



# INSTALLATION AND OPERATING INSTRUCTIONS

**Klapi** heater

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# 1. General safety information



To ensure safe use of the sauna, please read these safety instructions first!

Always check the adequacy of the fire protection distances!

Failure to observe the connection instructions may result in a risk of fire!

Always check the sauna room before operating the heater!

Due to the risk of fire, do not use the sauna to dry clothes or laundry.

Exercise caution with a hot heater, since the heater stones and metal parts become very hot and can cause burns.

Steam from the heater is burning hot and may cause severe burns.

Children, disabled and ill persons who are using the sauna should be supervised.

Benches and floors may be slippery, therefore move in the sauna with caution.

Do not go to a hot sauna under the influence of narcotic substances (alcohol, drugs, narcotics, etc.).

A stone compartment without stones or filled improperly will present a risk of fire!

Covering the heater is a fire hazard.

Extended periods in a hot sauna will raise the temperature of the body, which may be dangerous.

Maritime and humid climates may corrode the metal surfaces of the heater.

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This device is not intended for use by children or persons whose physical, sensory or mental abilities or lack of experience and knowledge prevent them from using the device safely, without the supervision of a person responsible for their safety or before they have been instructed on how to use the device.

Children should be supervised to ensure that they do not play with the device.

All local regulations, including those referring to local and European standards, must be complied with when installing a fireplace.

This device complies with the requirements of:  

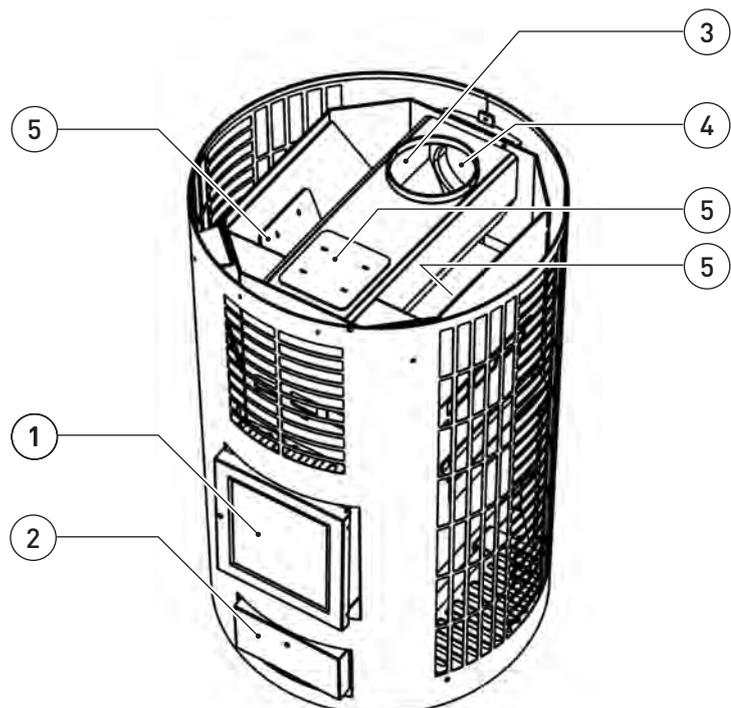
Mondex pursues an active policy of product development and continuous improvement. For this reason, Mondex reserves the right to make changes relating to the design and technical specifications of their products without prior notice.

## 2. Klapi heater



### Klapi heater components

- 1) Firebox door (the operating direction can be changed)
- 2) Ash pan
- 3) Upper chimney duct
- 4) Rear chimney duct
- 5) Sweeping doors (3)



### 3. Technical specifications

#### Rated power, efficiency, emissions, average temperature of flue gases\*

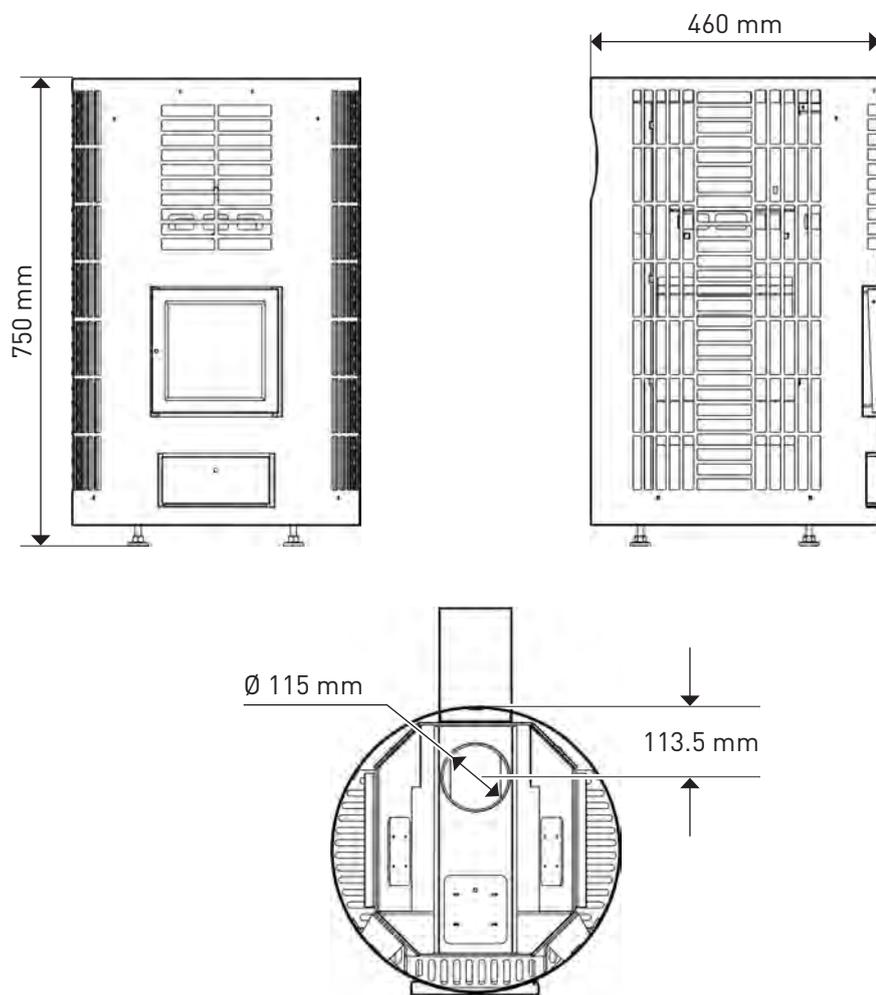
Heater	Klapi 16
Sauna size	8–16 m <sup>3</sup>
Rated power	13 kW
Efficiency	71%
CO content with an oxygen content of 13%	0.51%
Flue gas temperature	379 °C
Total amount of wood / fillings / heating time	9.5 kg / 3 / 90 min

Table 3.1 \* Mondex Klapi. The sauna heater has been tested in accordance with standard EN 15821. Test report No. VTT-S-01932-15.

#### Heater dimensions, weight and required quantity of stones

Type	Height (mm)	Diameter (mm)	Firebox cover thickness (mm)	Flue Ø (mm)	Weight without stones (kg)	Stone amount (kg)
Klapi 16	750	460	8	115	52	70

Table 3.2



## 4. Sauna room

### Sauna room ventilation

#### Gravity ventilation

The fresh supply air is conducted to just above the floor level near the heater, and the exhaust air exits as far as possible from the heater, near the ceiling. The heater circulates the air efficiently, so the exhaust air opening is mainly tasked with removing moisture from the sauna after bathing. The minimum diameter of the fresh supply air opening is 100 mm or equivalent.

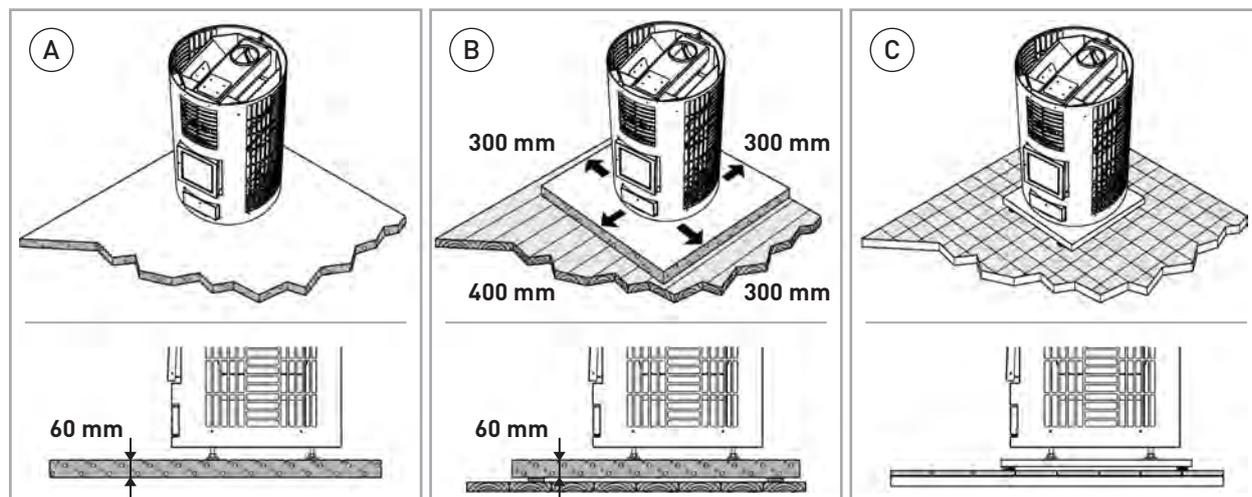
#### Mechanical ventilation

The fresh supply air is conducted to approximately 500 mm above the heater and the exhaust air exits near the floor, for example, under the benches. The minimum diameter of the fresh supply air opening is 100 mm or equivalent.

### Keeping the sauna room clean

We recommend that bench covers be used when bathing to prevent sweat from coming into contact with the benches. We recommend that the sauna benches, walls, and floor be washed every six months, at a minimum. The surfaces in the sauna should be washed with a scrubbing brush and a cleaning agent specifically intended for washing the sauna.

### Protecting the floor



#### Concrete floor without tiles (A)

The heater can be installed directly on a concrete floor if the concrete slab thickness is a minimum of 60 mm. Make sure that there are no electrical wires or water pipes in the concrete cast under the heater.

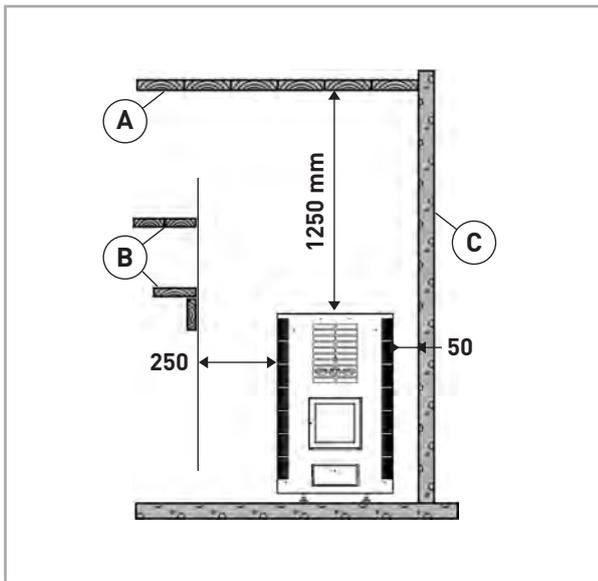
#### Combustible floor material (B)

Protect the floor with a concrete slab that is 60 mm thick, at a minimum, and extends at least 300 mm around the heater on the sides and in the rear (unless the heater is by a wall) and at least 400 mm to the front of the heater door. Ensure the slab is slightly elevated from the floor surface in order to keep the floor material dry.

#### Tile floor (C)

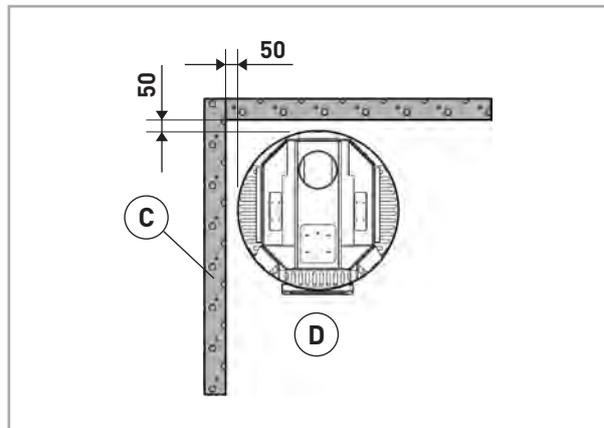
Floor glues and plasters and waterproofing materials used under the tiles do not withstand thermal radiation emitted by the heater. Protect the floor with a fireplace safety pad or equivalent protection against thermal radiation.

## Safety distances



### Ceiling (A)

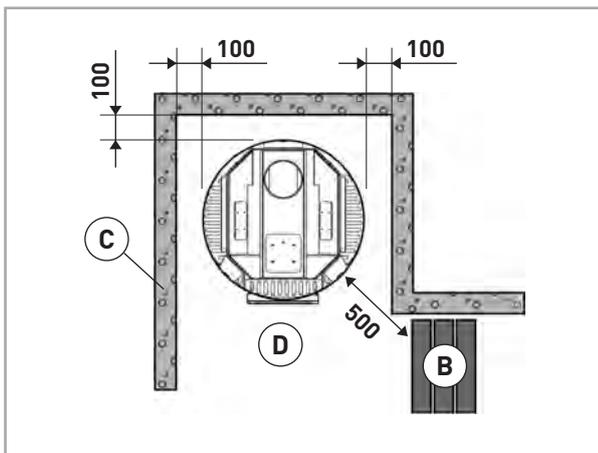
The minimum safety distance from the top surface of the heater to the ceiling is 1250 mm.



### Masonry walls (C)

Leave a 50 mm gap between the heater and the wall. This requires that the front and one side of the heater are unobstructed for air to circulate.

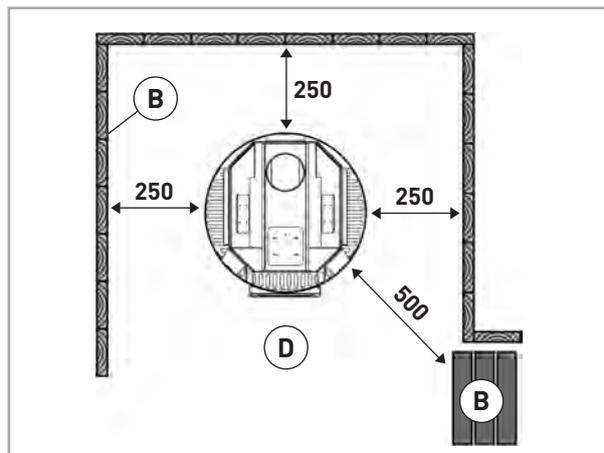
The space required for operation and maintenance (D). The user of the heater needs at least 1 m<sup>2</sup> of space in front of the heater.



### Heater in a recessed wall

If the heater is installed in a recessed wall, leave a 100 mm gap between the heater and the walls.

The space required for operation and maintenance (D). The user of the heater needs at least 1 m<sup>2</sup> of space in front of the heater.



### Walls and benches made of inflammable material (B)

The minimum safety distances between the heater and inflammable materials: 250 mm to the sides and rear, 500 mm to the front.

The space required for operation and maintenance (D). The user of the heater needs at least 1 m<sup>2</sup> of space in front of the heater.

Type	on the sides	in the front	in the rear	upward	Sauna size
Klapi 16	250	500	250	1250	8–16 m <sup>3</sup>

Table 4.3 Safety distances to inflammable material (mm) The safety distances are measured from the outer surfaces of the product.

## Light protective material

Safety distances to inflammable materials may be reduced to a half by using a single layer of light protective material and to a quarter by using a double layer.

A single layer of light protective material (1x) can consist of a non-flammable, fibre-reinforced cement board (e.g. Minerit board) with thickness of at least 7 mm or a metal plate with thickness of at least 1 mm.

A double layer of light protective material (2x) can be made by using two boards of the above-mentioned materials. The fastening points must be sufficiently close to each other in order to ensure a stable structure.

Leave a gap of a minimum of 30 mm between the surface to be protected and the board(s). The light protective material should extend at least 600 mm above the heater.

A single layer of light protective material equals to brickwork of at least 55 mm thick. A double layer of light protective material equals to brickwork of at least 110 mm thick.

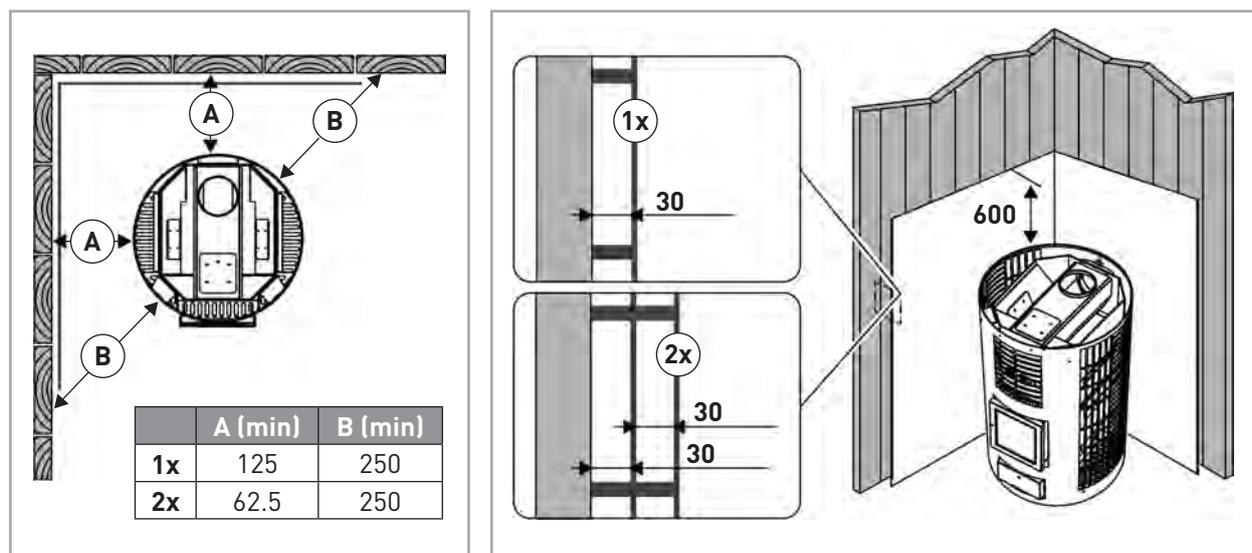
The brickwork must be open on the sides, and the distance to the surface being protected must be a minimum of 30 mm.

## Heater installation

The adjustable feet of the heater allow you to install the heater directly and firmly even on an inclined floor surface. The adjustment range is 0–30 mm. Leave a generous gap between the heater and the floor.

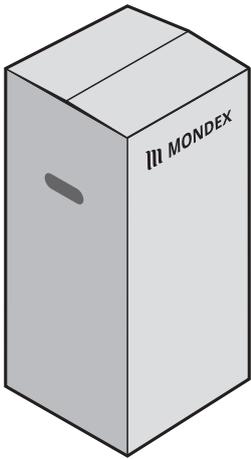
Screw the adjustable feet downwards so that you can rotate them with an open-end wrench, for example, when the heater is in place.

NOTE! The adjustable feet may scratch the surface of the floor if the heater is moved on the floor.



## 5. Heater assembly and installation

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### Storage

Store the heater in its original package in an upright position and in a warm and dry location until it is installed.

### Delivery content

The heater stones are not included in the delivery. Inspect the heater components visually. If you notice any discrepancies or deficiencies, please contact the store where you purchased the heater. Do not expose heater parts to blows and denting when taking them out of the package. The sauna's floor surface should also be properly protected before you begin the installation.

### Before installation

- 1) Prior to installation, ensure that the safety distance requirements are met.
- 2) There should not be any electrical equipment or wires or inflammable materials within the safety distances of the heater.
- 3) Please also note the safety distances of the chimney flue! If the safety distance requirements are not met, additional protective materials must be used.
- 4) For more detailed instructions on fire safety provisions, please contact the fire authorities.

### Preheating

Pre-heat the heater outdoors or in a well-ventilated area. The surface of the heater is painted. Some of the paint will burn out during the first heating, which results in the heater body emitting smoke. When no more smoke is emitted, the heater is ready for use.

If the heater is preheated outdoors, chimney pipes should be fitted to ensure a proper draught and to burn off any protective coatings on them.

The surface treatment of the heater achieves its final strength during the first heating of the heater. Avoid rubbing or wiping the painted surfaces of the heater before the first heating.

For the first heating, one load (about 5 kg) of wood is sufficient.

Pre-heat the heater without stones. Stack the stones into the heater only when the heater has cooled down completely after the preheating.

### **Always keep the firebox door closed during the preheating!**

Do not throw water on the heater during the preheating. Doing so may damage the paint coating.

Observe the safety distances between the heater and any inflammable material in accordance with the instructions (see page 7) when installing the heater.

## Stacking the stones

Only use stones intended for sauna heaters. Suitable stones include peridotite, olivine diabase, and olivine. To ensure adequate circulation of air in the heater, the most suitable stone size to be placed on top of the firebox is 10–15 cm in diameter. The size (Ø) of stones to be stacked between the body and the firebox is 5–10 cm. You will need two boxes of both sizes.

Stones collected from the nature are not suitable as heater stones.

Rinse any dust off of the heater stones before stacking them in the heater. Stack bigger stones on the bottom of the stone compartment and the smaller stones to the top. Ensure proper air circulation between the stones by stacking them loosely.

Stacking the stones loosely ensures the ventilation in the heater remains unobstructed. Stacking the stones in this manner also shortens the heating time. Continue stacking gradually in this manner until all stones have been placed.

Dents caused by the user are not covered by Mondex's warranty or other product liability. When stacking the stones, be careful not to dent the heater's metal surfaces to avoid damaging them. For more information on the warranty and replacing stones, see page 14.

## Fuel

Since the moisture of firewood significantly affects the cleanliness of combustion as well as the efficiency of the heater, use only dry wood to fuel the heater. Logs are dry when they make a clinking sound when they are knocked against each other.

Suitable kindling material includes bark or newspaper.

Store the fuel in the fuel storage. A small quantity of firewood can also be stored in the vicinity of the heater, as long as the firewood temperature does not exceed 80 °C.

### **Do not burn the following materials in the heater:**

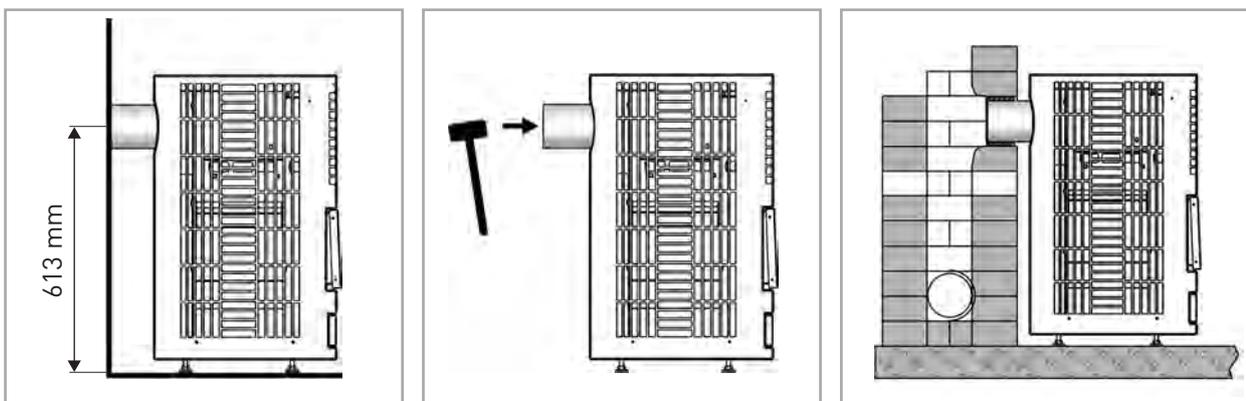
- Chipboard, plastic, coal, briquettes, pellets, or other such fuels with a high calorific value.
- Painted or impregnated wood.
- Waste (for example, PVC plastics, textiles, leather, rubber, disposable diapers).
- Garden waste (for example, grass, leaves).

## Connecting the heater to the brickwork flue via the rear chimney duct opening

Make a hole in the firewall for the flue connection. Note the height of any floor protection when determining the height of the hole. The hole should be slightly larger than the chimney pipe. A suitable gap around the chimney pipe is about 10 mm. The inner corners of the flue hole should be rounded so that the flue gases can enter the flue unobstructed. It is not recommended that the heater be installed in a split flue.

Attach the chimney pipe to the rear chimney duct opening of the heater. Make sure that the pipe connection is tight and secure. If necessary, tap with a hammer.

Push the heater into place. Do not push the chimney pipe too far into the flue since it may obstruct the flue. Shorten the pipe if necessary. Seal the chimney pipe to the hole in the firewall with fireproof mineral wool, for example. Ensure that the chimney pipe connection is tight and, if necessary, add more fire-resistant mineral wool.



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## Connecting the heater to a brickwork flue via the upper chimney duct opening

The chimney pipes used in the upper connection can be straight or in an angle of 45° or 90°. Move the cover plate to the rear opening. Attach the chimney pipe to the upper chimney duct opening of the heater. Make sure that the pipe connection is tight and secure. It is not recommended that the heater be installed in a split flue.

Push the heater into place. Do not push the chimney pipe too far into the flue since it may obstruct the flue. Shorten the pipe if necessary.

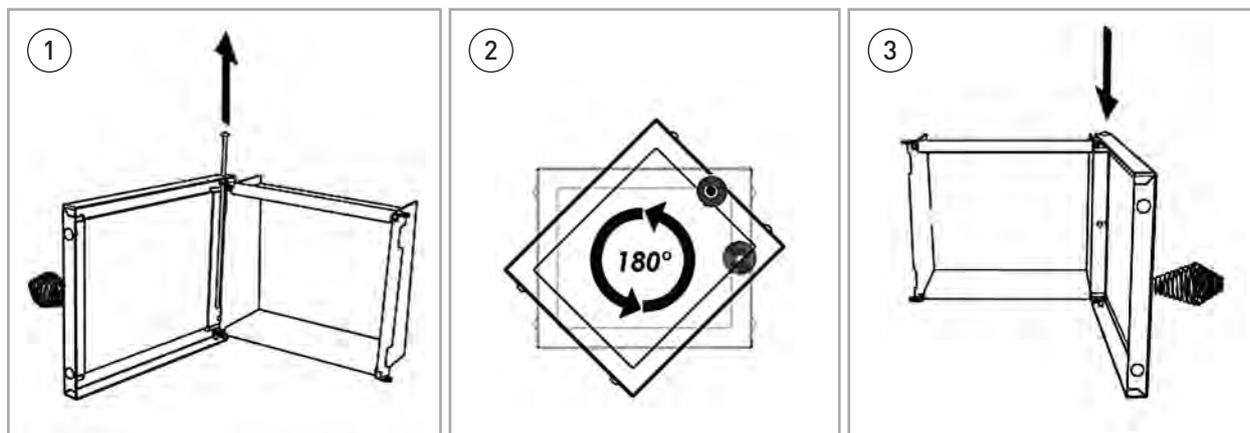
Seal the chimney pipe to the opening in the firewall with fireproof mineral wool, for example. Ensure that the chimney pipe connection is tight and, if necessary, add more fire-resistant mineral wool.



## Changing of the opening direction of the door

You can install the door of the firebox to open either to the right or to the left.

- 1) Remove the hinge shaft.
- 2) Lift the door off and turn it 180°.
- 3) Replace the hinge shaft.



## 6. Use of Klapi heater

### Warming up the heater

Before warming up the heater, ensure that there are no foreign objects that could create a fire hazard in the sauna or within the safety distances of the heater.

Empty the ash pan to ensure efficient and clean combustion.

Stack the firewood in the firebox loosely to let combustion air reach between the logs. Place larger logs on the bottom and the smallest one on top. Use logs with a diameter of about 8–12 cm. Fill approximately 2/3 of the firebox with wood.

**Place the kindling on top of the wood. Lighting the wood from the top generates the least emissions.**

**When lighting the wood, open the ash box door by 2–3 cm. Close the ash box door once ignition has started.**

**The kindling should be lit from the top only. Close the door. Once the fire burns, close the ash pan.** The replacement air needed for combustion enters the top of the firebox through separate secondary air channels. This ensures clean combustion and reduced wood consumption. If you leave the ash pan open, smoke may enter the sauna. The door knob and the ash pan handle may become hot enough to burn the skin when the heater is being heated. Use the tool supplied with the heater or equivalent for handling the knob and the handle when the heater is hot.

Firewood			
length	approximately 33 cm	First load	3 kg
Initial filling	Approx. 4 kg	Second load	2.5 kg

## Adjusting the draught

When you begin building a fire in the heater, you may want to keep the ash pan slightly ajar to achieve good draught, which improves combustion.

**During bathing and when the sauna room has heated sufficiently, the ash pan can be closed.** Excessive draught will heat the body of the heater all over until red-hot, which will considerably reduce the service life of the heater. **If you leave the ash pan open, smoke may enter the sauna.**

If necessary, add more wood in the firebox when the embers start to fade. Use logs with a diameter of about 10–15 cm.

To maintain suitable heat for bathing, adding a couple of logs at a time is sufficient.

Prolonged intense heating may cause a fire hazard!

As a rule of thumb, a temperature over 100 °C in the sauna is excessive.

Follow the wood quantities given in the instructions. Let the heater, flue and sauna cool down, when necessary.

## Checking the sweeping doors

Before starting to use the heater, ensure that the sweeping doors on the sides are in the correct position.

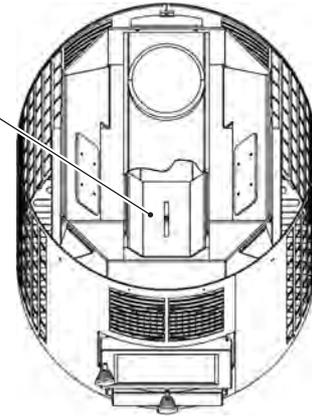
The braces of the sweeping doors must be aligned with the direction of draught.

## Water thrown on heater

Use clean drinking water to generate steam.

Make sure the quality of the water is high, as salty water or water containing lime, iron or humus may corrode the heater fast! Using seawater corrodes the heater in an instant, so seawater or any other saltwater may not be used.

The draught control plate is located under the sweeping door



The draught control plate located under the sweeping door can be used to either increase or reduce draught.

A high chimney or other similar factors may generate excessive draught, in which case the draught control plate can be used to reduce the opening.

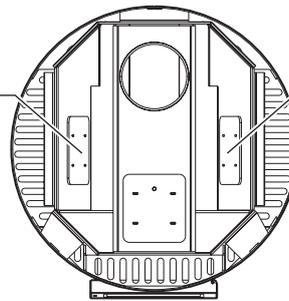
Similarly, if the sauna is located in a hollow, for example, better draught may be required, in which case the opening of the draught control plate should be made larger.

After the adjustment, make sure that the draught control plate is tightened securely so that it cannot move as a result of thermal expansion.

Correct



Incorrect



### Quality requirements of drinking water

Humus content	< 12 mg/l	Calcium content	< 100 mg/l
Iron content	< 0.2 mg/l	Manganese content	< 0.05 mg/l

## Chimney flue

The heater can be safely installed in a T600 temperature rated chimney flue, unless other instructions have been given. The inside diameter of the flue chimney pipe must be 115 mm. The recommended draught of the chimney flue is approximately -12 Pa.

The heater can be connected to the chimney flue either from the rear or top of the heater. The unused opening in the heater is closed with the cover plate supplied. The heater also comes with a short connection flue pipe for connecting the heater to the chimney flue from the rear.

The connection flue pipe must not be installed too deeply into the chimney flue because it will block the draught. Leaks in the chimney flue also weaken the draught of the heater, and, therefore, the flue connection must always be sealed with a fire-proof sealing material. If the flue connection leaks, the flue gases produced by the heater may ignite in the chimney.

The chimney flue and the connection pipes must be swept regularly according to the instructions provided by the law.

## Maintenance and service

Always empty the ash pan of the heater before each new heating to enable the combustion air conducted through the ash pan to cool off the grate and extend the service life of the grate. Use a container made of metal, and preferably equipped with feet, for the ashes.

The ash container must not be stored in the vicinity of inflammable materials, as there may be glowing embers in the ashes removed from the heater. They may cause a risk of fire.

In case of a chimney fire, close the doors of the heater ash pan and firebox and the smoke damper. (If installed) The local fire authorities must be notified of a chimney fire. After a chimney fire, a chimney sweeper must inspect the condition of both the heater and flue before the heater can be used again.

The soot and ash accumulated in the smoke ducts of the heater must be removed periodically through the sweeping opening in the heater's centre flue duct.

Due to the extensive thermal fluctuations, the heater stones erode and crumble during heater use. Stack the stones again at least once a year and more frequently in heavy use. Also replace any eroded stones. When replacing the sauna stones, also remove the stone debris accumulated in the stone compartment.

Wipe the dust and dirt off of the heater with a damp cloth.

Do not alter the structure of the product. Use only accessories approved by the manufacturer.

## Maintenance and spare parts

In case of a fault that cannot be solved, please contact the store where you purchased the heater or email [info@mondex.fi](mailto:info@mondex.fi). Spare parts can be purchased from Mondex distributors and the manufacturer. When purchasing spare parts, please refer to the name, power, serial number and manufacturing date of the heater to ensure you receive the correct parts.

## Warranty

In household use, the heater has one (1) year warranty. In commercial/professional use, the warranty is three (3) months. Commercial use refers to facilities in which the heater is in use on a continuous basis, such as fitness centres, swimming pools, housing companies etc. It is not recommended that the heater is on for longer than six (6) hours at a time. Retain the sales receipt or warranty card. The warranty does not cover external or internal mechanical damage caused by, for example, the impacts of stones or the heater falling over. The warranty also does not cover defects caused by acts of nature.

## Changing the heater stones

Re-stack the heater stones and replace any eroded stones annually (every three months in commercial/professional use). A good condition and proper, spacious stacking of the stones on top of the firebox inside the heater ensure sufficient air flow. If this is not carried out annually, the air flow may be obstructed, resulting in the firebox burning out prematurely, which is not covered by the warranty.

## 7. Troubleshooting

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### **No draught in chimney, smoke enters the sauna**

- The flue connection leaks → Seal the connection.
- The brick chimney flue is cold.
- Underpressure in the apartment caused by a cooker hood, another furnace or other device → Ensure the supply of replacement air.
- The ash pan is full or open although the fire is burning → Close the ash pan.
- The flue ducts of the heater are blocked.
- The flue connection pipe is too deep in the flue.
- The opening of the draught control plate is too small → Increase the opening.

### **Sauna fails to heat**

- The sauna is too large for the heating capacity of the heater.
- There is a lot of uninsulated wall surface in the sauna.
- The wood used as fuel is wet or of low quality.
- The draught of the flue is poor.
- The flue ducts of the heater are blocked.

### **Heater stones fail to heat**

- The sauna is too small for the heating capacity of the heater.
- The draught of the flue is poor.
- The wood used as fuel is wet or of low quality.
- The flue ducts of the heater are blocked.
- Check the placement of the stones. Remove the stone debris accumulated in the stone compartment and stones that are too small (diameter less than 10 cm) from the top of the firebox. Replace any eroded stones with larger, intact heater stones.

### **Heater generates odour**

- A hot heater may intensify the odours mixed in the air; however, these do not originate from the sauna or the heater. Examples include paints, glues, heating oils, spices.

### **Effect of heating on the sauna room**

- Darkening of the wood surfaces due to the ashes, stone chippings and metal flakes from the heater is normal. For this reason, we recommend that dark floor coatings and seam materials be used.
- Darkening can be intensified by direct sunlight, heat radiated by the heater to the wall surfaces, protective materials intended for wall surfaces (poorly heat-resistant), fine stone aggregates crumbling from stones, and smoke which enters the sauna when adding firewood, for example.
- When the installation instructions provided by the manufacturer are followed, the heater does not cause the inflammable materials of the sauna room to become dangerously hot.

