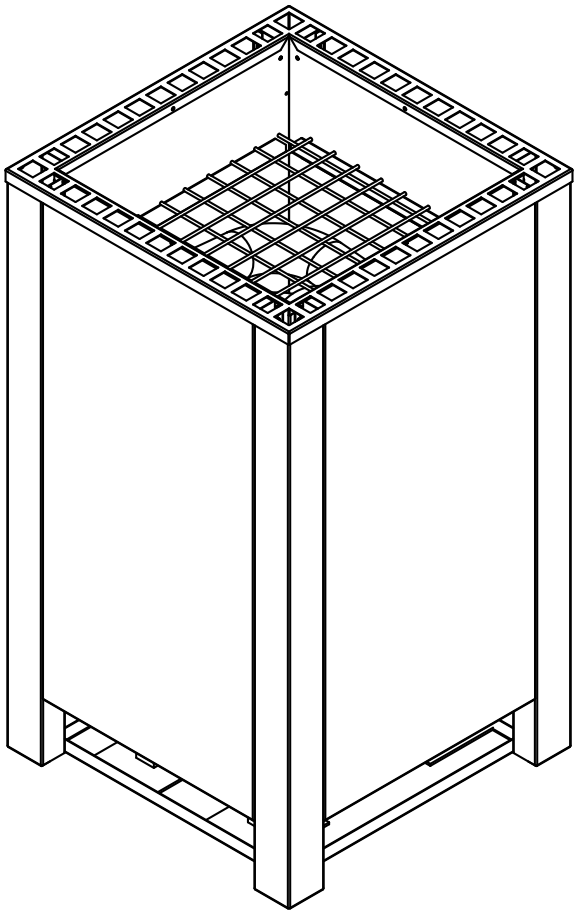
EN

KUSATEK
powered by EOS

INDEPENDENT

Gas-powered sauna heater



Installation and Operating Instructions

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Documentation

Manufacturer

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Original installation instructions EN

Characters, symbols and illustrations

ⓘ	Additional information about an operating step
🗋	Cross-reference to a page
🕮	Read instructions
☑	Result of a step
🗔	Table title
🖻	Title of figure
≤ ≥	Less than or equal to, greater than or equal to

Revision history

Date	Version	Description
1 Feb. 2023	01.00	First version

Contents

1 General safety instructions

1.1 Mounting, installation, and commissioning

These installation instructions are intended for qualified personnel familiar with the laws and regulations applicable to electrical installations, gas installations, and infrared radiators at the installation site.
Mounting and installation must be performed only by:

- KUSATEK customer service
- Technicians who have been trained by KUSATEK
- other trained technicians if technicians trained by KUSATEK do not service the area in which the installation site of the gas-powered sauna heater is located.

Observe the following general safety instructions during mounting, installation and commissioning of the product.

Risk to life and limb and risk of fire

Improper or incorrect mounting, installation, and commissioning pose a health threat and risk of death by electric shock or fire. These risks also exist after completion of this work.

- ▶ The electrical installation of the sauna heater and other electrical systems or equipment with a fixed mains connection may be performed only by a trained electrician from an authorised electrical company.
- ▶ The gas installation and exhaust gas routing must be performed only by a trained technician from an authorised company.
- ▶ Ensure compliance with the standards and regulations for electrical installation and gas installation in your country.
- ▶ The system must be disconnected and removed entirely from the power supply before commencing installation and repair work.
- ▶ Read and observe these installation and operating instructions.

General safety instructions

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.

Fire hazard from overheating

Insufficient ventilation of the plant room, shafts, or sauna cabin can lead to overheating of the unit and to fire.

- ▶ Install air inlets and outlets in the plant room. Install a fan if necessary.
- ▶ Install air inlets and outlets in the sauna cabin.
- ▶ Install supply air ventilation for cooling the shafts as needed.
- ▶ Observe the sauna cabin manufacturer's safety and installation instructions.

Risk of burns from hot glass

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

- ▶ When installing the sauna cabins, ensure that the touchable glass surfaces on the outside of the sauna cabin may not exceed a maximum temperature of 76°C. Appropriate protection may need to be installed if required.

Risk of burns from hot unit

During operation, the burner, burner pipe, and fan may become hot and, if touched, could cause burns.

- ▶ Ensure compliance with safety clearances.

Sauna cabin and heater

The sauna cabin must be constructed with proper material and built in a professional manner, and the sauna heater must be suited for the cabin.

- ▶ The sauna heater may only be used in sauna cabins made of suitable, low-resin and untreated material (e.g. Nordic spruce). The control unit must not be used in the cabin.
- ▶ Multiple heaters may be installed in one sauna if the heater output can properly supply the cabin volume. In this case, depending on the position, an additional safety temperature limiter must be installed for each additional heater.
- ▶ The sauna heater is not designed to be installed or set up in an alcove or under a bench or sloping roof unless this sauna heater is specifically designed and approved for this type of installation.
- ▶ Receptacles may not be installed inside the sauna cabin.

- Each sauna cabin must have air inlets and outlets. The air inlets and outlets may be installed from below or from behind the heater. The minimum dimensions of the air inlets and outlets can be found here: 2.4 Technische Daten, 🗋 DE-15 and 3.1.2 Zu- und Abluftöffnungen, 🗋 DE-20.
- The air outlet is always installed in the lower part of the wall, diagonal to the heater. The air inlets and outlets must not be closed. Observe the instructions provided by your sauna cabin manufacturer.
- Use the supplied control unit to check and control the sauna heater. It is fixed to a suitable location on the cabin's external wall, and the corresponding sensors according to the installation instructions for the control unit inside the sauna cabin.
- Electrical installations and equipment in the sauna cabin must comply with IEC 60364-7-703 (DIN VDE 0100-703).
- 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. Ensure that the heater is installed in compliance with the standards and legal norms valid in your country.
- The cabin door must open outward and must not have a lock that cannot be opened in the case of failure. We recommend magnetic or spring locks.

Sauna cabin, plant room, and installation

There is a risk to health and risk of fire if preparatory work is not performed in a professional manner.

- Ensure compliance with all regulations applicable to the cabin, plant room, gas supply line, electrical installation, and exhaust gas line. See the applicable sections in Installation requirements, 🗋 EN-18.
- Read the chapter entitled 3.6 Safety systems, 🗋 EN-27.

1.2 Operator instruction

The operator of the sauna cabin must be instructed in the general safety instructions during commissioning. These installation and operating instructions must be given to the operator.

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 also exists following completion of repair work.

- ▶ The housing covers for the burner, fan, and sauna control unit must be removed only by trained technicians.
- ▶ Repairs and maintenance may be completed only by trained technicians.
- ▶ The system must be disconnected and removed entirely from the power supply before commencing repair work.
- ▶ Use only original spare parts from the manufacturer.

Fire hazard

Objects placed on the sauna heater can ignite and cause fires.

- ▶ Do not place objects on the heater.
- ▶ Fill the rock store as directed.
- ▶ If you switch on the heater using pre-set timers or remotely, attach a protective cover to the heater or install a suitable safety system.
- ▶ Inspect the sauna cabin prior to each recommissioning and ensure that no towels, cleaning agents or other objects are lying on the heater.

Service and maintenance

There is a risk to health and risk of fire if service and maintenance work is not performed in a professional manner. Service and maintenance work must be performed only by:

- ▶ KUSATEK customer service
- ▶ Technicians who have been trained by KUSATEK
- ▶ other trained technicians if technicians trained by KUSATEK do not service the area in which the installation site of the gas-powered sauna heater is located.

Damage to health

Excessive time spent in a heated sauna cabin can lead to overheating of the body and 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 and unconsciousness.
Alcohol, drugs, and medications increase the risk of hyperthermia.
Observe the following when using the sauna:

- ▶ Do not exceed the maximum recommended time in the sauna.
- ▶ Leave the sauna cabin if your body responds abnormally to the heat or if you do not feel well.
- ▶ Avoid alcohol, drugs, and medications when you are using the sauna.
- ▶ Floor heating in the sauna cabin results in additional warming of the legs and can lead to health risks.
- ▶ Warn sauna users by affixing a warning plate.
  Read the chapter entitled 4.4 Warning plate, 🗋 EN-34.

Operation by children or persons with reduced mental capacity

This unit should not be used by children or persons with reduced mental capacity or limited physical or sensory abilities. Children must not play with the unit. Cleaning and user maintenance must not be performed by children.

- ▶ Children and persons with reduced physical, mental or sensory abilities must be supervised to ensure that they do not play with the unit.
- ▶ Children under 8 years of age should not operate the sauna cabin.
- ▶ The settings for the heating period may only be changed by children 8 years of age or older 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 Safety levels

Safety instructions and important operating instructions are classified. Please familiarise yourself with the following terms and symbols:

⚠WARNING

Warning

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

⚠CAUTION

Caution

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

NOTICE

Notice

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

1.4 Standards and regulations

For an overview of the standards that were observed during design and construction of the sauna heaters, please refer to the individual product's technical data sheet that can be downloaded from www.eos-sauna.com.

2 Identification

INDEPENDENT is a gas-powered sauna heater that is available in output capacities of 10 to 120 kW. The heater uses a burner to heat a gas/air mixture to a temperature of approx. 350°C/662°F in a burner pipe made of stainless steel. At the other end, a fan uses negative pressure to draw the gas/air mixture into the coil and then directs the combustion air outside via an exhaust unit.

2.1 Requirements for operation

The sauna heater must be installed in conjunction with the K-Tec sauna control unit, Which is included in the scope of delivery. The heater must be connected only to this sauna control unit.

To extract the resulting exhaust gases, an exhaust gas system made of stainless steel must be professionally installed. The exhaust gas system must comply with the requirements of the applicable fire code and be developed in consultation with the chimney sweep.

2.2 Nameplate

Kusatek GmbH

Saunagasofen

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35759 Driedorf
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CE

000x-20XX

INDEPENDENT Saunagasofen mit 1 Brenner

A	Geräte-Typ:	INDEPENDENT XX
B	Gasart/Gasdruck/Düse:	XX / XX mbar / XX mm
C	Geräteart:	B22
D	Kategorie:	II2ELL3B/P
E	Nennwärmebelastung: (bezogen auf den Heizwert)	9 KW mit 1 Brenner
	Nox-Klasse:	3
F	Elektrische Daten:	230 V, 50 Hz
G	Stromaufnahme:	max. 3A
	Bestimmungsländer:	AT BE CH CZ DE DK EE ES FI GB GR HU IE IT LZ LU LV NL NO PL PT SE SI SK TR RU
H	Baujahr / Seriennummer:	20XX-XX-XXXX-01
I	Projektname	Muster
J	Brennernummer	94676700-XXXX-XXXX-XXK
K	Produktidentnummer:	CE-0085BT0401

Dieses Gerät muss nach den geltenden Anschluss- und Aufstellungsbedingungen installiert werden. Es darf nur in ausreichend belüfteten Räumen benutzt werden. Die Inatallations- und Bedienungsanleitungen sind vor der Insatllation und vor der Inbetriebnahme einzusehen.

SERVICE- und Wartungsarbeiten
Vor Beginn der Arbeiten ist die Steuerung auszuschalten
und die Gaszufuhr abzusperren.

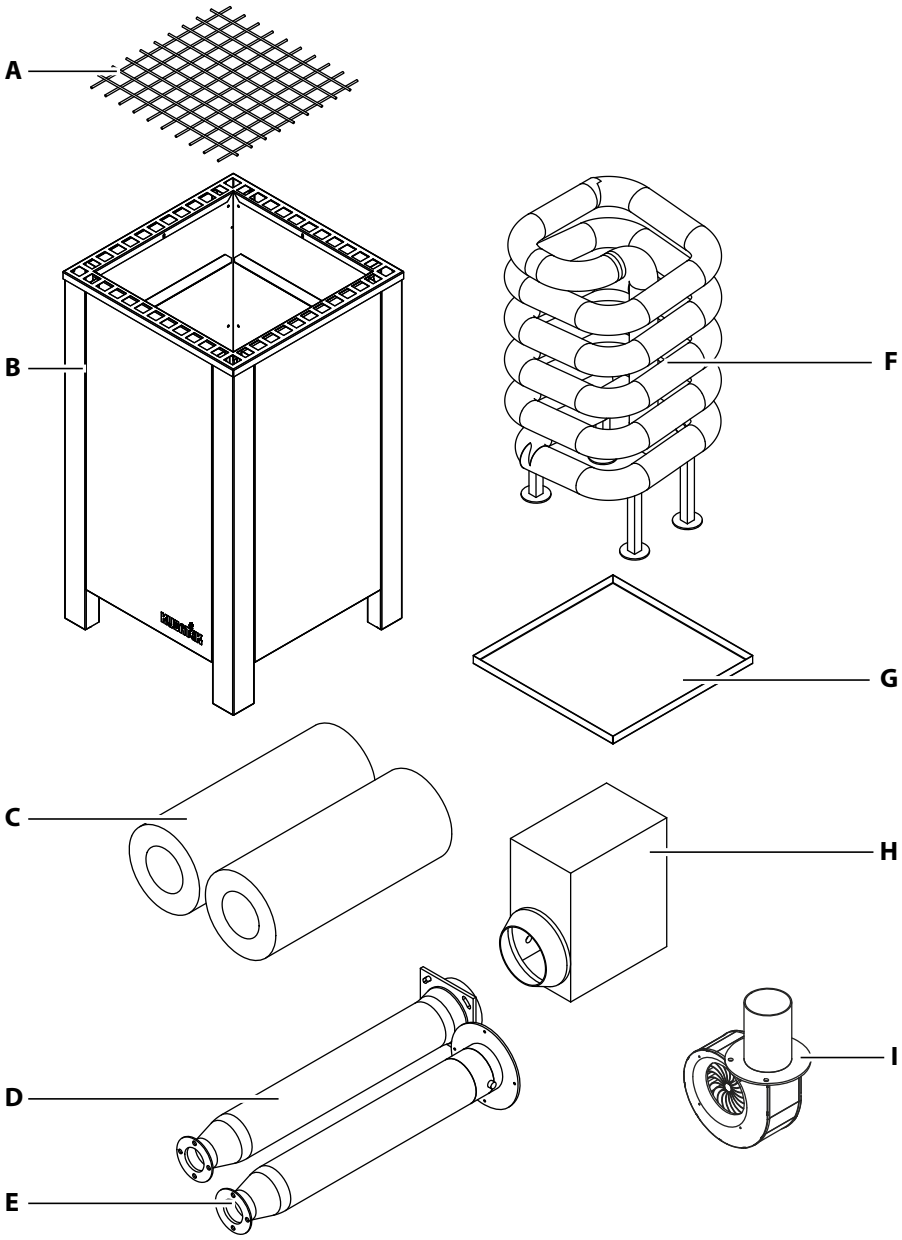
A Unit model
B Gas type
C Unit type
D Category
E Nominal heat input
F Electrical data
G Power consumption
H Manufacturing date
I Project
J Burner number
K Product ID number

Nameplate

2.3 Scope of delivery

The scope of delivery is listed in the delivery note and essentially includes the INDEPENDENT sauna heater and the K-Tec sauna control unit.

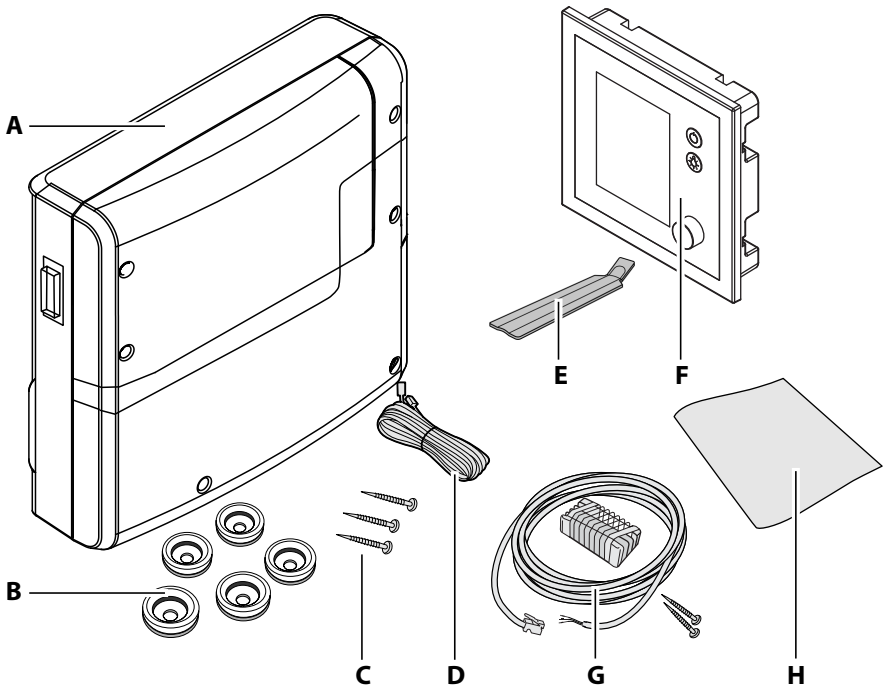
Independent



A Stone grate
B Heater housing
C Wall bushings
D Burner pipe
E Fan pipe
F Heating coil
G Stainless steel tray
H Burner
I Exhaust gas fan with drain pipe (pre-mounted)

Identification

K-Tec



A Relay box with 2-piece front cover

B 5 bushings

C 3 wood screws 5 x 25 mm

D 5 m connecting cable with RJ14/ RJ10 modular plug for control panel

E Removal tool for front panel

F Control panel with housing for mounting in the wall or mounting on the wall

G Temperature sensor with safety temperature limiter including 5 m connecting cable with

RJ10 plug, housing, circuit board, 2 screws 4x40 mm

H Installation and operating instructions

The scope of delivery also includes a protocol for the commissioning check.

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 sauna heater must not be operated if components are missing or damaged.

2.4 Intended use

Store the sauna heater or the components in a safe place that is dry and free from dust.
The INDEPENDENT sauna heater is designed only for heating sauna cabins or sauna log cabins together with the supplied sauna control unit. The sauna heater is suitable for private and commercial settings.
The gas-powered sauna heater's coil is mounted on the floor in the sauna cabin. Typically, the gas-powered sauna heater's burner and fan are installed in a separate plant room with the exhaust gas line.
Any use beyond this is considered improper use. Proper use also includes compliance with operating, maintenance and servicing requirements.
The manufacturer is not responsible for unauthorised modifications, such as retrofits, and damages resulting from these modifications; the person modifying the equipment alone shall bear the associated risk.
Non-observance of these installation and operating instructions could result in the nullification of warranty and liability claims.

Foreseeable misuse

The following are considered instances of foreseeable misuse:

- The heater power does not match the sauna volume.
- The control and sensor cable plugs are plugged in incorrectly.
- The unit is operated without knowledge of or compliance with the safety instructions.
- Operating, service and maintenance requirements are not observed.
- The unit is operated after technical or other modifications are made to the relay box.
- The unit is operated with insufficient air supply or exhaust air.
- The unit is operated without sauna stones or with a rock store that is not filled as directed.
- 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 manufacturer is not liable for unauthorised modifications made to the equipment and damages resulting from these modifications. The person modifying the equipment alone shall bear the associated risk.

2.5 Technical data

Sauna control unit

Manufactured by KUSATEK GmbH	K-Tec

Electrical lines

Power connector	230 V/50 Hz
Supply line to control unit	3 x 1.5 mm^2
Control unit – room sensor	2 x 1.5 mm^2
Control unit – heater sensor with safety temperature limiter	4 x 1.5 mm^2
Control unit – burner	3 x 1.5 mm^2
Burner – fan	3 x 1.5 mm^2

All line cross-section specifications are the minimum cross-sections of a copper line. Leakage current: max. 0.75 mA per kW heater output

Heater – cabin

Heater – housings	Stainless steel
Dimensions of coils L x W x H	37 x 37 x 88 cm
Weight	50 kg
Stone filling	40 kg
Cabin volume	10–15 m^3
Nominal heat input	9 kW
Number of gas burners	1 pc.
Gas consumption	0.9 m^3/hour
Gas supply connection at burner	R 1/2"
Gas flow pressure for natural gas	22–50 mbar
Gas flow pressure for propane/butane	28–50 mbar
Air intake filter	1 pc.
Burner air volume	50 m^3/hour
Min. air inlet/outlet in plant room	150 cm^2

Gas burner – INDEPENDENT

G20	Air disk (nozzle pressure 1.5 mbar) Negative pressure Nozzle diameter	Ø 2 x 10 mm 1.6 mbar 2.6 mm
PROPANE	Air disk (nozzle pressure 24–26 mbar) Negative pressure Nozzle diameter	Ø 2 x 10 mm 1.3 mbar 1.85 mm

Fan

Fan type	GE 133 2A RUCK
Volumetric flow	290 m^3/h
Total differential pressure	400 PA
Exhaust vent	Ø 100 mm
Electrical connection	230 V/50 Hz
Output	75 W

2.6 Spare parts

Name	Item no.
Electrode BH96/VRT	602000250
Air pressure alarm BH 15/20	602000251
Ignition cable CRV/BH, complete	602000252
Ionisation cable CRV/BH, complete	602000253
Seal for burner flange BH	602000214
Seal for electrode BH	650079100
Burner safety control Pactrol P25 Independent	602000254

2.7 Accessories

Name	Item no.
Extension cable 0.5 m	540022
Extension cable 1.0 m	540023
Wall panels, anthracite	602000243
Wall panels, black	602000244
Rail bracket CRS	602000245
Wood guard rail with rail bracket CRS	602000246
Rail bracket, black	602000247
Wood guard rail with rail bracket, black	602000248
Exhaust gas line	602000249

3 Installation requirements

⚠ WARNING

Risk to health and risk of fire

There is a risk to health and risk of death due to fire if the preparatory work is not performed in a professional manner. These risks also exist once preparatory work is completed.

- ▶ Preparatory work may be performed only by trained technicians.
- ▶ Ensure compliance with the regulations stipulated in these installation instructions.
- ▶ Ensure compliance with the KUSATEK project documents.
- ▶ Ensure that installation complies with the standards and legal norms valid in your country.

Before the sauna heater can be mounted, the preparatory work must be complete.

Sites for preparatory work

Preparatory work applies to the following installation sites:

- Sauna cabin
- Plant room
- Shaft for exhaust gas pipe
- Gas supply line
- Cable ducts (electrical and data lines)

KUSATEK provides every customer with individual project documents, for example, project drawings, for completion of this preparatory work. The preparatory work must be completed by commissioned, trained technicians using the project documents.

3.1 Sauna cabin

The sauna cabin must be dimensioned so that the cabin volume and the heater output match. A temperature sensor with a safety temperature limiter must be installed above the sauna heater. The installation is described in the installation instructions for the control unit.
The sauna cabin must be professionally constructed from suitable material. If wood is installed in the sauna cabin, it must be suitable, low-resin, and untreated wood, for example, Nordic spruce or other materials suitable for sauna construction.
The clearance between the sauna heater, the sauna bench and other flammable material must comply with the KUSATEK project documents.
Receptacles may not be installed inside the sauna cabin.
Observe the requirements and instructions of the cabin manufacturer as well.

3.1.1 Installation site

⚠WARNING

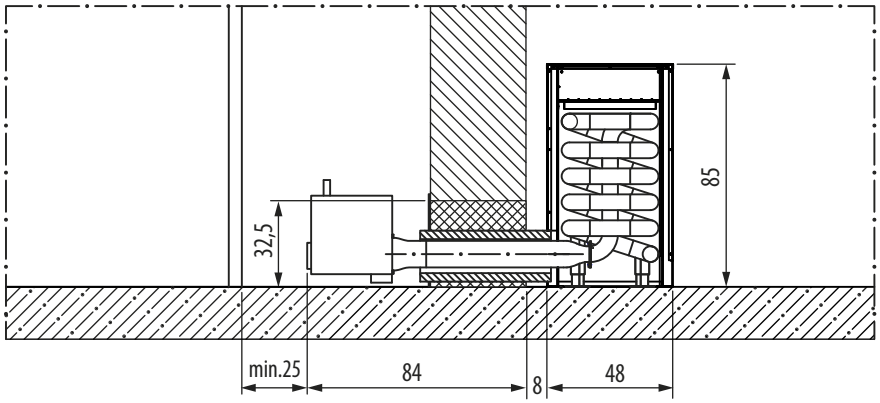
Risk of fire due to incorrect place of installation

There is a risk of death due to fire if the gas-powered sauna heater is installed in a sauna cabin made of unsuitable materials or too close to flammable materials.

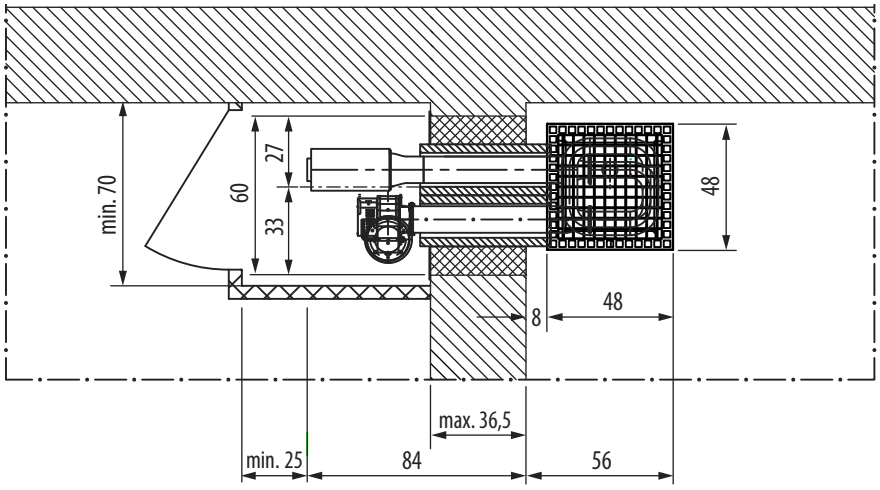
- ▶ Ensure that the heater is not installed in rooms with an increased risk of fire or explosion.
- ▶ Ensure that the heater is not installed in rooms that are unsuitable for other reasons.
- ▶ Ensure that the installation site of the heater complies with the KUSATEK project documents.
- ▶ Ensure compliance with the minimum clearances defined in the KUSATEK project documents.

Installation requirements

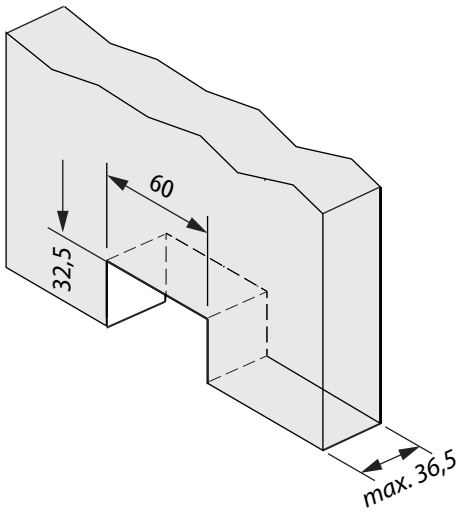
Installation diagram



Side view – example (dimensions in cm)



Top view – example (dimensions in cm)



Dimensions – wall cut-out (in cm)

Optionally, an extension for the pipes can be installed so that the heater is positioned further into the room. For further information, see Installation diagram (dimensions in cm), EN-29.
Ensure that the predefined installation site has been prepared for the sauna heater and complies with the following requirements:

- Dimensions of the sauna cabin and plant room correspond to those in the installation drawings of the KUSATEK project documents.
- Compliance with clearances for sauna heater installation.
- Access to the sauna heater, in particular for maintenance work, is not hampered or prevented by devices, system components, or future fixtures.
- Compliance with safety clearances that apply to the final position of the sauna heater must be ensured.

The wall cut-out must be filled with non-combustible material after the sauna heater has been installed.

3.1.2 Walls, shafts, and openings

⚠WARNING

Risk of fire due to improper building materials

There is a risk of death due to fire if wood is used as a building material or glue is used to attach the insulation.

- ▶ Ensure that wood is not used as building material or as permanent shuttering.
- ▶ Ensure that glue is not used to attach insulation.

Building material used behind and around the sauna heater or in the shafts must have the following properties:

- non-combustible
- non-flammable
- the components of the building material do not contain flammable substances.

In Germany, this corresponds to building material class A1. Comparable building materials are Promasil, Foamglas T4, or Silka T3400 plates.

The insulation in the floor must be laid loosely. The insulation on the walls, the shafts, and the ceiling must be fixed with screws.
Prior to installation, refractory linings in the wood walls, and concrete walls or other connecting walls between the plant room and sauna cabin must

be completely installed. Core drillings and chiselling work in the walls, floors, and ceilings must also be complete.
An exception to this is if the contract states that core drillings and wall openings shall be defined and completed on the day of installation by KUSATEK technicians.

3.1.3 Sauna cabin floor

⚠CAUTION

Risk of skin burns due to hot floor

There is a risk of overheating if the floor of the sauna cabin does not dissipate heat. This can cause burns to the feet.

- ▶ Ensure that the floor of the sauna cabin is constructed in such a way that it dissipates heat, and install floor cooling if necessary.
- ▶ Make sure to not install floor heating.

Ensure that the floor of the sauna cabin is not made of highly flammable material. Ceramic tiles are recommended as a flooring option.

3.1.4 Air inlets and outlets

⚠WARNING

Risk of fire due to insufficient ventilation

The gas-powered 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 a fan if necessary.

Air inlets and outlets must be installed in the cabin to ensure a sufficient air flow in the cabin and to prevent the heater from overheating.
The required size of the air inlets and outlets depends on the heater power; see 2.5 Technical data, 🗋 EN-16.

Air inlet

The air inlet must be placed in the cabin wall as close to the heater as possible.

Air outlet

If possible, the air outlet should be placed opposite the heater in the cabin wall at a height of approx. 30–50 cm above the floor.

3.1.5 Connecting cables

All cables inside and outside of the cabin must be protected from damage, for example, cables for cabin lighting, fans, etc. Use cable ducts or install wood skirting strips.

3.1.6 Specifications for the sauna control unit

The sauna control unit is mounted in a suitable location, for example, on the outside wall of the sauna cabin or in the plant room.
The location must comply with the requirements defined in the installation instructions for the control unit. Observe the operating conditions to ensure that the sauna cabin's temperature control works properly.

3.1.7 Cabin lighting

The cabin lighting and its installation must be performed in such a way that it can be used safely in a sauna cabin. Ensure that the heater is installed in compliance with the standards and legal norms valid in your country.

3.2 Plant room

The gas burner and fan are typically mounted in the plant room. They must be installed prior to installation and comply with the requirements described here.

Combustion air

⚠WARNING

Risk of fire due to insufficient air inlets in the plant room

The plant room can overheat if there is insufficient air flow. There is a risk of death due to fire.

- ▶ Ensure that the air supply for the plant room is sufficient so that a temperature of 40°C is not exceeded.
- ▶ Ensure that there is sufficient air flow. A minimum of 5 times the cabin volume of air per hour must be exchanged. See 🗔 Technical data, 🗋 EN-16 for more information about air requirements.

NOTICE

Damage to the unit from dust

The burner can become damaged if air for the burner contains an elevated concentration of dust.

- ▶ In the event of an elevated concentration of dust in the plant room, ensure that the burner is supplied with clean air from outside the room.

Openings for the air inlets and outlets must be present in the plant room. Their optimal locations are on opposite sides of the floor and in the ceiling. The openings must lead outside of the room. Their positioning must comply with the KUSATEK project documents. The project documents cover only the KUSATEK equipment. Optional air inlet elements or other technical components installed by third parties are not calculated and planned by KUSATEK.

Dimensions for the air inlets and outlets must be observed; see the chapter entitled Technical Data for Heater – cabin, 🗋 EN-16.
The plant room must ensure that no negative pressure can build and any generated heat can escape.
See 🗔 Technical data, 🗋 EN-16.

Cooling the plant room

The plant room must be cooled depending on its size and the location of the KUSATEK equipment.
The plant room is cooled by means of increased air exchange, which can be achieved by one or more fans. Fresh air must be supplied in the immediate vicinity of the burner and the fan.
If air exchange is controlled by a ventilation system, the supply of combustion air for the INDEPENDENT equipment, the air exchange for the plant room, and fresh air supply for the fans that cool the shafts must be ensured. All work on the ventilation system must be complete when installation begins.

3.3 Gas supply line for mains connection to public supply

The gas supply line and gas supply connection are installed in the plant room. The installation should be performed as indicated in the KUSATEK project documents.
A 1/2-inch ball valve must be installed for the burner. The installation and seal inspection must comply with the standards and legal norms valid in your country. The gas supply line must be checked for leaks and deaerated.

Gas	Minimum gas pressure	Maximum gas pressure
Natural gas	22 mbar	50 mbar
Propane	22 mbar	50 mbar
Butane	22 mbar	50 mbar

Min. and max. burner gas pressure

Gas	UM	Gas consumption (full load)
Natural gas	m^3/h	0.9 m^3/h
Propane	kg/h	0.7 kg/h
Butane	kg/h	0.7 kg/h

Burner gas consumption

The dimensions specified in the installation drawing may have to be adapted to the situation at the site.
The gas supply connection must be installed on the day the heater is installed, and the gas pressure must be verifiable.
Ensure that the on-site gas distribution requirements, the gas type used, and the gas pressure at the ball valves match the values stated on the nameplate. If the gas type does not match, replace the nozzle with the appropriate nozzle for the available gas type and correct the information

on the nameplate. If the actual gas pressure does not match the specification on the nameplate, contact the local gas provider.

3.4 Electrical installation

The position of the sauna control unit must be defined. The power lines must be installed as shown in the KUSATEK project documents.
A connection diagram can be found in the installation and operating instructions for the control unit.
All electrical installations inside the cabin must be silicone cables. They must be suitable to withstand temperatures of 170°C and above. All lines must be routed in such a way that they are well-protected, e.g. in a cable duct. If single-core lines are used as connecting cables, they must be protected by a flexible metal hose that is connected to the protective conductor.
The electrical lines must be completely installed on the day the gas-powered sauna heater is mounted, and the power supply must be available. Construction-site power is insufficient.

3.5 Exhaust gas system

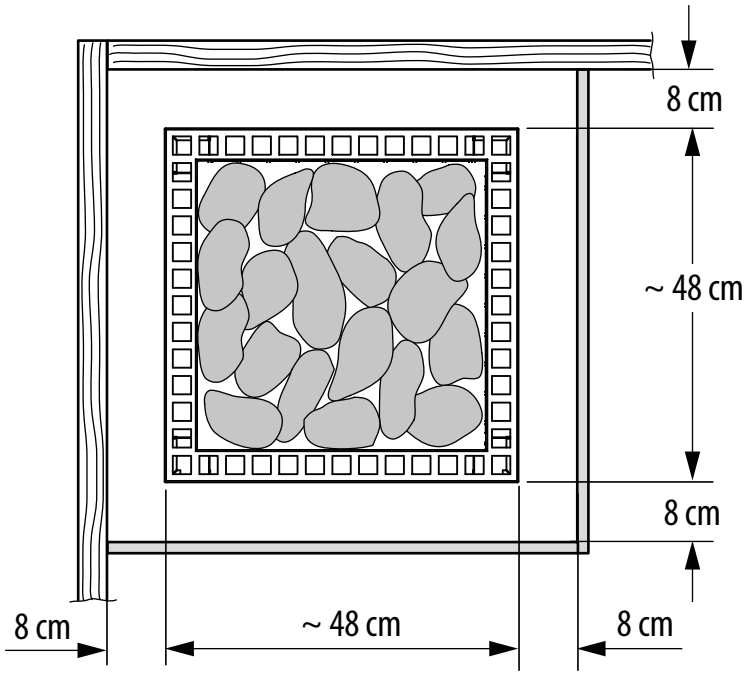
It may be necessary to have a ceiling opening and ceiling duct professionally prepared when installing the exhaust gas system.
The exhaust gas line is not installed by KUSATEK unless specified contractually in the scope of performance.
A pressure-tight exhaust gas system must be used as the exhaust gas line. The inner diameter of the exhaust gas line must equal 100 mm. A ceiling opening and ceiling duct, if needed, should be completed as part of the preparatory work.
The exhaust gas system starts at the outlet side of the fan. Contact the manufacturer in the event of discrepancies. The exhaust gas system is mounted from the fan outward.
Make sure to observe the locally applicable fire code.

3.6 Safety systems

Safety systems increase the safety for sauna users and personnel.

3.6.1 Protected area

A guard rail should be installed around the sauna heater.



Observe the specified clearances when installing a guard rail.

3.6.2 Cabin door

⚠WARNING

Risk of death due to locked door

There is a risk to health and a risk of death if the door to the sauna cabin cannot be opened.

▶ Ensure that a door that cannot be locked has been installed.

We recommend doors with a magnet catch or spring-ball catch for sauna cabins.

3.6.3 Remote switching

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

3.6.4 Emergency button

Installing an emergency button increases the safety for sauna users and has a positive impact on the risk potential analysis for the sauna operator. This type of button facilitates a quicker response in the event of an emergency. We recommend installing one or more than one emergency button in each sauna cabin. The emergency button should have two circuits in order to switch off the sauna heater and issue a warning in the form of an acoustic or visual signal. It is possible to connect emergency buttons to the control unit.

3.6.5 Protective grill on fan

The exhaust gas fan in the plant room can reach temperatures of 80–120°C while in use. We recommend installing a protective grill and hanging a warning sign to protect personnel.

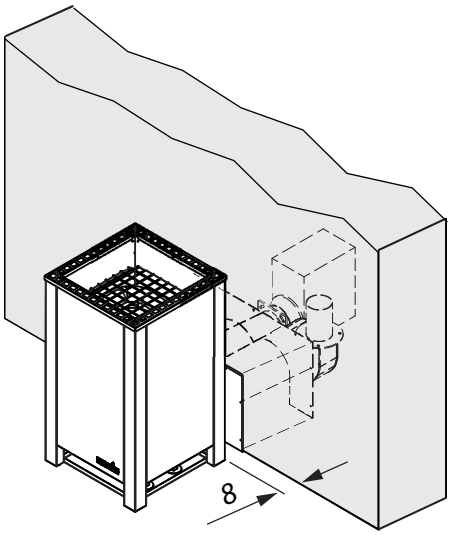
3.6.6 Heating period limitation

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. This timer fully disconnects the sauna heater from the power supply for safety reasons. It is typically integrated in the sauna control units.

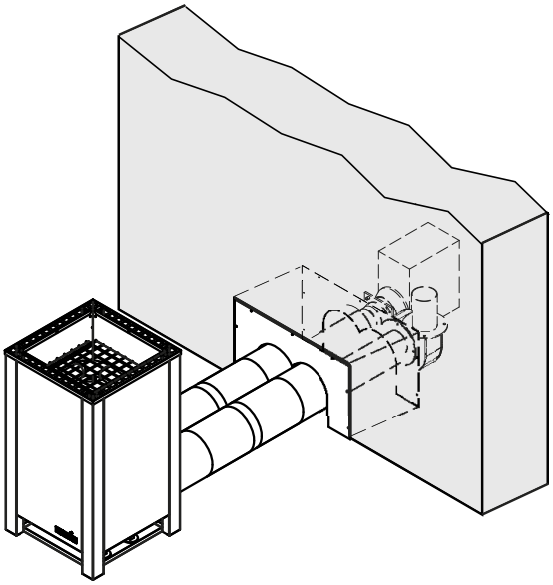
- The operation time of a public sauna must be limited so that the heating elements are without power for a minimum of 6 consecutive hours within a 24-hour period.
- Units used in private saunas must be limited to an operating time of 6 hours, and an automatic restart is not permitted.

4 Installation

All preparatory work must be completed before the sauna heater is installed. See 3.1.2 Walls, shafts, and openings, EN-21.
KUSATEK provides each customer with individual project documents, for example installation diagrams, for the mounting of the heater. Installation of the heater shall be carried out using these project documents.
The wall cut-out must be filled with non-combustible material after the heater has been installed. The wall cut-out can be covered with the wall panels, which are available as optional accessories in two versions, see 2.7 Accessories, EN-17.
The pipes can be extended by 0.5 m or 1.0 m with one of the optional extension sets to position the heater further in the room.



Installation without pipe extension

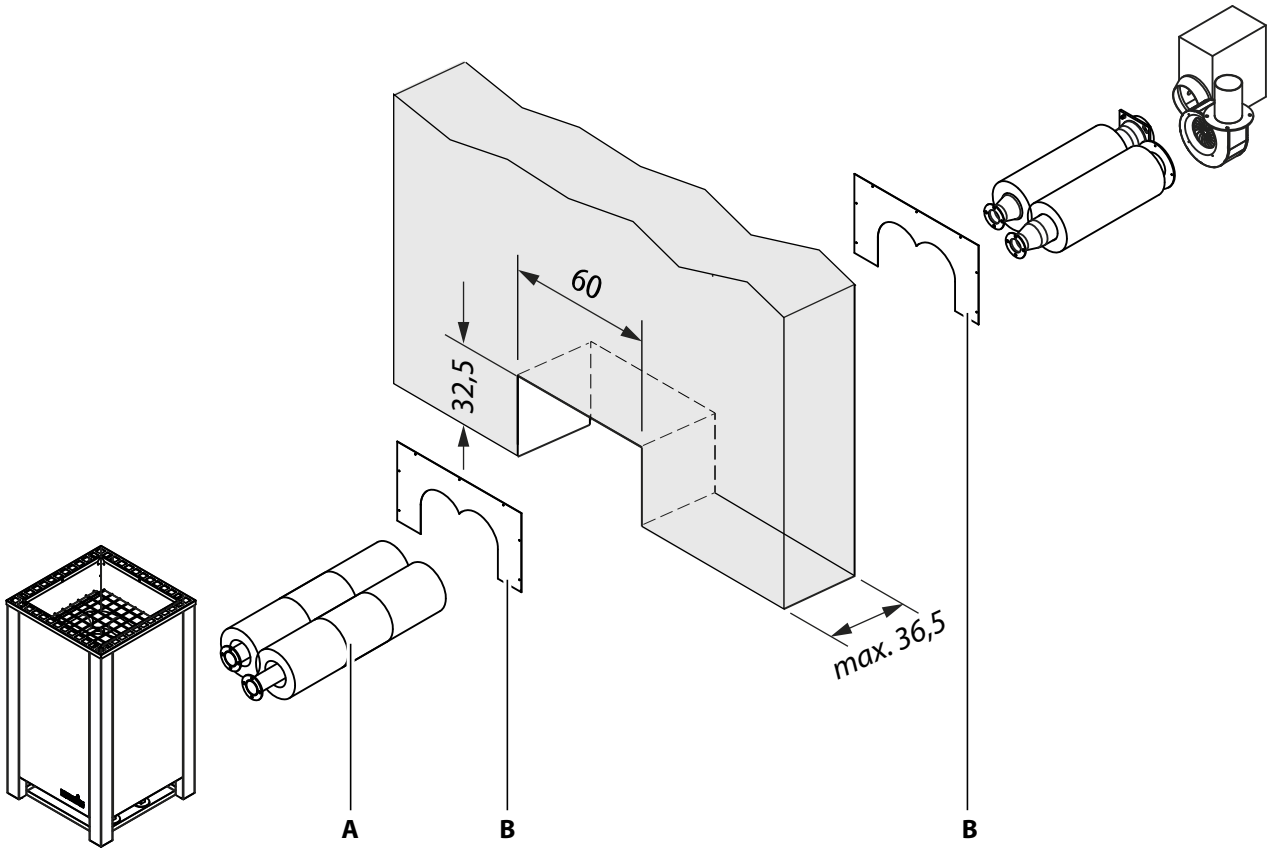


Installation with pipe extension

Installation diagram (dimensions in cm)

Two different extension sets are available for pipe extension, see 2.7 Accessories, EN-17.
The extension is installed as shown in the diagram:

Installation



A Extension pipes

B Wall panel, optional
see 2.7 Accessories, EN-17.

Installation with extension (dimensions in cm)

The pipes are inserted between the coil and the pipes that belong to the burner and fan. They can be combined to achieve a total extension of up to 3 m. The extension set includes the corresponding M8 screws and nuts.

Recommended installation sequence

- If necessary, mount extensions on the burner pipe and exhaust pipe.
- Slide the wall bushings onto the pipes.
- Push the wall bushings with the pipes through the wall opening.
- Position the coil and screw on the pipes.
- If necessary, align the coil with the pipes correctly.
- In the plant room, screw the pipes to the burner and the fan.

4.1 Installing the heater and pipes

Wall bushings are installed in the wall openings between the sauna cabin and the plant room for the pipes. The pipes are routed from and to the coil through them.

The following installation work is performed in the sauna cabin:

▶ Preparing pipes for installation, 🗋 EN-32

▶ Mounting the burner and fan pipe, 🗋 EN-32

⚠WARNING

Risk to health and risk of fire

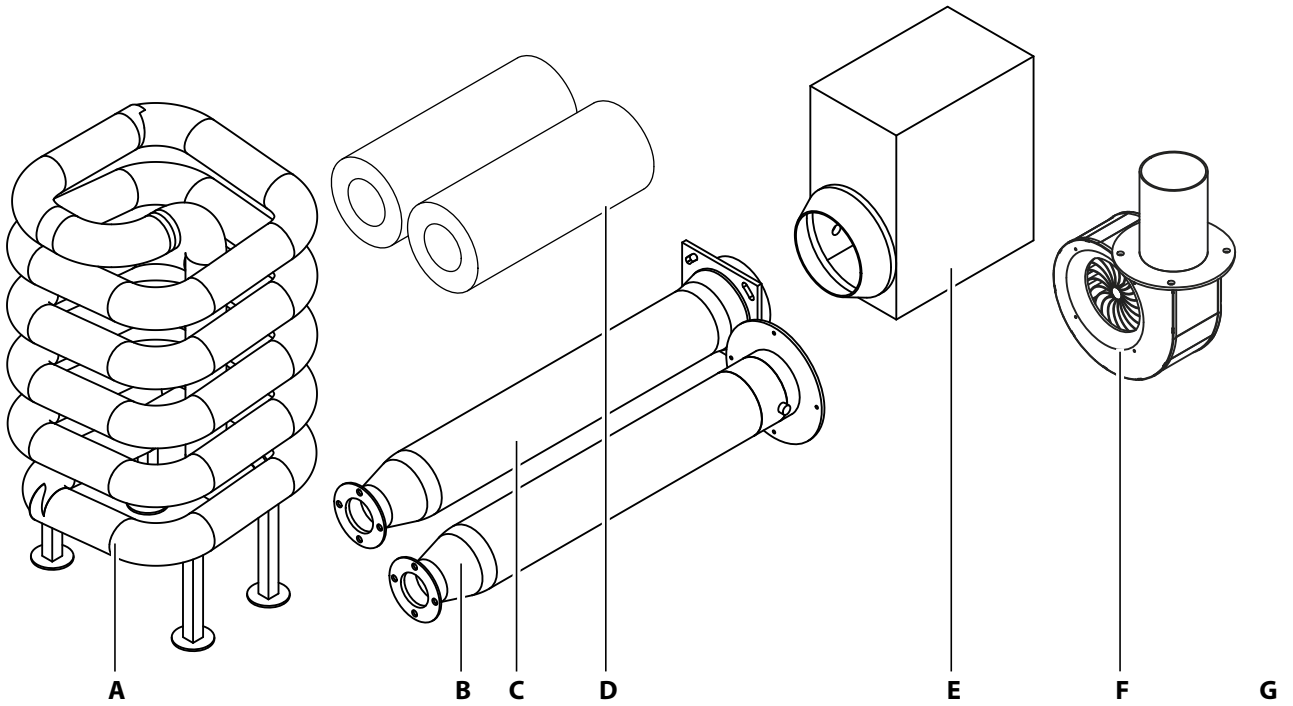
There is a risk to health and risk of death due to fire if the gas-powered sauna heater is not installed in a professional manner. These risks also exist once the gas-powered sauna heater is installed.

▶ The heater must be installed only by a trained technician.

▶ Ensure that technicians have experience with handling infrared radiators.

▶ Ensure compliance with the KUSATEK project documents.

▶ Ensure that installation complies with the standards and legal norms valid in your country.



A Coil
B Burner pipe
C Fan pipe
D Wall bushings
E Burner
F Fan with drain pipe

Installation diagram

Installation

The pipes can be extended on the heater side by up to 3 m using one of the optional extension sets.
See Installation with extension (dimensions in cm), EN-30.

▶ Preparing pipes for installation

1 Remove all protective film.

2 Prepare the wall bushings:
   a) Slide the wall bushings onto the pipes.
   b) Mount the extensions on the pipes and slide the wall bushings onto the extensions.
   See Installation with extension (dimensions in cm), EN-30.

3 Push the wall bushings with the pipes into the wall cut-out.

4 Place the stainless steel tray at the installation site.

5 Place the coil on the stainless steel tray with the open pipe ends facing the wall.
   ⓘ Put the housing back in place only after the pipes have been connected.

▶ Mounting the burner and fan pipe

1 Connect burner pipe and coil and screw the flange together using four screws and nuts.
   ⓘ The screws and nuts are included in the scope of delivery.

2 Connect the fan pipe with the coil in the same way.
   ⓘ Each pipe is connected to the coil via a flange.

3 Place the housing on the coil.
   ⓘ The cut-outs for the pipes must face the wall. The housing stands freely on the stainless steel tray and does not need to be fastened.

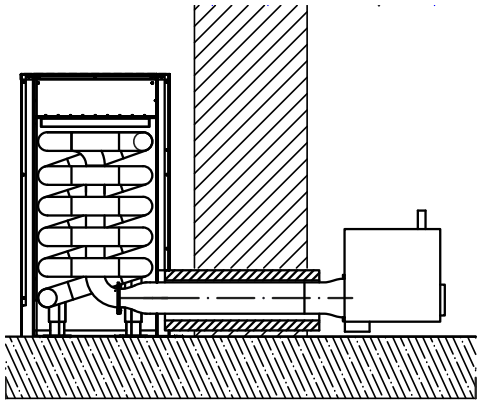
4 Fill the wall cut-out with non-combustible material, e.g. rock wool.

4.2 Mounting the burner and fan

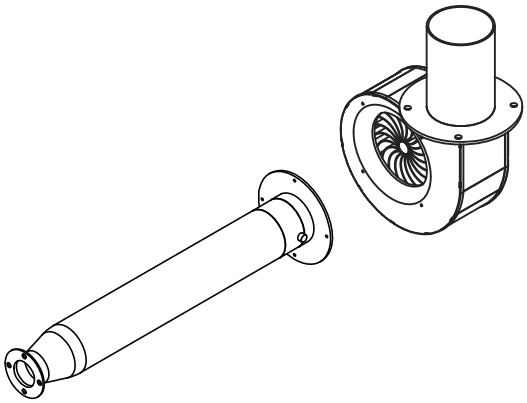
The following steps must be completed:

▶ Preparing pipes for installation, EN-32

The burner and fan are mounted on the pipes in the plant room.



Mounting diagram for burner



Mounting diagram for fan

▶ Mounting the burner

1 If necessary, fill the wall cut-out with non-combustible material.

2 Place the burner seal on the burner's connection flange.

3 Place the burner on the burner pipe.
ⓘ The burner must face upward vertically.

4 Insert the screws and nuts and screw them together.
ⓘ Tighten the screws uniformly.
ⓘ The screws and nuts are included in the scope of delivery.

5 Connect the gas supply line to the burner.
ⓘ For more information about electrical installations, see 5.2 Electrical connection, EN-36.

▶ Mounting the fan

1 Place the fan in the pre-defined location.
ⓘ The location is specified in the KUSATEK project documents.

2 Place the fan on the fan pipe.

3 Insert the screws and nuts and screw them together.
ⓘ Tighten the screws uniformly.
ⓘ The screws and nuts are included in the scope of delivery.

4 Mount the drain pipe on the fan.
ⓘ For more information about electrical installations, see 5.2 Electrical connection, 🗋 EN-36.

4.3 Temperature sensor

⚠WARNING

Risk of fire due to incorrect temperature sensor position

Overheating can occur if the temperature sensor is installed in the incorrect position; in this case, the sensor may read a lower temperature than actually exists in the cabin. This would trigger the gas-powered sauna heater to continue to heat, even though the desired temperature has already been reached.

▶ Mount the temperature sensor as described in the installation instructions for the control unit.

NOTICE

Malfunction due to damaged temperature sensor

The temperature sensor is protected by its housing.

▶ Ensure that the housing and the temperature sensor are not damaged during operation.

The temperature sensor, room sensor and heater sensor with safety temperature limiter must be mounted as indicated in the installation instructions for the sauna control unit.

4.4 Warning plate

In some countries it is mandatory to warn sauna cabin users of health risks. Ensure that you comply with the standards and requirements stipulated in your country.
A warning plate with the following information should be affixed near the heater so it is clearly visible at eye level:

- Health risks exist if the body overheats.
- Do not exceed the maximum recommended time in the sauna.
- Leave the sauna cabin if your body responds abnormally to the heat or if you do not feel well.
- Consult with a doctor prior to using the sauna if you have a health impairment.
- Avoid alcohol, drugs, and medications when you are using the sauna.

5 Electrical installation

This chapter describes how the gas supply line, the burner and the corresponding fan are connected and how negative pressure is set.

⚠WARNING

Risk to health and risk of fire

There is a risk to health and risk of death due to fire if installation is not performed in a professional manner. These risks also exist once the installation is completed.

▶ Installation should be performed only by:
- KUSATEK customer service
- Technicians who have been trained by KUSATEK
- other trained technicians if technicians trained by KUSATEK do not service the area in which the installation site of the gas-powered sauna heater is located.

Additional documentation

If special measures, which are crucial for the operation or safety of the unit, are implemented, this information must be added to the documentation and provided to the operator. This includes, for example, a diagram showing the location of switches and shut-off valves, and particulars about connected thermostats and timers.

5.1 Gas supply connection

⚠WARNING

Risk of fire due to improper gas installation

There is a risk of death due to fire if the gas installation is not performed in a professional manner. This risk also exists once the gas installation is completed.

▶ The gas installation must be performed only by a trained technician.

The burner and gas supply line must be connected by a flexible gas hose. The flexible hose must be long enough so that it is not under tension upon thermal expansion of the sauna heater.

5.2 Electrical connection

5.2.1 General instructions for electrical installation

⚠ WARNING

Risk of electric shock

There is a risk of electric shock if connection work is performed while the
burner and fan are being connected to the power connector.

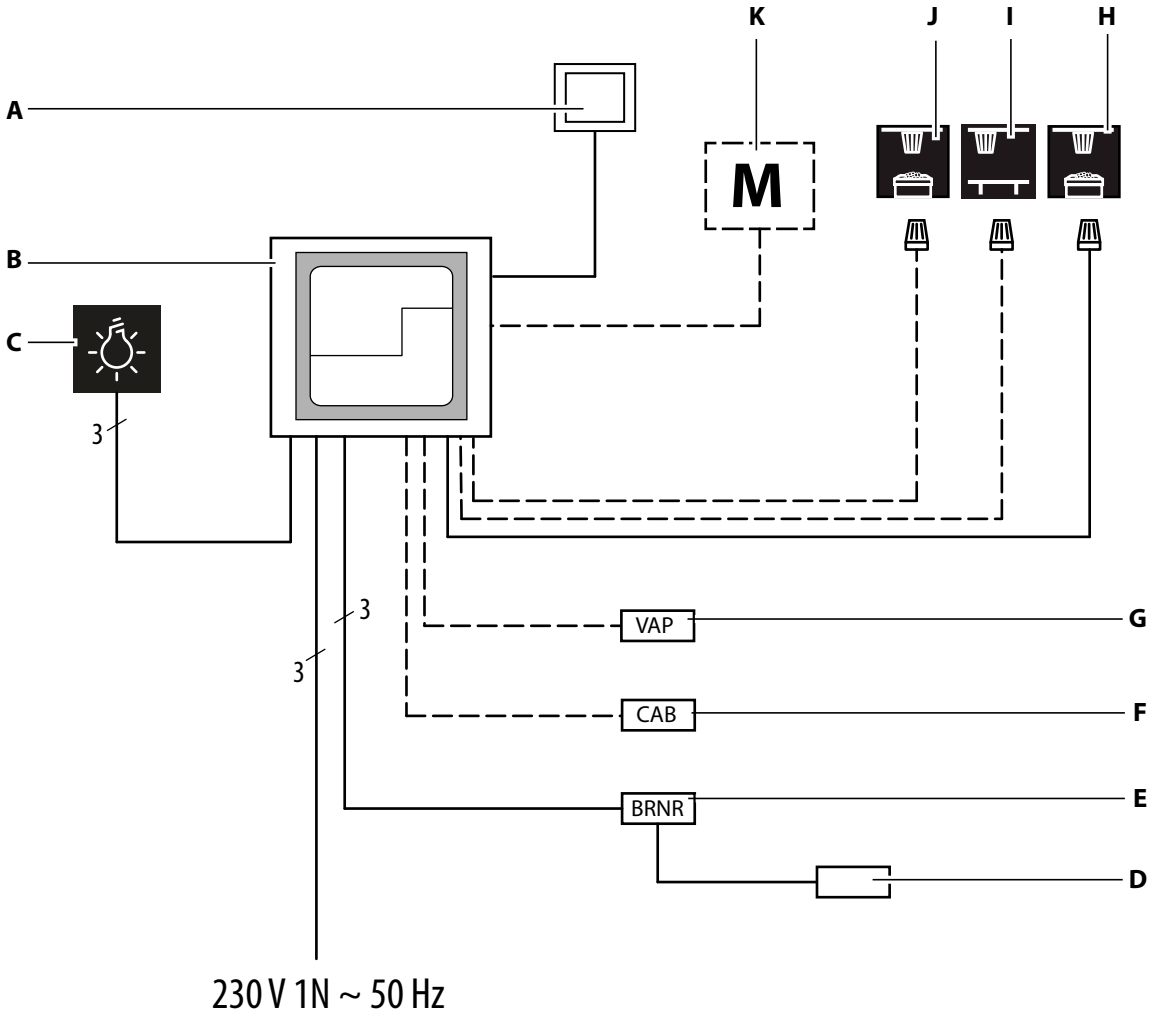
▶ Disconnect the power supply to the burner and to the fan by disconnecting the cables from the power connectors.

Ensure that electrical installation is performed in compliance with the standards and legal norms valid in your country.
Observe the following regulations when installing sauna heaters:
IEC 60364-7-703 and/or DIN VDE 0100 part 703:
This most recent version of the standard under amendment of paragraph 703.412.05, states the following:

> "The additional protection must be provided for all of the sauna's electric circuits by one or more residual current devices (RCDs) with a rated differential current no greater than 30 mA, with the exception of sauna heaters."

If a residual current device (RCD) is installed, ensure that there are no other electrical consumers not belonging to the sauna system which are fused via this RCD.
If the sauna heater has not been used for an extended period of time, the heater may draw moisture from the ambient air, which, in rare cases, could lead to the RCD to be tripped. This is a physical process and not a fault on the part of the manufacturer.
In this case, the heater must be heated by a technician under supervision which will bypass the RCD function. Once the moisture has escaped from the heating elements after approx. 10 minutes, the RCD can be integrated again in the electric circuit.
If the sauna heater will not be used for an extended period of time, we recommend that you switch on the heater every 6 weeks so that the heating elements do not accumulate moisture. If, during commissioning, the RCD is triggered, the electrical installation must be checked again.
The electrician is responsible for properly connecting the heaters; thus, the manufacturer does not assume liability.

5.2.2 Connection diagram



A Control panel
B K-Tec LSG relay box
C Cabin lighting
D Fan – exhaust air
E Burner
F Fan – cabin
G Vaporiser (optional)
H Heater sensor with safety temperature limiter
I Bench sensor, analogue (optional)
J Heater sensor, analogue (optional)
K Add-on modules (optional)

Connection diagram – example

The burner and the fan for the sauna heater may be connected only to the supplied sauna control unit.

5.2.3 Burner

The burner is switched on and off by switching on and interrupting the power supply. The burner is equipped with a 2A fuse (5 mm x 20 mm). The fuse is located next to the power supply on the back of the burner. The burner has an additional plug contact used for incoming burner error messages.

▶ **Connecting the burner**

1 WARNING! Ensure that the sauna control unit has no voltage.
Connect the burner to the control unit as shown in the circuit diagram and connection diagram.
ⓘ The circuit diagram and connection diagram are included in the installation instructions for the sauna control unit.

5.2.4 Fan

The fan is switched on and off by switching on and interrupting the power supply.

▶ **Connecting the fan**

1 WARNING! Ensure that the sauna control unit has no voltage.
Connect the fan as shown in the circuit diagram and connection diagram to the burner.
ⓘ The circuit diagram and connection diagram are included in the installation instructions for the sauna control unit.

5.3 Negative pressure

A pressure switch monitors the functioning of the fan. The negative pressure is set by a control damper on the fan pipe.

▶ **Setting the negative pressure**

1 Connect the negative pressure meter.
ⓘ Negative pressure is measured at the baffle plate.

2 Set the negative pressure at the butterfly valve on the fan.
ⓘ The negative pressure depends on the model of the sauna heater.
See also: Gas burner – INDEPENDENT, 🗋 EN-17.

3 Tighten the control damper with the self-tightening nut.

6 Commissioning

Before the installation can be inspected and the sauna heater can be commissioned, it must be filled with the supplied sauna stones. See 6.1 Filling rock stores with stones, 🗋 EN-40.

The following inspections must be completed before the sauna heater is commissioned:

- 6.2.1 Inspecting the mounting and installation, 🗋 EN-42
- 6.2.2 Function inspection of unit parts, 🗋 EN-43
- 6.2.3 Operation inspection, 🗋 EN-43
- 6.2.4 Exhaust gas measurement, 🗋 EN-45
- 6.3 Official acceptance of firing system installation, 🗋 EN-46, if necessary

⚠WARNING

Fire hazard from overheating

Operating the heater without stones could cause fire or damage to the heater. Stones that are positioned too close together in the heater prevent hot air from being exhausted. This leads to overheating of the heater.

- ▶ Ensure that a minimum of 5 times the cabin volume of air per hour is exchanged.
- ▶ Start the sauna cabin only after all air inlets and outlets have been opened.
- ▶ Start the heater only after all air inlets and outlets have been opened.
- ▶ Ensure stones with the correct caliber are used: 100–150 mm.
- ▶ Place the stones loosely in the rock store.

⚠WARNING

Risk of fire due to objects on or next to the sauna heater

Objects placed on the sauna heater could catch fire. Objects that are placed too close to or on the heater can cause a fire.

- ▶ Inspect the cabin prior to each use and ensure that no objects are placed on the heater.
- ▶ Ensure that the minimum distance between the top and side of the heater and flammable material is at least 1.0 m.

6.1 Filling rock stores with stones

NOTICE

Damage to the unit due to incorrect stone type

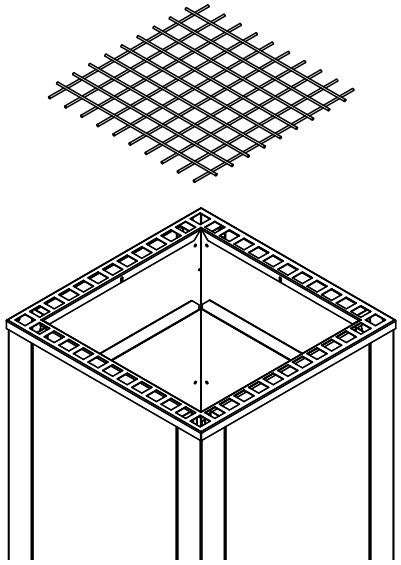
Sauna stones that are too small or the incorrect type can hinder air convection and lead to overheating and/or compromise the water splash effect. The sauna heater can be damaged as a result.

- ▶ Only use original EOS stones with a caliber of 100–150 mm.
- ▶ Place the sauna stones in the rock store correctly, see ▶ Filling rock stores with stones, 🗋 EN-41.
- ▶ Regularly check and reshuffle the sauna stones, see ▶ Reshuffling the sauna stones, 🗋 EN-52.
- ▶ Do not use ceramic stones.

Use only natural sauna stones. Due to their roughness, they produce a better water splash effect than ceramic sauna stones.
See also 7.2 Sauna stones, 🗋 EN-51

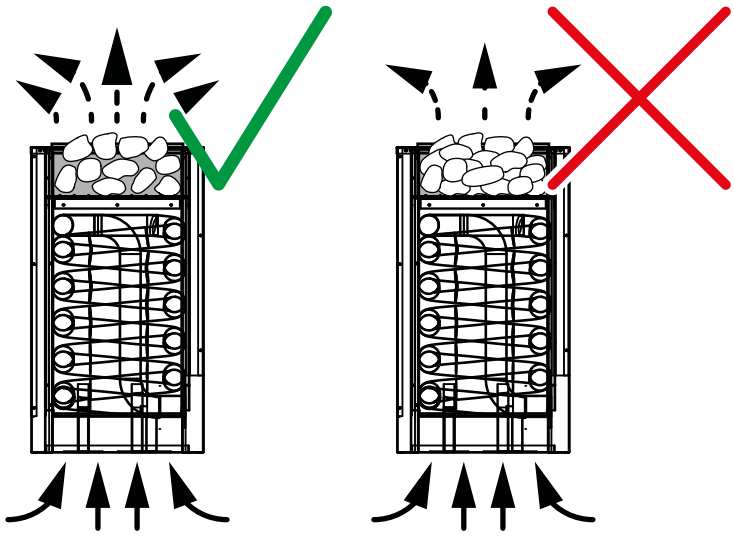
▶ Filling rock stores with stones

1 Insert the stone grate in the housing.



2 Thoroughly rinse the stones with running water.

3 WARNING! Stones that are stacked too closely prevent the hot air from rising properly, thus causing the heater to overheat. The result is a risk of fire.
Stack the stones loosely on the stone grate, leaving sufficient space between them. Add each stone individually.



ⓘ There must be enough space between the stones so that air can circulate sufficiently between them.
ⓘ Fill the store with stones only to the upper edge.

6.2 Inspections before commissioning

Prior to commissioning, all mounting and installation work must be complete as indicated in the instructions. The commissioning inspection must be performed only by trained specialists.

6.2.1 Inspecting the mounting and installation

The supplied commissioning report must be completed during commissioning and then returned to KUSATEK.

▶ **Inspecting the mounting and installation**

1 Compare the distribution of the various burner models with the KUSATEK project documents.
ⓘ The burner must be remounted in the event of discrepancies.

2 Check for proper fuse protection of the electric circuits.

3 Ensure that the power supply phasing is correct.

4 Check if measures for preventing contact with the heater have been implemented.

5 Check that the exhaust gas line has been mounted correctly.

6 Check if the supply and exhaust lines for the sauna cabin and plant room have been installed according to the KUSATEK project documents.

7 Check if the sauna heater is suitable for operation with the type of gas used.

8 Compare the gas flow pressure with the values in the table.
See 2.5 Technical data, 🗋 EN-16.

9 Compare the negative pressure at the baffle plate with the values in the table.
See 2.5 Technical data, 🗋 EN-16.

10 Check the overall installation.

11 Ensure that installation complies with the standards and legal norms valid in your country.

6.2.2 Function inspection of unit parts

The sauna heater and KUSATEK equipment shall be inspected after mounting and installation. This inspection ensures that each of the units is in proper working order. The function inspection shall be documented, and the documentation shall be given to the operator. The operator bears the risk.

⚠WARNING

Risk to health and risk of fire

There is a risk to health and risk of death due to fire if the function inspection is not performed in a professional manner. These risks also exist once the function inspection is completed.

▶ Function inspections should be performed only by:
- KUSATEK customer service
- Technicians who have been trained by KUSATEK
- other trained technicians if technicians trained by KUSATEK do not service the area in which the installation site of the gas-powered sauna heater is located.

If commissioning is not performed by KUSATEK but by the operator or a third party, KUSATEK cannot be held liable for possible consequential damages.

6.2.3 Operation inspection

The general visual inspection of the entire sauna heater must be performed only by trained specialists. If a defect is detected during the inspection, it must be rectified before further inspections are performed and prior to commissioning of the sauna heater.

Instructions for switching on the unit

The gas-powered sauna heater is switched on and off by interrupting the power supply. This process unlocks and restarts the heater in the event of a malfunction.
As soon as the burner and fan are supplied with a live current, the fan starts to run and generates negative pressure in the coil.
After a purge period of approx. 30 seconds, the gas solenoid valve opens, the ignition is switched on and the Burner operating control light illuminates.
Burning gas causes an ionisation current to flow over the monitoring electrode to the burner safety control. If the ionisation current is sufficient, the ignition is switched on. The heater is now in use. The control light is always illuminated during operation.

If the ionisation current is interrupted, the unit attempts a restart. If this attempt is unsuccessful three times, the start process is locked. The malfunction light illuminates.
A restart must then be initiated manually via the control panel of the control unit. Alternately, the relay box can be switched off and then on again.

▶ **Operation inspection**

1 Ensure that gas is supplied to the burner.
ⓘ Check if the gas lines' ball valves or gas valves to the burner are open.

2 Switch on the sauna control unit's relay box.
ⓘ See the installation instructions for the control unit.

3 Switch on the sauna at the control panel.
ⓘ See the instructions for switching on the unit.
ⓘ Check for any unusual noises.

a) Switch on the heater multiple times and then off again after commissioning.

b) Switch off the sauna heater if abnormalities and deviations from normal functioning are detected.

c) Troubleshoot and rectify the problem.

d) Repeat this step.

e) Once the abnormalities and deviations have been rectified, continue with the next step.

4 Check the lighting and extinguishing of the burner flame in the burner.

a) Switch off the sauna heater if abnormalities and deviations from normal functioning are detected.

b) Troubleshoot and rectify the problem.

c) Repeat this step.

d) Once the abnormalities and deviations have been rectified, continue with the next step.

5 Perform multiple test runs while observing as the operating temperature of the sauna cabin (set-point value on the control unit) is reached.

a) Switch off the sauna heater if abnormalities and deviations from normal functioning are detected.

b) Troubleshoot and rectify the problem.

c) Repeat this step.

☑ The general function inspection is complete once the abnormalities and deviations have been rectified.

6.2.4 Exhaust gas measurement

KUSATEK recommends that a chimney sweep measure the exhaust gas.

▶ **Measuring the exhaust gas**

1 Ensure that gas is supplied to the burner.
ⓘ Check if the gas lines' ball valves or gas valves to the burner are open.

2 Switch on the sauna control unit's relay box.
ⓘ See the installation instructions for the control unit.

3 Switch on the sauna at the control panel.

4 Wait 5 minutes while the sauna heater runs.

5 Measure the exhaust gas at the metering aperture of the exhaust gas line and log the values.

6 Measure the combustion air temperature and log the values.

7 Give the operator the measurement report with the following values:
☑ Combustion air temperature (°C/°F)
☑ Exhaust gas temperature (°C/°F)
☑ CO_2 in the exhaust gas (vol. %)
☑ CO in the exhaust gas, dry, undiluted (ppm)
☑ Exhaust gas loss (%)

6.3 Official acceptance of firing system installation

Some countries stipulate by law that an installed firing system must be inspected and accepted by an officially authorised technician. For example, in Germany, a chimney sweep is responsible for certifying the safety of the firing system and chimney.
Ensure that your sauna system complies with the standards and legal norms stipulated in your country.

6.4 Operator instruction

Before instructing the operator, all prior inspections must be successfully completed.
The operator must be familiarised with how to operate the gas-powered sauna heater.

▶ **Instructing the operator**

1 These installation and operating instructions must be given to the operator.

2 Inform the operator that the installation and operating instructions must be kept on hand at the site of use.
ⓘ The installation and operating instructions are required for maintenance and repairs and can be given to technicians for this purpose.

3 Instruct the operator on how to use the unit safely.

4 Inform the operator on how to detect signs of malfunctions, switch off the sauna heater, and disconnect the gas and power supply in the event of a malfunction.

5 Notify the operator of the risks associated with using the gas-powered sauna heater.

6 Instruct the operator on how to operate the unit economically.

7 Inform the operator of the minimum clearances that must be maintained between the unit and flammable materials.

8 Give the operator all measurement reports and documentation. Ensure that the operator has the following documentation:

☑ INDEPENDENT installation and operating instructions

☑ Installation and operating instructions for the sauna control unit

☑ Installation instructions for the temperature sensor, if needed

☑ KUSATEK project documents

☑ Gas measurement report, see 6.2.4 Exhaust gas measurement, 🗋 EN-45

☑ Measurement report for function inspection, see 6.2.2 Function inspection of unit parts, 🗋 EN-43

☑ Acceptance certificate of firing system as needed, see 6.3 Official acceptance of firing system installation, 🗋 EN-46

☑ Transfer of risk

6.5 Starting the unit

The sauna heater is operated by the sauna control unit. For more information, see the installation and operating instructions for the control unit.
A slight odour may be produced the first time the sauna cabin is heated This occurs when the heating coils are heated for the first time due to residue from the manufacturing process. The odour ceases upon continued operation of the heater.

⚠WARNING

Risk of fire due to objects on or next to the sauna heater

Objects placed on the sauna heater could catch fire. Herbs placed on the heater could catch fire. Objects that are placed too close to or on the heater can cause a fire.

▶ Inspect the cabin prior to each use.

▶ Ensure that the minimum distance between the top and side of the heater and flammable material is at least 1.0 m.

⚠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. A heating process that takes a long time could indicate that the air supply to the heater is insufficient.

- ▶ Start the sauna cabin only after all air inlets and outlets have been opened.
- ▶ Ensure stones with the correct caliber are used: 100–150 mm.
- ▶ Place the stones loosely in the rock store.

⚠WARNING

Risk of fire if operated despite malfunction

A risk of death due to fire exists if the gas-powered sauna heater is started despite indications of a malfunction or damage.

- ▶ Check the heater for signs of malfunction or damage before starting the unit.
- ▶ Start the heater only if there is no indication of malfunctions or damage.

▶ Switching on the sauna heater

1 Ensure that gas is supplied to the burner.
ⓘ The gas lines' ball valves or gas valves to the burner must be open.

2 Ensure that the sauna stones have been put in place correctly.
ⓘ See 6.1 Filling rock stores with stones, 🗋 EN-40

3 Switch on the sauna heater at the control unit.

4 Use the control unit to select a suitable program.

▶ Switching off the sauna heater

1 Switch off the sauna heater at the control unit.

2 Close the gas lines' ball valves or gas valves to stop the supply of gas to the burner.
ⓘ If the unit is not operated for an extended period of time, see Decommissioning, 🗋 EN-58.

6.6 Water splash

The cabin must be sufficiently heated before making the first water splash. The control unit measures the temperature and indicates via the control panel when the target temperature has been reached.

⚠WARNING

Risk of fire due to sauna essences

Incorrectly diluted sauna essences, essential oils or herbs can catch fire.

- ▶ Never add more sauna essence or essential oils to the water than the amount indicated on the container.
- ▶ Do not add herbs to the water or the stones.
- ▶ Do not use pure sauna essences for water splashes.
- ▶ Do not use alcohol for water splashes.
- ▶ Pour the water over the stones only.

Please note that the sauna stones must be reheated after each water splash to generate an intense burst of steam. Recommendation: During a water splash, no more than approx. 10 cL of water per m^3 cabin volume should be vaporised. After each water splash, wait approx. 10 minutes before starting the next one. This time is needed for the sauna stones to reheat.

6.7 Starting the unit remotely

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

7

Maintenance

The gas-powered sauna heater must be serviced at least once per year. Maintenance intervals must be shortened as needed. The first maintenance should be completed 6 months after commissioning.
The following tasks should be included in regular maintenance:

- Daily removal of water that collects in the stainless steel tray under the coil.
- Inspection of openings and heat reflectors for blockages in the intake area.
  These can easily become blocked with lint and dust as fresh air is drawn in. This limits the air convection ability of the sauna heater and could lead to impermissible temperatures.
- Clean the heater as needed.
- Check the sauna stones and replace as needed.

If you do not use your sauna for a longer period of time, ensure that prior to recommissioning, no towels, cleaning agents or other objects are lying on the sauna heater.
Contact your sauna retailer or the manufacturer directly if you notice malfunctions or signs of wear and tear.

7.1 Cleaning

⚠ WARNING

Risk of fire due to dust

Dust can catch fire easily. There is a risk of death due to fire if the plant room has an elevated concentration of dust.

▶ Remove dust from surfaces in the plant room regularly.
▶ Install air filters to reduce the concentration of dust as needed.

The sauna heater must be cleaned regularly. The cleaning frequency depends on how often it is used. The operator may carry out cleaning tasks. The operator should check the stainless steel tray below the coil daily for residual water and remove it.

▶ **Cleaning the sauna heater**

1 Switch off the heater at the control unit.

2 Wait until the heater is completely cool, if necessary.

3 Wipe surfaces and frames clean.
ⓘ Use only household cleaning agents.

4 Remove lint and dust from openings and heat reflectors.

5 Remove residual water from the stainless steel tray below the coil with a towel.

▶ **Cleaning the plant room**

1 Switch off the heater at the control unit.

2 Wait until the burner and fans have cooled completely.

3 Remove lint and dust from all surfaces.

7.2 Sauna stones

Sauna stones are a product of nature. Sauna stones must be replenished or reshuffled depending on the intensity of use.
The process of heating and cooling can make the stones brittle. Particular damage to the sauna stones can be caused by aggressive sauna essences, causing them to disintegrate over time. Small particles can break off from the stones. The gaps between the stones also become smaller which means that hot air can no longer rise between the stones.
Check the sauna stones regularly and reshuffle them or replace them as needed. Observe the following periods of time:

Commercial use	Private use
Every 2–3 months	Once per year

Use only natural sauna stones when you refill the rock store. Due to their roughness, they produce a better water splash effect than ceramic sauna stones.

Maintenance

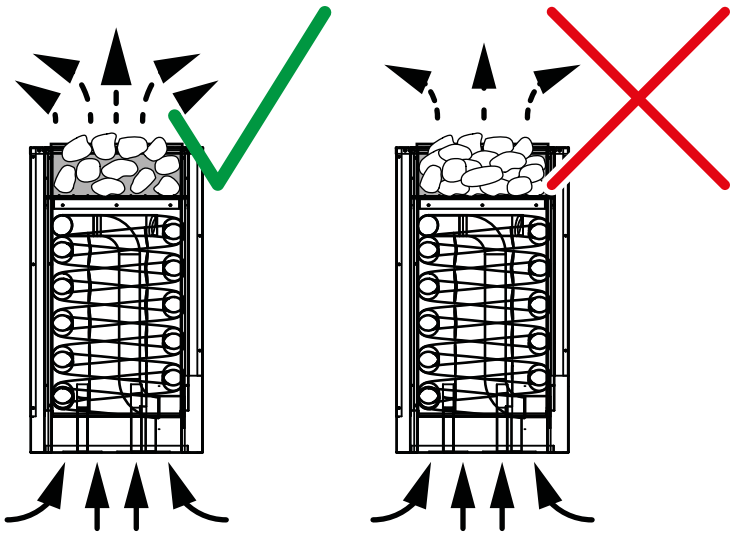
▶ Reshuffling the sauna stones

1 CAUTION! Stones may be hot. Allow the stones to cool for at least 45 minutes before you remove the old stones.
Remove each stone individually.

2 Check each stone for damage. Sort out any stones with severe damage.

3 Rinse the stones with cold water.

4 WARNING! Stones that are stacked too closely prevent the hot air from rising properly, thus causing the sauna heater to overheat. The result is a risk of fire.
Stack the separate stones loosely around the coil, leaving sufficient space between them.
ⓘ There must be enough space between the stones so that air can circulate sufficiently between them.
ⓘ Fill the stones only just above the coil. The coil should only be covered loosely with stones.



7.3 Conversion to a different gas type

You can order the nozzle, baffle plate, and the nameplate from KUSATEK.
See Service address, 🗋 EN-64.

⚠WARNING

Risk to health and risk of fire

There is a risk to health and risk of death due to fire if the nozzle is not replaced in a professional manner. These risks also exist after the nozzle is replaced.

- ▶ Nozzle replacement must be performed only by a trained technician.
- ▶ Use only original spare parts from the manufacturer.

The following work is required:

- ▶ Replacing the burner nozzle, 🗋 EN-53
- ▶ Replacing the nameplate, 🗋 EN-54

▶ Replacing the burner nozzle

1 Switch off the heater at the control unit.

2 Close the gas lines' ball valves or gas valves to stop the supply of gas to the burner.
ⓘ If the unit is not operated for an extended period of time, see Decommissioning, 🗋 EN-58.

3 WARNING! Electric shock may occur if parts of the burner are replaced while connected to the power supply.
Disconnect the mains plug for the burner and all supply lines.

4 Wait until the burner has cooled completely.

5 Remove the screws from the burner's housing cover and the cover itself.

6 Unscrew the safety plug.

7 Unscrew the nozzle and screw in a new nozzle.
ⓘ The new nozzle must correspond to the new gas type.

8 Screw in the safety plug.

9 Attach the housing cover and tighten with the screws.

▶ **Replacing the nameplate**

1 Replace the nameplate.

2 Plug in the mains plug for the burner again.

3 Switch on the heater at the control unit.

4 Perform a test run.
ⓘ See 6.2 Inspections before commissioning, 🗋 EN-42

5 Set the negative pressure.
ⓘ See 5.3 Negative pressure, 🗋 EN-38.

7.4 Troubleshooting

Only spare parts specified by the manufacturer in the replacement parts list may be used. See: 2.6 Spare parts, 🗋 EN-17. Consult the manufacturer before installing other parts.

⚠WARNING

Risk to health and risk of fire

There is a risk to health and risk of death due to fire if repairs are not performed in a professional manner. These risks also exist once repairs have been made.

▶ Repairs should be performed only by:
- KUSATEK customer service
- Technicians who have been trained by KUSATEK
- other trained technicians if technicians trained by KUSATEK do not service the area in which the installation site of the gas-powered sauna heater is located.

Contact the manufacturer in the event of malfunctions or signs of malfunctions. See Service address, 🗋 EN-64.

7.4.1 Burner malfunctions

⚠WARNING

Risk of fire if operated despite malfunction

A risk of death due to fire exists if the gas-powered sauna heater is started despite indications of a burner malfunction.

- ▶ Check the heater for signs of malfunction or damage before starting the unit.
- ▶ Start the heater only if there is no indication of malfunctions or damage.

▶ **Troubleshooting the burner**

1 WARNING! Restart the burner only if operating the burner poses no risk. Press the reset button or unplug the mains plug and plug it back in to re-start the burner.

2 Observe if the malfunction occurs again.

a) Malfunction does not reoccur: Operate the burner.

b) Malfunction persists: Do not operate the burner. Continue with the next step.

3 Switch off the heater at the control unit.

4 Close the gas lines' ball valves or gas valves to stop the supply of gas to the burner.

5 Unplug the mains plug for the burner and fans to disconnect them from the power supply.

6 Contact the person responsible for malfunctions or KUSATEK customer service for troubleshooting assistance.

7.4.2 Causes of malfunctions

Error	Reason	Solution
The unit does not start when it is switched on.	Fan does not run.	Check if the fan blades can move freely. Check the cabling. Check if the motor protection switch has been triggered. Replace the fan, if needed.
	Sauna control unit fuse is defective.	Replace the fuse and check the sauna heater.
	Time switch did not switch on.	Change the time switch setting.
	Vacuum actuator is defective.	Check the vacuum actuator and replace as needed.
	Vacuum actuator is defective.	Check the installation fuses. Have the control unit's outputs checked by a technician.
	Burner malfunction.	Check the burner and replace fuse as needed.
Only the fan runs after unit is switched on.	Sauna control unit malfunction.	Check the sauna control unit.
	Vacuum actuator is defective.	Check the vacuum actuator and replace as needed.
	Gas supply has been interrupted.	Check the gas supply and re-establish the connection.
When the unit is switched on, the fan runs and the burner ignites but does not become operational.	Gas supply has been interrupted.	Check the gas supply and re-establish the connection.
	Gas pressure is too low.	Check the gas pressure.
	Connection to monitoring electrode is faulty or interrupted.	Check the cabling. Remove corrosion from the plug.
When the unit is switched on, the fan runs and the gas supply is established, but the burner does not ignite.	Distance between ignition electrodes is too great or too little.	Set the distance between ignition electrodes to 3 mm.
	Hairline crack in the isolator for the ignition electrode.	Replace the ignition electrode.
After switching on the unit, the heater switches off and the control unit indicates a malfunction.	Burner malfunction.	Check the burner.
After switching on, the burner operates, but then switches off again after 9 seconds.	Neutral conductor improperly connected during installation.	Replace the connection for phase and neutral conductor.

Error	Reason	Solution
It takes the sauna heater a long time to heat up the cabin.	There is not enough space between the stones.	Reshuffle the stones. See 6.1 Filling rock stores with stones, 🗋 EN-40.
	There is insufficient ventilation.	Install the air inlets. If these are insufficient, add a fan to the openings. See 3.1.4 Air inlets and outlets, 🗋 EN-22.
	The temperature sensor is incorrectly positioned.	Check the position of the temperature sensor and adjust as needed. See 4.3 Temperature sensor, 🗋 EN-34.
The sauna heater is very hot but cannot distribute the heat throughout the cabin.	There is not enough space between the stones.	Reshuffle the stones. See 6.1 Filling rock stores with stones, 🗋 EN-40.
The sauna heater no longer heats.	The safety temperature sensor was triggered by heat accumulation.	Check the inlets, outlets, and the fan and ensure that the heater has access to a sufficient amount of air.
	The position of the safety temperature sensor is not optimal.	Check the position of the safety temperature sensor and adjust as needed. See 4.3 Temperature sensor, 🗋 EN-34.

8 Decommissioning

8.1 Deactivation

The gas-powered sauna heater should be deactivated if not operated for an extended period of time.

▶ **Deactivating the sauna heater**

1 Switch off the heater at the control unit.

2 Close the gas lines' ball valves or gas valves to stop the supply of gas to the burner.

3 Unplug the burner's mains plugs to disconnect it from the mains supply.

4 Unplug the fans' mains plugs to disconnect them from the mains supply.

8.2 Recommissioning

The sauna heater must be inspected before recommissioning if it has not been operated for an extended period of time. This inspection must be performed only by:

- KUSATEK customer service
- Technicians who have been trained by KUSATEK

If service technicians trained by KUSATEK do not service the area in which the installation site of the gas-powered sauna heater is located, the inspection may be carried out by other technicians.

8.3 Disposal

Electrical devices that are no longer needed must be recycled at a recycling station as per EU guideline 2012/19/EU or as per the Electrical and Electronic Equipment Act (ElektroG).
Observe local provisions, laws, regulations, standards and directives when disposing of the unit.

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:

- Used paper/cardboard
- Plastic foil

Electrical components

Dispose of electrical components and circuit boards as electronic waste.

Metal parts

Dispose of metal parts at scrap metal recycling sites.

Disposal instructions for commercial users (DE only)

You can find further disposal instructions under www.eos-sauna.com/recycling.

9

General terms and conditions of service

(T&C, Dated 08-2018)

I. Scope

Unless otherwise agreed in writing for specific instances, these terms and conditions of service shall apply to service operations, including reviewing 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 acknowledgments or deliveries shall not be construed as any form of acknowledgment of such terms and conditions. Ancillary agreements or amendments must be confirmed in writing.

II. Costs

The customer shall bear 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.

III. 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 shall provide spare parts necessary for servicing free of charge.

IV. Service visit by the manufacturer

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 shall be charged to the customer after the service visit and must be paid by the customer in full within the agreed payment term.

V. Liability

The manufacturer shall assume liability 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.

VI. Manufacturer's warranty

The manufacturer's warranty shall apply 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 period shall commence from the date on which proof of purchase is provided and shall be limited, in all cases, to 24 months.
- 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 shall cover defective equipment parts, with the exception of normal wear parts. Wear parts shall include, for example, light sources, glass elements, tubular heating elements and sauna heater stones.

General terms and conditions of service

- 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 shall be sent to our service department by the customer at the customer's own expense.
- Electrical assembly and installation work, including service visits and parts replacements, shall be carried out at the customer's expense; costs shall not be borne by the manufacturer.

Complaints in respect of our products shall be reported to the responsible distributor and shall be handled exclusively by said distributor.
The manufacturer's General Terms and Conditions of Business, in the version available at www.eos-sauna.com/agb, shall apply in addition to the foregoing terms and conditions of service.

Service address

Kusatek GmbH
Schneiderstriesch 1
35759 Driedorf, Germany
Tel. +49 2775 57765-12
Fax +49 2775 827-147
Web www.kusatek.de
Email info@kusatek.de

Store this address with the installation and operating instructions in a safe place.
Please always provide us with nameplate data, such as model, item number and serial number so we can provide fast and efficient support.

Date of sale

Stamp/retailer signature: