Installation manual

Grundofenfeuerraum GOF 37x37

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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.

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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.

2 PRODUCT DESCRIPTION

With the GOF firebox, we offer a complete kit for a traditional masonry heater. The individual components are easy to assemble and offer the possibility to create a masonry heater with an exactly defined and tested firebox. The GOF includes a prefabricated combustion chamber with post-combustion zone.

The heating gas outlet for connection of ceramic duct must be provided on site. For optimal performance, it should be located in the rear top area of post-combustion chamber. Only this will ensure optimal combustion.

Optional use of electronic stove control system is possible.

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.

4 DELIVERY CONTENT

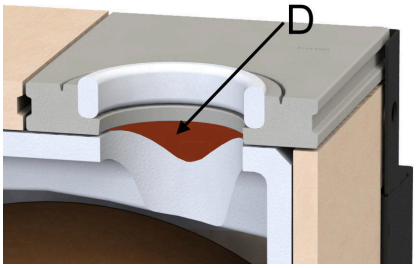
The masonry heater firebox GOF is delivered as four units. When a GOF firebox is assembled with a pellet module, the parts of the combustion chamber bottom are exchanged with special parts, which are designed only for pellet module operation. These parts are not included in standard delivery contents and must be ordered separately.

The GOF always consists from a fireclay combustion chamber and an insulated post-combustion chamber. Around this firebox, an external shell is built from fireclay plates.

- Combustion chamber (for exact number and description of fireclay stones, please refer to List of Parts)
- Insulated post-combustion chamber with deflector and sealings
- Base frame with connection blocks
- Masonry heater door
- Accesories

The masonry heater kit includes the following assembly materials:

- 1 bucket of Brunner FM 1300 (Art. No.: 900129)
  For assembly of combustion chamber linings and masonry heater firebox interiors. FM 1300 is a fireclay mortar, which is adapted to thermal expansion properties of our combustion chamber linings. The recommended application allows for temperatures up to 1300°C.
- 1 sack of Brunner Universal 600 (Art. No.: 900384)
  The Brunner Universal 600 is a setting and plastering mortar with application temperature up to 600°C. It is used in assembly of our fireplace construction plates, stove setter's fireclay bricks and for plastering of stove exteriors. Especially the plastering works are easy to perform. It can be used also for fixing of Brunner glassfiber mesh.
  The pot life during assembly is limited to approx. 30 minutes. For plastering works it is limited to approx. 50 minutes.
- 1 cartridge of high temperature sealing paste (Art. No.: 900269)
  The high temperature sealing paste (D) is used for sealing of gaps between the combustion chamber and the external stove cladding around the heating gas outlet.

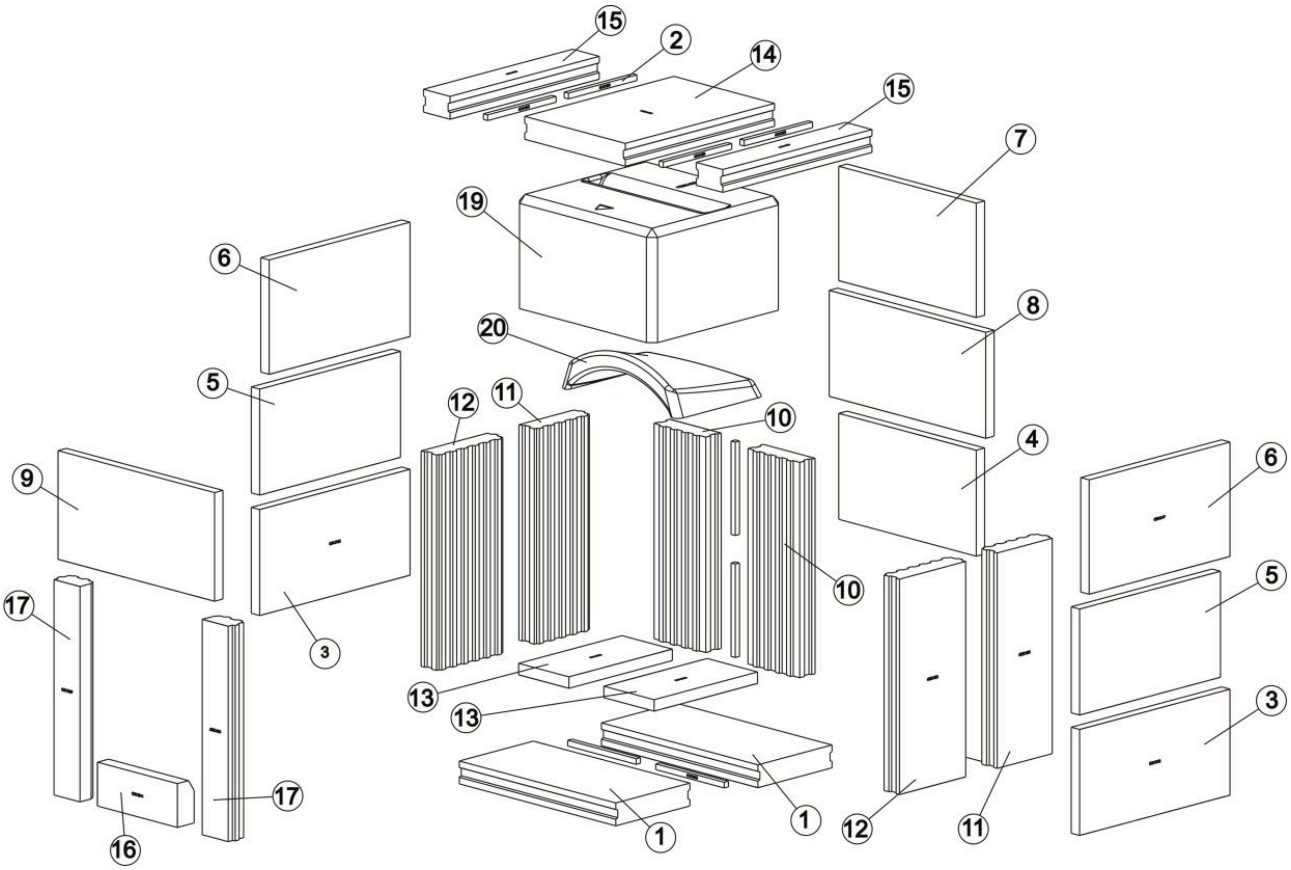


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Please check delivery contents for completeness and damage. Missing or defective parts must be immediately reported to the shipping company.

5 LIST OF PARTS GOF 37/37

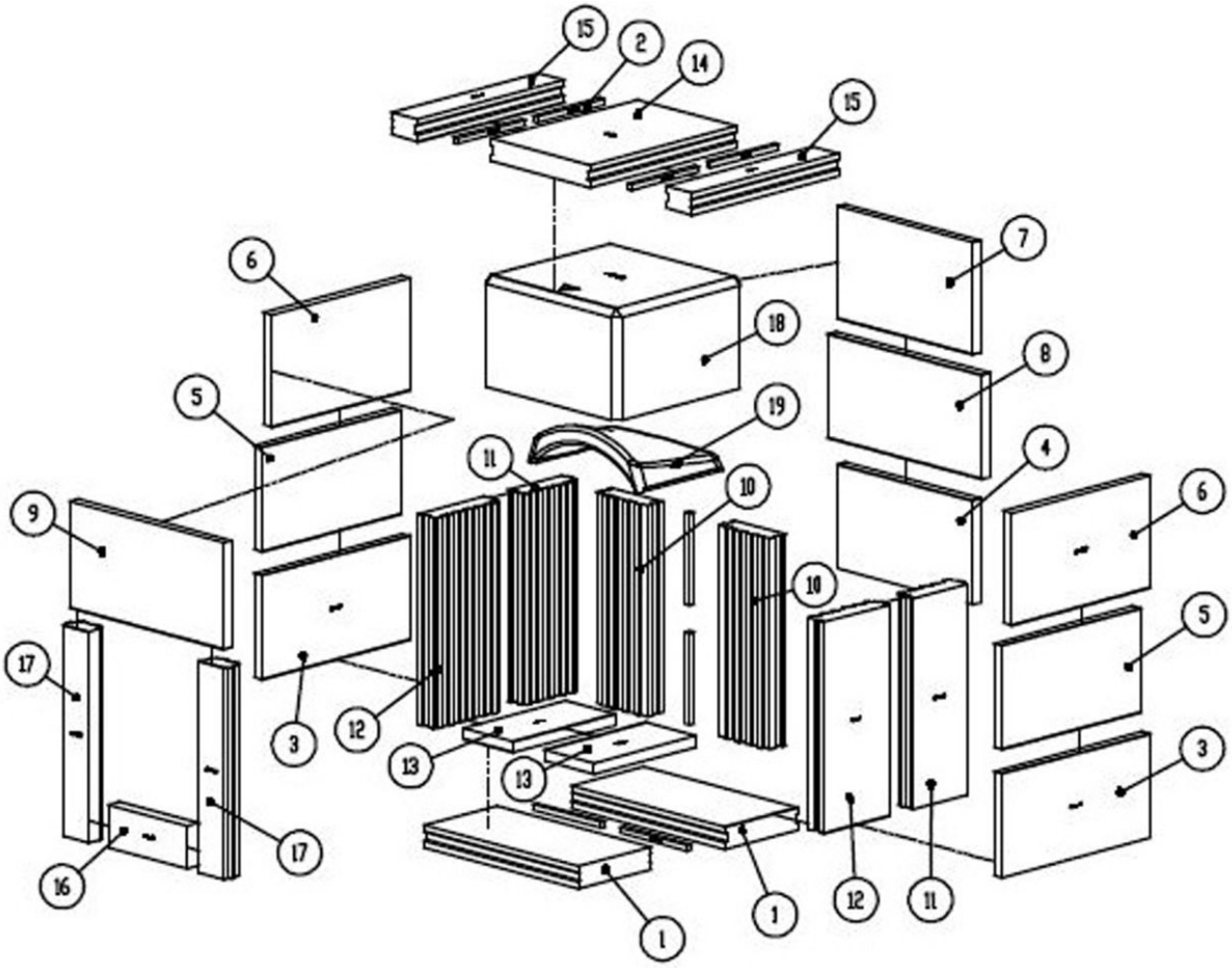
In the following figures, the individual parts of a GOF firebox are shown. The bottom plate and masonry heater door are not shown.



Im. 1: GOF 37/37 for GOT HKD5.1/12

Item	Part no.	Designation	Item	Part no.	Designation
1	G013016	Base stone 560x265x60	2	G013121	Spring
3	G013185	External plate 278x538x30	4	G013175	External plate 278x492x30
5	G013175	External plate 278x504x30	6	G013177	External plate 300x504x30
7	G019127	External plate 300x492x30	8	G019129	External plate 278x560x30
9	G013020	External plate 560x285x30	10	G013.006	Back wall stone 565x185x62
11	G013002	Sidewall stone 565x204x62	12	G013.001	Sidewall stone 565x244x62
13	G013003	Combustion chamber bottom 370x180x30	14	G017095	Base stone 360x534x60
15	G017097	Base stone 95x534x60	16	G013044	Wedge stone 37 HKD6
17	G013.007	Door mounting stone GOT HKD6	19	G013024	Hood 37x37
20	G013.028	Deflector plate 37x37	21	G013140	Felt straps / Support frame assembly HKD 5.1

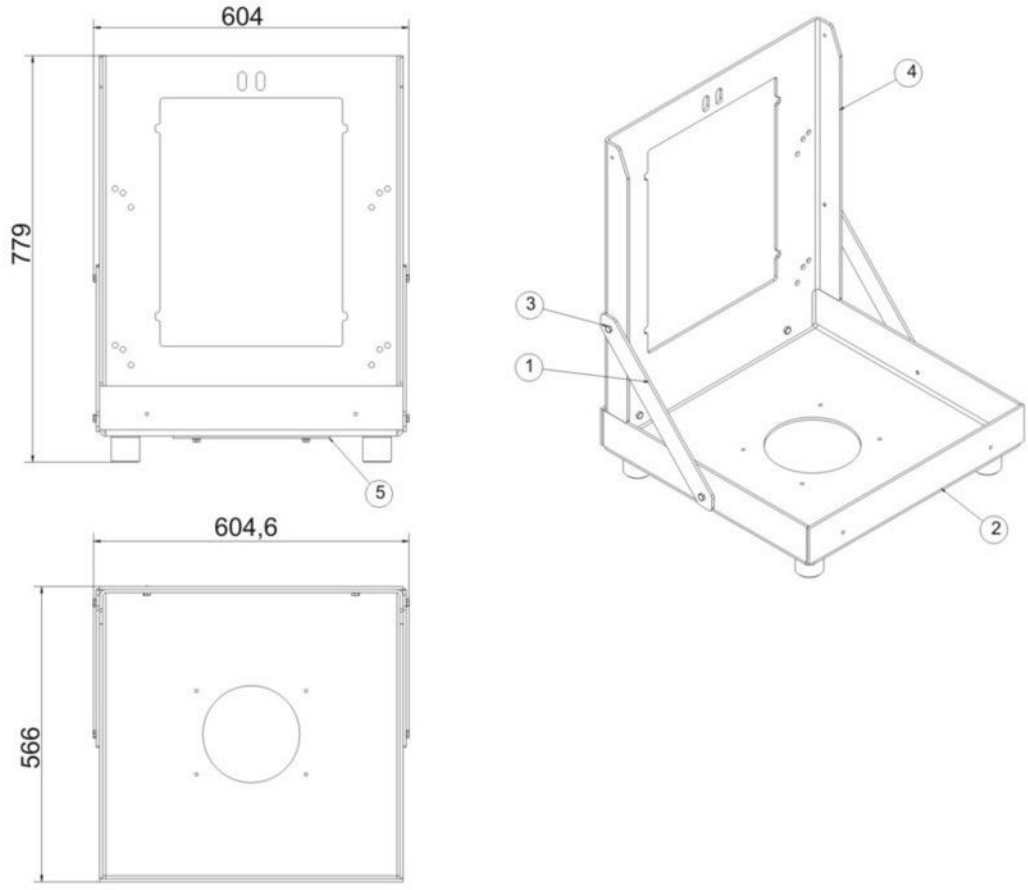
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Im. 2: GOF 37/37 for GOT HKD6.1

Item	Part no.	Designation	Item	Part no.	Designation
1	G013016	Base stone 560x265x60	2	G013121	Spring
3	G013185	External plate 278x538x30	4	G019130	External plate 278x492x30
5	G013175	External plate 278x504x30	6	G013177	External plate 300x504x30
7	G019127	External plate 300x492x30	8	G019129	External plate 278x560x30
9	G013.020	External plate 560x285x30	10	G013.006	Back wall stone 565x185x62 NN
11	G013.002	Sidewall stone 565x204x62	12	G013.001	Sidewall stone 565x244x62
13	G013.003	Combustion chamber bottom 370x180x30	14	G017095	Base stone 360x534x60
15	G017097	Base stone 95x534x60	16	G013.044	Wedge stone 37 HKD6
17	G013.007	Door mounting stone GOT HKD6	18	G013.024	Hood 37x37
19	G013.028	Deflector plate 37x37	20	G013143	Felt straps / Support frame assembly HKD 6.1

6 DIMENSIONS OF SUPPORT FRAME



Im. 3: Support frame 37x37

Legende			
1	Gusset plate	2	Floor frame
3	Hex bolt	4	Support plate
5	Sealing lid	6	Glass pane

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7 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

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

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.

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!

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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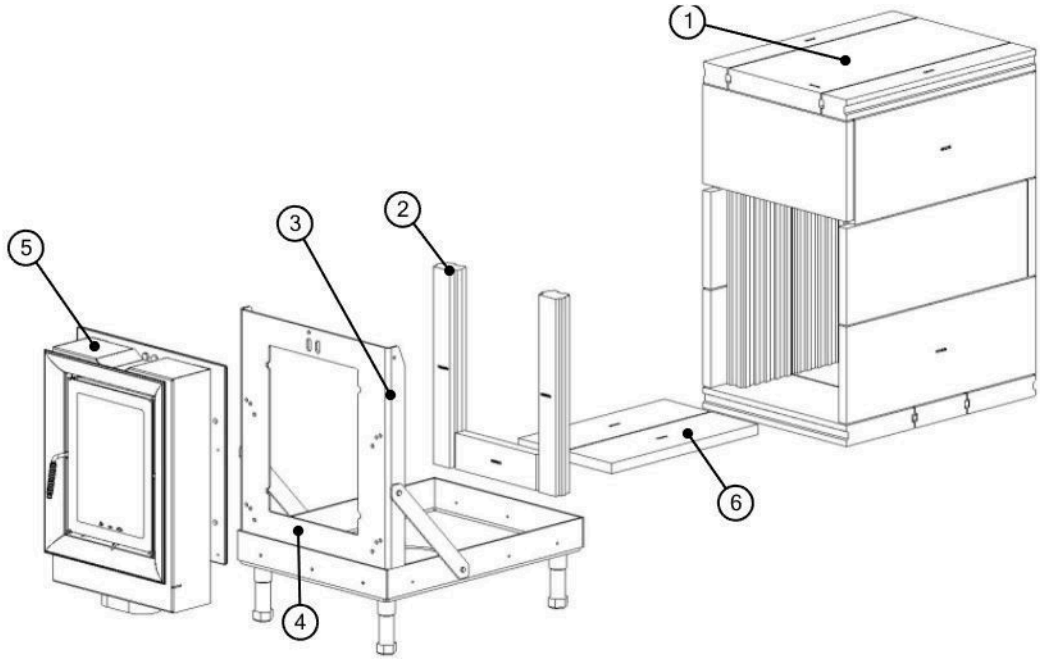
9 ASSEMBLY OF GOF MASONRY HEATER FIREBOX

Basics

The assembly of a masonry heater firebox requires a flat and even surface. The height adjustment is possible by providing necessary supports or by use of longer double threaded 1 1/2“ fittings. Fine adjustments are possible by turning the 1 1/2” hexagon caps.

The heating gas outlet for ceramic duct connection must be provided on site. As a first step, the fireclay plates and ceramic fibre insulation must be cut to create required openings. Do not use any fast-speed power tools during works at insulating cover. Ensure sufficient ventilation!

The fireclay combustion chamber including the supplied external plates must be assembled on support frame. When a gap of 3 mm between the elements of firebox is held, there should be a free space of approx. 5 mm on both sides and on the back of steel frame.



Item	Designation	Item	Designation
1	GOF Firebox	2	Connecting pieces
3	Fibre sealing	4	Base frame
5	Masonry heater door	6	Firebox bottom

Assembly

If the base frame is supplied in folded state, as a first step the front of base frame must be set and combined with the node brackets.

The screws supplied in accessories kit are inserted from the back ('Combustion chamber side') through holes on base frame, then the masonry heater door is set and attached to the front of base frame.

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The fireclay combustion chamber parts are assembled with special mortar for combustion chambers (Ausbaumörtel) applied on vertical and horizontal joints.

The fireclay plates of external shell are assembled with adhesive mortar applied on vertical and horizontal joints (e.g. 'Haftmörtel', Art.No.: 20091 or 20101).

To ensure a clean/level surface for the ISO hood, put a thin layer of mortar on the top of combustion chamber walls.

Cut out the heating gas outlet in the external plates; please keep the sufficient free cross-section. Through the provided heating gas outlet, mark the necessary cutting on the ISO hood and cut it out with a knife. Caution: Do not use any fast-speed cutting tools. (Dust!) Without this outlet, the masonry heater is not ready for operation. (Risk of deflagration!)

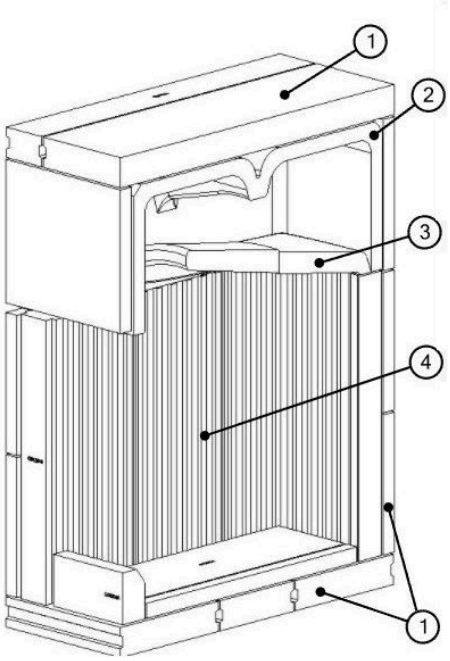
There is a marking on the ISO hood (arrow)! The ISO hood must be placed in such a way, that this mark indicates the back of stove. After complete assembly, check the position of deflectors.

Before the top cover plates are laid finally, make sure that the ISO hood can be inserted without any tension.

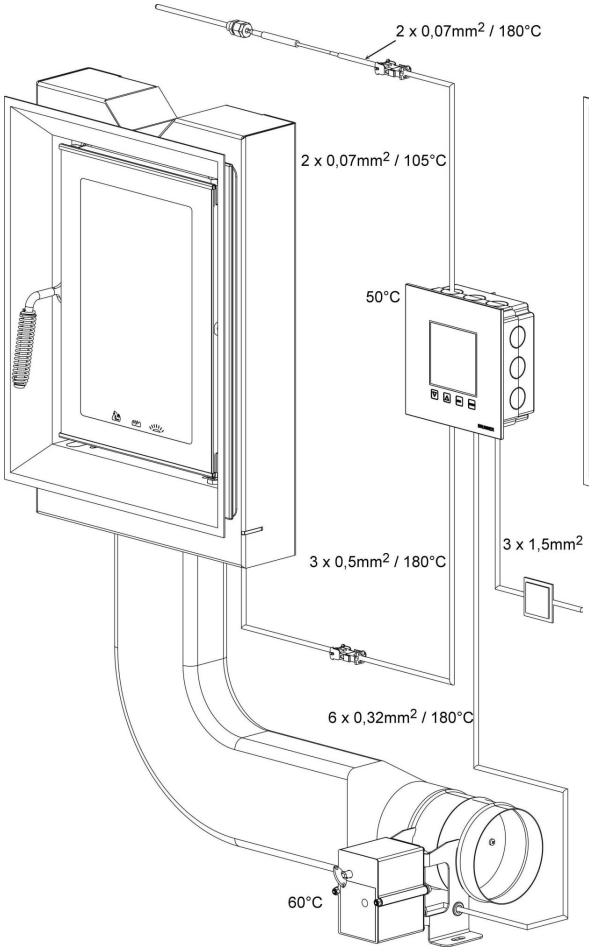
Cut the felt sealing accordingly and place it between the door mounting stones, the wedge stones and the support plate.

The combustion chamber, the front of masonry heater and the door must be assembled with care to ensure tightness!

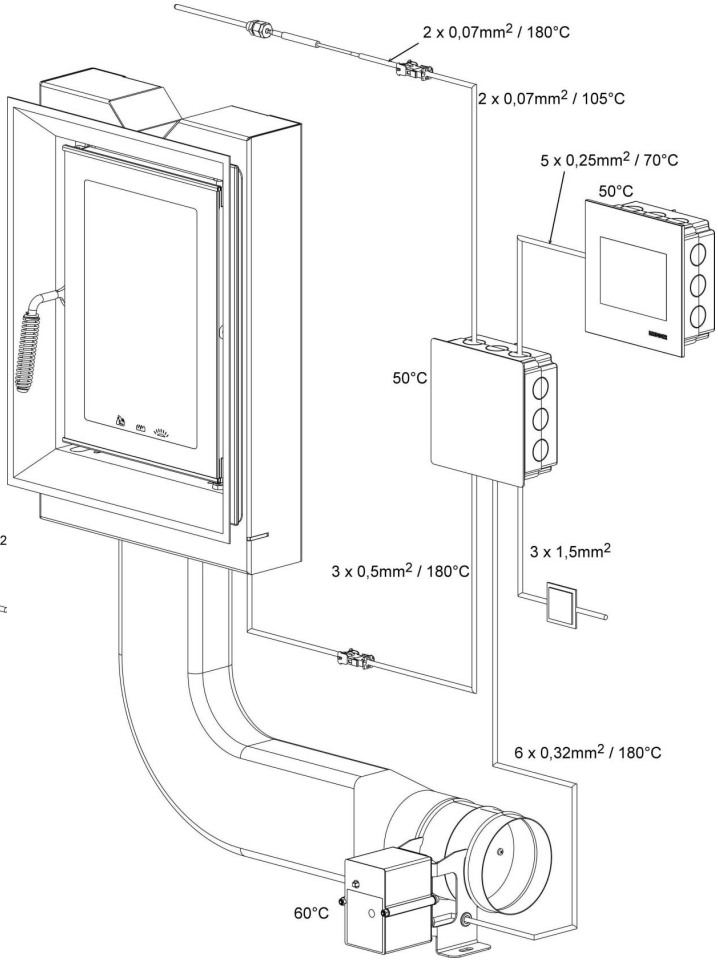
1	External shell
2	ISO hood
3	Deflector
4	Combustion chamber



10 MOUNTING INSTRUCTIONS FOR EAS / EOS VARIANTS



Im. 4: Schematic layout of EAS



Im. 5: 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.

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• 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.

11 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.

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!

12 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:

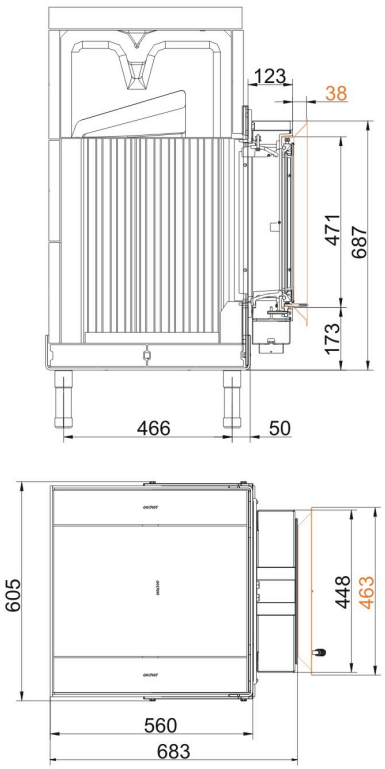
Insulation materials		**Delivered as**		**Thermal conductivity**		**Upper temperature limit**		**Nominal density**	
Gr.	Type	Gr.	Form	Gr.	Delivered as	Gr.	°C	Gr.	kg/m³
11	Glass wool	04	Felts	01	Mats, stitched, Limit 1	10	100	02	20
12	Rock wool	05	Lamella mats	02	Mats, stitched, Limit 2	12	120	03	30
13	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	**)

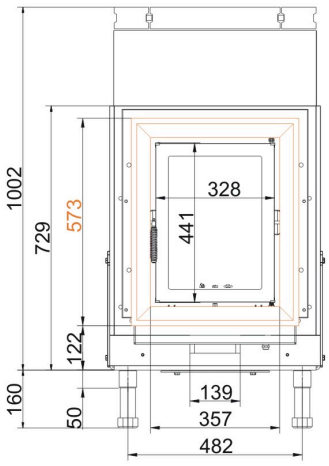
*) 99 is valid only for delivery forms in column 2, which have no declared limits.

**) 99 is valid only for shells.

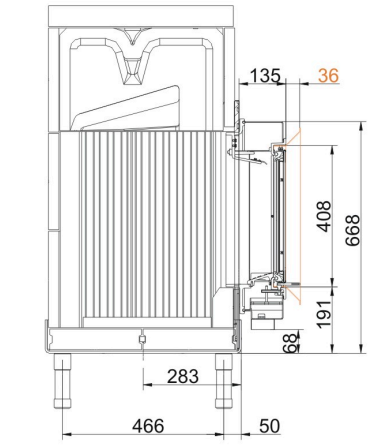
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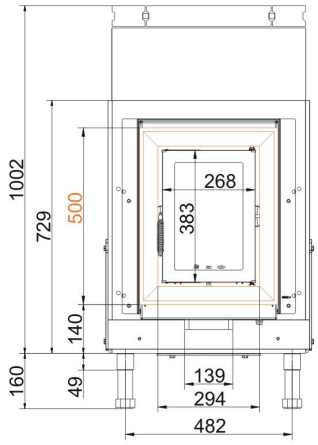
Dimension sheets - GOF 37x37





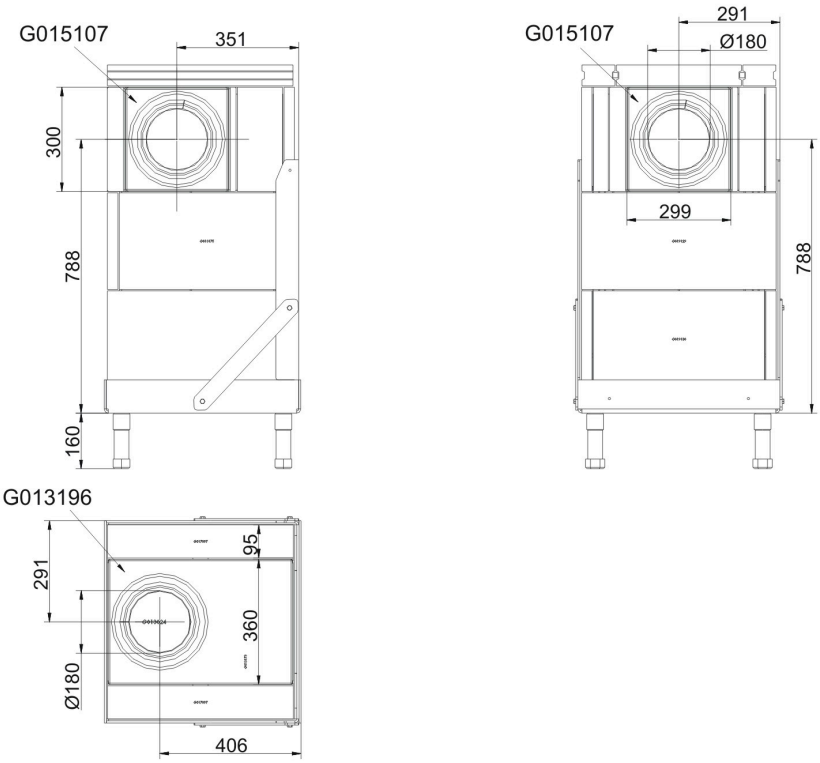
… with accumulation stove door HKD 5.1/12, steel door frame



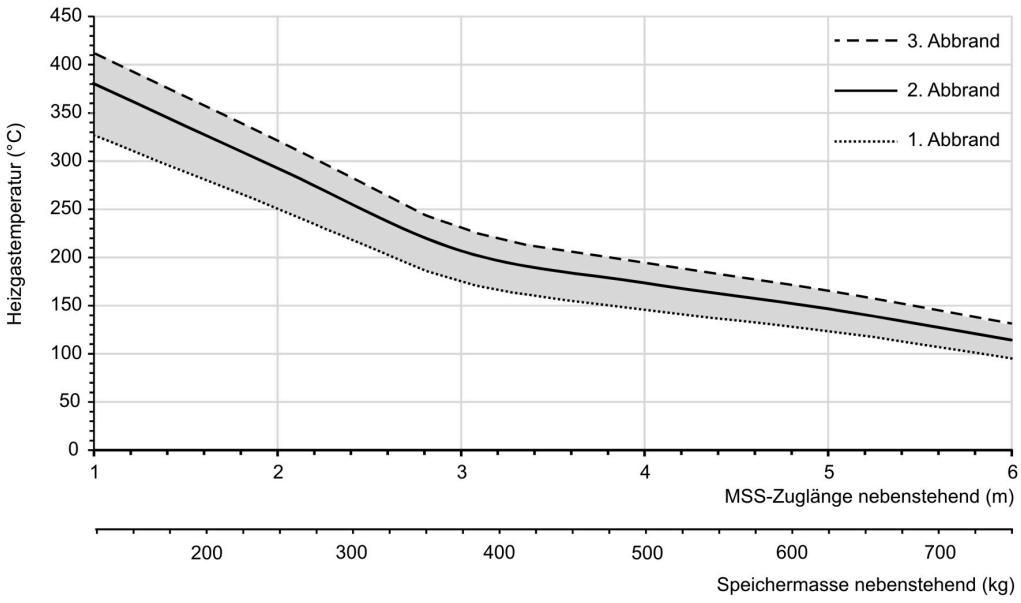


… with accumulation stove door HKD 6.1, steel door frame

Dimension sheets - GOF 37x37



… with ceramic connection stones



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.

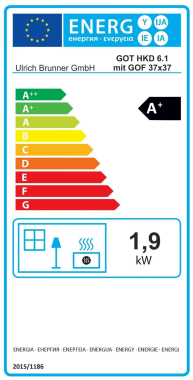
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Planning and installation - GOF 37x37

Tested according to		EN 15250	EN 15250
Values measured at		top-mount accumulator	adjacent accumulator
ceramic accumulator [1]	kg	200	400
MSS	m / kg	1,4; 180	3,4; 420
Suitable for all construction types according to rules		OK	OK
Data for functional demonstration			
Fire wood volume	kg/h	7.1	8.3
Combustion performance	kW	28.4	31.6
Flue gas mass flow	g/s	22	24.4
Outlet temperature (before reheating surface)	°C	560	560
Flue gas temperature after:			
ceramic accumulator [1]	°C	180	180
accumulation stones (MSS) [1]	°C	240	195
Necessary supply pressure [2]	Pa	13	13
Load of wood 1st/2nd combustion cycle	kg	7 + 4	8 + 5
Combustion air consumption	m³/h	64	75
Combustion air connection Ø	mm	125	125
Heating gas temperature (before the hood/dome variant)			
insert flue outlet nozzle	°C	560	560
Heat distribution			
Insert / reheating surface	%	30 - 40 / 50	30 - 40 / 50
Glass pane (single / double)	%	- / 10 - 20	- / 10 - 20
Weight			
Total weight	kg	380	380
Meets requirement/limit values for:			
Germany/ Austria / Switzerland / Norway		1.BImSchV (Stufe 2) / 15a BVG (2015) / - / -	

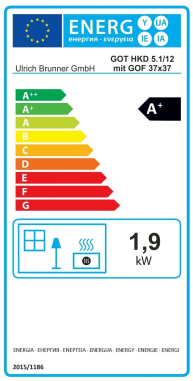
1) Approximate value. Determination according to design characteristics for adjacent storage mass or proof of function provided by calculation
2) For GOF without storage mass;1m MSS = 0,4 Pa pressure drop

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



Supplier's name or trademark	Ulrich Brunner GmbH
Model identifier:	GOT HKD 6.1 mit GOF 37x37
Energy efficiency class:	A+
Direct heat output:	1,9 kW
Indirect heat output:	N.A. kW
Energy efficiency index:	109
Fuel energy efficiency (at nominal heat output):	83,0 %
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:	GOT HKD 5.1/12 mit GOF 37x37
Energy efficiency class:	A+
Direct heat output:	1,9 kW
Indirect heat output:	N.A. kW
Energy efficiency index:	109
Fuel energy efficiency (at nominal heat output):	83,0 %
Fuel energy efficiency (at minimum load):	N.A. %
Special precautions: see supplied product documentation	

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