

**MONDEX®**



# INSTALLATION AND OPERATING INSTRUCTIONS

**Puu Pipe heater**

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# 1. General safety information



For safe use of sauna, please read these safety instructions first!

Always check the adequacy of fire protection distances!

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

Always check the sauna room before heating!

Do not use the sauna for a drying room for clothes or towels due to fire hazard.

Be careful around the hot heater because the stones and metal parts may burn your skin.

The water steam of the heater is burning hot and may cause burn injuries.

Children, the disabled and the sick should be subject to surveillance when in the sauna.

The benches and floors may be slippery, so move with caution in the sauna.

Do not enter a hot sauna under the influence of intoxicating substances (alcohol, medicines, narcotic substances, etc.)

Improperly filled stone compartment causes a fire hazard.

The covering of the heater causes a fire hazard.

Prolonged sitting in a hot sauna will raise your body temperature, which may be dangerous.

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

3

This device is not intended for the use of children or other persons whose reduced physical, sensory or mental capabilities, or lack of experience and knowledge prevents them from using the appliance safely, unless the person responsible for their safety monitors them or has instructed them in the utilization of the device.

Children should be supervised so that they would not play with this device.

This device complies with the following requirements:



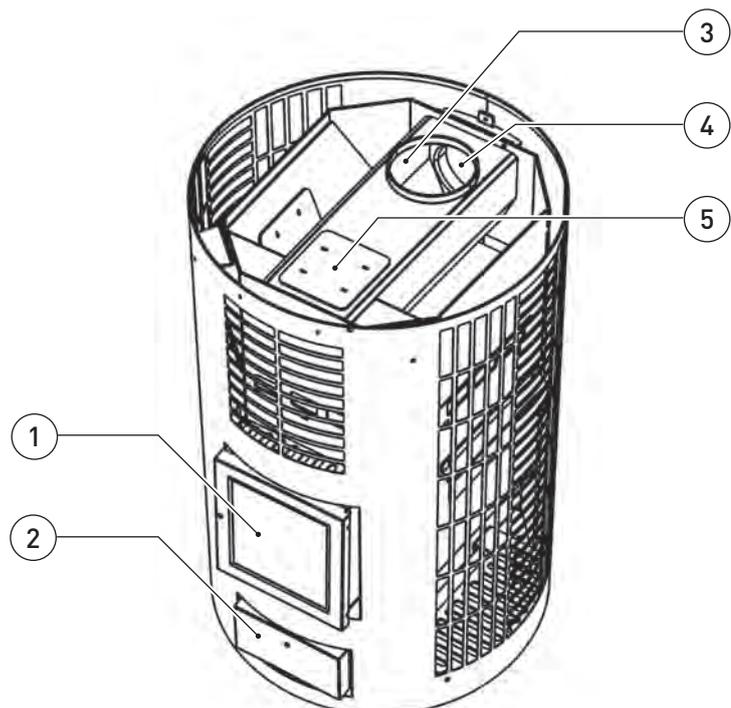
To enable continuous product development, Mondex reserves the right to change the visual and technical characteristics of the products without prior notice.

## 2. Puu Pipe heater



### Parts of the Puu Pipe heater

- 1) The firebox door (door hinge is changeable)
- 2) Ashtray
- 3) Upper connection opening
- 4) Rear connection opening
- 5) Sweeping door



### 3. Technical specifications

#### Nominal power, efficiency, emissions, average temperatures of flue gasses\*

Stove	Puu Pipe 16
Size of sauna	8-16 m <sup>3</sup>
Nominal power	13 kW
Efficiency	71 %
CO- content with 13% oxygen content	0,51 %
Temperature of the flue gasses	379 °C
Total amount of wood / fillings / heating time	9,5 kg / 3 / 90 min

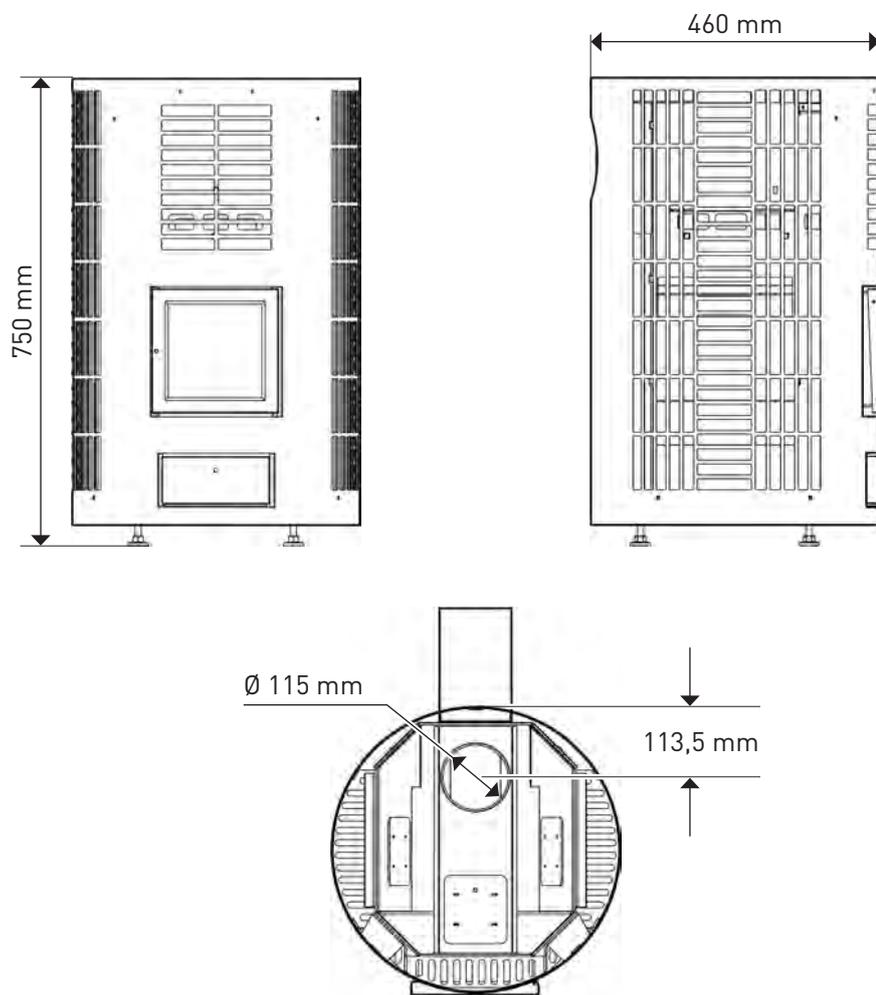
Table 3.1

\* Mondex Puu Pipe heater is tested according to EN 15821. Test report no. VTT-S-15.2015

#### Dimensions of the heater and the quantity of stones

Model	Height (mm)	Diameter (mm)	Firebox cover thickness (mm)	Flue Ø (mm)	Amount of stones (kg)
Puu Pipe 16	750	460	8	115	70

Table 3.2



## 4. Sauna room

### Ventilation of the sauna room

#### Natural ventilation

The fresh supply air is just above floor level from the heater, and the air is removed as far as possible from the heater, near the ceiling. The heater circulates the air efficiently so that the task of the outlet opening is mainly the removal of moisture from the sauna after bathing.

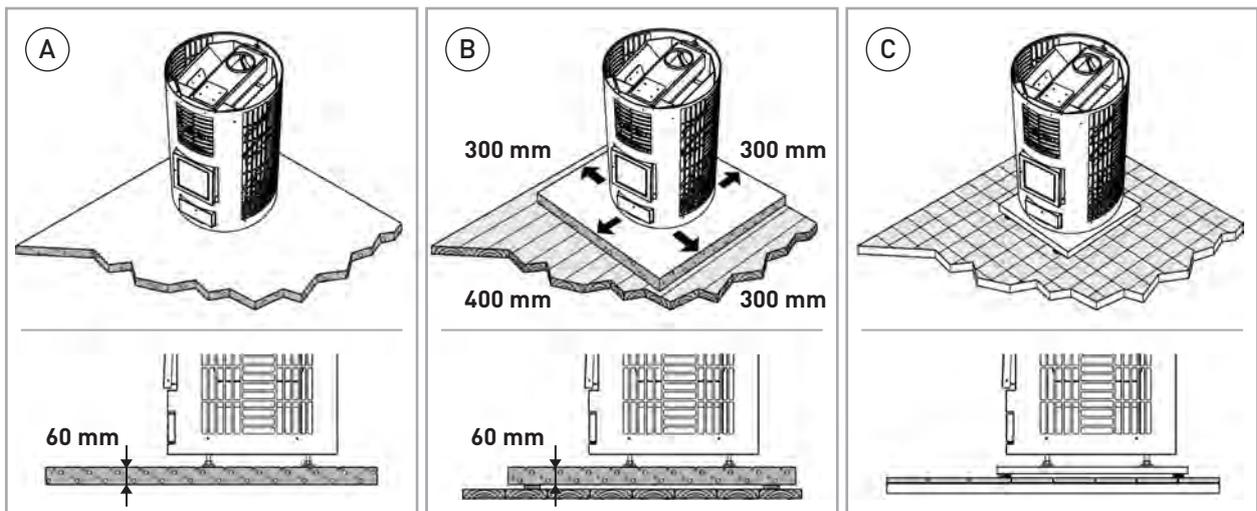
#### Mechanical ventilation

Fresh supply air is led approx. 500 mm above the heater and is removed from near the floor, for example, from under the benches.

### Hygiene of the sauna room

When using the sauna, we recommend using bench covers, so the sweat would not drain onto the benches. Sauna benches, walls, and floor are recommended to be washed at least once every six months. For washing of the sauna should be used a scrubbing brush and a cleaning agent meant for washing the sauna.

### Protecting the floor



#### Concrete floor, no tiling (A)

The heater can be installed directly on a concrete floor, if the concrete slab has a thickness of at least 60 mm. Make sure that the cast concrete below the heater has no electrical cables or water pipes in it.

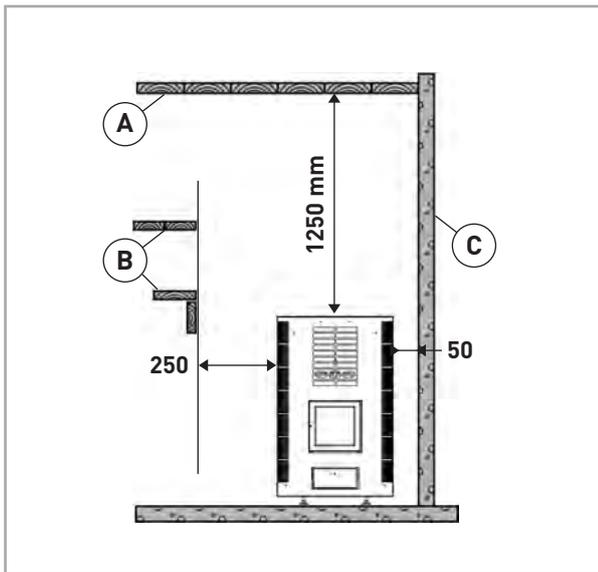
#### Combustible material for the floor (B)

Protect the floor with at least 60 mm thick slab of concrete that extends from side to side and rear at least 300 mm away from the heater (if not limited to the wall) and in front of at least 400 mm from the heater door. Support the slab a little bit off the surface of the floor in order to keep the floor material dry.

#### Tiled floor (C)

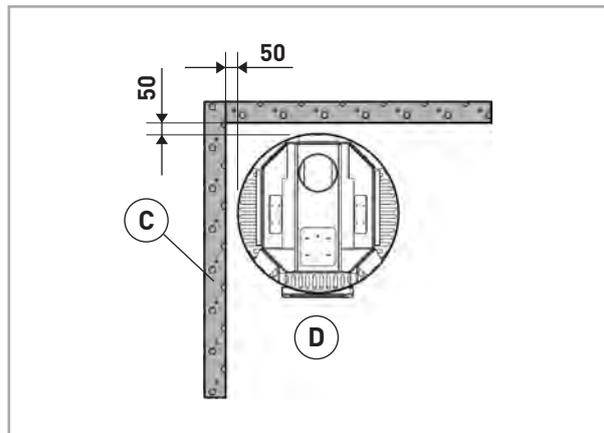
Floor glues and plasters and waterproofing materials used under the tiles cannot withstand the thermal radiation of the heater. Protect the floor with a fireplace safety pad or with similar heat radiation protection.

## Safety distances



### Ceiling (A)

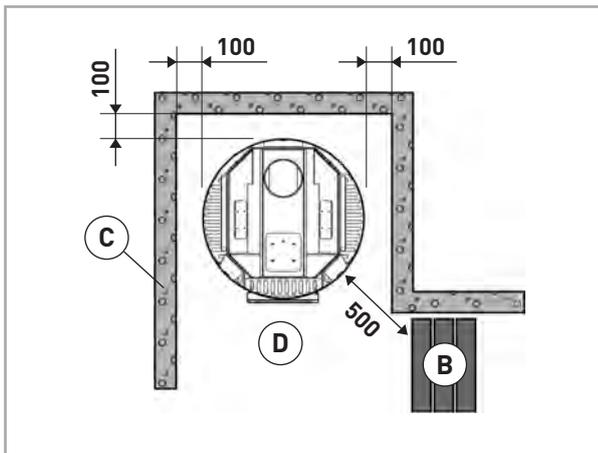
The minimum safety distance from the upper surface of the heater to the ceiling is 1250 mm.



### Masonry walls (C)

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

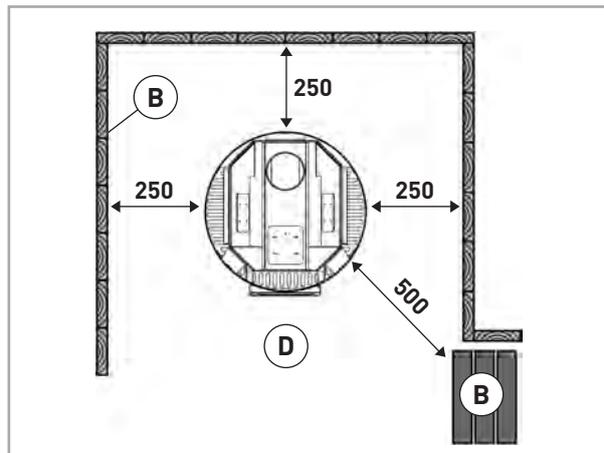
The space required for operation and maintenance (D). The user of the heater needs at least 1m<sup>2</sup> space in front of the heater



### The heater in a recessed wall

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

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



### The walls and the benches of combustible materials (B)

The minimum safety distances of the heater for combustible materials: on the sides and behind 250 mm, in front 500 mm.

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

Model	to the sides	to front	behind	up	Volume
Puu Pipe 16	250	500	250	1250	8-16 m <sup>3</sup>

Table 4.3 Safety distances for a combustible material (in mm). Safety distances are measured from the outer surfaces of the product.

## Light protection

Safety distances to combustible materials may be reduced by half with a single and a quarter of double ignition protection.

Simple light protection (1x) can be done from at least 7 mm thick non-combustible, fiber-reinforced cement board (minerit board, etc.) or at least 1 mm thick metal plate.

Double light protection (2x) can be made of the two above-mentioned plates. Fastening points must be sufficiently dense so that the structure would be stable.

Leave at least 30 mm air gap between the surface to be protected and the board/boards. Light protection should extend at least 600 mm above the heater.

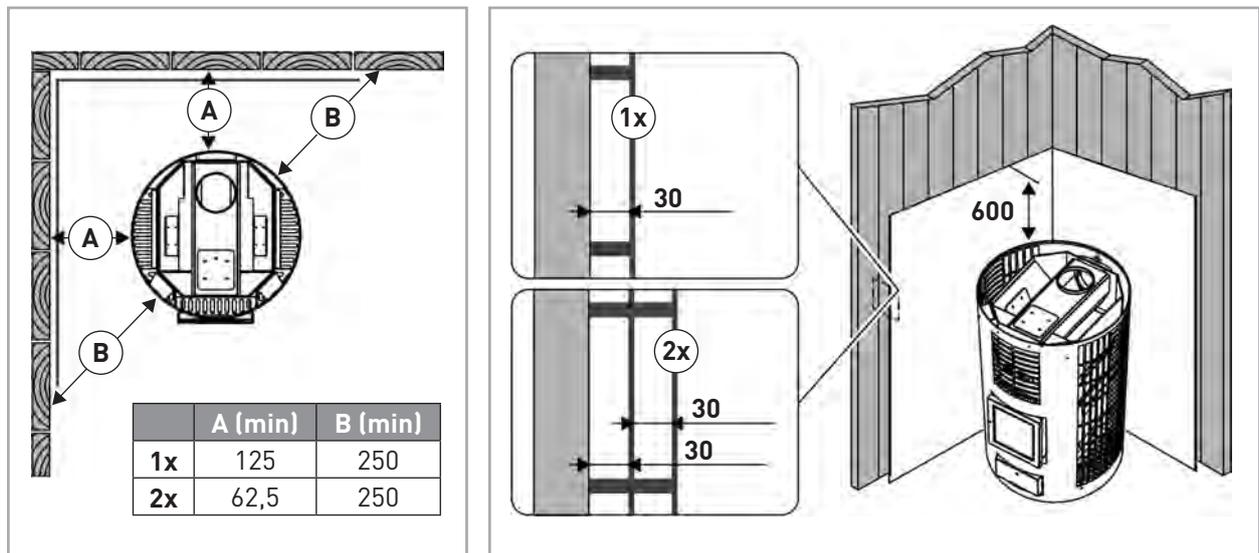
Single light protection equals at least to 55 mm in masonry. Double light protection equals at least to 110 mm in masonry.

Masonry must be open at the edges and at least 30 mm away from the protected surface.

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

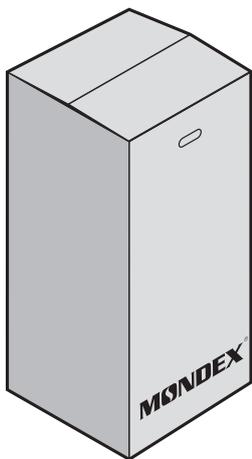
Screw the adjustable feet on downwards so much that you can rotate them, e.g., with an open-end wrench when the heater is in place.

NOTE! Adjustable legs can scratch the surface of the floor if the heater is moved on the floor.



## 5. Assembly and installation of the heater

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### **Storage**

Until assembly the heater shall be stored in an upright position in a warm and dry location.

### **Delivery content**

Heater stones are not included in the delivery. Inspect the heater visually. If you notice any discrepancies, please contact the store from where you purchased. Be careful when taking the heater out of its package to avoid dents or other mechanical damage on the heater. The sauna's floor surface should be properly protected before beginning of the installation.

### **Before installation**

- 1) Prior to installation make sure that the protection distance requirements are met.
- 2) Within the safety distances of the heater should not be electrical equipment or wiring and flammable materials.
- 3) Please also note the safety distances of the chimney flue! If the safety distance requirements are not met, you must use additional protection.
- 4) For more detailed instructions on the fire safety provisions, please contact the fire authorities.

### **First heating**

Pre-heat the heater outdoors or in a well-ventilated area. The surface of the heater has been treated with paint, part of which burns out during the first heating. This results in the smoking of the frame. When the smoke no longer forms, the heater is ready for use.

If the heater is preheated outdoors, smoke pipes should be fitted to provide the draw and also to burn the protective material from them.

The surface treatment of the heater achieves the 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 first heating.

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

Do not throw water on the heater during the first heating. The paint surface may become damaged.

On installation of the heater, adhere to the distances in accordance with the instructions of combustible material (see page 7).

## Stacking of the stones

Use only stones that are meant for sauna heaters. Suitable stones are for instance olivine diabase, peridotite or olivine. To make assure sufficient air circulation the most suitable stone size on the fire-place is of 10-15 cm diameter. Between the frame and the fireplace use 5-10 cm diameter stones. Of the both sizes you will need 2 boxes.

Stone collected from the nature surface are not suitable as heater stones.

Rinse the heater stones from dust before stacking these to the heater. Stack bigger stones on the bottom and the smaller stones on the surface. Stack the stones loosely so that air can pass them.

The stones are stacked loosely, in order to make a good air circulation. This way the heating of the sauna is also quicker! The stones should be stacked this way in layers until all stones have been placed.

When stacking the stones, please do not batter on the heater's metal surfaces in order to avoid damage. Dents caused by the user are not covered by the manufacturer's warranty or other product liability. For further information about the warranty and changing of the stones please look at page 14.

## Fuel

Since the wood moisture significantly affects the cleanliness of the combustion as well as in the efficiency of the heater, only dry wood should be used to fuel the heater. Dry logs can be identified by their clinking sound when knocking against each other.

For kindling is suitable, for example, bark or newspaper.

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

### **In the heater must not be burned:**

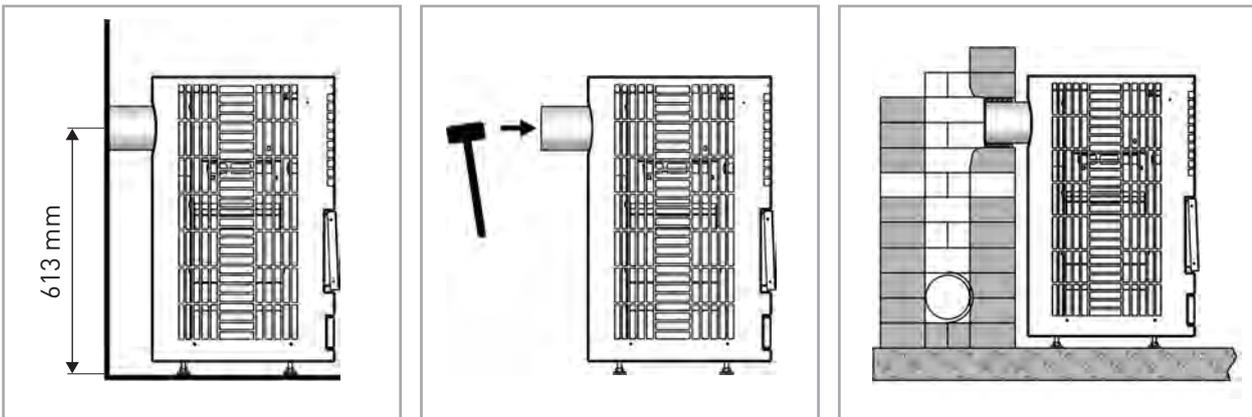
- Chipboard, plastic, coal, briquettes, pellets, or other such fuels whose calorific value is very high.
- Painted or impregnated wood.
- Waste (e.g., PVC plastics, textiles, leather, rubber, disposable diapers)
- Garden waste (e.g., grass, tree leaves)

## Connecting of the heater to a masonry chimney flue via the rear connection opening

Make a hole into the firewall for the flue connection. Note the height of the possible floor protection at the height of the hole. Make the hole a little bigger than the flue connection pipe. A suitable sealing gap around the connection pipe is about 10 mm. The inner corners of the flue hole should be rounded so that the flue gasses have full access to the flue.

Attach the flue connection pipe into the rear connection opening of the heater. Make sure that the connection pipe is tightly and firmly attached. If necessary, tap with a hammer.

Push the heater into place. Do not push the flue connection pipe too far into the flue - the flue can become clogged. Shorten the pipe if necessary. Seal the flue connection pipe in the hole of the firewall for example with a fireproof mineral wool. Ensure the tightness of the flue connection and if necessary, add more fire-resistant mineral wool.



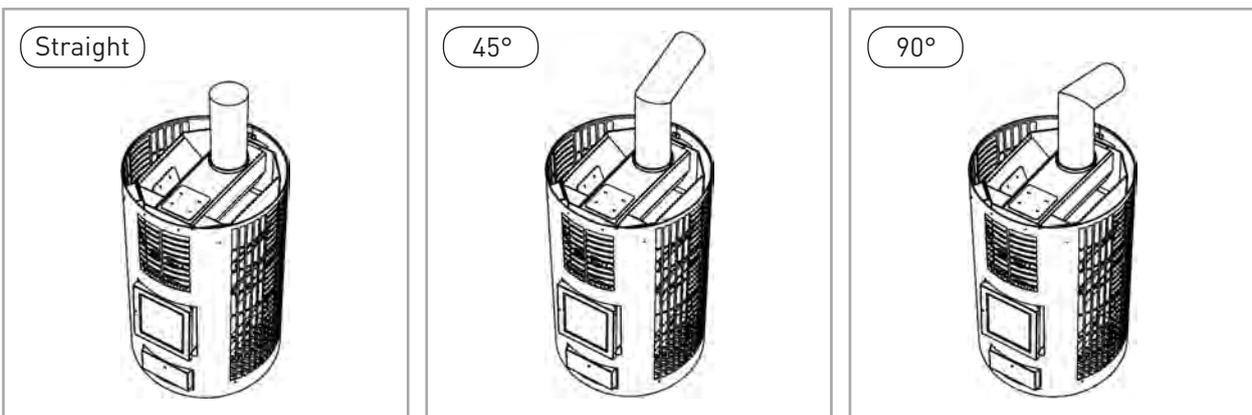
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## Connecting of the heater to a masonry chimney flue via the rear connection opening

The upper connection can be carried out with a straight 45° or 90° flue pipe. Move the cover plate to the rear connection opening. Attach the flue connection pipe into the upper connection opening of the heater. Make sure that the connection pipe is tightly and firmly attached.

Push the heater into place. Do not push the flue connection pipe too far into the flue - the flue can become clogged. Shorten the pipe if necessary.

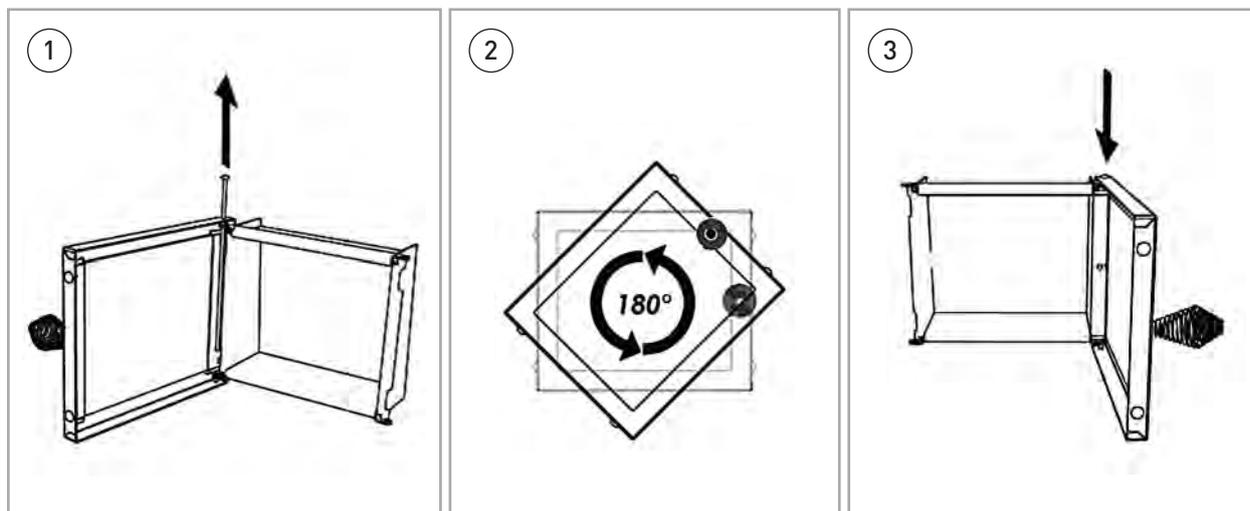
Seal the flue connection pipe in the hole of the firewall, for example with fireproof mineral wool. Ensure the tightness of the flue connection and if necessary, add more fire-resistant mineral wool.



## Changing of the opening direction of the door

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

- 1) Remove the hinge shaft
- 2) Raise the door from its place and turn 180°
- 3) Place the hinge shaft into its position



## 6. Use of the Puu Pipe heater

### Heating up of the heater

Before heating up the heater, make sure that in the sauna or inside the safety distances of the heater are no foreign objects that could create a fire hazard when heated.

Empty the ash drawer to allow for the efficient and clean combustion.

Pile the firewood to the fire site loosely so that the combustion air can be reached between them. Place the larger wood on the bottom and the smallest on top. Use the wood with a diameter of about 8-12 cm. Fill about 2/3 of the fire site with wood.

Place the kindling on top of the firewood. Lighting taking place from the top causes the least emissions.

Light the kindling and close the door. The door knob and the ash tray door handle may become hot and burn the skin when heating the heater. Use the tool supplied with the heater or equivalent for handling them when the heater is hot.

## Adjusting the draw

The draw is adjusted by loosening the ash tray.

During the early stages of heating of the heater, you may want to keep the ash tray slightly ajar to enhance combustion by a good draw.

During the using of the sauna and when the sauna is already hot, the ashtray may be closed or at least reduce the gap to curb the combustion and wood consumption. During the excessive draw, the stove body starts burning up throughout until red-hot. As a result, the lifetime of the heater will be shortened significantly.

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

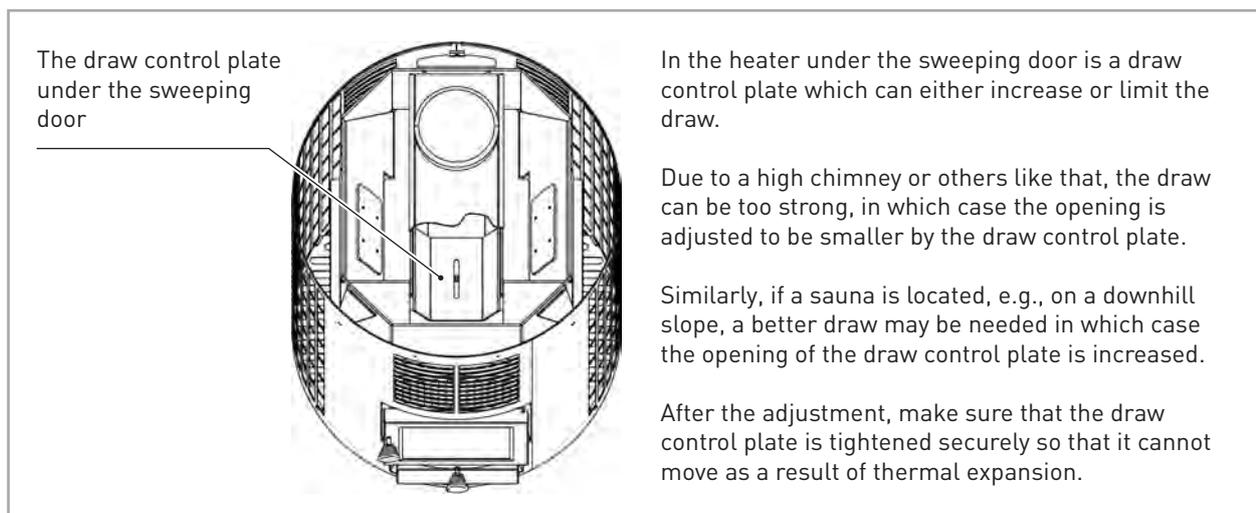
For maintaining the sauna temperature, a couple of logs at a time are sufficient.

Prolonged intense heating can cause a fire hazard!

It can be considered a rule of thumb that the temperature of more than 100° C in the sauna is too much.

Adhere to the amounts of wood indicated in the heating instructions.

Let the heater, the flue, and the sauna cool off if necessary.



## Steam water

For the steam water should be used clean drinking water.

Make sure of the quality of the steam water, as salty water or water containing lime, iron or humus may cause corrosion of the heater - fast! The use of seawater will corrode the heater in an instant, and so neither this or any other saltwater may be used.

Quality standards of the steam 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 chimney flue pipe must be 115 mm. The draw of the chimney flue is recommended to be approx. -12 Pa.

The heater can be connected to a chimney flue either from behind or on top of the heater. An unnecessary opening in the heater is closed with the supplied closing cap. The heater also comes with a short connecting flue pipe with which the heater can be connected in the rear to the flue pipe.

The connecting flue pipe cannot be installed too deeply into the chimney flue because it prevents the draw. Also, leaks in the flue weaken the draw of the heater, and, therefore, the flue connection must always be sealed with a fire-proof sealing material. If the flue connection is leaking, the risk may be that the combustion gasses produced by the heater ignite in the chimney.

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

## Maintenance and service

Drain the ash tray of the heater always before each new heating, so that the combustion air directed through the ash tray would cool the grate and lengthen the service life of the grate. For the ashes, use a container made of metal, preferably with feet.

The ash container must not be stored in the vicinity of flammable materials, as among the removed ash may be glowing embers causing a risk of fire. The soot and ash accumulated in the smoke ducts of the heater must be removed periodically through the sweeping hole in the middle smoke ducts.

Due to the strong thermal fluctuations, heater stones erode and crumble during operation. Pile the stones again at least once a year, more frequently under heavy use. At the same time, replace the disintegrated stones with new ones. When changing the sauna stones, remove the stone debris accumulated in the stone compartment. Wipe the dust and dirt off the heater with a damp cloth.

## Maintenance, spare parts

If in the heater is an apparent unexplained fault, please contact the technical support department of the manufacturer. Spare parts are readily available from Mondex vendors and manufacturers. On purchase of spare parts, it is necessary to make a note of the name and power of the heater so that the correct spare parts can be supplied.

## Warranty

For heaters and control units in private use, the manufacture, grants a warranty of one (1) year from date of purchase when the assembly, usage and service has been done according to instructions. The firebox door might change color when heating the heater, which is normal for stainless steel. The warranty does not cover this color change. Keep the sales receipt or warranty card. The warranty does not cover external or internal mechanical damage caused by, for example, impacts with a stone or the heater falling over.

## Changing the sauna stones

It is important to keep an eye on the stove and the condition of the stones at regular intervals. The top layer of the stones may seem in good condition, but further down the stones are exposed to much higher stress and temperatures. Crumbled stones block the flow of air through the heater which shortens the lifetime of the heating elements. Annually change the position of the stones and replace any broken pieces (in commercial use every 6 month). Warranty does not cover heating elements that brake before their normal lifetime due to above caused blocked airflow.

## 7. Troubleshooting

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### **The flue does not draw, smoke is coming into the sauna**

- The flue connection leaks → Seal the connection.
- Cold brick chimney.
- Underpressure in the apartment caused by a cooker hood, another furnace or other equipment → Ensure the supply of replacement air.
- Ashtray is full.
- The smoke ducts of the heater are blocked.
- The flue connection pipe is too far into the flue.
- The hole in the draw control plate is too small → Increase the hole

### **The sauna does not heat up**

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

### **Heater stones do not heat up**

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

### **The heater produces odor**

- The hot heater may emphasize the odors mixed in the air, but which are not originating from the sauna or the heater. Examples: Paints, glues, heating oils, spices.

### **The effect of the heating of the heater on the sauna room**

- Darkening of the wood surfaces due to the ashes dripping from the heater, the stone chippings and metal flakes is normal. For this reason, we recommend the use of dark floor coverings and seam materials.
- Darkening can be added by direct sunlight, the heat radiated to the heater wall surfaces, protective materials meant for wall surfaces (poorly heat-resistant), fine stone aggregates crumbling from the stone and the smoke, which enters the sauna for example when adding the firewood.
- When installing the heater follows the installation instructions provided by the manufacturer, the heater does not heat the combustible materials of the sauna room dangerously hot.

