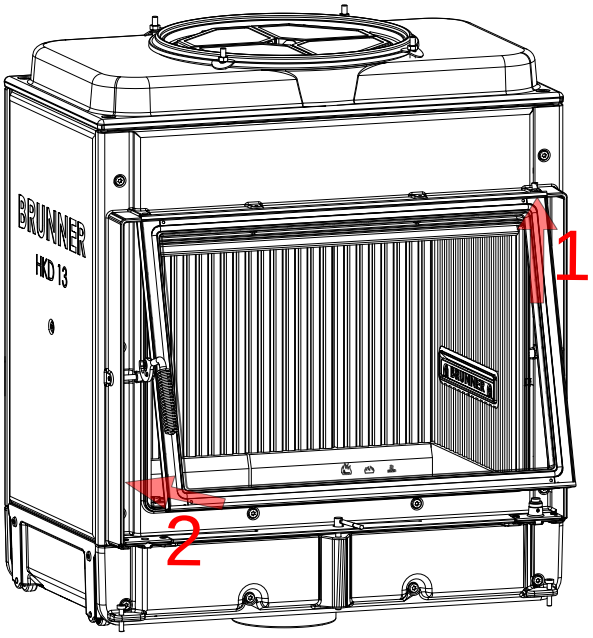
Make sure that the bolt in the door frame is enclosed by the head of the torque support (1).

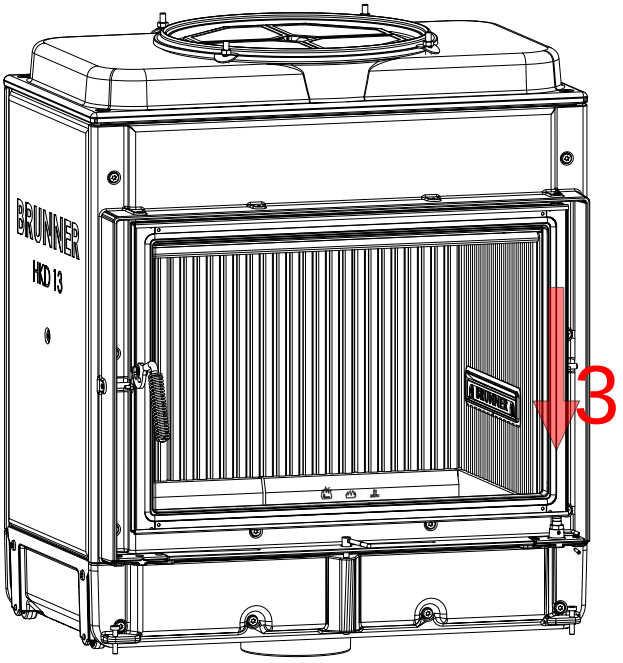


Secure the new door hinge consisting of the torque support (1), closing spring (2) and spring tensioner (4) against falling out by screwing in the grub screw (3).



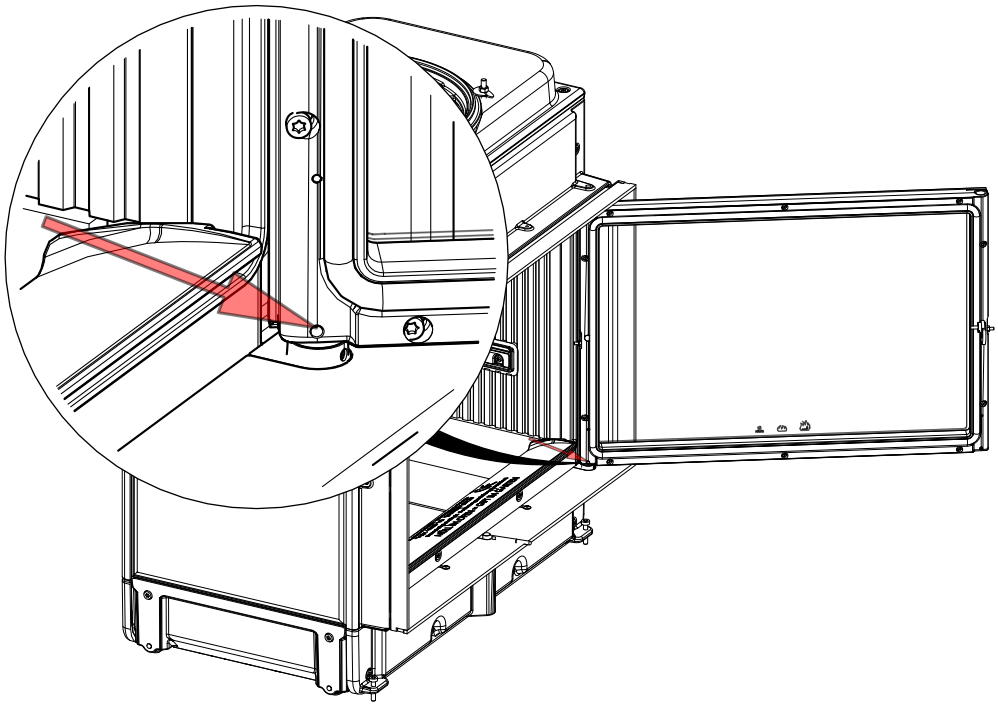
Replace the furnace door.





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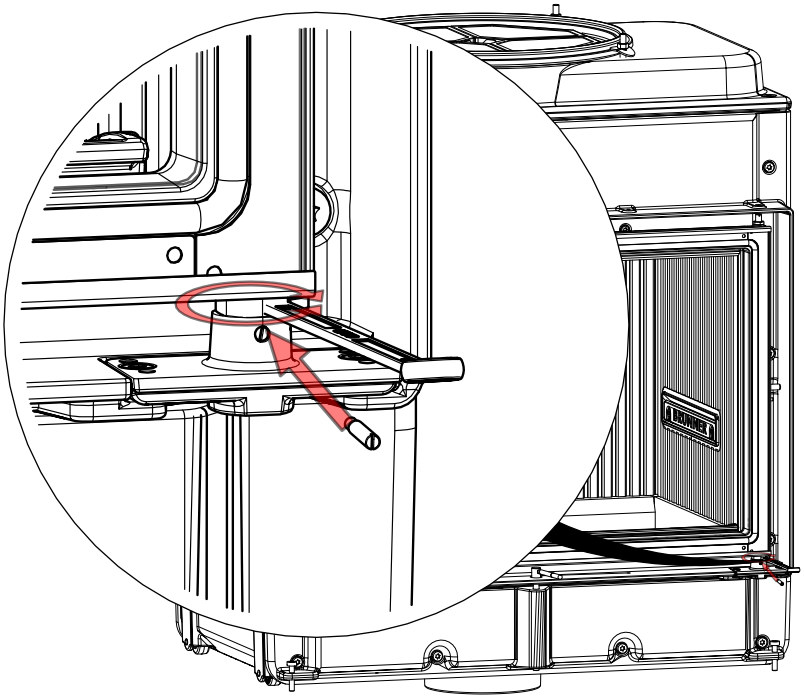
Loosen the grub screw (3); do not remove.



Set the self-closing mechanism and secure the position by screwing in the shaft screw (5).

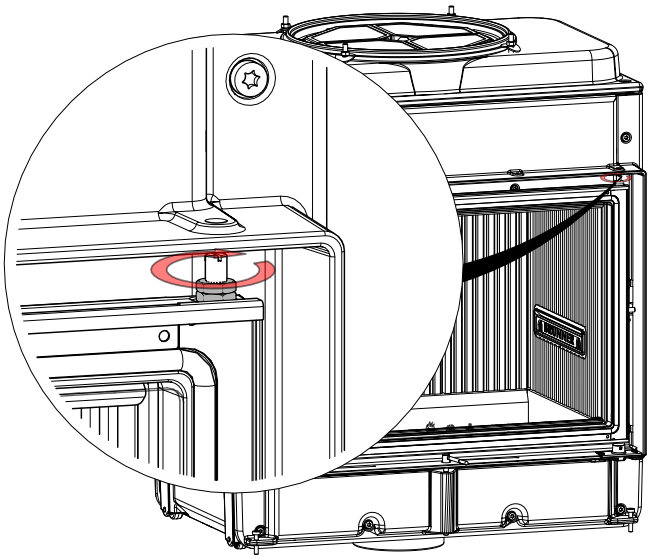
Insert the shaft screw through one of the through-holes in the spring tensioner (4).

Lock the door stop at the top again (see "'Releasing the door stop"').

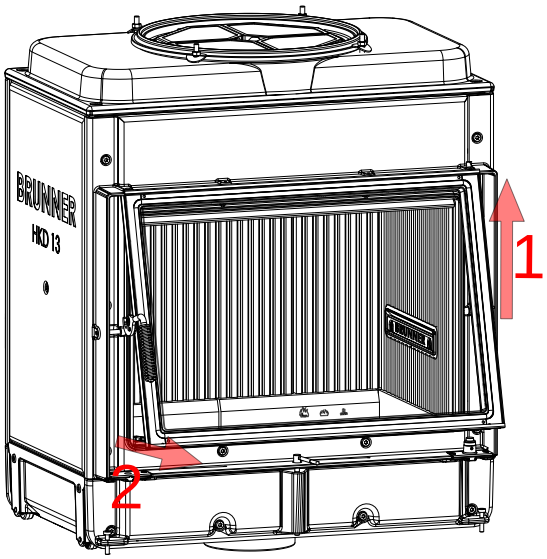


16.4 CONVERSION DOOR STOP

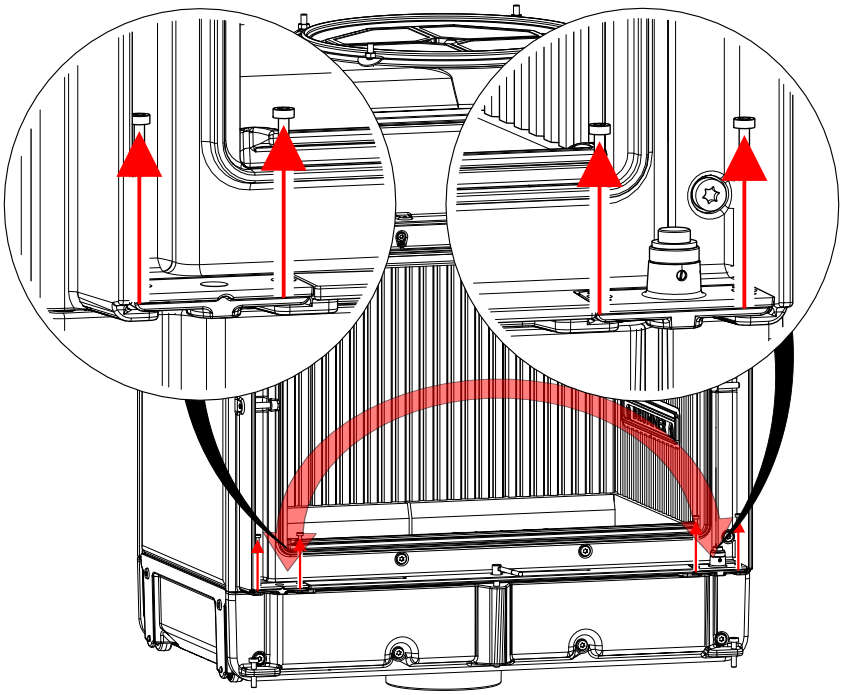
Releasing the door stop



Lift out the firing door

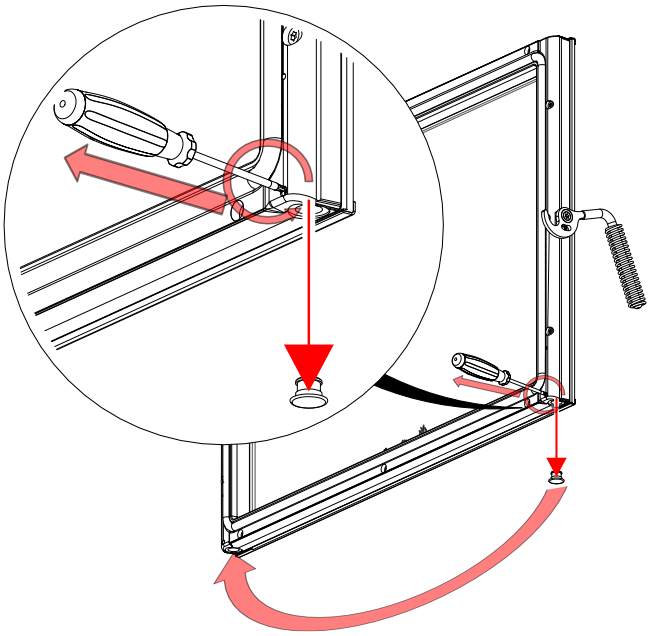


Convert the door contact insert and hinge insert to the other side.

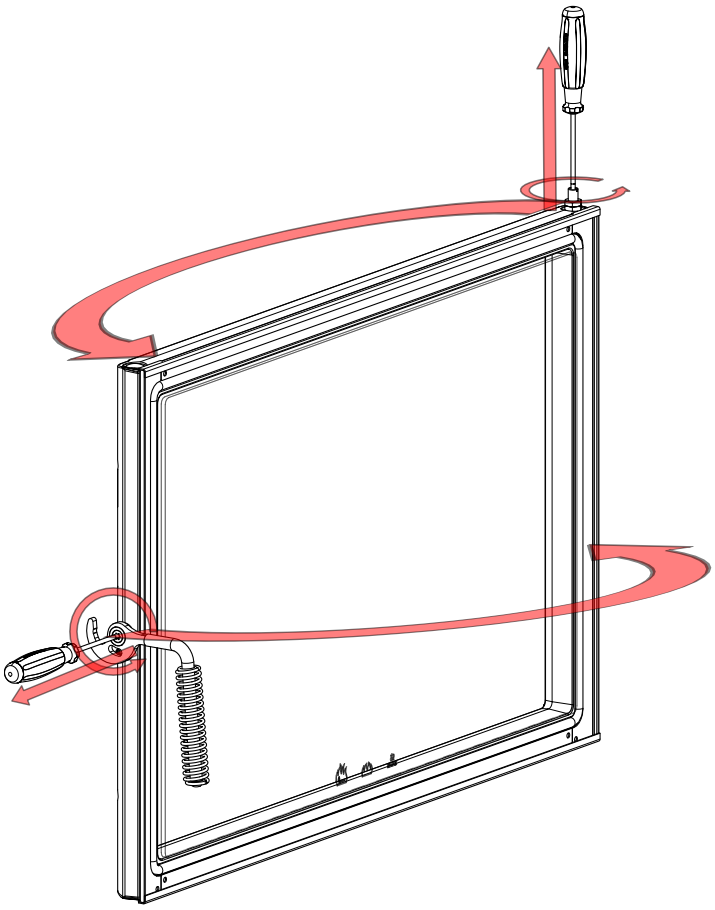


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Convert the locking pin to the other side of the door.
The locking pin is secured with a grub screw!

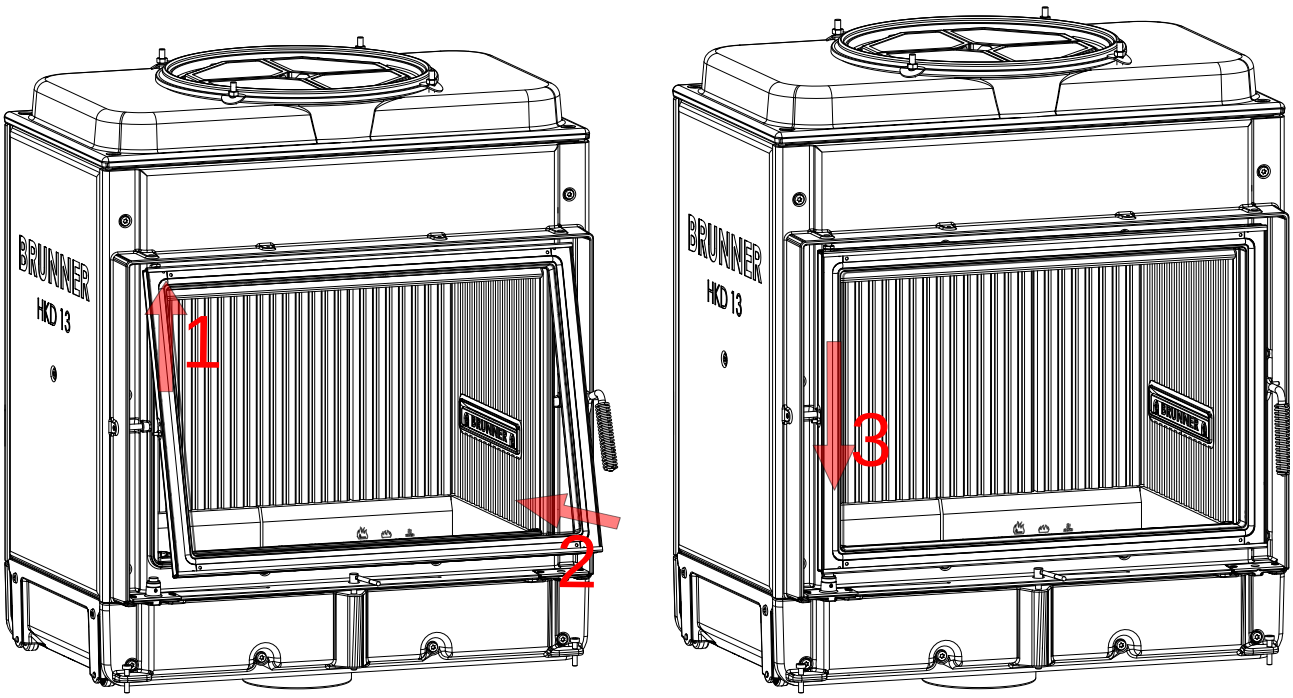


Convert the hinge pin and door handle to the other side of the door.



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Replace the furnace door.



Re-lock the door stop at the top (see 'Releasing the door stop').

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17 DISPOSAL

Old equipment contains valuable materials that must be recycled. Observe the applicable national legal regulations for disposal.



Danger of electrocution.

Electrical connections of the furnace system are under mains voltage. This can lead to electric shock.

Switch off the power supply

Secure power supply against restart.

Old metal parts can be disposed of as metal recycling.

Electrical and electronic components must be disposed of as electronic waste. Fireclay linings can be disposed of as rubble.

Fireclay linings can be disposed of as rubble.

Dispose of insulating and insulating materials of the heating or fireplace insert in a closed container on a suitable waste disposal site.

Do not put the glass ceramic discs in the waste glass collection container! The glass panes can be disposed of as normal household waste.

Recycling of catalytic converters containing precious metals

Oxidative catalytic converters, as installed in modern wood stoves, are very effective at reducing emissions of carbon monoxide and hydrocarbons. This is possible, because precious metals like platinum, palladium and rhodium are used on the surface of catalytic converters. These precious metals are distributed very evenly in very small amounts on the surface of catalytic converters. Over the years, the abrasive effect of particles streaming through the catalytic converter will cause the partial diminishing of the coating containing precious metals. Continuous overheating of catalytic converters (T > 700 °C) will damage the coating. In certain cases, the catalytic converter should be replaced and a new converter must be installed to ensure the catalytic effect.

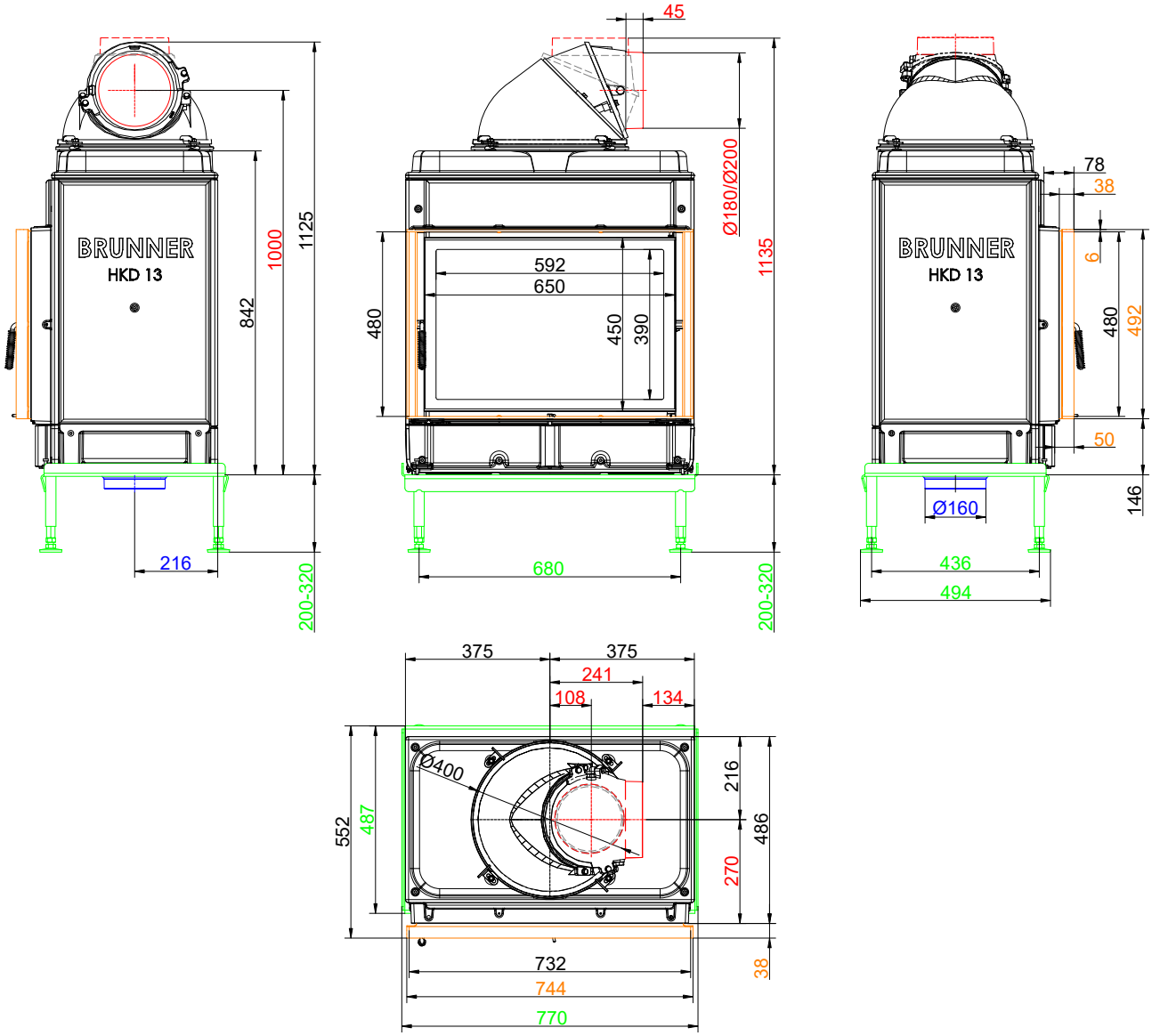
Used catalytic converters are suitable for re-use. Even if they are broken or damaged, they are suitable for recycling.

Contained precious metals can be recovered by thermal or chemical separation techniques to almost 90%, and then used again in the manufacturing process.

Please bring the used cacatalytic converter to a recycling center.

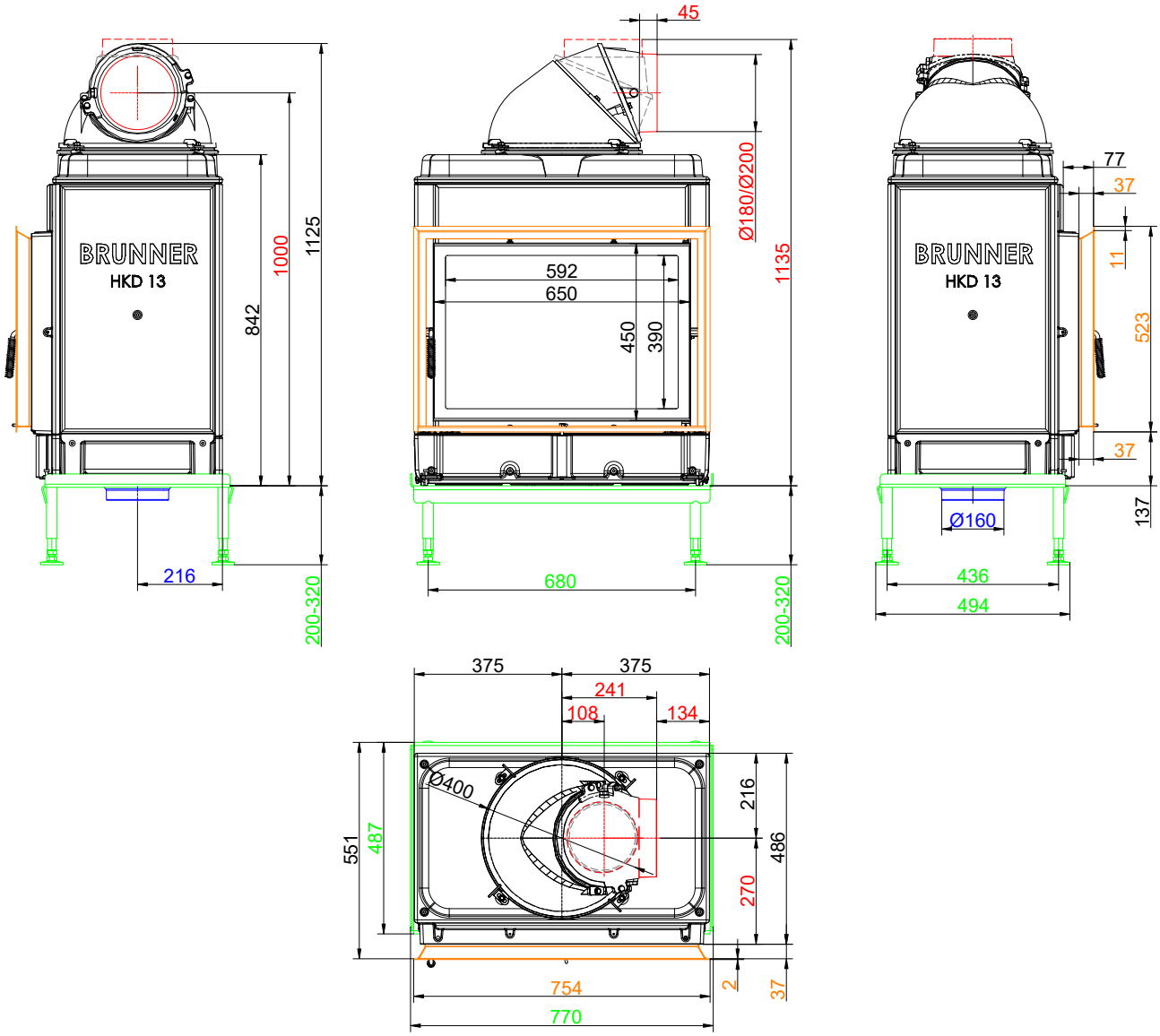
Thank you very much for your efforts in supporting the protection of environment and sustainable use of resources.

Dimension sheets - HKD 13 green



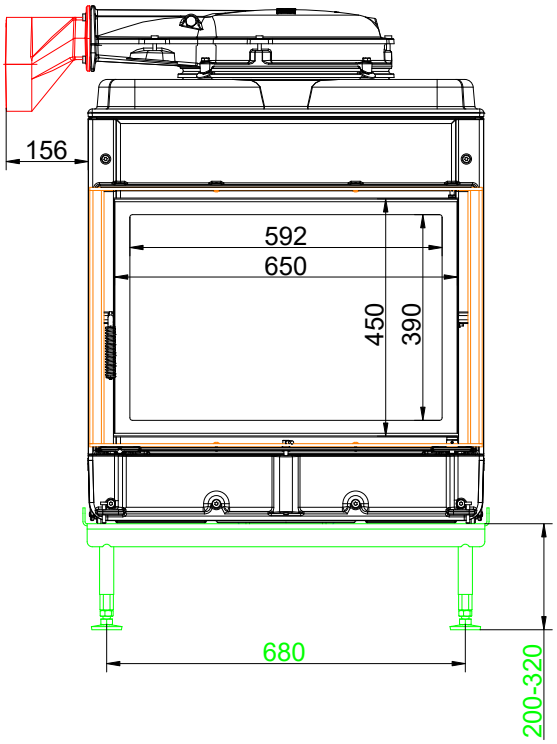
… mounting frame and cast iron dome

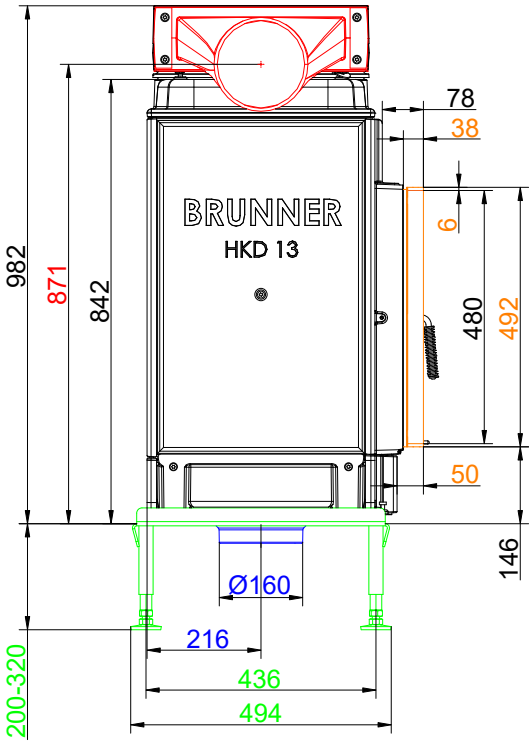
Dimension sheets - HKD 13 green

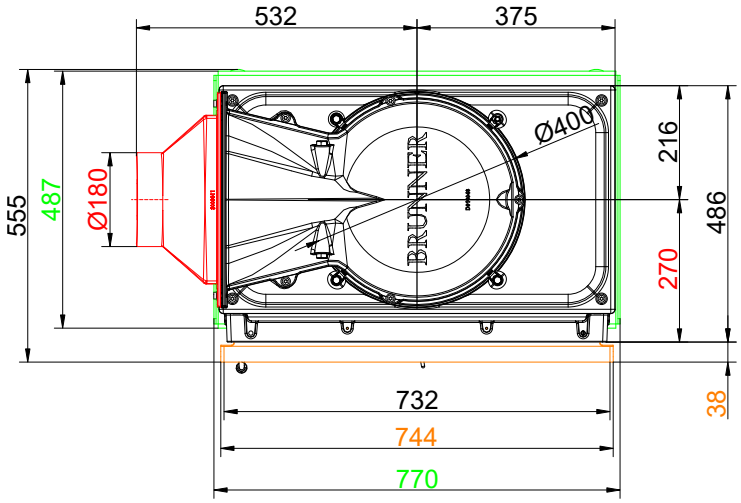


… door frame and cast iron dome

Dimension sheets - HKD 13 green

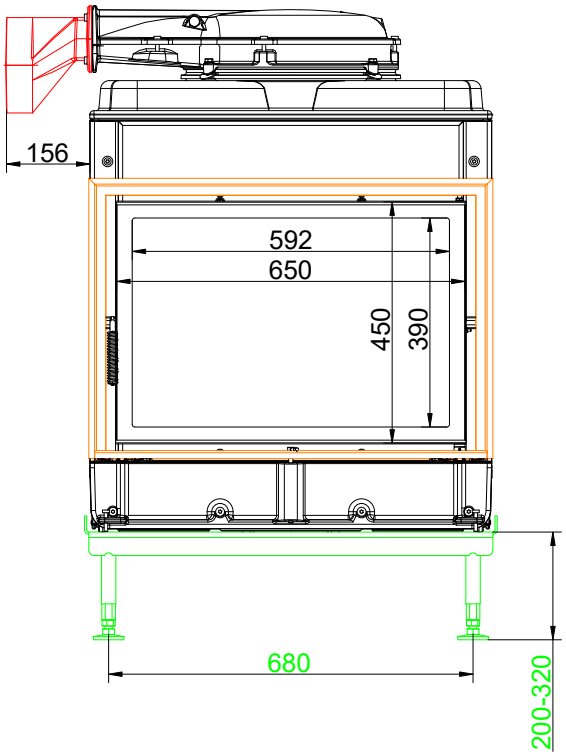


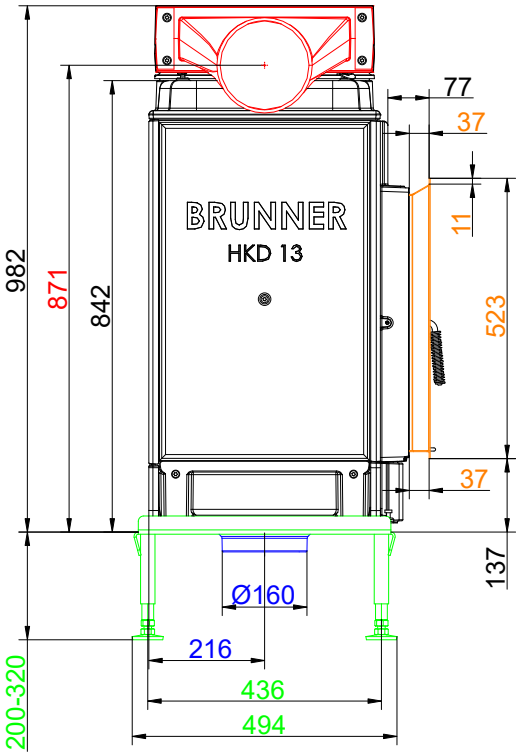


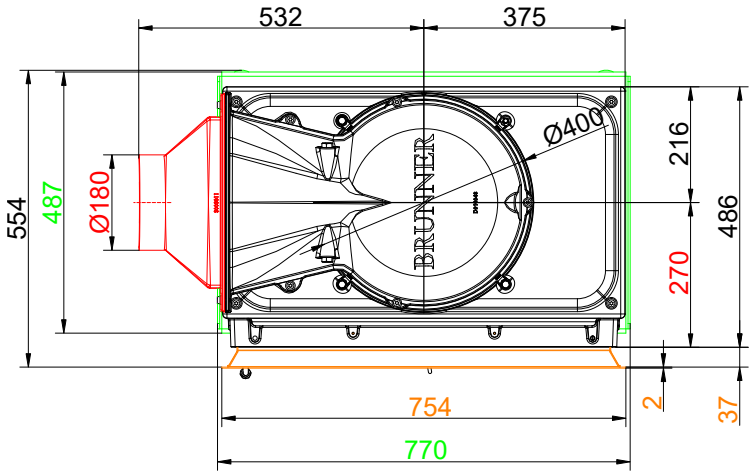


… mounting frame and cast iron dome low

Dimension sheets - HKD 13 green

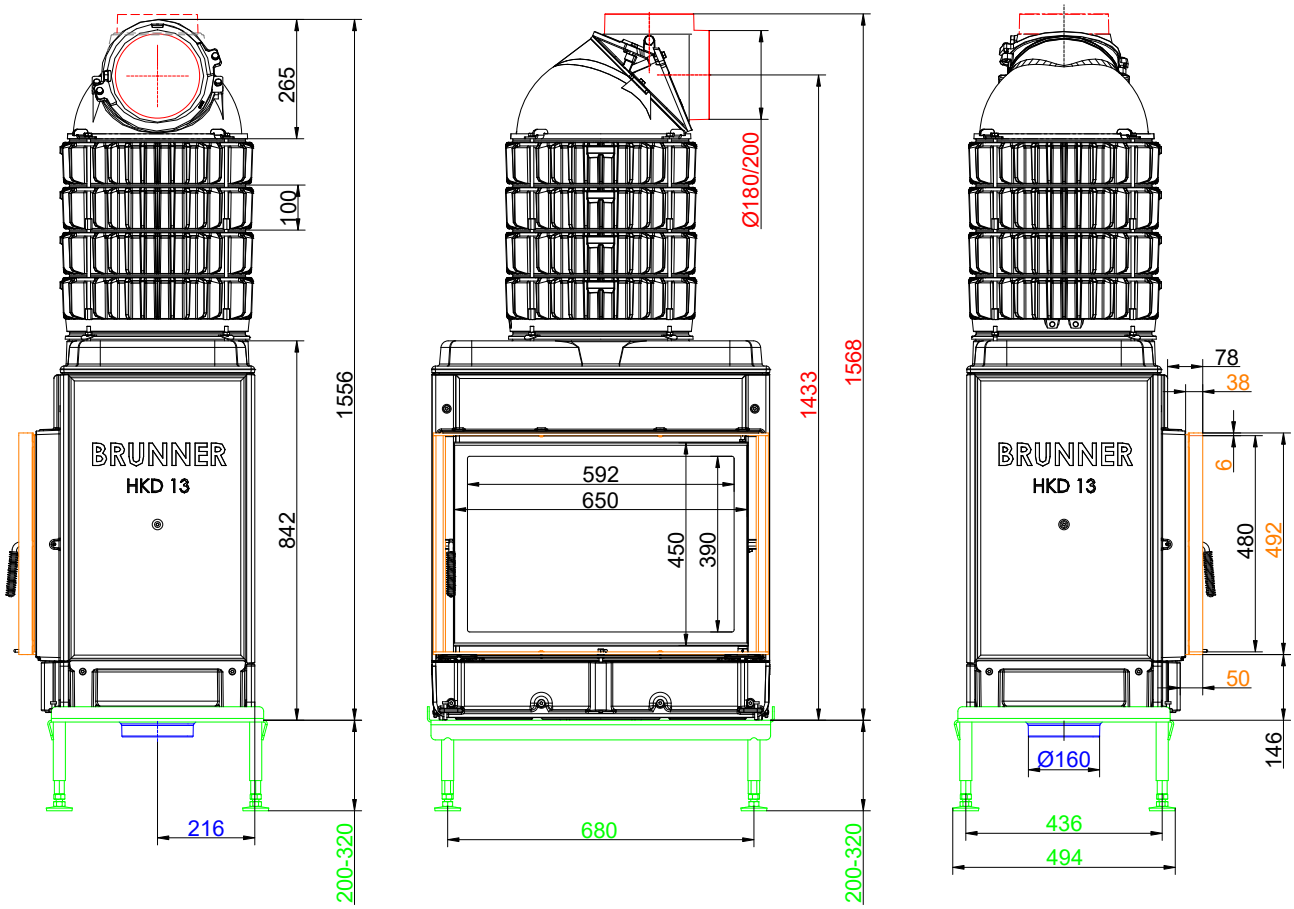


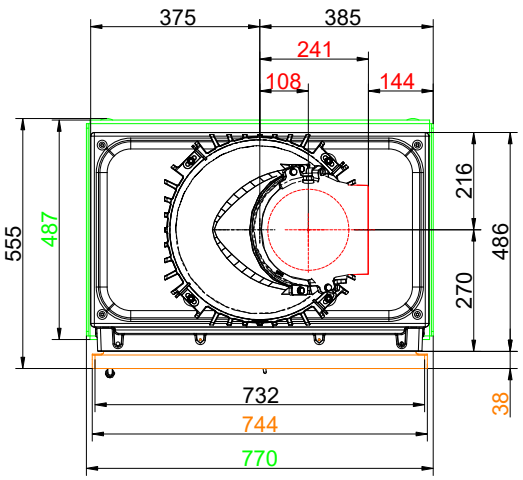




… door frame and cast iron dome low

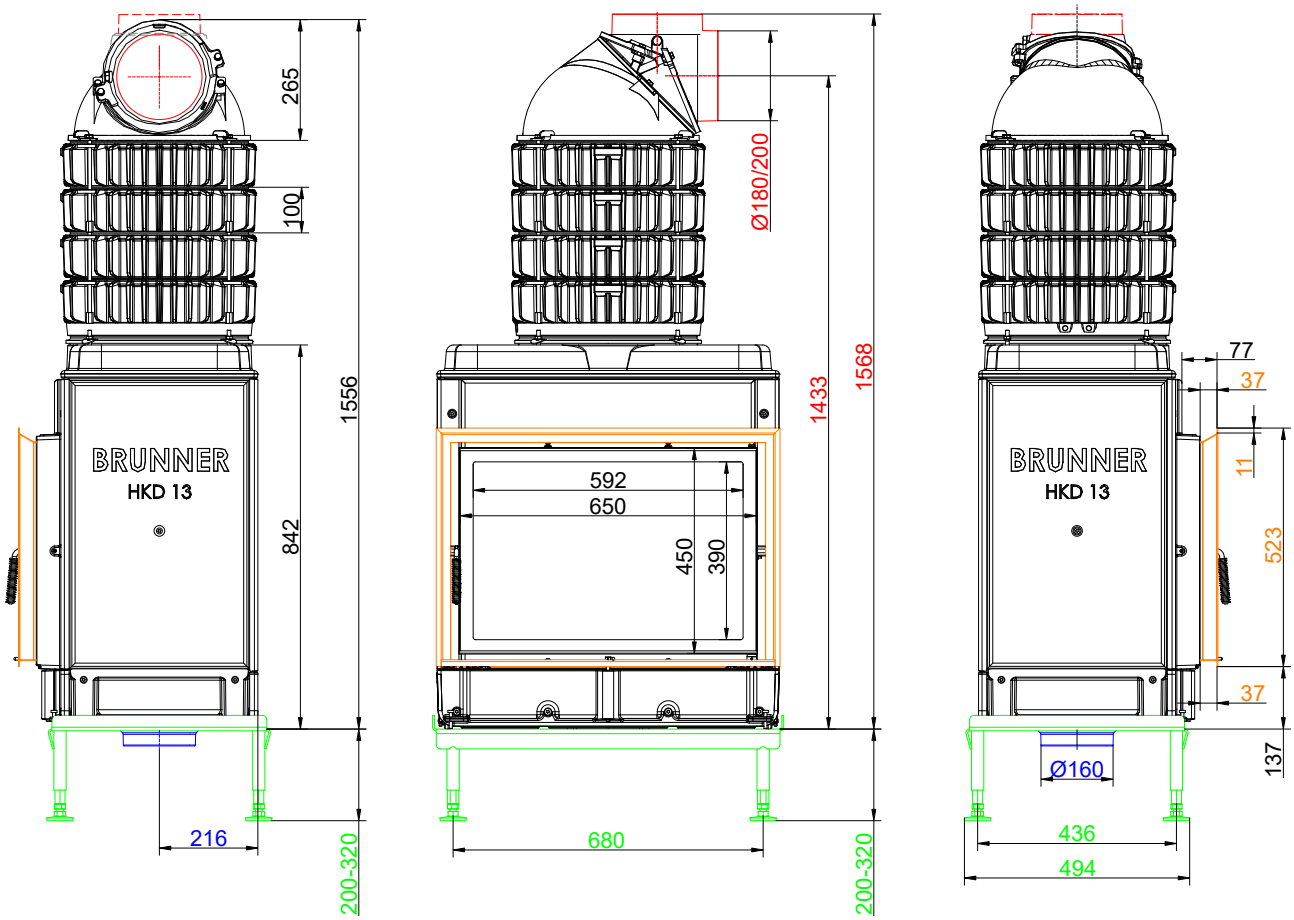
Dimension sheets - HKD 13 green

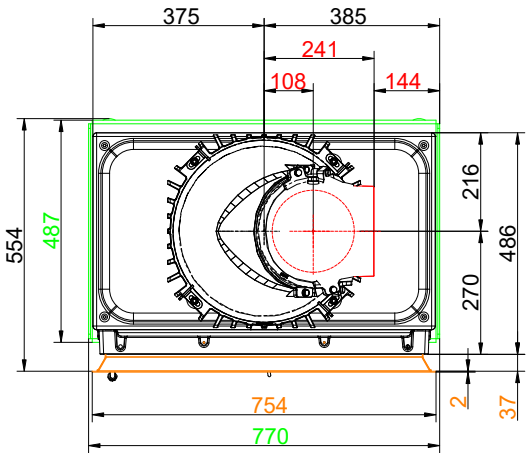




... Mounting frame and cast iron heat exchanger rings + dome

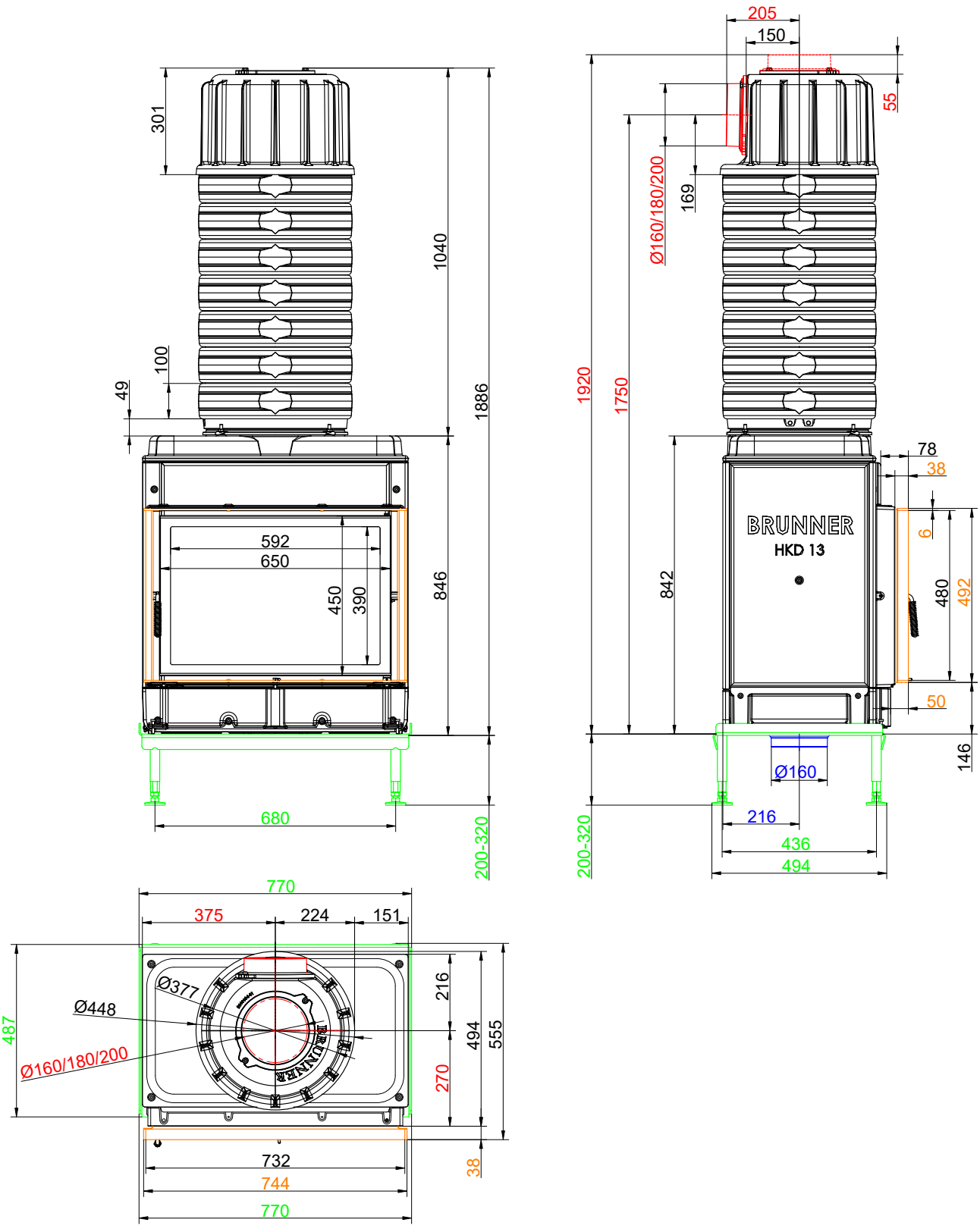
Dimension sheets - HKD 13 green





... Door frame and cast iron heat exchanger rings + dome

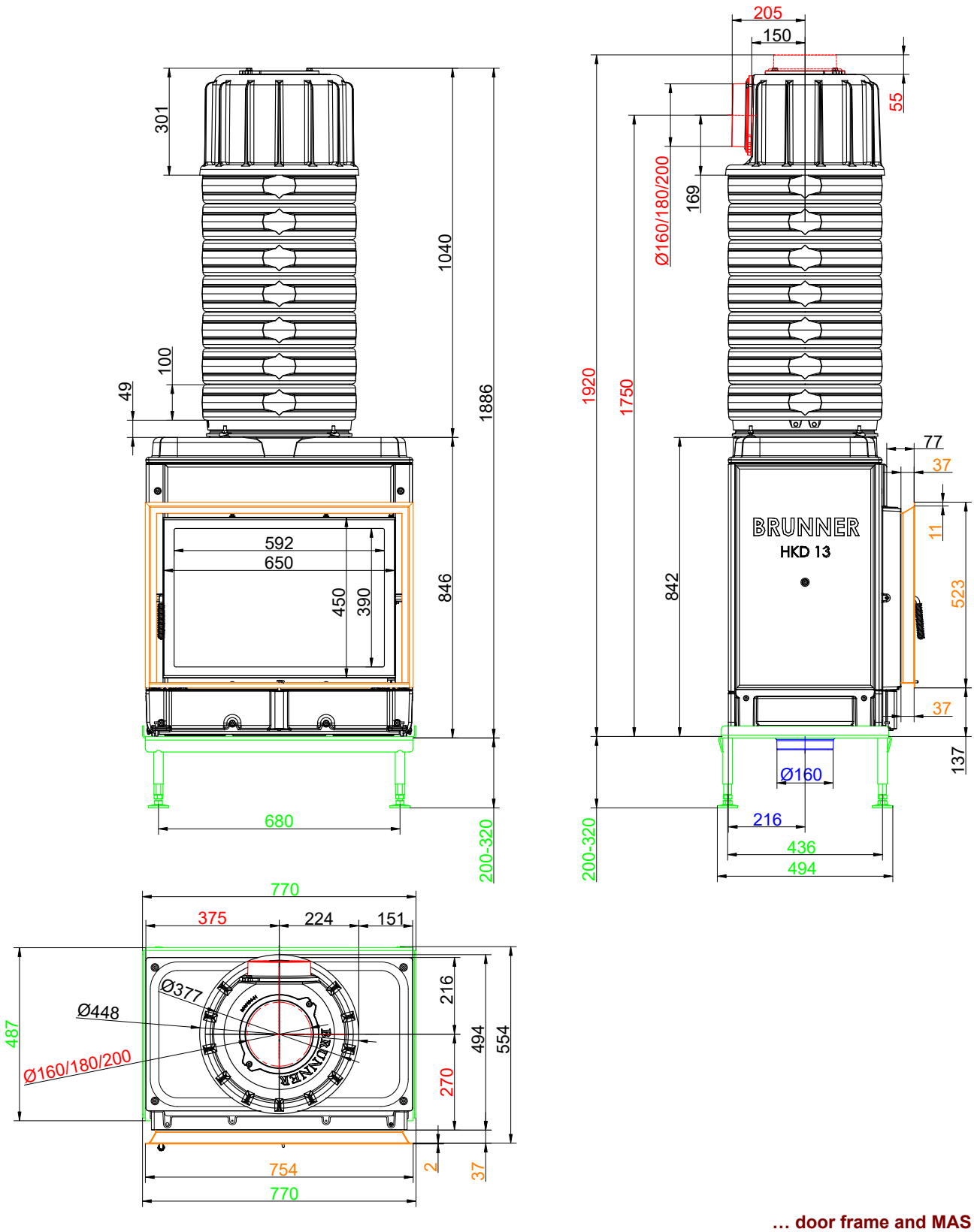
Dimension sheets - HKD 13 green



… mounting frame and MAS

Stand: 2023-08-29

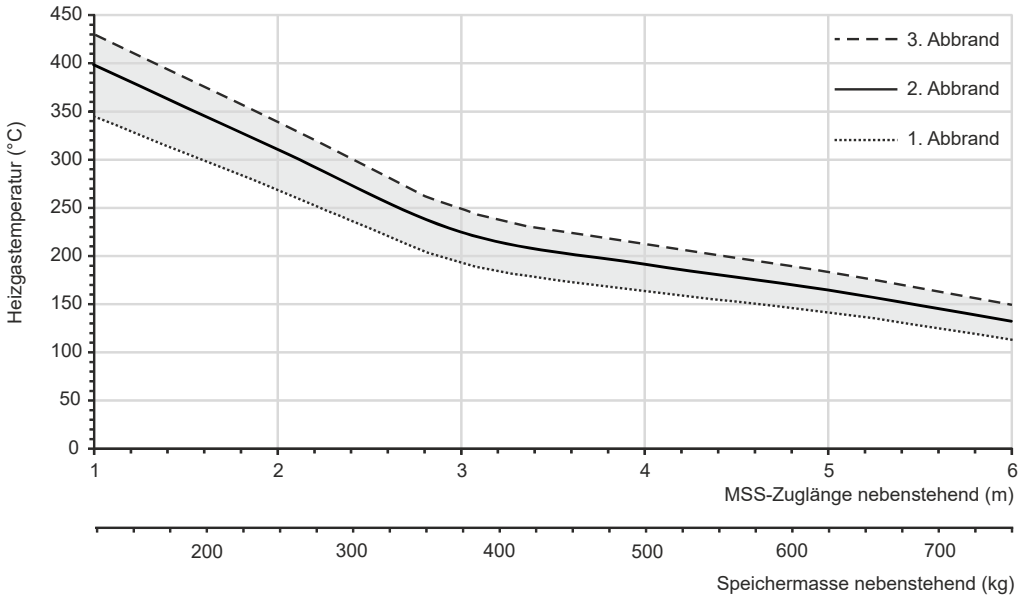
Dimension sheets - HKD 13 green



… door frame and MAS

Stand: 2023-08-29

Dimension sheets - HKD 13 green



Design characteristics for adjacent storage mass

We suggest for CAD planning Palette CAD. Permanent updated drawings: www.brunner.de
Frames/ flue gas outlet connection/ combustion air supply connection/ front variants/ support bearing are marked in color.

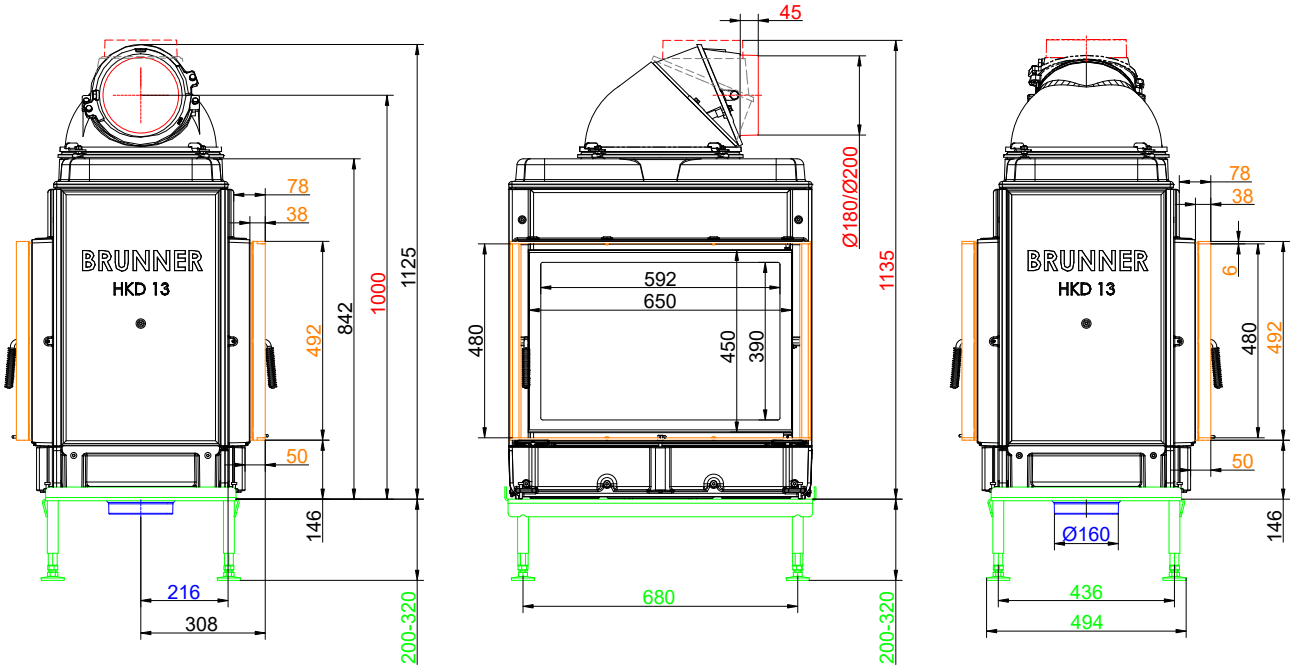
Stand: 2023-08-29

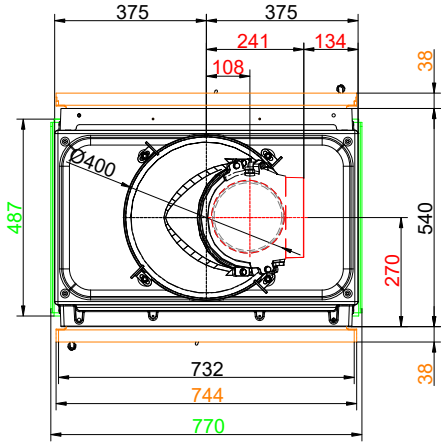
Planning and installation - HKD 13 green

Tested according to		EN 13229 W	EN 13229 WA
Values measured at		Rated power [1]	Storage operation [2]
Suitable for all construction types according to rules		OK	OK
Data for functional demonstration			
Rated heat power	kW	9	-
Fire wood volume	kg/h	2.7	5.5
Combustion performance	kW	10.5	22.0
Flue gas mass flow	g/s	8.5	20.0
Outlet temperature (before reheating surface)	°C	460	540
Flue gas temperature after:			
1 x adjoining cast iron radiator (GNF 8/10)	°C	180	215
4 x cast iron heat exchanger rings + dome	°C	220	260
7 x accumulation rings incl. MAS casted cover [3]	°C	220	-
4,9 m ceramic accumulator [4]	°C	-	180
3,4 m accumulation stones (MSS) [4]	°C	-	190
Necessary supply pressure	Pa	12	15
Combustion air consumption	m^3/h	25	48
Flue gas pipe connection Ø	mm	180 / 200	180 / 200
Combustion air connection Ø	mm	125 / 160	125 / 160
Heating gas temperature (before the hood/dome variant)			
cast iron dome	°C	460	540
Heat distribution			
Insert / reheating surface	%	40 / 40	40 / 40
glass ceramic / glass ceramic coated (GKB)	%	25 / 20	25 / 20
Cross-section of gratings [5]			
exhaust warm air	cm^2	700 / 300 / 500	700 / 300 / 500
Recirculation air	cm^2	700 / 300 / 500	700 / 300 / 500
Minimal distances of the fireplace			
to cladding, insulation layer	cm	8	8
to mounting floor	cm	15	15
Minimum insulation thickness without / with air gratings [6]			
Mounting wall	cm	12 / 10	12 / 10
Floor	cm	0	0
Ceiling	cm	22 / 16	22 / 16
Brick lining for combustible wall	cm	10	10
Minimum distances in front of the combustion chamber, glass ceramic / glass ceramic coated (GKB)			
for combustible parts	cm	≥ 120 / ≥ 80	≥ 120 / ≥ 80
Weight			
Fireplace / combustion chamber	kg	229 / 78	
Meets requirement/limit values for:			
EU / Germany		Ökodesign / 1. BImSchV (Stufe 2)	

1) Indications to “Rated power” determined with metallic reheating surface
2) Indications to “Storage operation” for the manual execution of the reheating surface (guide values).
3) Damper flap recommended
4) Approximate value. Determination according to design characteristics for adjacent storage mass or proof of function provided by calculation
5) for fireplace/heating inserts / flue gas pipe / metallic reheating surface/if the specified nominal heat output is required as the heating output.
6) Values determined with air cross-sections evaluated by testing; stove cladding is heat emitting.

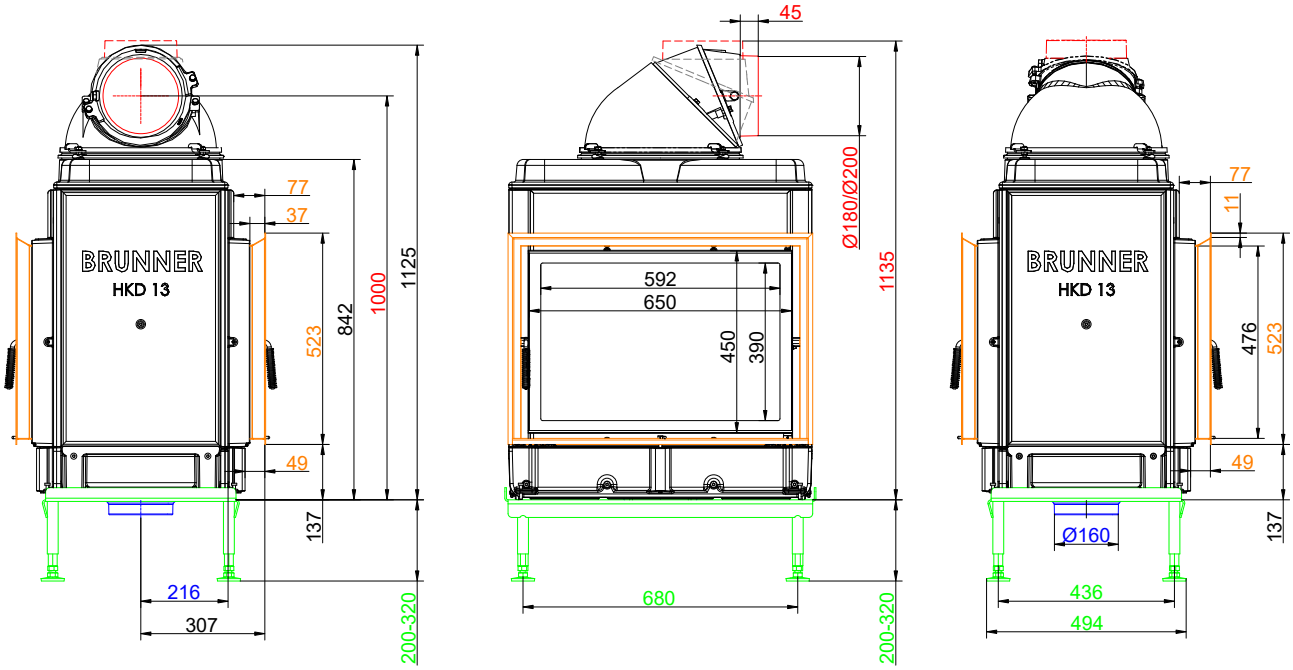
Dimension sheets - HKD 13 Tunnel green

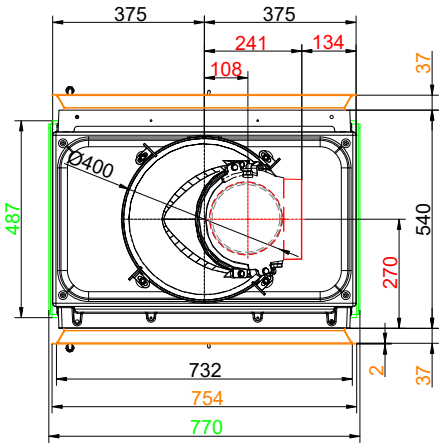




… mounting frame and cast iron dome

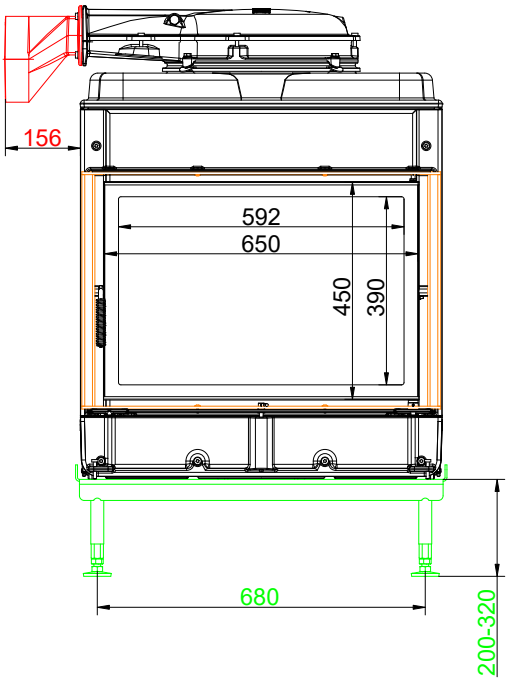
Dimension sheets - HKD 13 Tunnel green

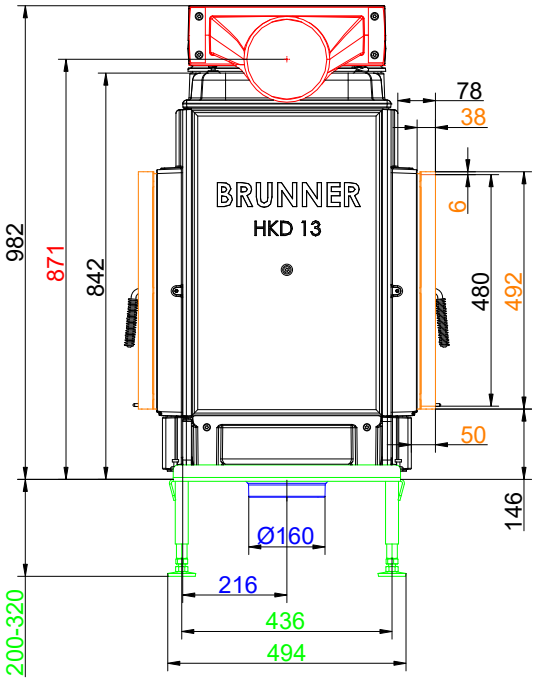


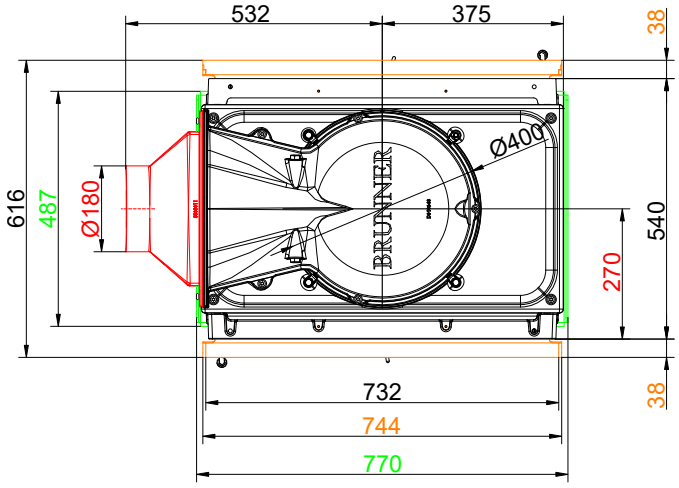


… door frame and cast iron dome

Dimension sheets - HKD 13 Tunnel green

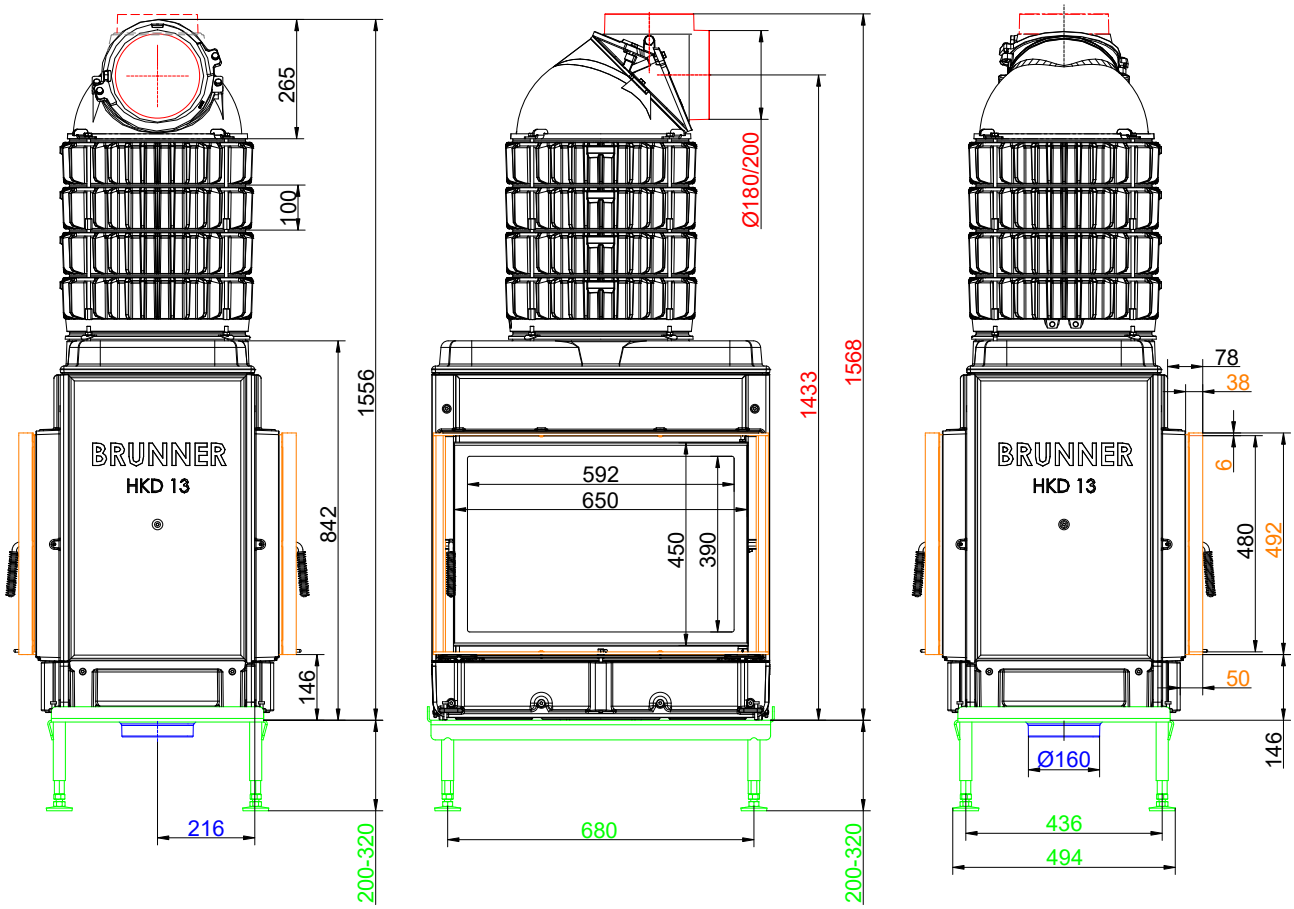


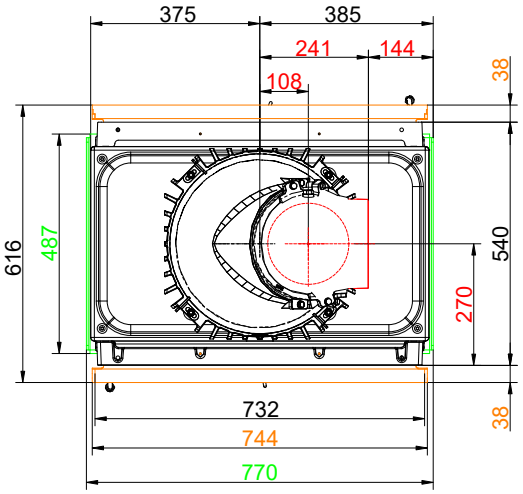




… mounting frame and cast iron dome low

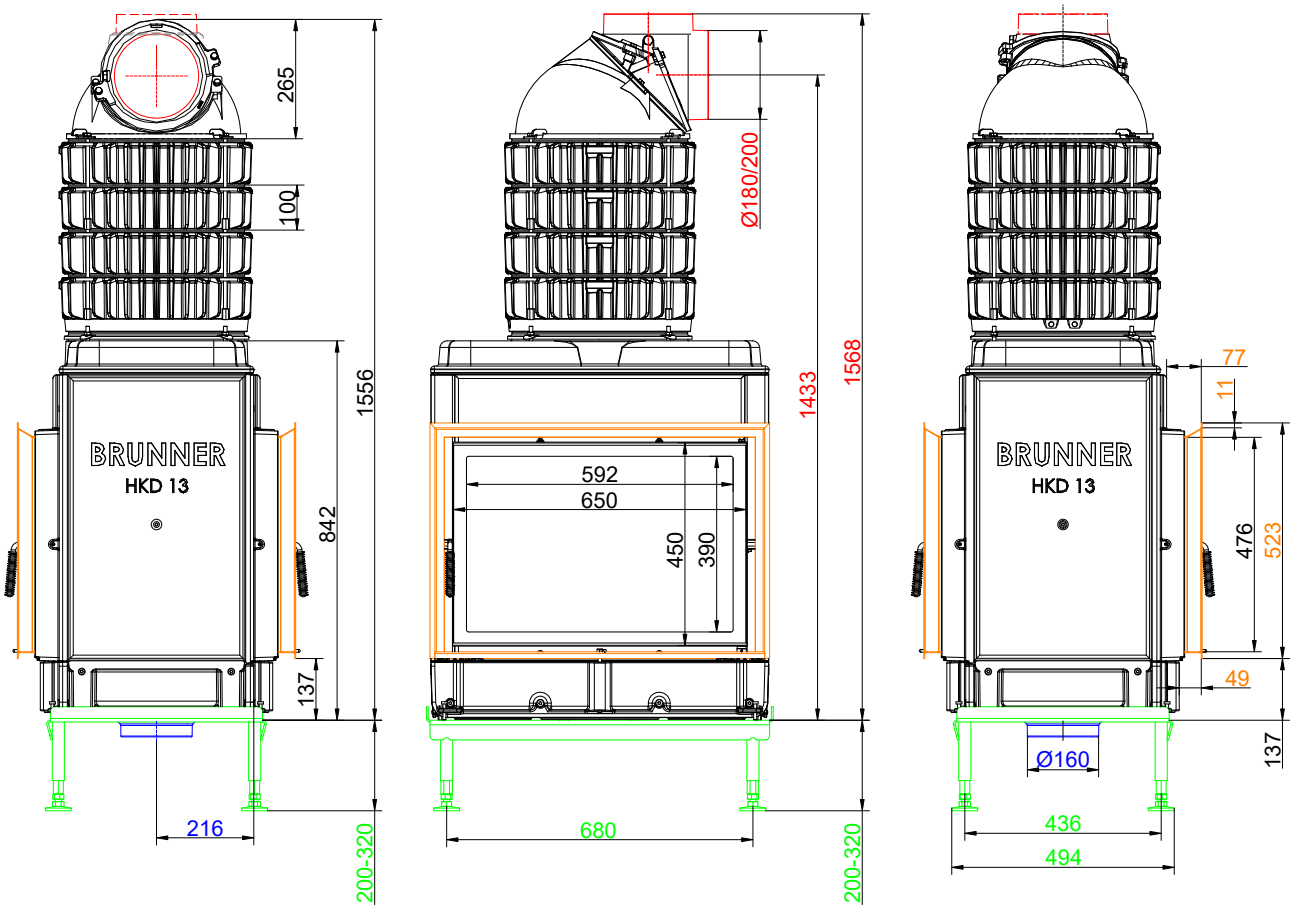
Dimension sheets - HKD 13 Tunnel green

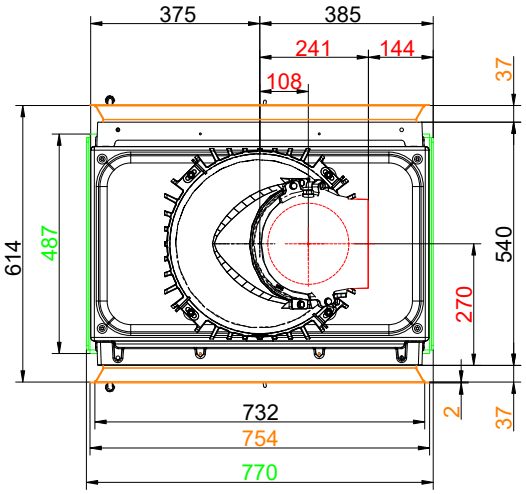




... Mounting frame and cast iron heat exchanger rings + dome

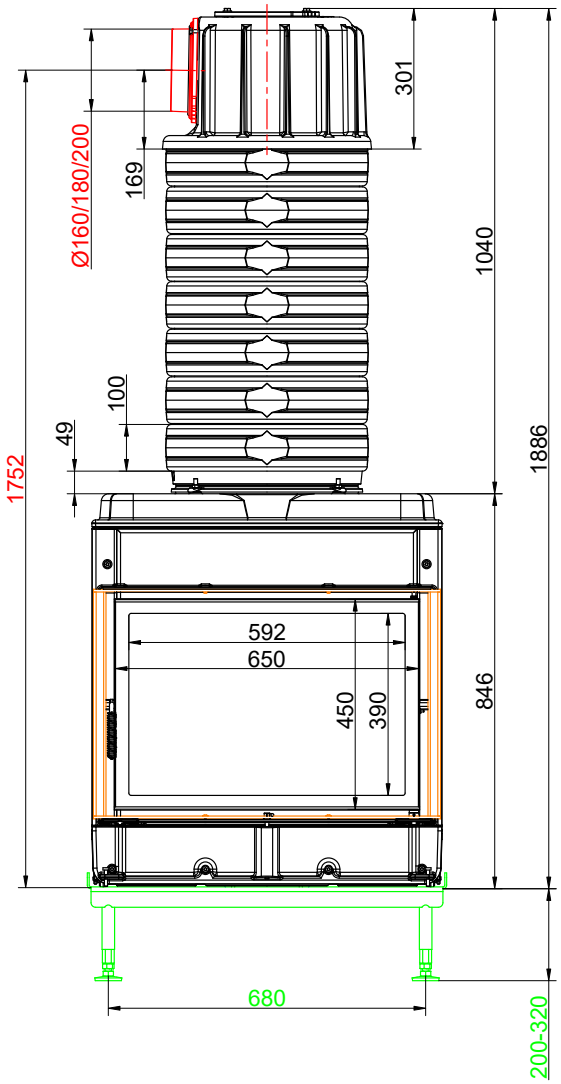
Dimension sheets - HKD 13 Tunnel green

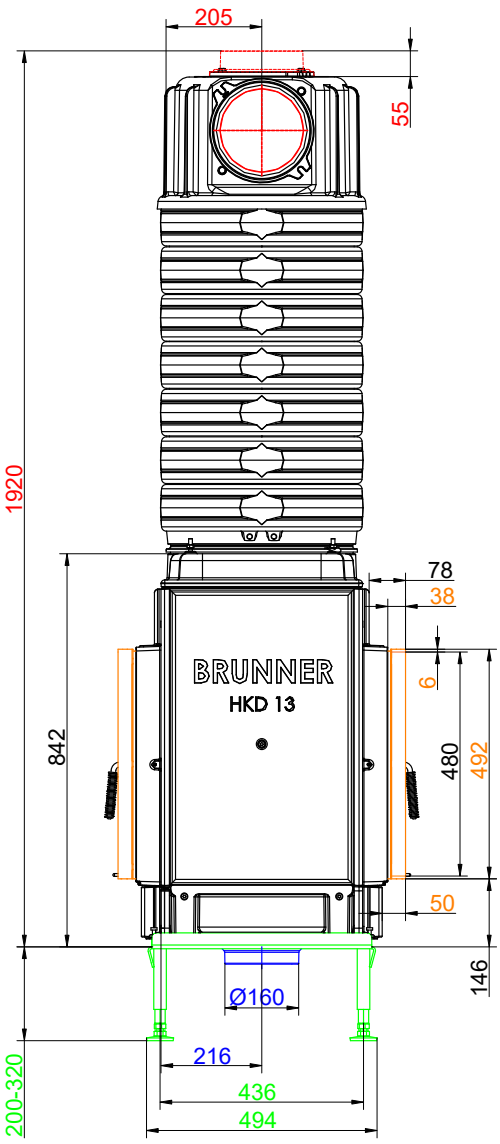


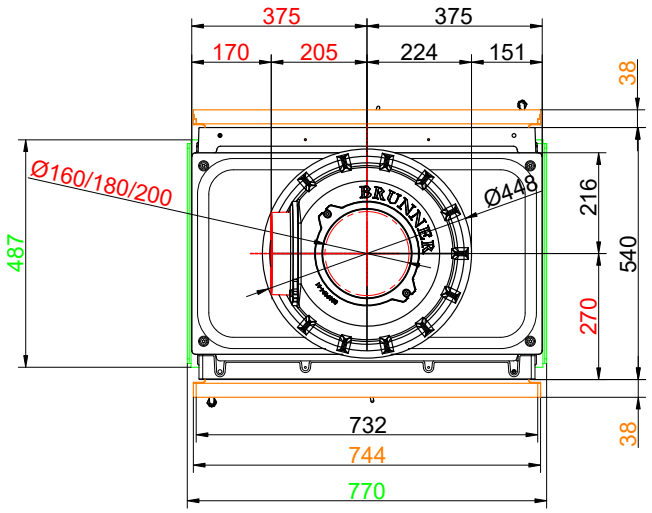


... Door frame and cast iron heat exchanger rings + dome

Dimension sheets - HKD 13 Tunnel green



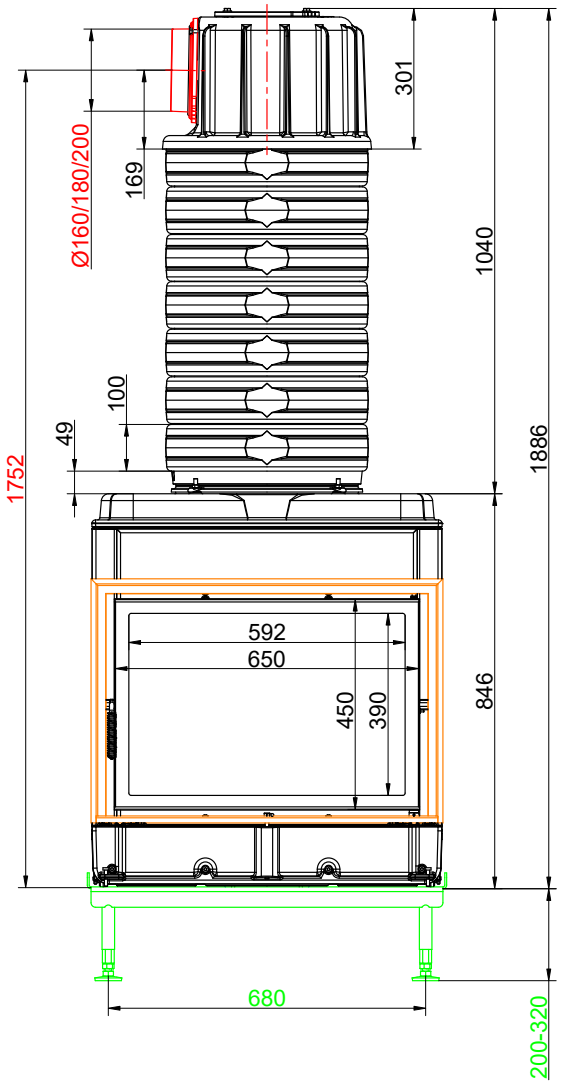


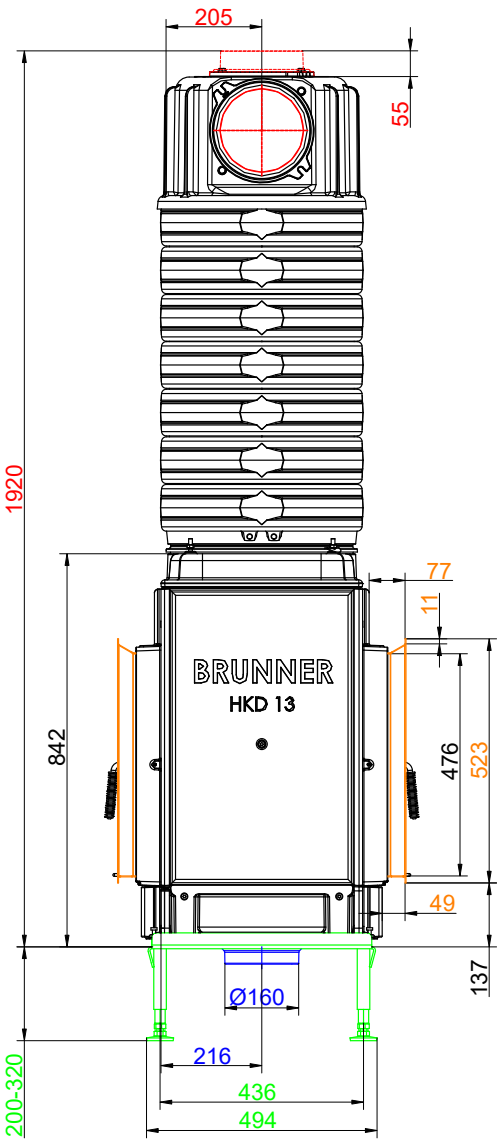


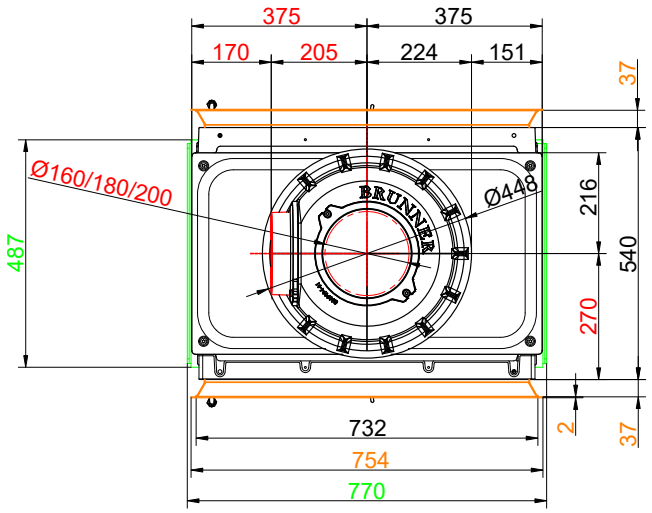
… mounting frame and MAS

Stand: 2023-08-29

Dimension sheets - HKD 13 Tunnel green



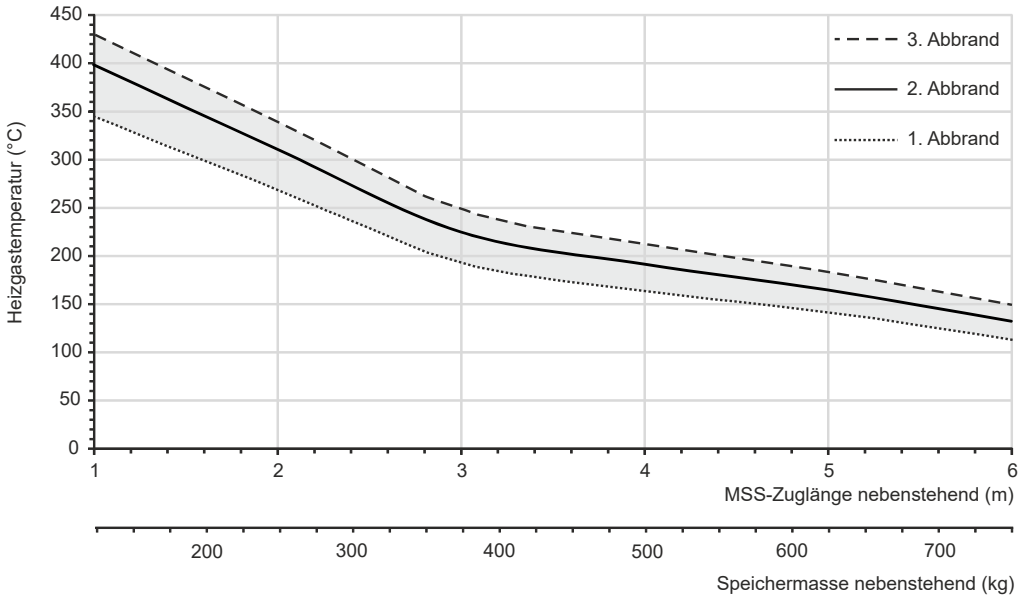




… door frame and MAS

Stand: 2023-08-29

Dimension sheets - HKD 13 Tunnel green



Design characteristics for adjacent storage mass

We suggest for CAD planning Palette CAD. Permanent updated drawings: www.brunner.de
Frames/ flue gas outlet connection/ combustion air supply connection/ front variants/ support bearing are marked in color.

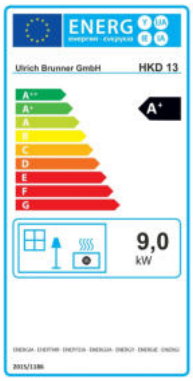
Stand: 2023-08-29

Planning and installation - HKD 13 Tunnel green

Tested according to		EN 13229 W	EN 13229 WA
Values measured at		Rated power [1]	Storage operation [2]
Suitable for all construction types according to rules		OK	OK
Data for functional demonstration			
Rated heat power	kW	9	-
Fire wood volume	kg/h	2.7	5.5
Combustion performance	kW	10.5	22.0
Flue gas mass flow	g/s	8.5	20.0
Outlet temperature (before reheating surface)	°C	460	540
Flue gas temperature after:			
1 x adjoining cast iron radiator (GNF 8/10)	°C	180	215
4 x cast iron heat exchanger rings + dome	°C	220	260
7 x accumulation rings incl. MAS casted cover [3]	°C	220	-
4,9 m ceramic accumulator [4]	°C	-	180
3,4 m accumulation stones (MSS) [4]	°C	-	190
Necessary supply pressure	Pa	12	15
Combustion air consumption	m^3/h	25	48
Flue gas pipe connection Ø	mm	180 / 200	180 / 200
Combustion air connection Ø	mm	125 / 160	125 / 160
Heating gas temperature (before the hood/dome variant)			
cast iron dome	°C	460	540
Heat distribution			
Insert / reheating surface	%	40 / 40	40 / 40
glass ceramic / glass ceramic coated (GKB)	%	25 / 20	25 / 20
Cross-section of gratings [5]			
exhaust warm air	cm^2	700 / 300 / 500	700 / 300 / 500
Recirculation air	cm^2	700 / 300 / 500	700 / 300 / 500
Minimal distances of the fireplace			
to cladding, insulation layer	cm	8	8
to mounting floor	cm	15	15
Minimum insulation thickness without / with air gratings [6]			
Mounting wall	cm	12 / 10	12 / 10
Floor	cm	0	0
Ceiling	cm	22 / 16	22 / 16
Brick lining for combustible wall	cm	10	10
Minimum distances in front of the combustion chamber, glass ceramic / glass ceramic coated (GKB)			
for combustible parts	cm	≥ 120 / ≥ 80	≥ 120 / ≥ 80
Weight			
Fireplace / combustion chamber	kg	247 / 53	
Meets requirement/limit values for:			
EU / Germany		Ökodesign / 1. BImSchV (Stufe 2)	

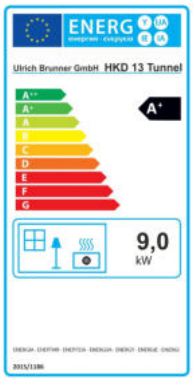
1) Indications to “Rated power” determined with metallic reheating surface
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6) Values determined with air cross-sections evaluated by testing; stove cladding is heat emitting.

Product data sheet according to (EU) 2015/1186:



Supplier's name or trademark	Ulrich Brunner GmbH
Model identifier:	HKD 13
Energy efficiency class:	A+
Direct heat output:	9,0 kW
Indirect heat output:	N.A. kW
Energy efficiency index:	109
Fuel energy efficiency (at nominal heat output):	82,0 %
Fuel energy efficiency (at minimum load):	N.A. %
Special precautions: see supplied product documentation	

Product data sheet according to (EU) 2015/1186:



Supplier's name or trademark	Ulrich Brunner GmbH
Model identifier:	HKD 13 Tunnel
Energy efficiency class:	A+
Direct heat output:	9,0 kW
Indirect heat output:	N.A. kW
Energy efficiency index:	109
Fuel energy efficiency (at nominal heat output):	82,0 %
Fuel energy efficiency (at minimum load):	N.A. %
Special precautions: see supplied product documentation	

Ulrich Brunner GmbH
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Email: info@brunner.de

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