

Saunum

Saunum's climate system devices Saunum Primary Set for saunas Instructions for use and installation



Manufacturer: Saunum Saunas OÜ

Address: Läike tee 2-4

75312 Peetri, Estonia

### **Saunum Primary Set**

An EC declaration of conformity certifies that the products Saunum Primary Set are in compliance with the requirements of the following directives of the Council of Europe, provided that the installation has been conducted pursuant to the installation instructions issued by the producer of the devices and the instruction EN 60204-1 'Safety of machinery. Electrical equipment of machines – Part 1:

General requirements':

Directive 2006/42/EC on machinery

Directive 2014/35/EU on low voltage

Directive 2014/30/EU on electromagnetic compatibility

Signed by: Andrus Vare

Position: Board Member

City: Tallinn

Date: 27 March 2019

## SAFETY INFORMATION

This installation and operation manual is intended for the owner or caretaker of a sauna as well as for the electrician responsible for installing the climate system device. After installing the sauna climate device, the manual must be handed over to the owner or caretaker. The Saunum's Saunum Primary Set (hereafter referred to as 'the sauna climate device') shall not be put into operation until the installation and safety instructions have been read.

The sauna climate device is intended for heating the sauna room to a temperature of 60–95 °C and for harmonising the climate of the room during the sweating.

**Use of the sauna climate device for other purposes is prohibited.**

**NB! To connect to the power network, the sauna climate device requires a control unit for controlling electric heaters. The control unit shall correspond to the power of the heater used pursuant to table 1.**

The control unit shall have the capability to control the fan of the sauna climate device and preferably function to switch off the heater and the fan of the sauna climate device simultaneously. Congratulations on choosing an innovative sauna climate device!

To ensure the longevity of the device, make sure that the temperature of the sauna room at the height of the lower part of the device does not exceed 80 °C. If this is exceeded, the thermal protection activates and the fan stops, and

when the temperature drops below the activation limit of the fuse, the fan starts operating again.

The producer is not responsible for any malfunctions caused by exceeding the permitted operating temperature.

Product	Output	Fuse 3 phases	Connecting mm <sup>2</sup> phases	Connecting mm <sup>2</sup> 1 phase / ventilator	Safety distance from the heater	Sauna room cubic vol.
Saunum Primary Set	4,5kw	3x10A	5x1,5	3x1,5	150	3..6
Saunum Primary Set	6 kW	3x10A	5x2,5	3x1,5	150	5..9
Saunum Primary Set	9 kW	3x16A	5x2,5	3x1,5	150	8..15
Saunum Primary Set	12kw	3x20A	5x4	3x1,5	150	10..15

Table 1.

## 1. INSTRUCTIONS FOR USE

### 1.1 Sauna room heating

#### **Before using the sauna climate device for the first time, check:**

- compliance of electrical connections
- compliance of the supply voltage with the voltage rating of the device
- the protective earth (PE) conductor for damage
- mountings of the sauna climate device's housing
- wall mounting of the sauna climate device
- the condition/presence of overcurrent fuses
- the fan rotor – it must be able to rotate freely
- the casing – all tools and residues of materials used during installation must be removed from the casing of the sauna climate device

#### **When starting the sauna climate device, check:**

- the direction of air flow – air is drawn from the upper and blown out from the lower opening
- for abnormal noises and vibration during fan operation

The first time you switch on the sauna climate device, odour is emitted from both heaters and stones. The sauna room must be well ventilated to remove it. If the power of the heater is suitable for the sauna room, it takes 45–90 minutes to reach the right temperature in a properly isolated sauna room. The stones usually heat up to the steam temperature at the same time as the sauna room. In order not to raise the surface temperature of the bench too high and to avoid excessive energy consumption, switch on the fan of

the sauna climate device just before entering the sauna room. According to Saunum, the recommended temperature for sauna procedures is 65 to 80 °C.

### 1.2. Using the sauna climate device

**Attention! Before switching on the sauna climate device, always make sure that there is nothing above or near it.**

The temperature and operating time of sauna climate device model Saunum Primary Set are controlled by a separate control module.

- **DIRECT CONNECTION OF THE DEVICE TO THE POWER NETWORK IS PROHIBITED!**
- The sauna climate device must not be used if parts of the casing have been removed and/or the circuit has been modified. Children should not have access to or play with the sauna climate device.
- When switching the sauna climate unit on and off, follow the operating manual of the control module used.

**Attention! After using the sauna, always make sure that the sauna climate device is turned off, has stopped heating, and the fan is no longer rotating.**

#### 1.2.1. Adjusting the temperature

**NB! It is advisable to keep the air circulation fan of the sauna climate device off while you are heating up the sauna room!**

In this case, the sauna heats up faster and at the same time, the bench does not become hot. You can find the best setting for you by experimenting. Start testing at lower temperatures and minimum airflow rates. If the temperature rises too high during your stay in the sauna, lower the maximum sauna room temperature or decrease the fan speed of the sauna climate device.

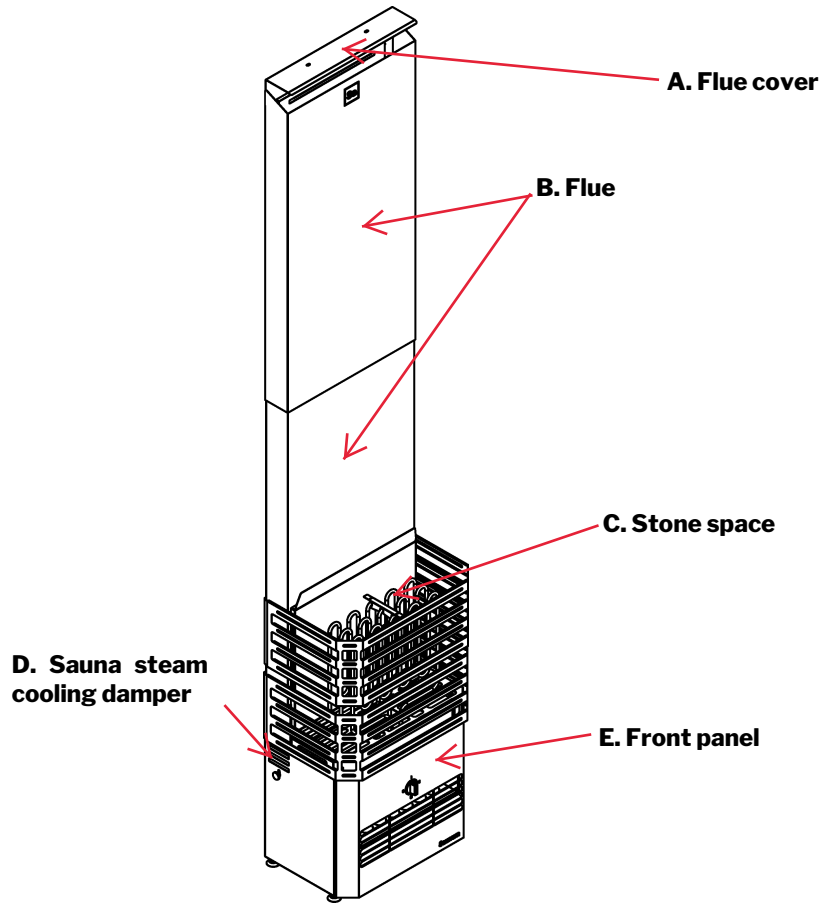


Figure1: Elements of the sauna climate device

### 1.2.2. Sauna climate control

The volume of air circulation generated by the device is controlled by the rotary switch on the front of the sauna climate device. The switch has four positions and can be rotated clockwise or anti-clockwise. If the dash on the switch button points to the left, the fan of the sauna climate device is turned off, the airflow speed increases by turning the switch clockwise; there are 3 speed levels. To regulate the steam temperature, there is a cooling valve on the left side of the flue socket behind the sauna climate device's area for stones (figure 1). We recommend keeping it 1/3 open, this setting is usually the best. If you want to cool down the steam more, try opening the valve gradually.

### 1.2.3. Using Himalayan salt balls

Himalayan salt balls are included in the sauna climate device set. The use of salt balls in the device is strictly optional and does not affect the basic function of the device. If salt balls are used with the sauna climate device, the balls should be placed in the recesses between the air outlet grille and the fan so that they do not disturb the free rotation of the fan. To install or remove salt balls, remove the air outlet grille and place the salt balls in the recesses.

Do not use / start up the device if the salt balls have gotten into the fan housing! After installing or removing the salt balls, put the air outlet grille back.

**NB! Do not use the sauna climate device without the grille!**

**NB! The use of third party salt balls is not covered by the warranty.**

### 1.3. Throwing a steam

The air in the sauna becomes dry when heated. Therefore, you need to throw water on the rocks to achieve the suitable humidity level. The effects of heat and steam on people are different, testing the different settings of the SAUNUM's sauna climate device will help you find the right combination of temperature and humidity.

**Attention! The maximum capacity of the ladle should be 0.2 litres. The amount of water thrown at a time on the heater must not exceed 0.2 litres, if too much water is poured on the stones at a time, only a part of it is evaporated and the rest may get sprayed on the bathers. Never throw water on sauna stones when someone is in the immediate vicinity of the heater, as hot steam can burn their skin.**

**Attention! The water thrown at the heater must meet the requirements for clean domestic water. Only perfumes specially designed for sauna can be used in the water. Follow the instructions on the package.**

**NB! Do not pour water into the ventilation openings of the sauna climate device!**

### 1.4. Warnings

- Staying in a steam room for a long time raises your body temperature, which can be dangerous to your health.
- Avoid touching the hot heater. Stones and the outside of the heater can burn you.
- Keep children away from the heater.

- Do not allow children and disabled or ill people to stay in the sauna by themselves.
- Consult your doctor about any medical contraindications to sauna bathing.
- Consult your doctor for medical contraindications to salt treatments. Make sure you are not allergic to salt therapy. Saunum is not responsible for the side effects of salt treatments.
- Consult with your local paediatrician (family doctor) about taking the children to a sauna.
- Be careful when moving around in the steam room as the bench and floor may be slippery.
- Never go sauna bathing under the influence of alcohol, medicines, or drugs.
- Never sleep in a hot steam room.
- Sea air and humid climate can create oxide coating (rust) on the metal surfaces of the heater. Make sure you have sufficient ventilation in the sauna room. Saunum is not responsible for the potential corrosion of equipment caused by salt. Consult a specialist if necessary.
- Do not hang clothes to dry in the steam room, as this may cause a fire hazard.
- Excessive moisture can also damage electrical equipment.

**Do not leave the sauna climate device fan running for an extended period of time, as this may raise the temperature of the sauna bench too high and cause excessive energy consumption.**

## 1.5. Solving problems

**Attention! All maintenance should be performed by qualified service technicians.**

**In the event of any malfunction of the sauna climate device, the device must be stopped immediately and inspected by a person authorised by Saunum.**

**The sauna climate device does not heat or blow air.**

- Make sure the heater fuses are in working order.
- Make sure the connection cable is connected.
- Switch on the sauna climate device.
- Increase the maximum temperature of the steam room.

**The steam room warms up slowly. The water thrown on the stones quickly cools them down.**

- Make sure the air circulation fan of the sauna climate device is switched off during the warm-up time.
- Make sure that the fuses in the sauna climate device are in working order.
- Make sure that all heating elements are hot (scalding) when the sauna climate device is operating.
- Raise the maximum temperature of the sauna using the control unit.
- Make sure the heater has sufficient power.
- Check the heater stones. If the stones have been laid too tightly, have fallen down / thickened over time, or if wrong stones are used, it may obstruct the air flow through the heater and, therefore, reduce the

speed of heating.

- Make sure the ventilation solution used is suitable for the sauna.

**The sauna room heats up quickly, but the temperature of the stones is insufficient. The water thrown at the stones runs off.**

- Make sure the heater is not too powerful. If the power of the heater is suitable for the sauna room, it takes 45–90 minutes to reach the right temperature in a properly isolated sauna room.
- Make sure the ventilation solution used is suitable for the sauna.
- Reduce the fan speed of the sauna climate device.

**The panel or other materials near the heater gets dirty quickly.**

- Make sure that the safety distances are observed.
- Check the sauna stones. If the stones have been too tightly laid, have fallen down / thickened over time, or if wrong stones are used, it may obstruct the air flow through the heater and overheat the surrounding materials.
- Make sure no heating elements are visible through the stones. If the heating elements are visible, move the stones so that the heating elements are completely covered.

**NB! Too tightly laid stones allow the heating elements to overheat and worsen the indoor climate of the sauna. Fire hazard!**



**The wooden surfaces in the sauna room naturally become darker over time.**

The darkening process may be accelerated by:

- sunlight
- heat from the heater
- wall protection means (protection means have poor heat resistance)
- fine particles from heater stones.

**The heater emits smell.**

- See section 1.1.
- A hot heater can amplify smells in the air that are not caused by the sauna or heater. Examples: paint, glue, oil, spices.

**Noises are coming from the sauna climate device.**

- There is always a certain sound when the fan is running. If it is not smooth and/or has a metallic rumble, the fan will probably need service or repair. Check the fan's air vents for foreign objects. Try switching the fan to a lower speed.
- Accidental bangs are probably caused by the stones cracking in heat.
- Thermal expansion of parts of the heater may cause noises as the heater heats up.

**1.6. Stacking of heater stones**

Stacking of the stones has a major impact on the proper operation of the heater.

**Important to know:**

- The stones should be 5–8 cm in diameter.
- Use only heater stones intended for use in heaters. Suitable stone types are peridotite, olivine-dolerite, and olivine.
- **Lightweight, porous ceramic 'stones' should not be used in the heater. They do not store enough heat when heated and, as a result, the heating elements may be damaged.**
- Wash dust off the stones before putting them in the heater.

**Note the following when installing stones:**

- Do not let the stones fall into the heater.
- Do not force the stones between the heating elements.
- Do not let the stones rest on the heater elements, but put them so that they support each other.
- Do not stack stones on the heater.
- Do not place any objects that may alter the amount or direction of the air flowing through the sauna climate device near the stone room or the fan.

**1.7. Maintenance**

Due to the large temperature fluctuations, the heater stones tend to crumble. The stones should be restacked at least once a year or even more frequently if the sauna is in active use. At the same time, stone fragments must be removed from the bottom of the heater and broken stones replaced with new ones. This enables the heater to provide optimal heating and the risk of overheating is avoided. When using Himalayan salt balls in

combination with a sauna climate device, it is advisable to check the salt balls once a year and replace the worn and broken ones. Make sure that there are no foreign objects in the fan air vents of the sauna climate device. The device should not be cleaned by children.

**CAUTION! Before maintaining or cleaning the sauna climate device, disconnect the device from the power supply and wait for the moving parts of the device to stop completely.**

**Before maintaining and cleaning the sauna climate device, make sure that:**

- the sauna climate device is disconnected from the power supply (in addition to the power switch on the device, also by overcurrent fuses).
- the device's fan has stopped completely.
- required work safety and personal protective equipment is used during the work.
- the connection cables are undamaged. If damage to the connecting cables occurs, the cables must be replaced by a qualified electrician in accordance with applicable standards and regulations before going on with maintenance and cleaning work

The housing of the device may be cleaned with a cloth dampened with water. Do not use high pressure washers and running water for cleaning! Do not use chemical detergents or solvents for cleaning! To remove limescale stains from the sauna climate device, use 10% citric acid solution and rinse with clean water. Excessive dirt can unbalance the fan rotor, which in turn leads to an increase in noise when the sauna climate device is operating. Noise can also increase as a result of damaging / bending the fan blades.

Make sure that no foreign objects or salt balls are in the fan rotor's working area. Generally, the fan does not require cleaning more than once a year. Only a person authorised by Saunum can clean the fan. Using compressed air to clean the fan can permanently damage the fan rotor! The fan bearings are maintenance-free and must be replaced in case of malfunctions.

**We recommend to check all electrical connections of the sauna climate device at least once a year. This may be performed by a qualified person.**

## **2. SAUNA ROOM**

The sauna climate device is intended for installation in a properly prepared sauna room. Walls and ceilings must be isolated well, otherwise it will take too much time and energy to warm up the room. The power supply cables for the heater and fan of the sauna must be connected through the electrical supply connection box in accordance with table 1.

### **2.1. Ventilation of the sauna room**

The air in the sauna room must be changed at least six times per hour. If mechanical air extraction is used, place the air supply above the sauna climate device. If natural air extraction is used, place the air supply under or next to the sauna climate device. The air inlet pipe must be 80 to 100 mm in diameter. Install an air outlet near the floor, as far from the sauna climate device as possible. The air exhaust pipe should be twice the diameter of the air inlet pipe. If the air extraction opening is in the washroom, there must be a gap of at least 100 mm under the steam room door. Extraction ventilation in the sauna room is mandatory. Optional venting hole for drying should be

installed in the ceiling near the sauna climate device's opposite wall (closed during heating and bathing). The sauna can also be dried by leaving the door open after using the sauna. The ventilation system of the sauna should preferably obstruct exhaust air of the sauna from getting into other rooms, especially if using the sauna climate device with salt balls.

## 2.2. Power of heater

If there is sufficient isolation behind the wall and ceiling, the power of the heater will determine the volume of the sauna. Non-isolated walls (brick, glass block, glass, concrete, floor tiles, etc.) increase the power demand of the heater. Add 1.2 m<sup>3</sup> to the volume of the sauna for each non-isolated square meter of wall. For example, a 10 m<sup>3</sup> sauna room with a glass door corresponds to the capacity requirements of a 12 m<sup>3</sup> sauna room. If the sauna room has log walls, multiply the volume measure by 1.5. The optimal size of the sauna for the Saunum Primary Set is given in table 1. The height of the sauna is usually 2100...2300 mm. When installing the sauna climate device Saunum Primary Set, the height adjusting is 1800 up to 2400mm.

## 3. INSTALLATION INSTRUCTIONS

### 3.1. Before installation

Installation of the sauna climate device must be performed by a qualified electrician. The unit must be permanently connected with a cable that is suited for the temperature conditions of the environment. A protective earth (PE) connection with conductors of at least 2.5 mm<sup>2</sup> must be connected to the connection terminal of the device. The power for the device must be taken from the power circuit of the control device, which is protected by overcurrent fuses. The required sizes of overcurrent fuses and connection

cable dimensions are given in table 1. All certified sauna controller devices with the sufficient capacity for the Saunum Primary Set model in accordance with table 1 can be used to control the sauna climate device.

### **Before beginning installation, read the installation instructions and pay attention to the following:**

- Power and type of heater are suitable for the given steam room. The recommended steam room volume is given in table 1.
- The supply voltage is suitable for the sauna climate device.
- The minimum installation safety distances measured from the heater housing at the installation location of the sauna climate device meet the requirements specified in table
- The dimensions of the device are shown in figure 3.5 and 3.6.
- Also, make sure that the upper edge of the fan outlet of the sauna climate device is lower than the lower edge of the bench. There must be no obstructions in front of the air outlet of the device; the exhaust air stream

- 3.3. Electrical connections
- The electrical connection of the device must be installed by a qualified electrician in accordance with applicable standards and requirements.
- The connection of the sauna climate unit must be done semi-stationarily on the wall of the steam room of the connection box. The junction box must be splash-proof and have a maximum height of 500 mm from the floor.
- The connection cable must be a rubber insulated cable type H07RN-F or equivalent.
- The electrical connection of the device must be set up by a qualified electrician in accordance with applicable standards and requirements.
- The connection of the sauna climate unit must be done semi-stationary to the connection box on the wall of the steam room. The connection cable must be a rubber insulated cable type H07RN-F or equivalent.
- To access the electrical connections of the device, it is necessary to open the panel below the salt ball holder. To open the panel, completely loosen the two bolts under the device (Figure 4).
- Attention! Due to thermal cracking, it is forbidden to use PVC insulated cable as the connection cable for the sauna climate device.

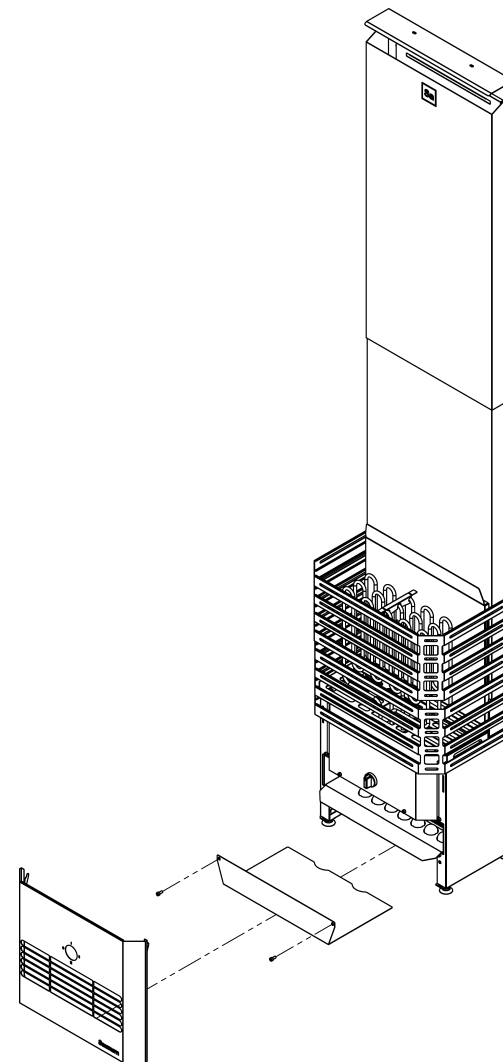


Figure 4: Access to electrical unit.

- The internal connections of the device are made using screw terminals pursuant to figure 2 and table 1 in this manual.
- A protective earth (PE) connection with conductors of at least 2.5 mm<sup>2</sup> must be connected to the connection terminal of the device.
- The heater must be powered from a 380 VAC (3-phase) or 230 VAC (1-phase) 50/60 Hz power supply via a control device protected by an overcurrent protector of the size shown in table 1.
- If the device's air circulation fan is to be connected separately from the heater control device, the fan must be connected via a residual-current device. In this case, the PE power fan inlet terminal (PE) earthing must not be combined with the heater power terminal protective earth. Also, in this case, use earthed cables of at least 1.5 mm<sup>2</sup> to power the fan.
- The power supply cable must enter the housing of the sauna climate device in a way that prevents water from leaking into the housing of the device and into the connection box on the wall along the cable. The outer insulation (sheath) of the cable may only be peeled off inside the housing.
- If the connection and installation cables are higher than 1000 mm from the floor of the steam room or inside the steam room walls, they must be able to withstand at least 170 °C (eg SSJ) under load. Electrical installations more than 1000 mm above the floor must be approved for use at 125 °C (T125 marking).
- The recommended cross-section of the connecting cable grooves is shown in table 1.

**NB! The sauna climate device may only be connected by a qualified electrician in accordance with applicable regulations.**

### **3.3.1. Electric heater insulation resistance**

Upon final inspection of the electrical installation, you may detect a 'leak' by measuring the insulation resistance of the sauna climate device. This is because the insulating material of the heating elements has absorbed moisture from the air (storage, transport). After using the sauna climate unit a few times, this moisture disappears.

Do not connect the heater to the mains through a residual-current device!

### **3.2. Mounting of the sauna climate unit.**

Look at Figure 3.1 till Figure 4.

3.2.1. Install the Flue cover and place the heater under the Flue cover to the center. Figure 3.1.

3.2.2. Hang the Flue on to the Flue cover. Figure 3.1.

3.2.3. Put the lower end of the flue on the flue socket.

3.2.4. Connect the assembled flue to the flue socket. And even the assembled heater whit pushing it sideways.

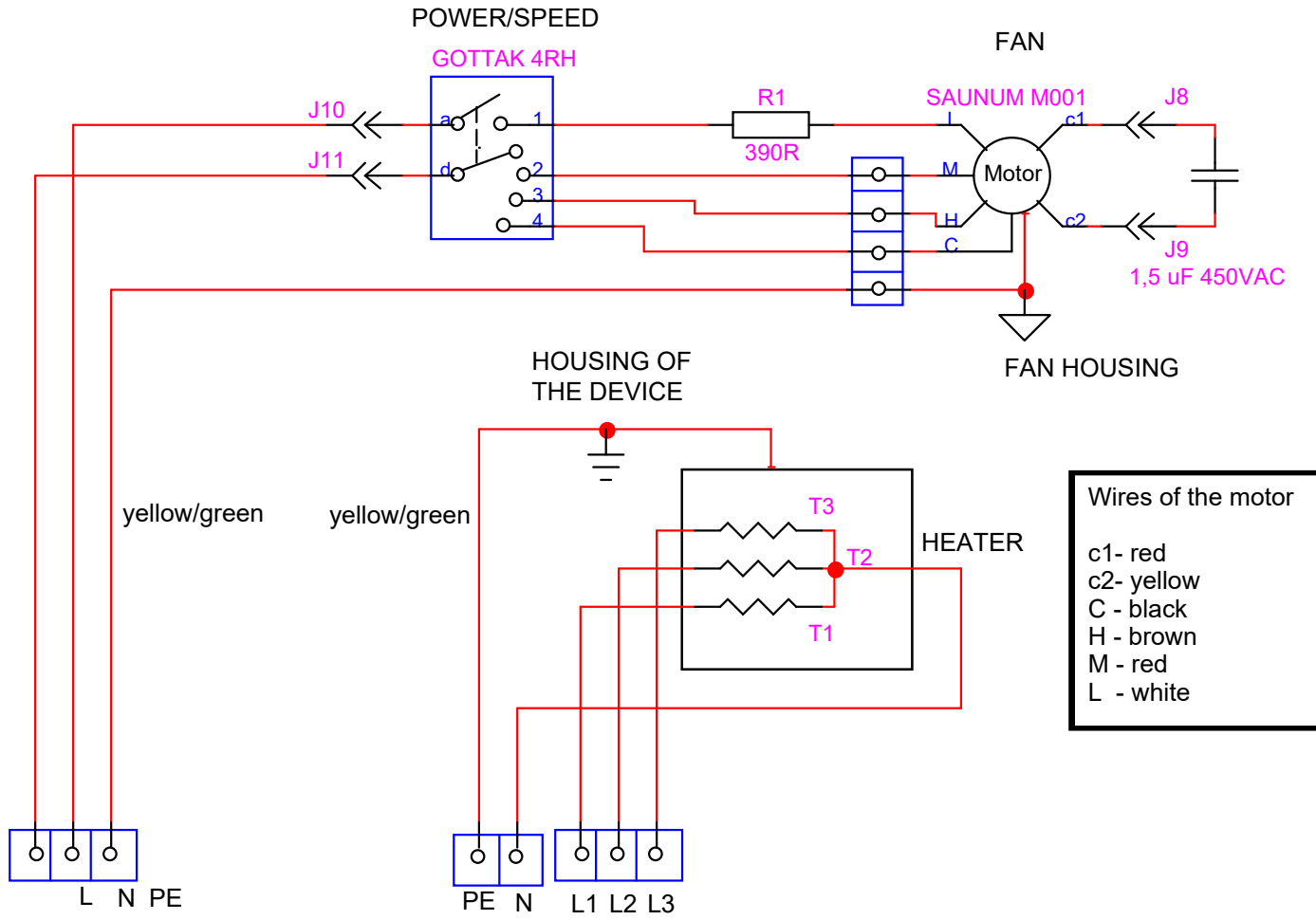
3.2.5. Heat plate installation.

3.2.6. Instal the stone space brackets. Figure 3.2.

3.2.7. Instal the salt balls. Figure 3. 3.

3.2.9. Connect the sauna climate device to the control device (section 3.3).

3.2.10. Fill the stone room of the sauna climate device with heater stones (section 1.6).



230 VAC FAN POWER  
SUPPLY TERMINAL

NB! CONNECTING IS  
PERMITTED ONLY  
THROUGH A SAFETY OR  
CONTROL DEVICE!!

230/400 VAC HEATER POWER  
SUPPLY TERMINAL

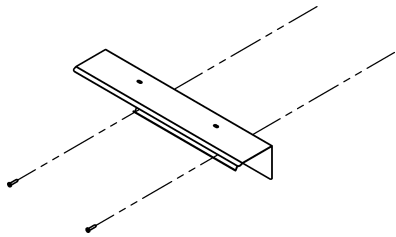
NB! CONNECTING IS  
PERMITTED ONLY THROUGH A  
CONTROL DEVICE!

DO NOT CONNECT THROUGH A  
RESIDUAL-CURRENT DEVICE!

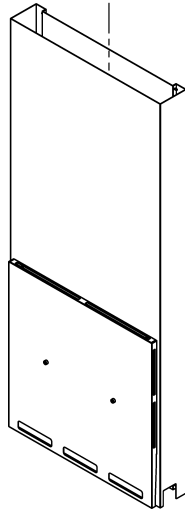
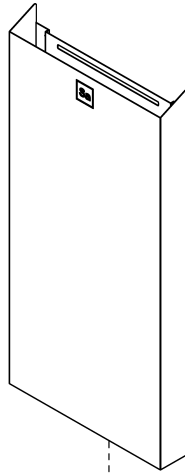
Figure 2: Electrical circuit diagram of the sauna climate device

Figure 3.1: Sauna climate device installation.

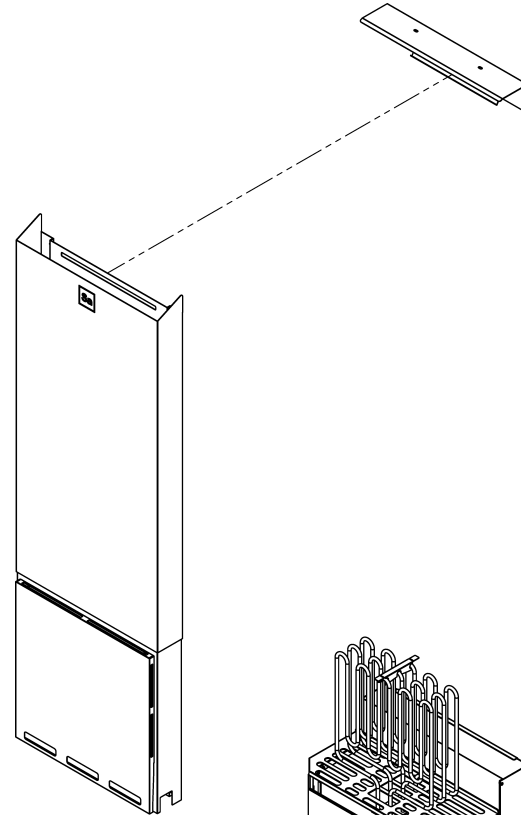
1. Fit the flue cap in the corner where the wall and ceiling connects. Fasten the flue cap with suitable screws, doubles, etc.



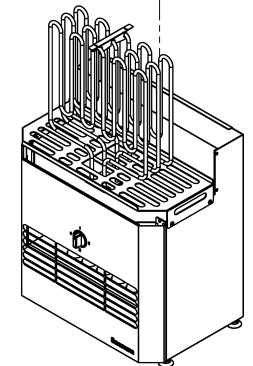
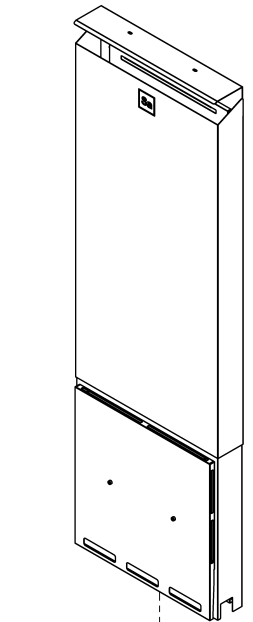
2. Slide the upper flue inside the lower one.



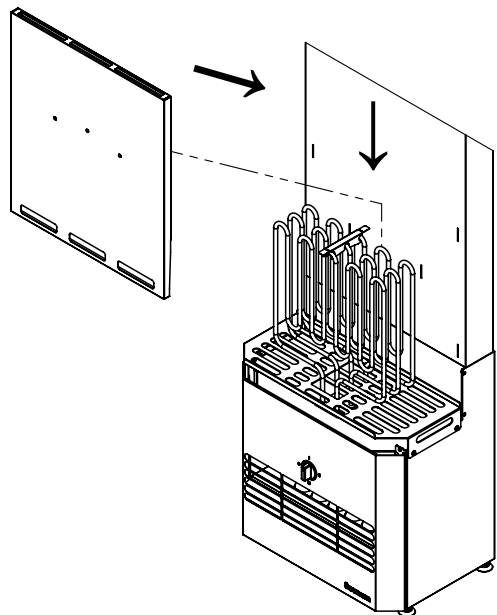
3. Support the flue from the lower end and hang it on the flue cap.



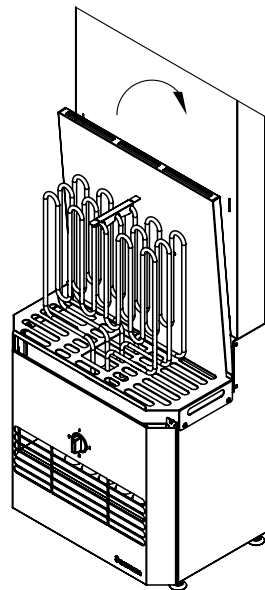
4. Connect the flue to the flue socket. And even the assembled heater with pushing it sideways.



1



2



3

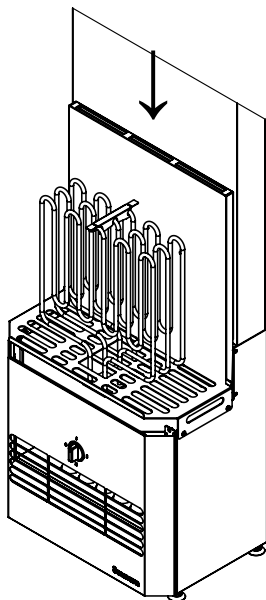
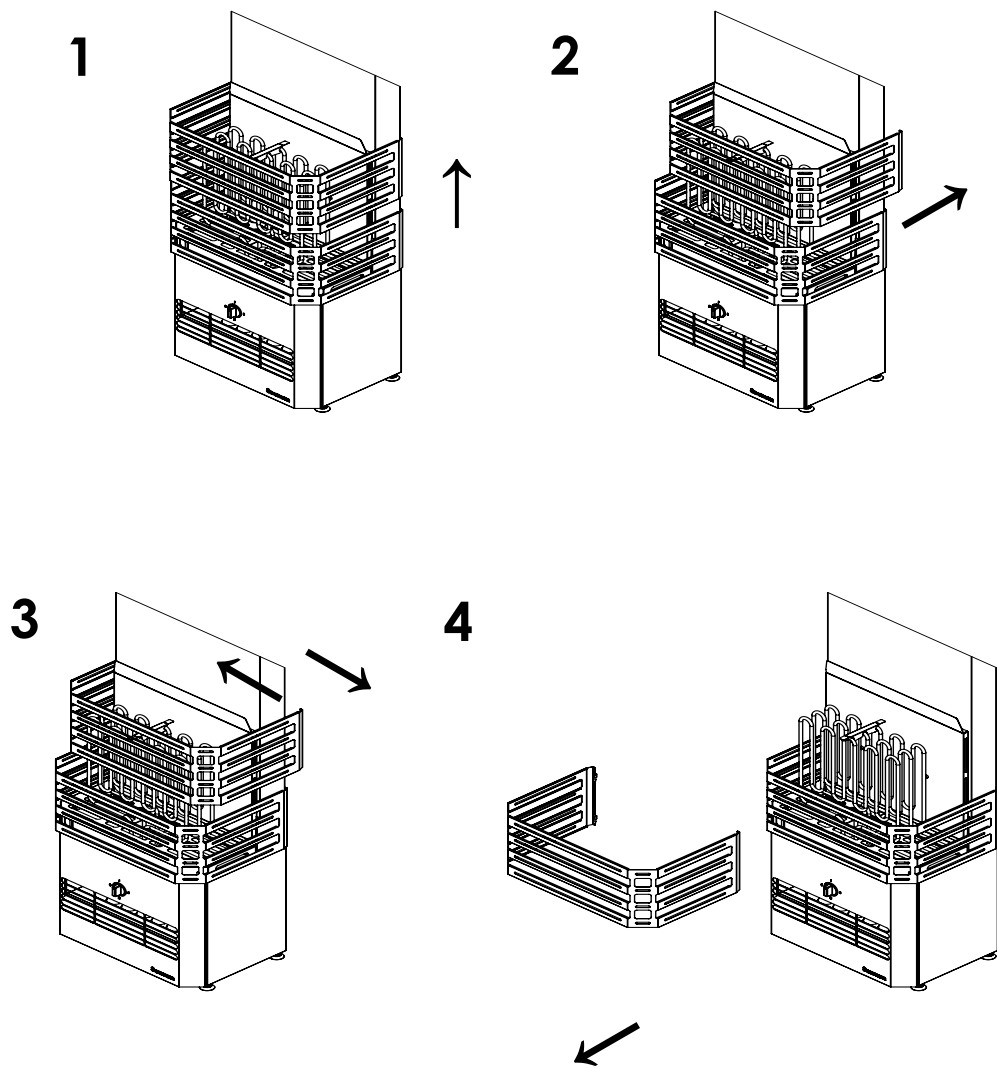
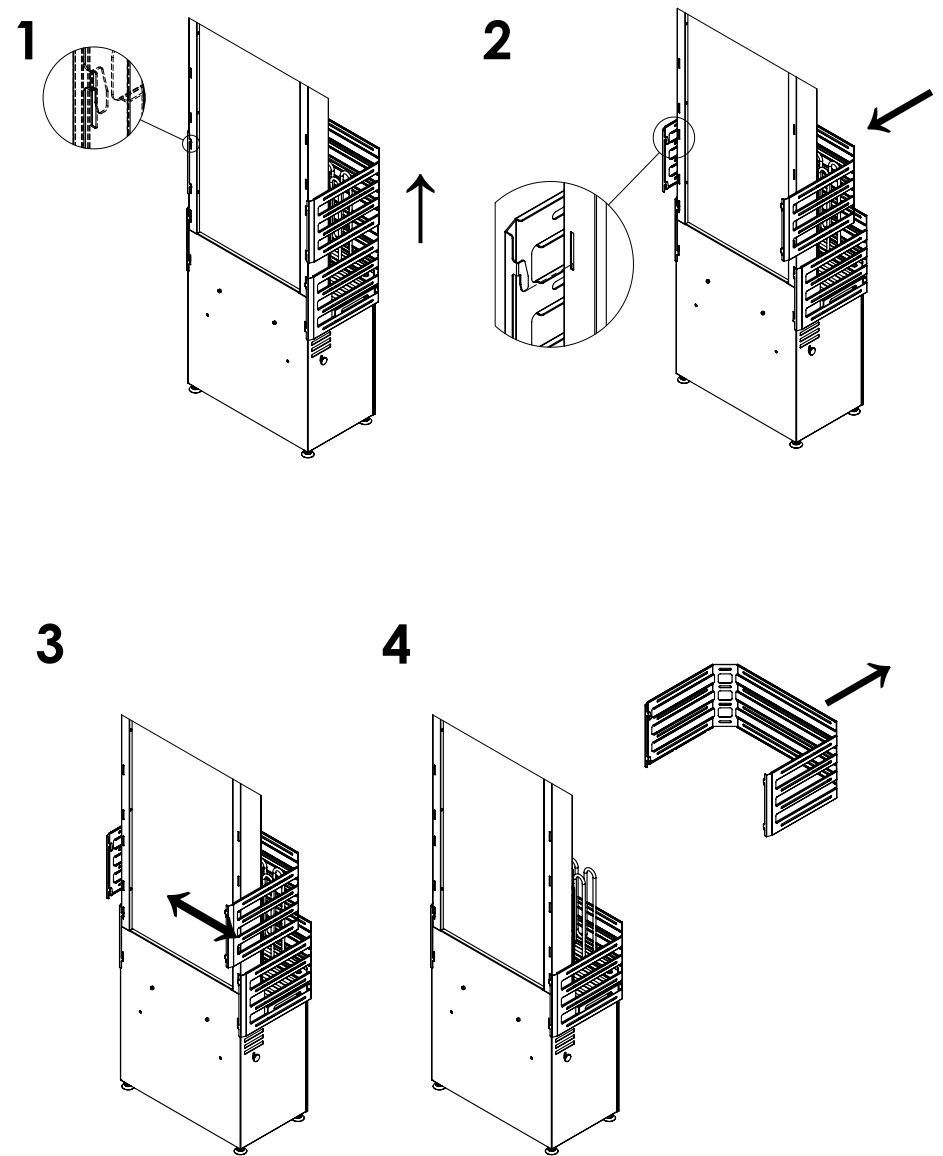


Figure 3.7: Heat plate installation.



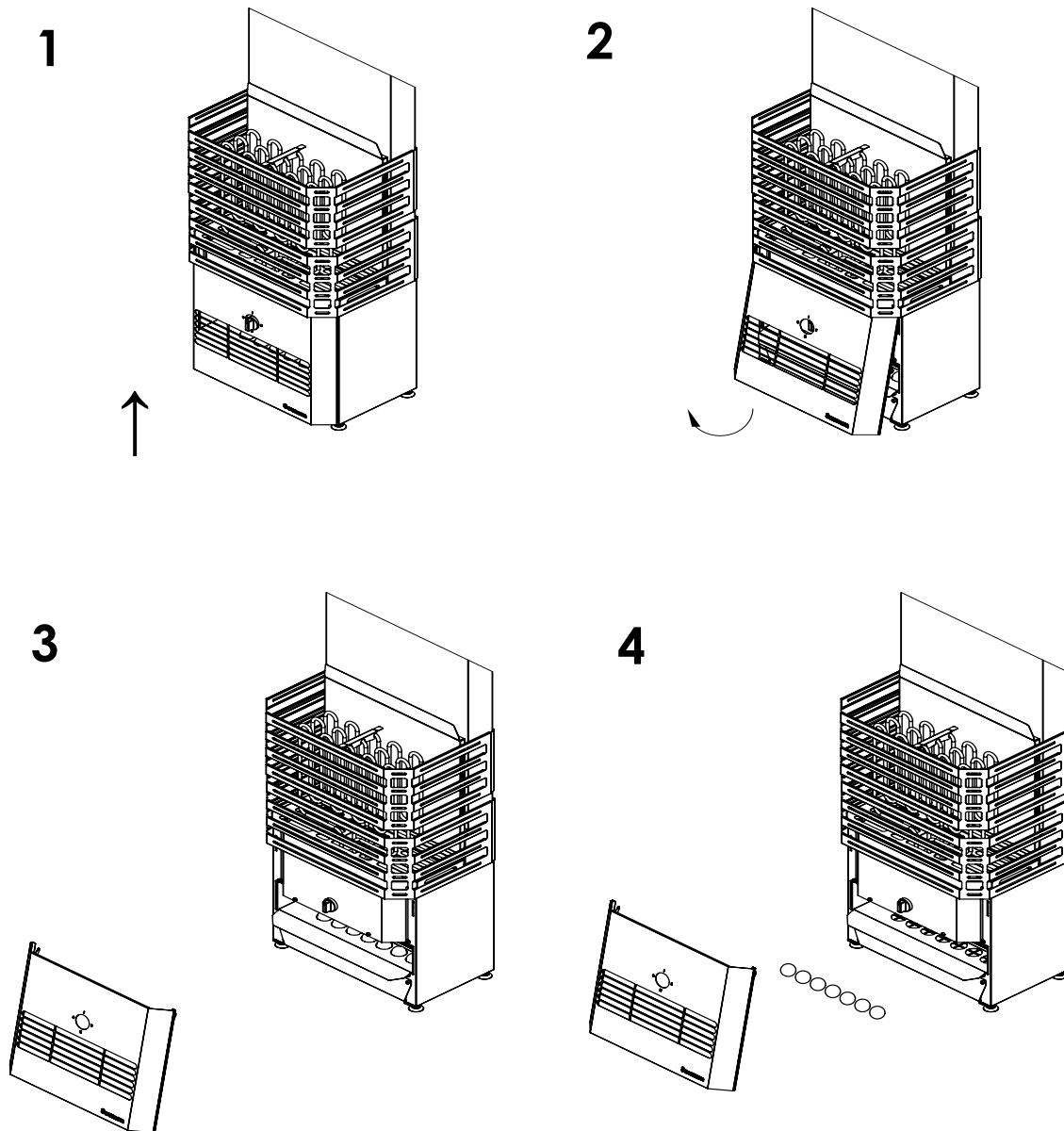


Joonis 3.2 Assembly of stone baskets (Front view)



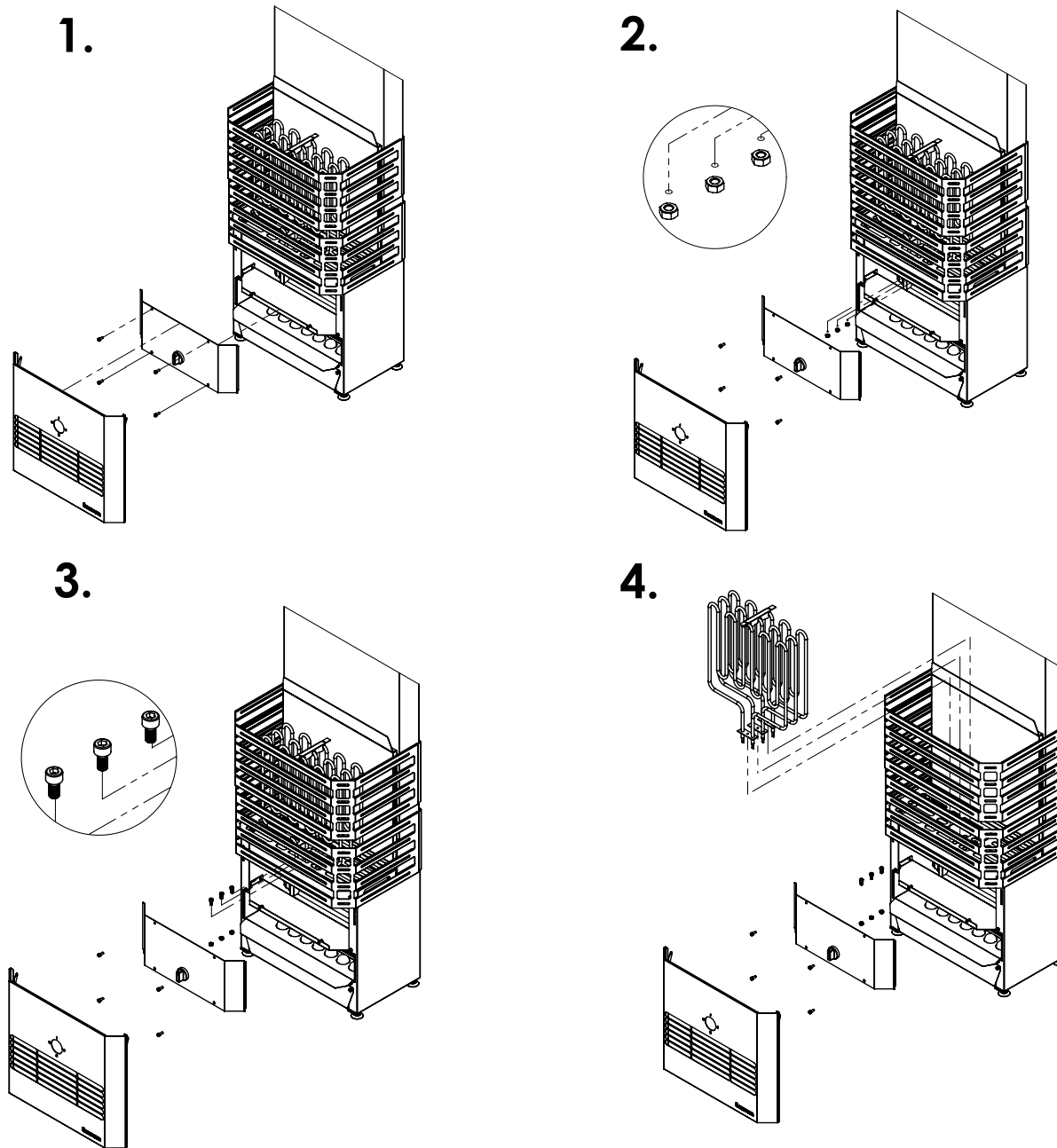
Joonis 3.2: Assembly of stone baskets (Back view)

Figure 3.3 Installation and replacement of salt balls.



1. Push the front panel up so far it goes.
2. Pull the panel out from the lower edge.
3. Hold the front panel at an angle and remove it from the device.
4. Press the salt balls in holder sockets. A more comfortable installation is possible by separating the salt ball holder from the device.

Figure 3.4: Replacing the heating elements



1. Remove the front panel. Figure3.3
2. Open the chamber under the stone space by loosening four screws.
3. Inside the chamber is possible to loosen the nuts for heater elements. Hexagon bolts are accessible from the outside.
4. Heater elements are with bolt fastened terminals. For disassembling, the heater elements are necessary to free the terminals first.

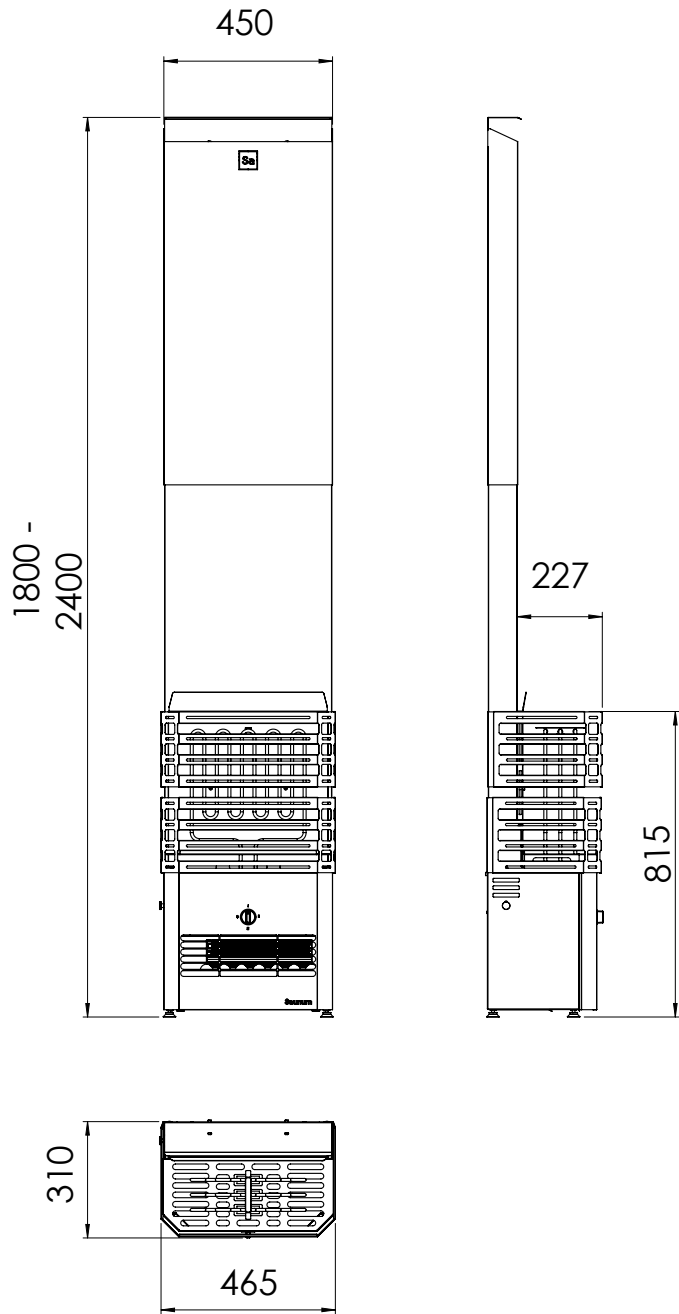


Figure 3.5: Saunum Primary set 4,5kw ja 6kw

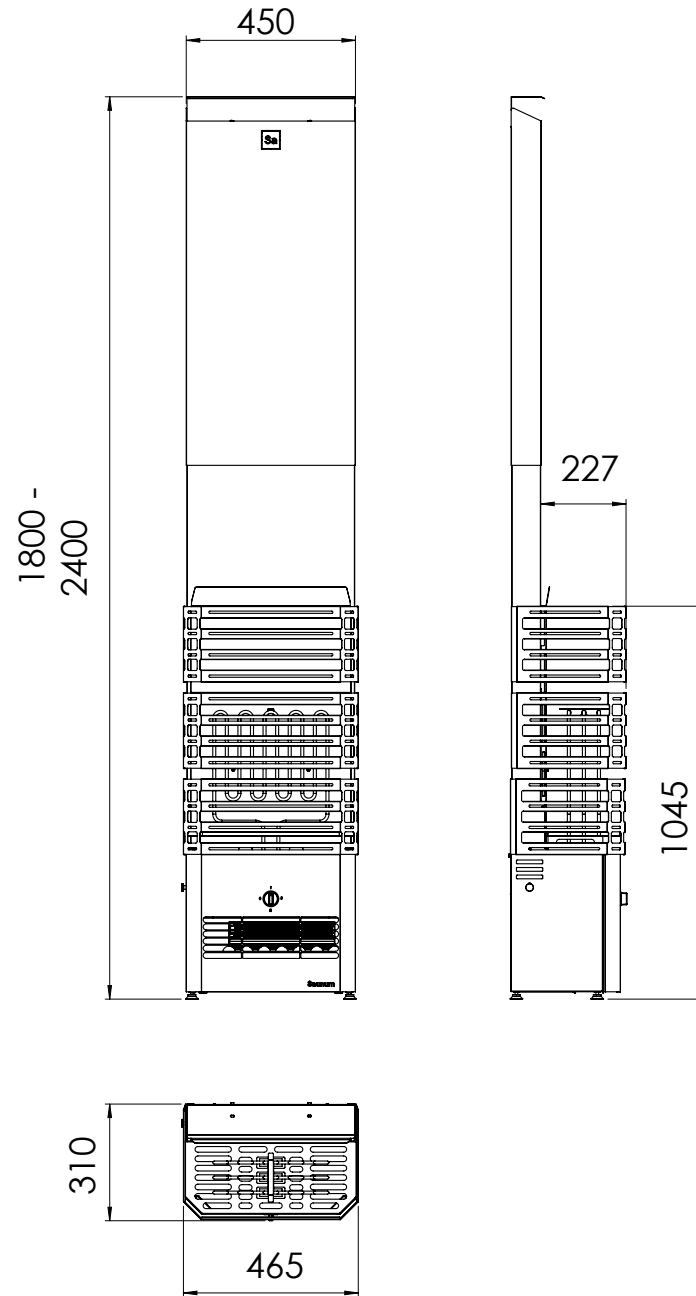


Figure 3.6: Saunum Primary set 9kw ja 12kw

**Warranty**

- The warranty period for a sauna climate device when used in a family sauna is two (2) years.
- The warranty period for a sauna climate device when used in a public sauna is one (1) year.
- The warranty does not cover malfunctions caused by failure to follow the instructions on installation, use, or maintenance.
- The warranty does not cover malfunctions caused by the use of stones and salt balls not recommended by the producer.
- The warranty does not extend to heating elements or salt balls.

**NB! The following instructions for electrical works must be carried out by a certified electrician. The electric heater also requires a control panel and stones. Read this instruction manual carefully before starting up the equipment and keep it for any possible future consult that can arise.**

<b>1. Original Owner</b>
<b>2. Address</b>
<b>3. Saunum Primary Set Model and Serial Number</b>
<b>4. Date of Purchase</b>
<b>5. Purchased From</b>
<b>6. Electrical Contractor Must Sign Here</b>
<b>7. Date of Electrical Connection</b>