

EOS Structure

Sauna heater



Documentation

Purpose

These instructions contain important information on safe and proper transporting, installing, starting up, operating, maintaining, decommissioning of the product and for troubleshooting simple faults yourself.

Read these instructions in full before working with the product.

Target group

These instructions are directed at all persons who are assigned to assemble, install, commission and operate, clean and service, maintain, troubleshoot, decommission and dispose of the product and its components.

The "Electrical installation" and "Maintenance by a trained electrician" chapters are only directed at trained skilled personnel, who are familiar with the laws and regulations for electrical installations in the installation site (electrically skilled personnel).

Manufacturer

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Means of representation

The following means of representation are used in these instructions:

Icons

Symbol	Meaning
	Additional information about an operating step
	Cross-reference to a page
	Result of a single action
	Overall result of an instruction
	Table title
	Title of figure

Revision history

Date	Version	Description
01.11.2022	01.00	First version
28.02.2024	01.01	Design correction

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General safety instructions

1

General safety instructions

1.1 Safety instructions for assembly and installation



Risk to life and limb and risk of fire

The installation instructions are intended for qualified personnel familiar with the laws and regulations applicable to electrical installations at the installation site. Observe the following general safety instructions during mounting, configuration and commissioning of the product.

Risk to life and limb from electric shock and fire in the event of improper or faulty electrical connection. This risk remains also after completion of the installation work.

- ▶ The electrical installation of the heater, power units and other electrical equipment with fixed mains connection may only be carried out by a trained electrician of an authorised electrical company.

Ensure compliance with the applicable standards and regulations for electrical installation.

The system must be completely disconnected from the mains supply before commencing installation and repair work.

The housing cover must only be removed by a qualified electrician.

Fire hazard from overheating

Insufficient ventilation can lead to the unit overheating and fire.

- ▶ Install air inlets and outlets in the cabin.
- ▶ Follow the safety and installation instructions of the cabin manufacturer.

Risk of fire due to sauna stones

It is possible for hot stones or stone pieces to fall out of the rock store.

- ▶ The sauna heater may not be placed on a floor made of easily flammable material (e.g. laminate or synthetic flooring). Ceramic tiles are recommended as a flooring option.

Risk of burns from hot glass

Glass surfaces in the cabin become hot while the sauna is in operation.

- ▶ When installing the cabin, note that the touchable glass surfaces on the outside of the cabin must not get hotter than a maximum temperature of 76°C. Attach appropriate guards if necessary.

Risk of burns from hot unit

The sauna heater gets hot during operation. Touching the sauna heater can cause burns.

- ▶ Maintain the safety distances.

Sauna cabin and sauna heater

The sauna cabin must be properly built from suitable material and the sauna heater must be suitable for the cabin.

- ▶ The sauna heater and control unit may only be used in sauna cabins made of suitable, low-resin and untreated material (e.g. Nordic spruce).
- ▶ Multiple heaters may be installed in a sauna if the cabin volume and heater output are compatible. In this case, depending on the position, an additional safety temperature limiter must be installed for each additional sauna heater.
- ▶ The sauna heater is not designed to be installed or set up in an alcove or under the bench or a roof slope.
- ▶ Do not install any electrical sockets in the sauna cabin.
- ▶ Air inlets and air outlets must be provided in every sauna cabin. The air inlets can be positioned below or behind the sauna heater. The minimum dimensions of the air inlets and air outlets are given in the technical data.
- ▶ The air outlet is always installed in the lower part of the wall, diagonal to the sauna heater. The air inlets and air outlets must not be closed. Note the instructions of the sauna cabin supplier.
- ▶ Use one of the control units described in the technical data of these instructions to control the sauna heater. This control unit is fixed in a suitable place on the external wall

General safety instructions

of the cabin. The corresponding sensor housings are fixed inside the sauna cabin, refer to the control unit installation instructions.

- ▶ The cabin lighting must be safe for sauna cabin use and installed in such a way that it can be used safely in a sauna cabin. Make sure that the standards and regulations applicable in the respective country are met.
- ▶ The cabin door must open outwards and must not have a lock that cannot be opened in the case of failure. We recommend magnetic latches or spring catches.

1.2 Operator instruction

The operator of the sauna cabin must be instructed in the following general safety instructions during commissioning. The operator must be given a copy of these instructions.

Risk of electric shock

A risk to life and limb from electric shock and fire arises in the event of improper repair work. This risk remains also after work is completed.

- ▶ Repairs and installations must only be performed by a trained electrician.
- ▶ The system must be disconnected and removed entirely from the mains supply before commencing repair work.
- ▶ The housing cover must only be removed by a qualified electrician.
- ▶ Use only original spare parts from the manufacturer.

Fire hazard



Objects placed on the heater or protective grilles can easily be ignited and cause fires.

- ▶ Do not remove heater protection (sheet metal guard).
- ▶ Do not place objects on the heater.
- ▶ Fill the rock store as directed.
- ▶ Inspect the sauna cabin prior to each switching on.
- ▶ If you switch on the sauna heater using a pre-set timer or a remote control, use a cover protection system for the heater or install a suitable safety device.

Health risks

Spending time in a sauna cabin can lead to serious health risks or even death for persons with health impairments.

- ▶ Persons with health impairments must consult a doctor before entering a sauna cabin.

Damage to health

Excessive time spent in a heated sauna cabin can lead to overheating of the body (hyperthermia), which may cause serious health problems and even death. Hyperthermia occurs when the core temperature of the body exceeds the norm by a few degrees. Symptoms of hyperthermia include fever, dizziness, lethargy, sleepiness, and fainting. Side effects of hyperthermia include perception disorders, inability to recognize the need to leave the room, inability to identify imminent danger, harm to the foetus in the case of pregnant women, inability to physically leave the room, unconsciousness.

Alcohol, drugs, and medications increase the risk of hyperthermia.

- ▶ Do not exceed the usual sauna times.

Leave the sauna cabin if your body reacts unusually to the heat or if you feel unwell.

Do not drink alcohol, take drugs or medicines before a sauna session.

General safety instructions

Operation by children or persons with reduced mental capacity

- Children and persons with reduced mental capacity can put themselves at risk.
- ▶ Children must be supervised to ensure they do not play with the sauna heater.
 - ▶ Children under 8 years of age should not operate the sauna cabin.
 - ▶ The settings for the heating time must only be changed by children under 8 years of age if they are supervised by an adult.
 - ▶ The sauna cabin must only be used by persons with reduced mental capacity, or limited physical or sensory abilities under supervision or if they have been previously instructed in its use and understand the risks.
 - ▶ Children and persons who have not received proper instruction must not clean or service the system.

1.3 Personal protective equipment

Personal protective equipment protects people from health and safety impacts during their work. The specified protective equipment must be worn.

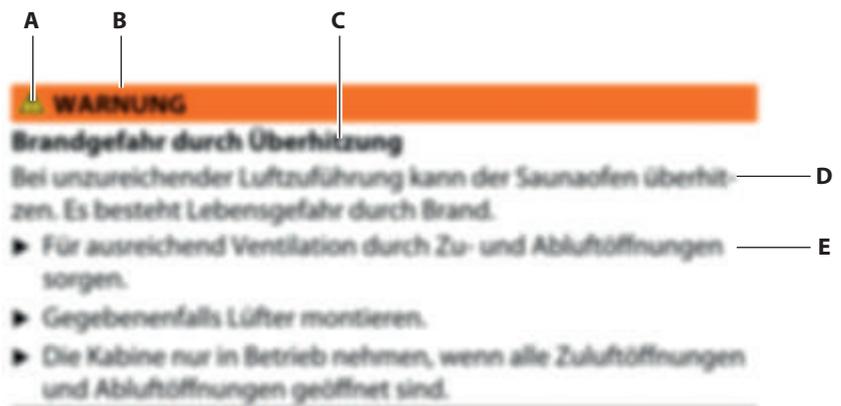
Symbol	Meaning
	Wearing cut and puncture resistant gloves protect against hand injuries.

 Personal protective equipment

1.4 Safety instructions and warnings

Structure of the warnings

The warnings are structured as follows:



- | | | | |
|---|---------------------------|---|------------------------------------|
| A | Hazard symbol | B | Signal word |
| C | Type and source of danger | D | Possible consequences of disregard |
| E | Actions to avoid hazards | | |

☒ Structure of the warnings

Meaning of the signal words

Safety instructions and important operating instructions are classified according to ANSI Z535.6. Please familiarise yourself with the following terms and symbols:

⚠ WARNING

Indicates a hazardous situation which, if not avoided, results in death or serious injury.

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, can result in minor or moderate injury.

NOTE

Indicates a hazardous situation which, if not avoided, can result in damage to the unit.

General safety instructions

Meaning of the symbols

The following symbols for hazards, warnings, mandatory instructions and prohibitions are used in this document:

Symbol	Meaning
	General warning of a hazard

Warning sign

Symbol	Meaning
	Do not cover

Prohibition sign

Symbol	Meaning
	Wear protective gloves
	Refer to operating instructions

Mandatory sign

Explanation of safety symbols on the product

The following safety symbols are attached to the product:

Symbol	Meaning
	General warning of a hazard
	Do not cover
	Refer to operating instructions

Safety symbols on the product

1.5 Safety devices

1.5.1 Heater guard rail

The sauna heater gets hot during operation. Heater protection (sheet metal guard) prevents direct touching of the external surface of the heater. The heater guard must be installed during operation.

1.5.2 Temperature sensor with safety temperature limiter

It is essential that the temperature sensor with the safety temperature limiter (STB) is installed. The temperature sensor connection is described in the instructions for the control unit.

1.5.3 Heating period limitation

All sauna heaters, except for those installed in public saunas, and which must be operated under the supervision of personnel, must be equipped with a timer that complies with IEC and EN standards. For safety reasons, this timer limits the operation time. This timer is typically integrated in all EOS sauna control units.

1.6 Illegible signage

Stickers and signs can get dirty or become illegible in some other way so that hazards cannot be identified and necessary operating instructions cannot be followed. To avoid injuries, all warnings must always be kept in a good, legible condition. Replace damaged signs or stickers immediately.

1.7 Standards and regulations

An overview of the standards used in the design and construction of the product, can be found on the manufacturer's internet site www.eos-sauna.com as a download for the respective product.

The local regulations for the installation and operation of heating, sauna and steam room systems also apply.

Identification

2

Identification

EOS Structure is an electrically heated sauna heater for Finnish operation, which is available with several different outputs.

2.1 Control system

The sauna heater EOS Structure may only be operated in conjunction with a control unit, which is named in the technical data of these instructions. The control unit is not included in the scope of delivery.

2.2 Nameplate



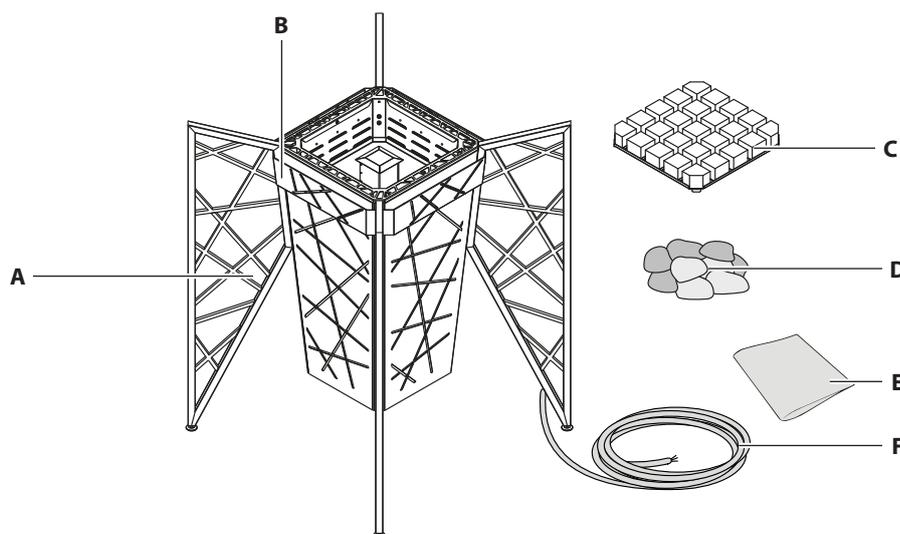
- | | | | |
|---|-------------------|---|-----------------------|
| A | Name | B | Model |
| C | Item number | D | Electrical connection |
| E | Country of origin | F | Manufacturer |
| G | Heater output | H | Manufacturing date |
| I | Serial number | | |

 Structure of the nameplate

2.3 Scope of delivery

Check the delivery to ensure that all components were delivered and that they are in proper working order. Contact your distributor if components are missing or damaged. The heater must not be operated if components are missing or damaged.

The following parts are included in the scope of delivery:



General view of the sauna heater and the scope of delivery

Scope of delivery

Item	Name	Quantity
A	Sauna heater EOS Structure	1 ea.
B	Guard, preassembled	1 ea.
C	Cubius stone set (15 kg) with holder frame	1 ea.
D	Classic sauna stones, 30 – 60 mm, in the box	15 kg
E	Installation and Operating Instructions	1 ea.
F	Connection cable, preassembled, connection length 8 m	1 ea. at ≤ 10 kW 2 ea. at 12 kW

Identification

2.4 Technical data

	Heater output (rated output to DIN)			
	6 kW	8 kW	10 kW	12 kW
For cabin volume	7 – 8 m ³	8 – 12m ³	9 – 14m ³	14 – 18m ³
Minimum dimensions of air inlets and outlets	35 × 4 cm	35 × 5 cm	35 × 6 cm	35 × 8 cm
Weight without stones and packaging	40 kg			
Unit dimensions H × W × D	102 × 70 × 70 cm			
Stone filling	Approx. 30 kg			
Size	30 – 60 mm			
Electrical connection	400 V 3N ~ 50 Hz			
Extension power unit (LSG unit)	No			LSG 10, required for specific control units from 10 kW or 12 kW
Suitable control units (not included)	<ul style="list-style-type: none"> ▪ Econ series (except D1, a power extension unit is required from 10 kW) ▪ Compact series (a power extension unit is required for DP/DC for 12 kW) ▪ EmoTec series (a power extension unit is required for 12 kW) ▪ EmoStyle series (a power extension unit is required for 12 kW) ▪ EmoTouch series (a power extension unit is required for 12 kW) 			
Leakage current	Max. 0.75 mA per kW heater output			
Area of application	Use in private and commercial sauna cabins			
Fuse protection for control unit	3 × 16 A			
Fusing in the LSG	3 × 16 A			3 × 20 A
Connection, mains – control unit	5 × 2.5 mm ²			–
Connection, mains – power extension unit	–	5 × 2.5 mm ²		
Connection, control unit – heater	5 × 2.5 mm ²			–
Connection, LSG – heater	–	5 × 2.5 mm ²		
Connection, control unit – LSG	–	4 × 1.5 mm ²		
All line cross-section specifications are the minimum cross-sections for the copper line.				

2.5 Intended use



The sauna heater EOS Structure is intended solely for the purpose of heating sauna cabins, together with a suitable control unit.

The sauna heater EOS Structure is suitable for commercial and private use.

The sauna heater is not suitable for outdoor use. It must be operated only inside buildings and may not be exposed to environmental conditions such as extreme humidity and moisture or the possible formation of condensation or corrosive substances in the ambient air, as well as other weather conditions.

Intended use also includes compliance with the operation, servicing and maintenance requirements. The manufacturer is not responsible for unauthorised modifications and damage resulting from these modifications; the person modifying the equipment alone bears the associated risk.

Any use beyond this is considered improper use.

Foreseeable misuse

The following are considered instances of foreseeable misuse:

- The unit is operated without knowledge of or compliance with the safety instructions.
- The requirements for operation, servicing and maintenance are not met.
- The unit is operated by children under 8 years of age.
- The unit is operated by children 8 years of age or older, or persons with reduced mental capacity who have not been thoroughly instructed in its use.
- The unit is operated without sauna stones or with a rock store that is not filled as directed.
- The heater power does not match the sauna volume.
- The unit is operated with insufficient air supply or exhaust air.

General instructions

- Please note that an optimal sauna climate can be achieved only if the cabin with its air inlets and outlets, the sauna heater, and the control unit are planned with regard to each other.
- Note the data and information of your sauna supplier.
- Please note that the highest temperatures in the cabin are always above the sauna heater and that is where the temperature sensor and safety temperature limiter should be mounted according to the installation instructions for the control units.
- The sauna heaters heat the sauna cabin with heated convection air. Fresh air is drawn in through the air inlet. It is warmed and rises (convection) and is then circulated in the cabin. Some of the used air is pushed out of the cabin through the cabin's air outlet. This creates a typical sauna climate in your sauna. Note that there is a drop in temperature from the ceiling to the floor of the sauna cabin. Temperatures are measured and regulated based on the ceiling values. Thermometers placed below the ceiling will therefore display lower temperatures. If the max. temperature is set, the bathing temperature in the area of the upper sauna bench is typically between 80°C and 90°C.

Identification

- The first time the cabin is heated, you may notice a slight odour resulting from the evaporation of consumables used in the manufacturing processes. Air out your cabin once it has been heated and before using the sauna.

3

Installation

This chapter describes how to install the EOS Structure. Before installing the heater, the air inlets and air outlets must be installed in the cabin. It may be necessary to mount additional fans in the inlets/outlets. All protective films must be removed. Depending on the installation situation, the electrical installation must be prepared before the assembly.

NOTE

Damage due to incorrect mounting location

The sauna heater is not suitable for outdoor use. The sauna heater can be damaged if used outdoors.

- ▶ Only operate the sauna heater inside sauna cabins.
- ▶ Do not expose the sauna heater to environmental conditions such as extreme humidity and moisture with the possible formation of condensation or media that have a corrosive effect in ambient air, as well as other weather conditions.
- ▶ Do not install the sauna heater in alcoves, under benches or under roof slopes.

3.1 Specifications for the cabin

Before the sauna heater can be set up and installed the sauna cabin must be designed and set up according to the requirements.

It must be ensured that the heater can be removed from the cabin even after the cabin has been installed.

The floor on which the heater stands must be level. In general, it should be noted that the sauna heater must not be set on a floor made of highly flammable material (laminated, flooring made of plastic material, etc.). Ceramic tiles are recommended as a flooring option.

Electrical cables

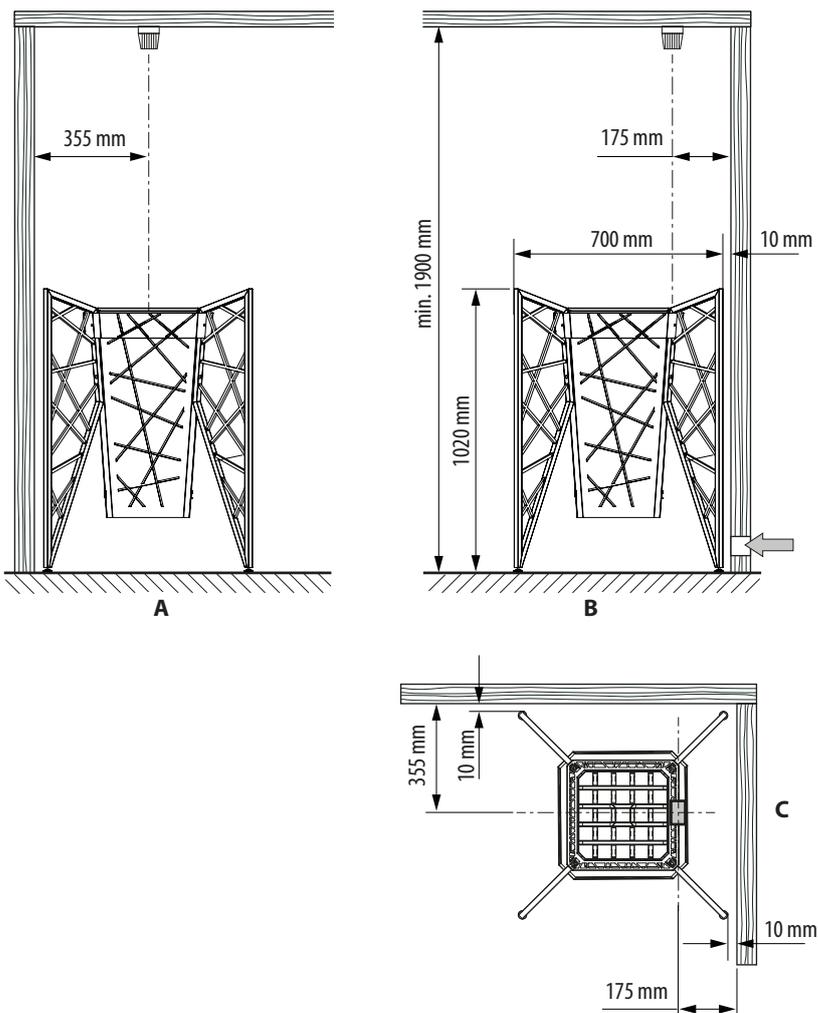
All electrical installations inside the cabin must be laid with silicone cables and be suitable for a temperature of at least 170°C. All lines must be routed in such a way that they are well-protected, e.g. in a cable duct. EOS recommends additional sheathing of the connection cable to prevent damage.

Installation

Minimum distances

Components	Distance
Ceiling height	min. 1900 mm
Distance: heater – cabin wall	min. 10 mm
Distance: heater – bench (if bench is lower than the heater)	min. 10 mm
Distance: heater – bench (if bench is higher than the heater)	min. 10 mm
Distance between heater and combustible materials (wooden wall, bench, etc.)	see following diagram
Position of temperature sensor	see following diagram

☐ Minimum distances



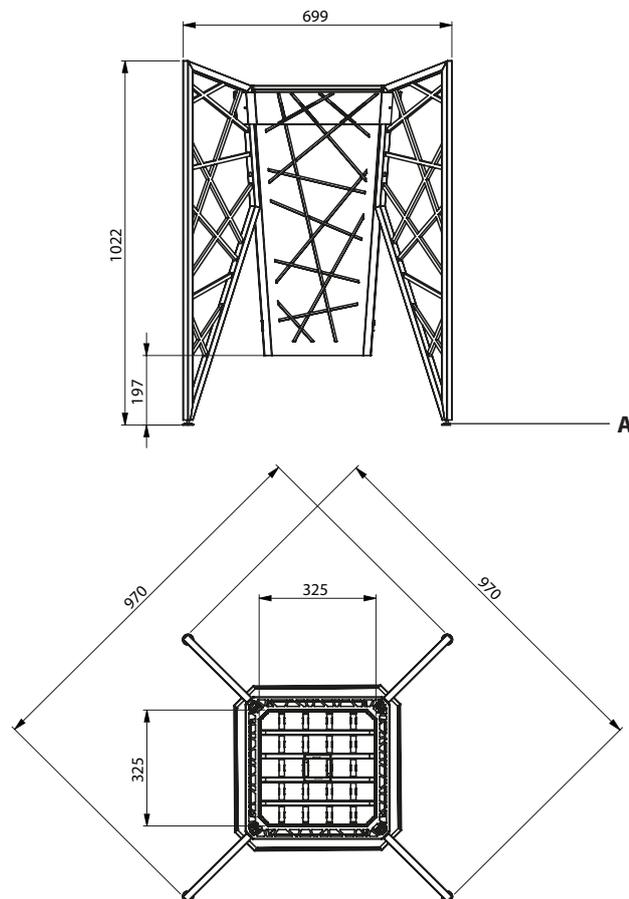
A Front view

B Side view

C Plan view

☒ Minimum distances

During installation of the heater, the safety gaps to combustible materials must be observed as indicated. Make sure that the temperature sensor is positioned correctly.



A Cable exit

▣ Dimensions

3.2 Unpacking the product

- 1 Remove the transport packaging.
- 2 Remove the transport locks and protective films in the product.
- 3 Separate the transport packaging, transport locks and protective films and dispose of properly.

3.3 Setting up the product

- **CAUTION! Heavy, bulky load! Always lift the heater with another person.** Lift the product off the pallet and lower in the place of installation.

Installation

3.4 Air inlets and outlets

WARNING

Fire hazard from overheating

The sauna heater can overheat if the air supply is insufficient. There is a risk of death due to fire.

- ▶ Ensure that the air inlets and outlets provide sufficient ventilation.
- ▶ Install fans if necessary.
- ▶ Only switch the sauna on if all air inlets and air outlets are open.

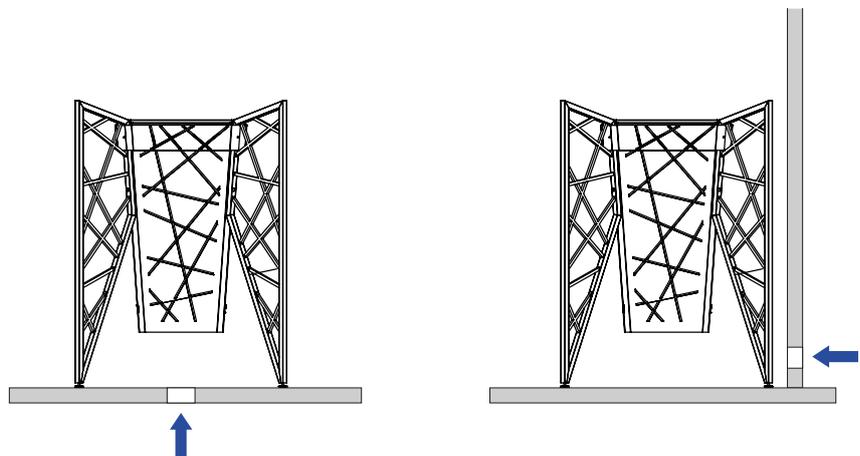
Air inlets and outlets must be installed in the cabin to ensure sufficient air can flow into the cabin and to prevent the sauna heater from overheating. The size of air inlets and outlets required depends on the heater output, see *2.4 Technical data*, □ 16.

If the heating process takes a long time, the underlying reason is that the sauna heater receives insufficient air. The volume of air exchanged per hour must equal at least 5 times the volume of the cabin. If, despite the openings having the specified dimensions, enough fresh air still doesn't reach the heater, a fan must be installed on the outside of the cabin, either at the air inlet or the air outlet side depending on the situation.

Air inlet

The air inlet must be located under or behind the sauna heater, depending on the location of the sauna heater.

- The sauna heater is in the middle of the cabin: air inlet underneath it
- Sauna heater is positioned in front of the cabin wall: air inlet at the side



 Possible positions of the air inlet

Air outlet

The air outlet must meet the following criteria:

- Position: opposite the sauna heater
- Height: 30 - 50 cm above the cabin floor

3.5 Installing the temperature sensor

It is essential that the temperature sensor with the safety temperature limiter (STB) is installed.

The temperature sensor with the safety temperature limiter is mounted on the ceiling as shown on the Minimum distances drawing. The temperature sensor with the safety temperature limiter is not included in the scope of delivery.

The temperature sensor connection is described in the instructions for the control unit.

Further information:

1.5 Safety devices, 13

Control unit instructions

Electrical installation

4

Electrical installation

4.1 Notes on the electrical installation

The electrical installation may only be carried out by qualified electricians.

Make sure that the electrical installation complies with the relevant standards and regulations in the respective country.

The installation must comply with the following regulations: IEC 60364-7-703 or DIN VDE 0100 Part 703. In its current issue, under changes. section 703.412.05, this standard states the following: "The additional protection must be provided for all electric circuits of the sauna by one or multiple residual current devices (RCDs) with a rated residual operating current not larger than 30 mA, except for sauna heaters." If an RCD is to be installed, it must be ensured that no other electrical loads, which do not belong to the sauna system, are protected via this RCD.

If the sauna heater is not used for a lengthy period, it is possible for the heater to draw moisture out of the ambient air. Under certain circumstances, this can cause the RCD to trip. This is a physical process and not a fault on the part of the manufacturer. In this case, the heater must be heated by an electrician under supervision, whereby the function of the RCD is bypassed. Once the moisture has escaped from the heating elements after approx. 10 minutes, the RCD can be re-integrated in the electric circuit.

If the sauna heater is not be used for an extended period of time, it should be heated roughly every 6 weeks so that the heating elements cannot accumulate moisture. If, during commissioning, the RCD is triggered, the electrical installation must be checked again.

The electrician is responsible for properly connecting the sauna heater; thus, the manufacturer does not assume any liability.

4.2 Connection cable and electrical cables

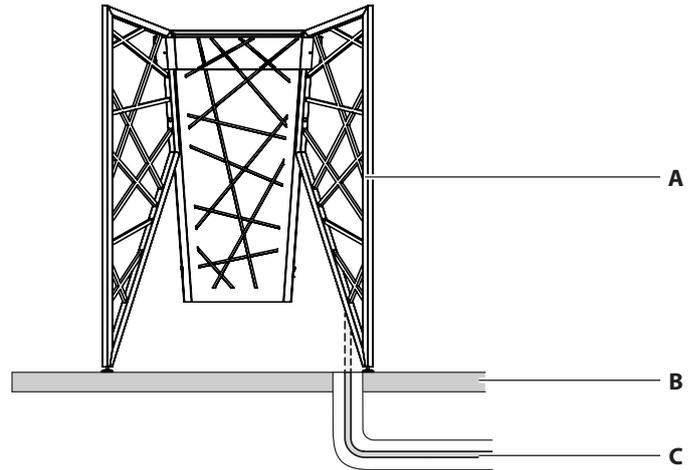
The sauna heater is connected to the control unit or to the power extension unit and the control unit via the connection cable. Observe the regulations of the local power supply company (EVU) and the Association for Electrical, Electronic & Information Technologies (VDE). Install the cable in such a way that it is protected from damage. This means that the cable must be routed under a suitable protective cover (e.g. in a cable duct or reserve conduits).

Further information:

Electrical cables,  19

Concealed connection cable

If possible, the connection cable should be laid concealed underneath the cabin floor. For a concealed connection, the connection cable must be laid up to the heater with suitable protective cover. This requires a cable duct in the cabin floor to the heater foot (feet).

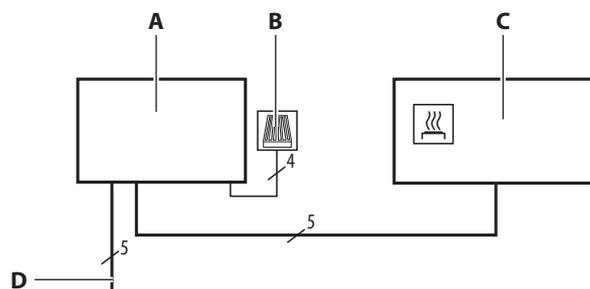


- A Foot
- B Cabin floor
- C Connection cable (for 12-kW version: 2 connection cables)

☒ Concealed routing of the connection cable

The 12 kW version has 2 connection cables. These are located in two adjacent feet. Two cable ducts for the cables must be provided in the floor if necessary.

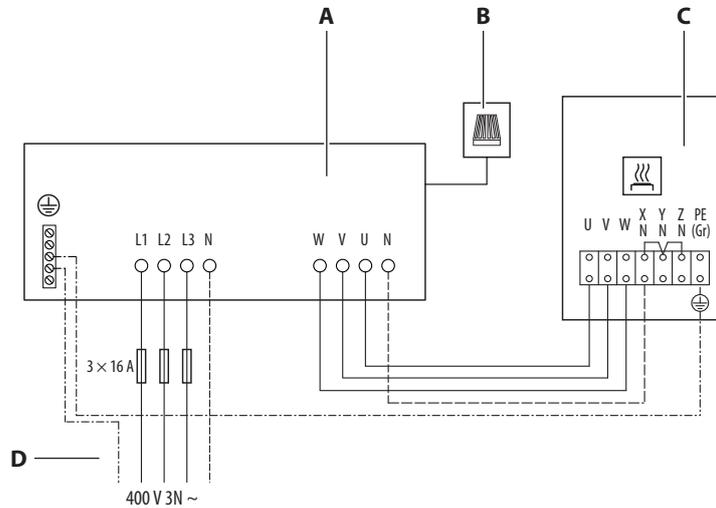
4.3 Connection diagram (heater output 6 kW, 8 kW, 10 kW, 400 kW~)



- A Sauna control unit
- B Temperature sensor and safety temperature limiter (STB)
- C Sauna heater
- D Mains connection for sauna control unit

☒ 6 kW, 8 kW and 10 kW terminal diagram

Electrical installation

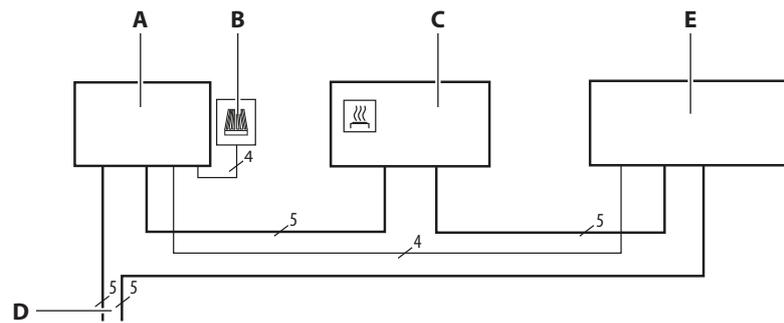


- A Sauna control unit
- B Safety temperature limiter
- C Sauna heater, max. 10 kW
- D Mains connection for sauna control unit

☒ 6 kW, 8 kW and 10* kW terminal diagram

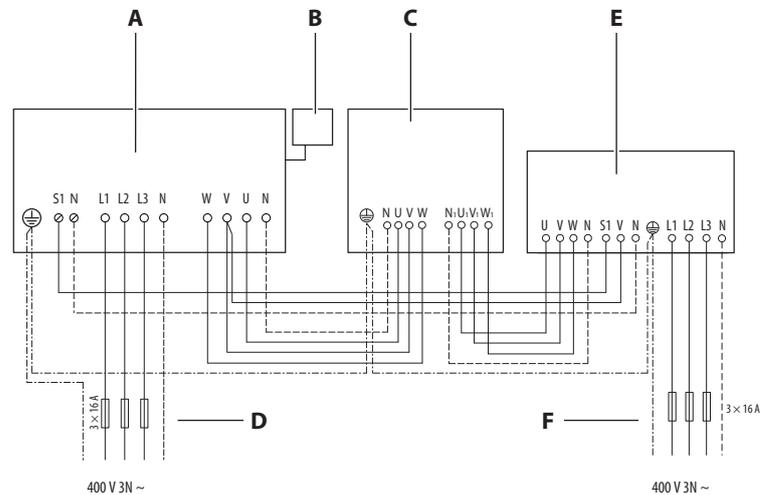
*) Not for connection with EOS Econ control units. A power extension unit is additionally required for the connection of EOS Econ control units.

4.4 Connection diagram (heater output 12 kW with LSG, 400 kW~)



- A Sauna control unit
- B Safety temperature limiter
- C Sauna heater
- D Mains connection for sauna control unit
- E Power extension unit (LSG)

☒ 12 kW terminal diagram



- | | | | |
|---|----------------------------|---|--|
| A | Sauna control unit | B | Temperature sensor with safety temperature limiter |
| C | Sauna heater, 12 kW | D | Mains connection for sauna control unit |
| E | Power extension unit (LSG) | F | Mains connection, power extension unit |

☒ 12 kW* terminal diagram

*) Not for Compact D18 control units

4.5 Connection diagram (heater output 6 kW, 8 kW, 230 V 1N~)

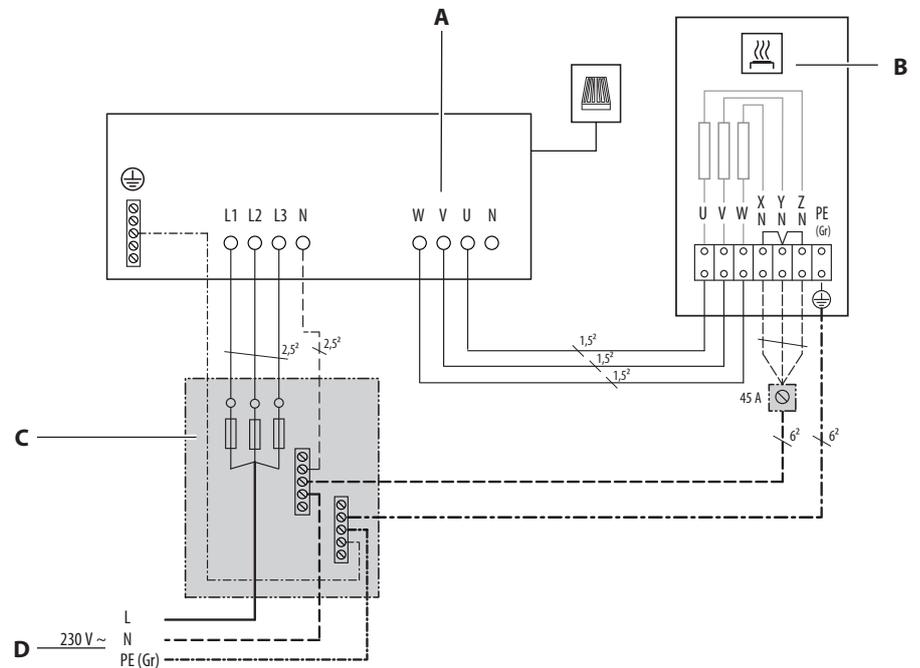
⚠ WARNING

Risk of fire due to improper installation

If the control unit and/or the sauna heater are not suitable for connection to 230 V 1N~, the cable can overheat and cause a cable fire. This causes a risk of death.

- ▶ The control unit and the sauna heater must be suitable for connection to 230 V 1N ~.
- ▶ Use suitable fuses and cables.

Electrical installation



- A Sauna control unit B Sauna heater, max. 8 kW
 C Distributor for single phase connection (optional) D Mains connection

6, 8 kW - 230 V terminal diagram

A distributor for single phase connection can be purchased separately (article number 94.2689).

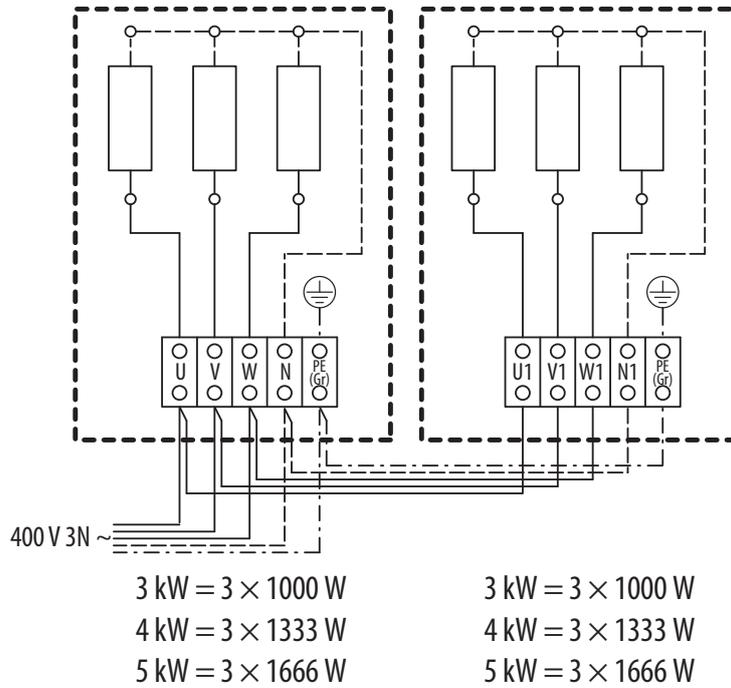
Choose cable connections according to the rated output of the sauna heater:

	Rated output acc. to DIN	
	6 kW	8 kW
Fusing – control unit	3 × 16 A	
Connection mains	3 × 4 mm ²	3 × 6 mm ²
Connection, control unit – sauna heater	3 × 1.5 mm ²	
Connection, N terminal of sauna heater – mains	3 × 2.5 mm ²	
Connection, PE terminal of sauna heater – mains	≥ 4 mm ²	≥ 6 mm ²

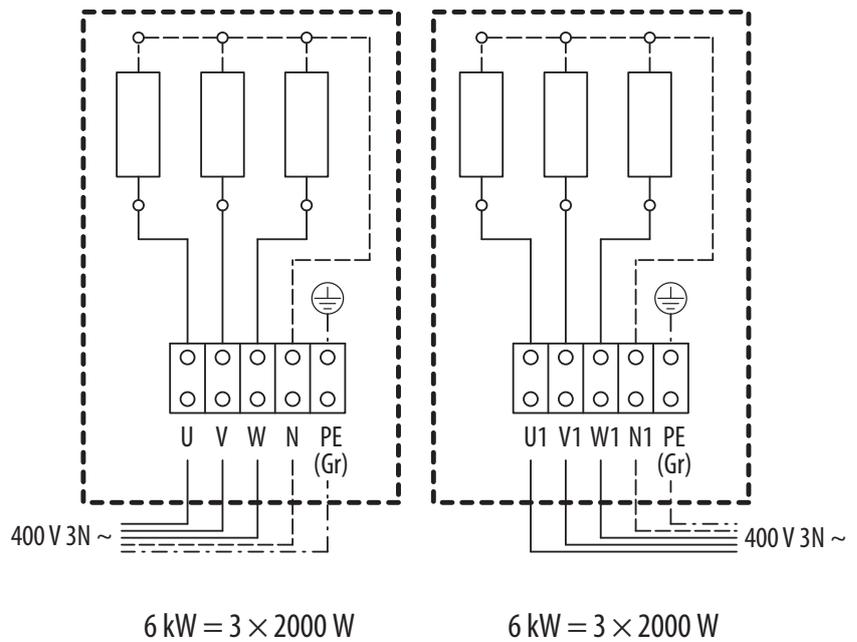
Cable cross-sections for the single phase connection

All line cross-section specifications are the minimum cross-sections for copper lines.

4.6 Internal wiring



☒ Connection diagram, heater output 6 kW, 8 kW, 10 kW



☒ Connection diagram, heater output 12 kW

Electrical installation

4.7 Establishing an electrical connection

The sauna control unit and the sauna heater must be connected as shown in the circuit diagrams. Also follow the installation and operating instructions for the sauna control unit.

The connection cable is pre-mounted on the sauna heater.

- Connect the connection cable to the control unit or to the power extension unit and control unit as shown on the connection diagrams.

For changes to the electrical connection, see *7.1 Replacing the heating elements*, [p. 36](#).

4.8 Installing the control

- Install the control unit as described in the control unit instructions and the circuit diagrams.

4.9 Heating period limitation

Heating time limitation functions

All sauna heaters, except for those installed in public saunas, and which must be operated under the supervision of personnel, must be equipped with a timer that complies with IEC and EN standards. For safety reasons, this timer limits the operation time. This timer is typically integrated in all EOS sauna control units.

- The operation time of a public sauna must be limited so that the heating elements are without power for a minimum of 6 consecutive hours within a 24-hour period before an independent restart can take place.
- Units used in private saunas must be limited to an operating time of 6 hours, and an automatic restart is not permitted.

5

Commissioning and operation

5.1 Filling with stones

⚠ WARNING

Fire hazard from overheating

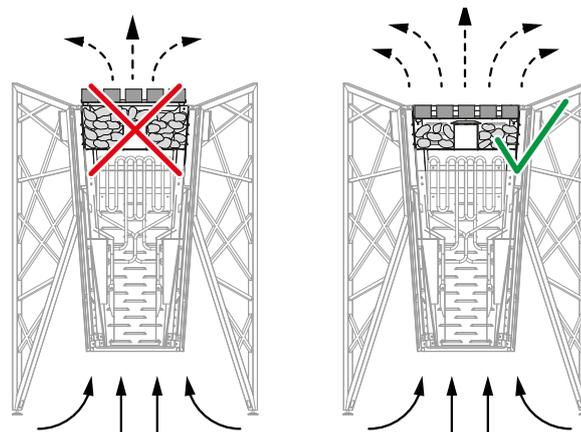
Operating the sauna heater without sauna stones or tightly packed sauna stones can cause overheating and a fire. This causes a risk of death.

- ▶ Start the sauna heater only if the sauna stones have been placed in it.
- ▶ Place the sauna stones loosely.

Before the heater can be commissioned, it must be filled with the supplied sauna stones. Two types of sauna stones are supplied:

- Classic sauna stones, size 30 – 60 mm
- Cubic “Cubius” stones including stainless steel holding frame

- 1 Wash the classic stones under running water.
- 2 Spread the classic sauna stones loosely in the bottom area of the rock store.
- 3 Lay the holder frame for Cubius stones above the classic stones in the rock store and place the Cubius stones in the frame. **The cover of the central shaft in the rock store must be positioned so that it fits properly and must not be moved by stones.**



Commissioning and operation

5.2 Starting the sauna heater



⚠ WARNING

Risk of fire due to objects on the sauna heater

Objects placed on the sauna heater could catch fire. Herbs or similar substances used for aroma infusion purposes, which are located near the heater, could catch fire.

- ▶ Inspect the sauna cabin prior to switching on.
- ▶ Only commission the sauna cabin if all air inlets and air outlets have been opened.

⚠ CAUTION

Hot surface

The sauna heater gets hot during operation. Touching the sauna heater can cause burns.

- ▶ Only operate the sauna heater with the attached heater guard.

5.2.1 Switching on and switching off the sauna heater

The sauna heater is switched on via the control unit. It is operated at the control of the control unit.

- 1 Switch on the sauna heater at the control unit.
- 2 Select the required program at the control unit.

Further information:

Control unit instructions

5.2.2 Starting up the sauna heater remotely

The sauna heater can be switched on by remote control.

If you switch on the heater remotely, ensure that there are no objects on the heater. A suitable safety system, for example EOSafe D/L, can be used to prevent this.

5.2.3 Heating the sauna heater

The temperature in the cabin is controlled via the temperature sensor in the control unit.

- Set the required temperature at the control unit.
- ➡ The control panel on the control unit indicates when the required temperature has been reached.

5.2.4 Heating the sauna heater for the first time

The first time the cabin is heated, you may notice a slight odour resulting from the evaporation of consumables used in the manufacturing processes. This occurs when the heater is heated for the first time. No odour occurs after further operation.

- Ventilate the sauna cabin thoroughly after heating for the first time.

5.3 Water splash

Before the first water splash can be carried out, the cabin must be sufficiently heated. The temperature in the cabin is controlled from the control unit via the temperature sensor. The control indicates when the desired temperature has been reached.

WARNING

Fire hazard

Incorrectly diluted sauna essences, essential oils or herbs can catch fire. This can cause injuries to people in the sauna cabin.

- ▶ When preparing the water, follow the instructions regarding quantity as specified on the sauna essence containers.
- ▶ Never add more sauna essence or essential oils to the infusion water than the amount indicated by the manufacturer.
- ▶ Never use alcohol or pure concentrate.
- ▶ Do not add herbs to the water or on the sauna stones.
- ▶ Do not use pure sauna essences for water splashes.
- ▶ Do not use alcohol as a water splash.
- ▶ Pour the water over the sauna stones only.

Pour the water slowly and evenly over the stones. As the hot air rises, steam is distributed evenly in the cabin to create a pleasant infusion experience. Please note that the sauna stones must be reheated after each water splash to generate an intense burst of steam. After each water splash, wait approx. 10 minutes before starting the next one. This time is needed for the sauna stones to reheat. Recommendation: When pouring water onto the stones, no more than approx. 100 ml of water per m³ cabin volume should be vaporised.

Cleaning and servicing

6

Cleaning and servicing

Openings and heat reflectors in the intake area can become blocked with lint and dust as fresh air is drawn in. This limits the air convection of the sauna heater and can lead to impermissibly high temperatures. The openings and heat reflectors in the intake area must always be clear and must be cleaned when necessary.

If the sauna is not used for a lengthy period of time, make sure that there are no towels, cleaning products or other objects on the heater when it is started up again.

Do not start up the sauna if any defects occur or there are signs of wear. Contact the sauna retailer or the manufacturer.

6.1 Cleaning the sauna heater

CAUTION

Risk of injury from sharp edges

- ▶ Use suitable personal protective equipment, e.g. gloves, when cleaning parts with sharp edges.

Interval:	According to the intensity of use
Personnel requirement:	Instructed person
Personal protective equipment:	Protective gloves
Resources:	Common household cleaning product

- 1 Switch off the sauna heater at the control unit.
- 2 **CAUTION! Risk of burns! The sauna heater can be hot.**
Wait until the sauna heater has cooled down completely.
- 3 Clean the outside of the sauna heater.
- 4 Remove lint and dust from openings and heat reflectors.

6.2 Checking and replacing the sauna stones

Heating and cooling can cause the sauna stones to become brittle, or aggressive infusions can corrode them and cause them to disintegrate over time. This causes small particles to break free from the stones making the gaps between the stones

smaller. This means that hot air can no longer rise between the stones. Depending on the frequency of use, sauna stones must therefore be checked, replaced or completely renewed.

Only use natural sauna stones. Due to their roughness, they produce a better water splash effect than ceramic sauna stones.

When to check and replace the sauna stones:	every 2 – 3 months if used daily
When to completely replace the sauna stones:	at least once a year
Personnel requirement:	Instructed person
Resources:	Sauna stones

- 1 Switch off the sauna heater at the control unit.
- 2 **CAUTION! Risk of burns! The sauna stones can be hot. Leave the sauna heater to cool before changing the stones.**
Remove all the sauna stones individually.
- 3 Check each sauna stone for damage.
- 4 If a sauna stone is severely damaged:
Remove the damaged sauna stone and replace it with a new sauna stone.
- 5 Rinse all sauna stones in cold water.
- 6 Remove any splinters and broken off stone fragments from the bottom of the rock store.
- 7 Place the stones individually and loosely so that there is enough space between them for air to circulate properly, see *5.1 Filling with stones*,  31.

Maintenance by a qualified electrician

7

Maintenance by a qualified electrician

7.1 Replacing the heating elements

The following description explains how a heating element can be replaced. The connection terminals for the connection cable are located in the middle area on the detachable sides of the sauna heater.

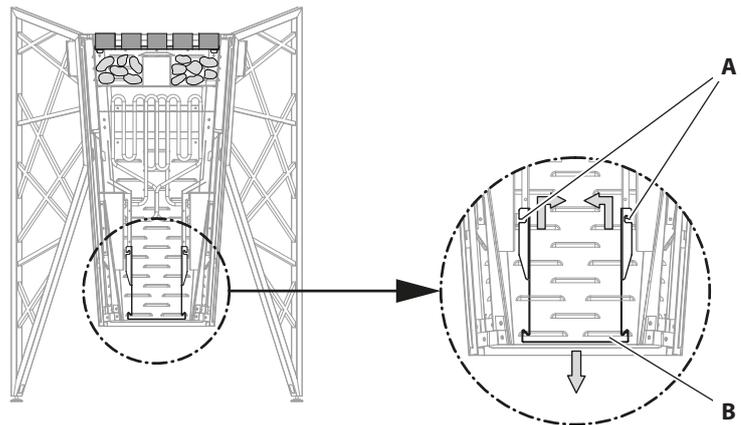
Personnel requirement:	Qualified electrician
Personal protective equipment:	Protective gloves
Tools and resources:	Heating element or heating elements block Screwdriver Allen key Ring or socket spanner

► Prepare the sauna heater

- 1 Switch off the sauna heater at the control unit.
- 2 **CAUTION! Risk of burns! The sauna heater can be hot.**
Wait until the sauna heater has cooled down completely.
- 3 **WARNING! Electric shock!**
Switch off the fuses to disconnect the sauna heater from the mains supply.
- 4 Ensure that the sauna heater and its power cables are properly disconnected from the power supply.
- 5 Remove the sauna stones from the rock store.
- 6 If the terminal box side of the sauna heater is not accessible:
Lift up the sauna heater carefully and adjust its position. Pull a suitable length of the connection cable out of the floor.

► Remove the panelling of the sauna heater

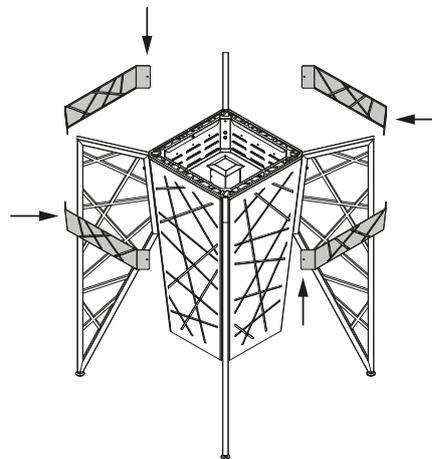
- 1 Detach and remove the three bottom sheet metal guards.



A Deflector, bottom (2 x)

B Heat deflector, floor

- 2 Undo the screws of the sheet metal guards at the side.

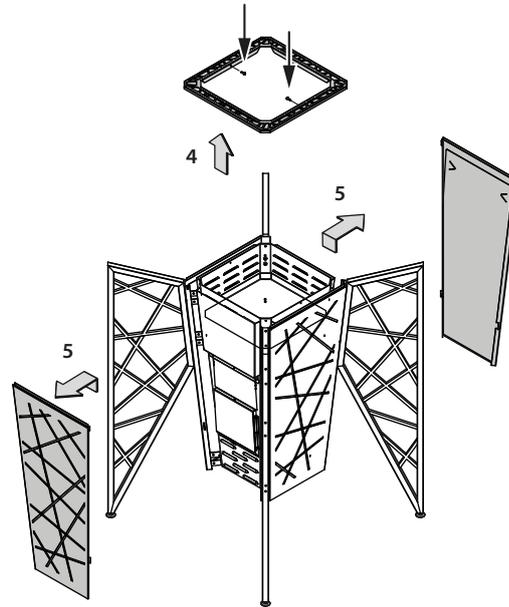


- 3 Detach and remove the sheet metal guards at the side.

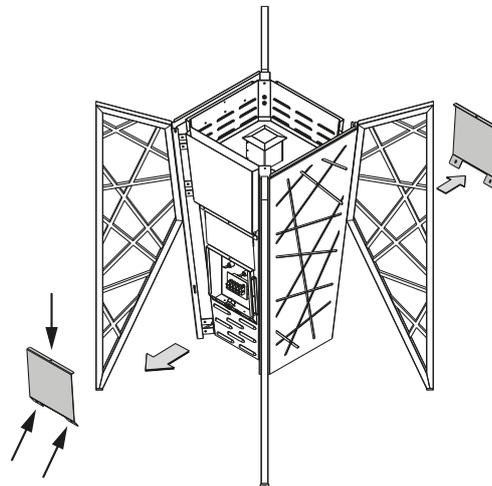
- 4 Undo the two screws in the top cover and remove the cover.

Maintenance by a qualified electrician

- 5 Lift the side panels slightly and detach them.



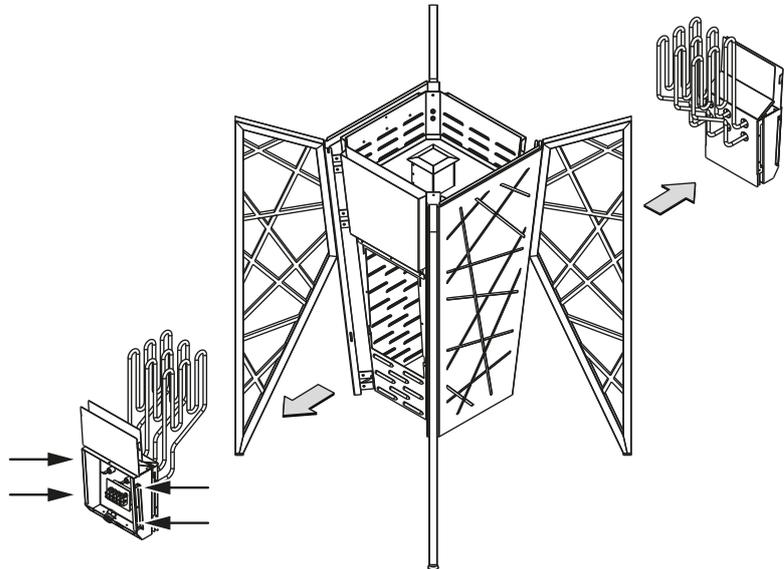
- 6 Undo the screws in the cover of the terminal box and remove the cover.



► Removing the heating elements block

- The sauna heater is prepared for the service work, see *Replacing the heating elements*, □ 36.
- 1 Remove the side panels of the sauna heater and the cover of the terminal box, see *Removing the panelling of the sauna heater*, □ 37.
 - 2 Open the terminal box.
 - 3 Detach the connection cables from the terminals.
 - 4 Unscrew the screws in the mounting brackets of the terminal box.

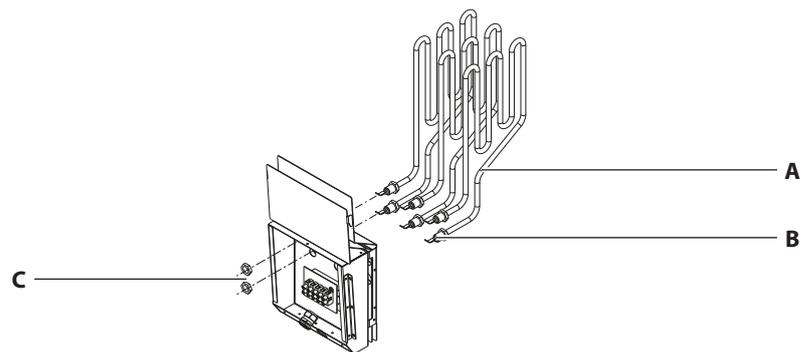
- 5 Pull out the terminal box with the heating elements block.



► Replacing the heating elements

Heating elements can be replaced individually or as a whole heating block.

- The terminal box with heating block has been pulled out.
- 1 Identify the defective heating element by measuring its resistance.
 - 2 Remove both flat plugs from the defective heating element.



A Heating element

B Flat pin

C Fixing nuts

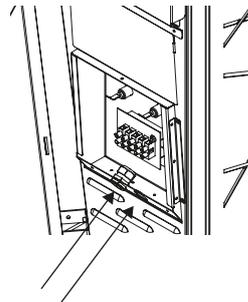
- 3 Loosen the two fixing nuts (C) and serrated washers of the defective heating element.
- 4 Push the heating element towards the back slightly and remove it from the top.
- 5 Insert the new heating element.
- 6 Fix the heating element with the serrated washer and fixing nut.

Maintenance by a qualified electrician

- 7 Plug in the flat connector.
- 8 Check the wiring of all heating elements.
- ▶ **Inserting the heating block**
 - 1 Insert the heating elements block into the heater.
 - 2 Screw in and tighten the screws of the terminal box mounting brackets.
 - 3 Connect the connection cables, see *4 Electrical installation*, [□ 24](#).
 - 4 Insert the cover of the terminal box, the side panels of the heater and the top cover, see *Attach the panelling of the sauna heater*, [□ 40](#).
 - 5 Close the panelling.
- ▶ **Attach the panelling of the sauna heater**
 - 1 Position the cover on the terminal box and screw in and tighten the screws.
 - 2 Attach the side panels.
 - 3 Attach the top cover and screw on.
 - 4 Attach and screw on the sheet metal guards at the side.
 - 5 Attach the bottom sheet metal guards.
- ▶ **Complete the maintenance work on the sauna heater**
 - 1 Push the sauna heater back into its original position.
 - 2 Fill the sauna stones.
 - 3 Switch on the fuses of the sauna heater.
 - ➡ The sauna heater is again ready for use.

7.2 Replacing the connection cable

- 1 Disconnect the connection cable in the terminal box, on the control unit and on the power extension unit.
- 2 Pull the connection cable through the cable glands and out of the sauna heater.
- 3 Feed the connection cable out of the sauna heater through the foot.
- 4 Pull the new connection cable into the foot of the sauna heater. Use a pull cord / pull wire if necessary.
- 5 Feed the new connection cable through the cable glands in the terminal box.



- 6 Crimp the wire ends.
- 7 Connect the connection cable as shown on the connection diagram, see *4 Electrical installation*, □ 24.
- 8 Note the tightening torque for the terminals: 2.5 – 3 Nm.
- 9 Lay the connection cable concealed from the cabin to the control unit or the power extension unit. To do so, note the relevant preparation of the sauna cabin, see *4.2 Connection cable and electrical cables*, □ 24.
- 10 Connect the connection cable to the control unit or the power extension unit and the control unit. Follow the regulations of the local power supply company and the VDE (German Association for Electrical, Electronic & Information Technologies).

Troubleshooting

8

Troubleshooting

Error	Reason	Troubleshooting	Page
It takes the heater a long time to heat up the cabin.	One or more than one heating element is defective.	Have a technician replace the heating element.	
	There are not enough spaces between the sauna stones.	Reshuffle the sauna stones.	
	There is insufficient ventilation.	Provide air inlets. If these are insufficient, add mechanical ventilation (fan).	<i>3.4 Air inlets and outlets, 22</i>
	The electrical connection is defective.	Check the fuses in the installation.	
		Have the control unit's outputs checked by a technician.	
The position of the temperature sensor is not optimal.	Check the position of the temperature sensor and correct if necessary.	<i>1.5.2 Temperature sensor with safety temperature limiter, 13</i>	
The heater is very hot but cannot distribute the heat throughout the cabin.	There are not enough spaces between the sauna stones.	Reshuffle the sauna stones.	
The safety temperature limiter was blown and the heater no longer heats.	The high limiter (STB) was blown by heat congestion.	Check the air inlets, outlets and fan and ensure that sufficient air reaches the heater. Replace the safety temperature limiter.	<i>3.4 Air inlets and outlets, 22</i>
	The position of the temperature sensor in the cabin is not optimal.	Check the position of the temperature sensor and correct if necessary.	<i>1.5.2 Temperature sensor with safety temperature limiter, 13</i>

9

Decommissioning and disposal

9.1 Decommissioning

The sauna heater may only be decommissioned by trained electricians.

9.2 Disposal

Electronic waste

Electronic waste must be disposed of at the designated local collection point for electronic waste.

Electrical equipment that is no longer needed must be handed into a recycling centre in accordance with EU Directive 2012/19/EU.

Comply with the local provisions, laws, regulations, standards and guidelines/directives when disposing of the heater.

Do not dispose of the unit with household waste.



Packaging

The packaging of the unit can be completely separated for disposal and recycled. The following materials are used in the packaging:

- Paper / cartonboard / cardboard / wood
- Plastic film / plastic

Additional disposal instructions for commercial users

Further disposal instructions at www.eos-sauna.com/recycling.

General terms and conditions of service

10

General terms and conditions of service

10.1 Scope

Unless otherwise agreed in writing for specific instances, these terms and conditions of service apply to service operations, including checking and remedying complaints. All our existing or future legal relationships shall be governed solely by the following terms and conditions of service. We do not recognise any of the customer's conflicting terms and conditions unless we have given our express written consent to their applicability. We hereby expressly object to any of the customer's terms and conditions included in the customer's General Terms and Conditions of Business or order confirmation. Unconditional acceptance of order acknowledgements or deliveries shall not be construed as any form of acknowledgement of such terms and conditions. Ancillary agreements or amendments must be confirmed in writing.

10.2 Costs

The customer bears the following costs in connection with services rendered:

- Mounting/dismantling and electrical (de-)installation
- Transportation, postage and packaging
- Function testing and troubleshooting, including inspection and repair costs

There shall be no third-party billing.

10.3 Performance and cooperation obligations

The customer shall provide assistance free of charge to the manufacturer in rendering services. In the case of a warranty claim, the manufacturer provides spare parts necessary for servicing free of charge.

10.4 Service visit by the manufacturer's employees

Services rendered on site by an employee of the manufacturer must be agreed in advance. If the main reason for the service visit is not the fault of the manufacturer, any costs incurred will be charged to the customer after the service visit and must be paid by the customer in full within the agreed payment term.

10.5 Guarantee

The guarantee is provided in accordance with the currently applicable statutory regulations. All our products are packaged in such a way that the individually packed goods (pallets) can be shipped. We wish to point out that our packaging

is not suitable for individual shipments via parcel post. The manufacturer shall accept no liability for damages incurred as a result of improper packaging in an individual shipment.

10.6 Manufacturer's warranty

The manufacturer's warranty applies only if installation, operation and maintenance have been carried out in full accordance with the manufacturer's specifications in the installation and operating instructions.

- The warranty begins on the date of the proof of purchase. It is 8 years for the heater, 4 years for the heating elements. Other wearing parts are excluded from the warranty.
- Warranty services shall be performed only if proof of purchase of the equipment can be presented.
- Any and all warranty claims shall become void if modifications are made to the equipment without the manufacturer's express consent.
- Any warranty claim shall likewise become void in the case of defects that arise due to repairs or interventions made by unauthorised persons or due to improper use.
- In the case of warranty claims, the serial and article numbers must be provided, together with the unit designation and a meaningful description of the error.
- This warranty covers defective equipment parts, with the exception of normal wear parts. Wearing parts include lamps, glass parts and sauna stones.
- Only original spare parts may be used within the warranty period.
- Service visits made by third parties shall require a written order issued by our service department.
- The equipment in question is to be sent to our service department by the customer at the customer's own expense.

Notes

made in Germany

**CE UK
CA IPx4**

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