

Bi-O Mat U



(GB) Assembly and operating instruction

MADE IN GERMANY

   **IP x4**

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English

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Dear Customer,

You have purchased a high quality technical appliance which will provide you with many years of enjoyable sauna bathing. This sauna heating system was constructed in accordance with latest European safety standards, inspected and manufactured in accordance with the Quality Standard DIN EN ISO 9001:2000.

This detailed installation and user's guide was created for your information. Please note especially the important information and the details dealing with the electrical connection.

We wish you a richly invigorating and restorative sauna bathing experience.

Intended use

This sauna heater is exclusively designed for the heating of sauna cabins, in connection with an appropriate control unit.

Any use apart from the defined application shall be regarded as non-intended use. Adherence to the conventional operating, maintenance and servicing conditions is also part of the intended use.

The manufacturer cannot be made responsible for deviating alterations undertaken on the authority of the user and any consequential damage. The risk for such measures shall be borne solely by the person carrying out the alterations and causing the damage.

General notes

Please note that an optimal sauna climate can be reached only when the cabin, with its air intake and exhaust, the sauna heating unit and the control unit have been tuned for compatibility with one another.

Please note all data and information provided by your sauna supplier.






The sauna heating units warm your sauna cabin through means of heated air convection. To this end, fresh air from the air intake vent is drawn in, rises upon warming (convection) and is then circulated through the cabin. A part of the used air is pushed out through the exhaust vent in the cabin. This is the means by which the typical sauna climate develops, reaching characteristic temperatures of about 110° C directly under the ceiling of your sauna, which fall off to about 30-40°C in the floor area due to the temperature gradient in the sauna cabin. Therefore, it is not unusual when, for example, temperatures of 110°C prevail in the area of the temperature sensor over the oven, while the thermometer, which is installed 20-25 cm under the cabin ceiling on the sauna wall, registers only 85° C. With a temperature setting at maximum, the mean bathing temperature lies between 80°C and 90°C in the area of the upper recliner bench.






Please note that the highest temperature values in the cabin always develop in the area above the sauna heating unit and that the temperature sensor and safety limiter must be installed in this area in accordance with the control unit installation guide.

At the initial heating, you may notice a slight odor arising from evaporation of substances from the manufacturing process. Air out your cabin after this cycle before you begin with the sauna bath

First of all check whether the sauna heater has arrived at your site undamaged. Register transport damage claims immediately with the delivering transport company or please contact the supplier who provided the equipment to you.

Important notes

-  Unprofessional installation may cause a fire hazard! Please read these installation instructions carefully. In particular, please observe the dimensions stated and the following notes.
- This device can be used by children aged 8 upwards and by persons with physical, sensory, or mental disabilities, or who have inadequate experience and knowledge if they are supervised or if they have received adequate instruction in how to use the device safely and understand the associated risks. Children may not play with this device. Children may not clean or carry out any user maintenance if unsupervised.
- Children should be supervised to make sure that they will not play with the unit.
-  Only specialists may install and connect the sauna heater, control unit and other electrical equipment with a fixed mains connection. The necessary protective measures according to VDE 0100 of § 49 DA/6 and VDE 0100 part 703/2006-2 must be observed.
- Sauna heater and controller may only be used in sauna cabins made of suitable, low-resin, untreated materials (e.g. spruce).
- Only a sauna heater with the appropriate power output may be installed in the sauna cabin.
- Please provide air intake and vent openings in each sauna cabin. The air intakes must always be positioned behind the sauna heater, approx. 5 to 10 cm above the floor. The minimum dimensions of the air intake and vent openings are stated in the table.
- The duct vents are always to be positioned offset diagonally to the sauna heater in the lower area of the rear sauna wall. The air intake and vents may not be covered. Please observe the sauna cabin supplier's instructions.
- Only the control units specified herein must be used for the operation of the sauna heater. This control unit must be positioned at an appropriate point on the cabin outer wall; the associated sensor must be positioned inside the sauna cabin according to the installation instructions included with the control unit.
-  **Caution:** Covering the heater or an incorrectly filled stone container represent a fire hazard.
-  Every time before the sauna is used, ensure that no objects have been left lying on the sauna heater.
-  **Caution:** The high sauna heater temperatures generated during operation can cause burns.

- Do not put the sauna heater into operation when the air intake is closed.
- The cabin lighting and the corresponding installation must correspond with the "splash protected" version in accordance with DIN EN VDE 0100 T 703. Therefore, only VDE-tested sauna light with max. 40 Watt may be installed in connection with the sauna heater.
-  Only a locally certified electrician may connect the sauna facility (sauna heater, control unit, lighting etc.) to a fixed mains connection.
- All electrical installations and all connection lines that are installed inside the cabin must be suitable for an ambient temperature of at least 170 °C. If single-wire cables are used as connection lines, they must be protected using a flexible metal tube connected to the equipment grounding conductor. Please see the table for the minimum cross-section of the connection cable and the suitable cabin size in relation to the power input in kW.
- When installing the sauna heater, please ensure that the vertical clearance between the sauna heater upper edge and the sauna ceiling is maintained. Please see also the dimensions diagram for the clearance between the lower edge of the sauna heater and the floor. On heaters with bases, this clearance is maintained via the base or legs of the device.
- Please always ensure that the sauna heater is never placed on flooring made of flammable material (wood, plastic flooring etc). Ceramic tiles are recommended as floor materials.
- Floor heating in the sauna cabin increases the surface temperature of the flooring.
- Please see the dimensions information for the respective sauna heater for the clearance between the heater protective grating or the bench and other flammable materials. The heater protective grating must roughly accord with the front height of the sauna heater.
- Please also observe the information and instructions provided by the cabin manufacturer.
-  Please take precautions when cleaning components with sharp edges.
- Upright heaters need to be fitted on site with elements that prevent them from overturning.
-  **Attention:** Pour the infusion water only on the sauna rocks and never anywhere else.
-  When using your sauna in a dry Finnish mode never add sauna essences or place any herbs into the vaporizer holder for essences/herbs. **Fire hazard!**
-  Never add more essences or vol-

atile oils than advised on the packaging. Never use alcohol or undiluted concentrates. **Caution! Fire hazard!**



When designing the cabin ensure that the external exposed glass surfaces only reach a maximum temperature of 76°C. If necessary, protective features need to be fitted.

Electrical connection

Your electrician will be able to accomplish this work without further explanation in accordance with the provided wiring diagram and with the help of the circuit diagram mounted inside the respective control unit.

Be sure to note, however, that live wires should not be visibly laid onto the inner cabin walls due to safety considerations. For this reason, the wall element with the air intake vent is usually already equipped with cable conduits in most sauna cabins

Should there be no cable conduits in your cabin, drill a hole in the cabin wall immediately adjacent to the sauna heating unit where the cable projects from the sauna heating unit and pull the cable through this hole towards the exterior and then to the control unit. The cable as well as all other connecting lines (supply wire to the power source and to the cabin lighting) on the outside wall of the cabin should also be protected from damage, for ex. by installation in cable conduits or by covering with wooden skirting strips.

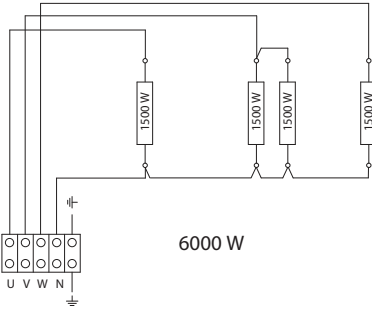
Attention!

Dear customer,

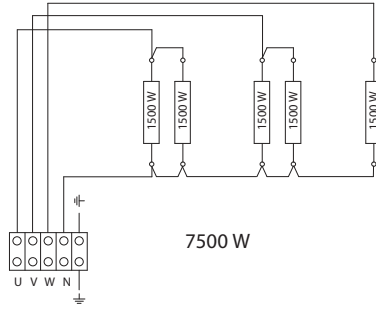
according to the valid regulations, the electrical connection of the sauna heater and the control box has to be carried out through the specialist of an authorized electric shop.

Please be advised that in case of a warranty claim, you are kindly requested to present a copy of the invoice of the electric shop which carried out all works.

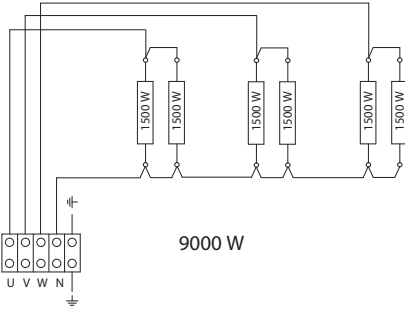
Wiring diagrams



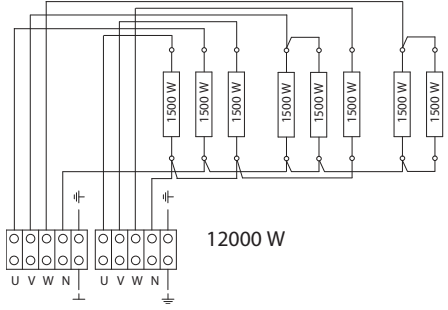
6000 W



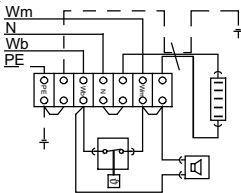
7500 W



9000 W



12000 W



Vaporicer



CAUTION! Make sure the neutral wire is connected.

Capacity acc. DIN	Vaporicer -capacity -volume	Electrical. Connection	Fuse control unit in A	Fuse LSG in A	Connecting cable main - control unit in mm ²	Connecting cable main - LSG in mm ²	Connecting cable control unit - heater in mm ²	Connecting cable LSG - heater in mm ²	Connecting cable control unit - LSG in mm ²
6,0 kW	1,5 kW 5 l	3N AC 50 Hz 400 V	3 x 16	3 x 16	5 x 2,5 ²	5 x 1,5 ² & 4 x 1,5 ²	5 x 1,5 ²	4 x 1,5 ²	
7,5 kW									
9,0 kW									
12,0 kW									

All cross sections of a line are minimum diameters in mm² (Copper line)

Capacity acc. DIN	Vaporicer -capacity -volume	Installation dimensions H/W/D cm	For cabin size	Minimum dimensions of air intake and exhaust vents	Weight without stones without package	Stone filling	Power switch gear (LSG) needed	For operation with control units
6,0 kW	1,5 kW 5 l	100 / 112 / 20	6 - 8 m ³	35 x 4 cm	31,5 kg	15 kg	no ECON L09 EMOTEC L09	ECON H1, H2, H3 EMOTEC H EmoTouch II +
7,5 kW			7 - 10 m ³	35 x 5 cm	32,5 kg			
9,0 kW			9 - 14 m ³	35 x 6 cm	33,0 kg			
12,0 kW			14 - 18 m ³	35 x 7 cm				

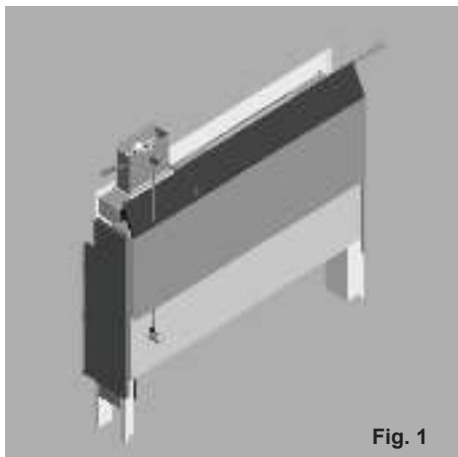


Fig. 1

Technical data

Voltage: 400 V AC 3N 50 Hz

Power consumption: 6,0; 8,0; 9,0; 12,0 kW according to model

Vaporizer: 1,5 kW

Height: 1000 mm

Width: 1120 mm

Depth: 200 mm

Stray current: max. 0,75 mA per kW heating capacity

Sauna oven for use in family sauna

Enclosed in the supplier's pack:

1 sauna oven

3 supplier's packs

1 sauna stones unit separately in cloth bag

With this sauna heater you can choose either the usual Finnish sauna or the different ways of using the warm air bath, the ciimatic bath, the gentle steam bath or herbal bath.

The sauna oven is intended for a connection voltage of 400 V AC 3 N via a sauna controller.

Contradictory to the specifications concerning the mounting of the sensor of your sauna control unit, the heater sensor is not mounted centrally above the sauna heater but, as shown in the diagram.

Minimum clearances

The minimum height of the sauna cabin must be 1.90 m on the inside.

When assembling the sauna oven, attention must be paid to the fact that the vertical distance between the upper edge of the oven and the sauna roof must be at least 90 cm, and the horizontal (lateral) distance between the oven and the booth wall at least 7cm

The distance between the oven protective grille and the sauna bench or other combustible materials must be at least 2 cm from the oven.

The provided safety grate has to be installed above the oven at the upper edge of the partition to the rear wall. This is to take care, that objects do not fall onto the heater unintentionally.

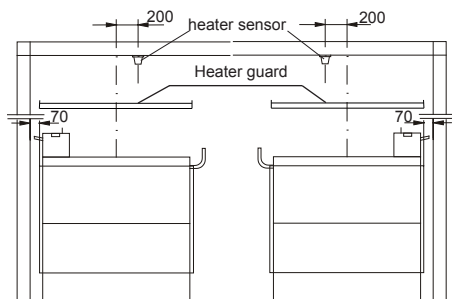


Fig. 1

Fig. 1a

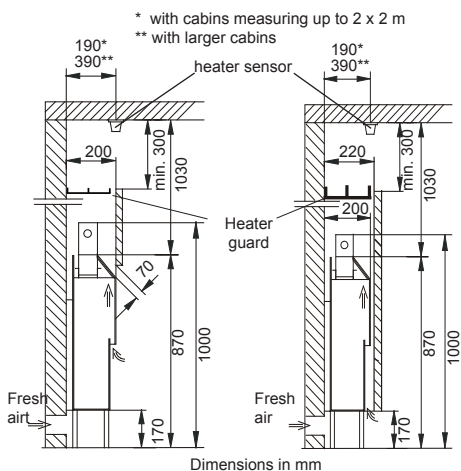


Fig. 2

Fig. 2 a

Attach a warning sign near the water funnel

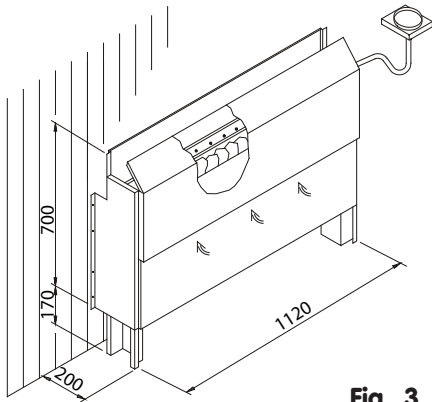


Fig. 3



Attention!

The infusion occurs retarded. Pour out the ladle into the funnel tube in the cabin.

Then, the water is led across the sauna rocks in the oven by the silicone connecting hose and evenly distributed over the rocks by the infusion bowl.

Now, with the hot ascending water, the water steam is constantly spread out in the cabin and, thus, leads to a pleasant infusion feeling.

Remember that the sauna rocks must heat up again after each infusion in order to produce an intensive steam. Therefore, wait approximately 8 to 10 minutes for the next infusion.

Mounting of the safety grate

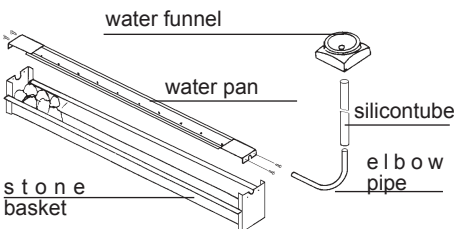


Fig. 4

Assembling the evaporator

Fix the enclosed MS - 1/2 'nose nozzle with some tape (Teflon tape) in the draw-off valve. The extension for the axle with the toggle must then be inserted into the adapter on the tap and then secure both by using the $\varnothing 3 \times 12$ mm. pin.

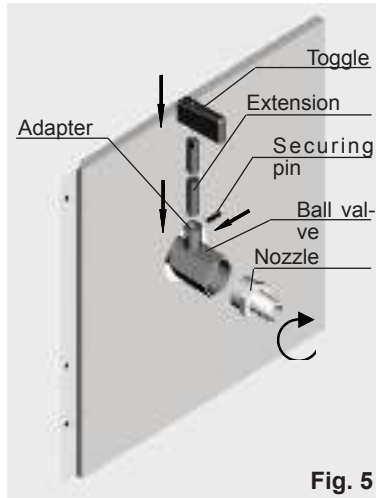


Fig. 5

Unpack the small tank with the sieve and the float that goes with it and then place it from the top into the evaporator (Fig. 6). It is important to ensure that the pipe support for the funnel faces outwards.

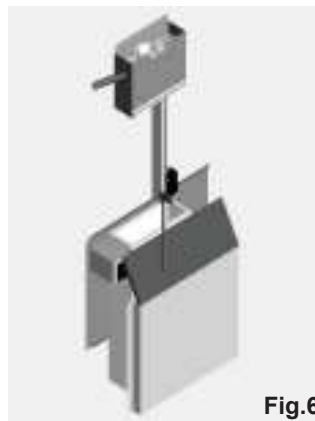


Fig.6

Connecting to the mains

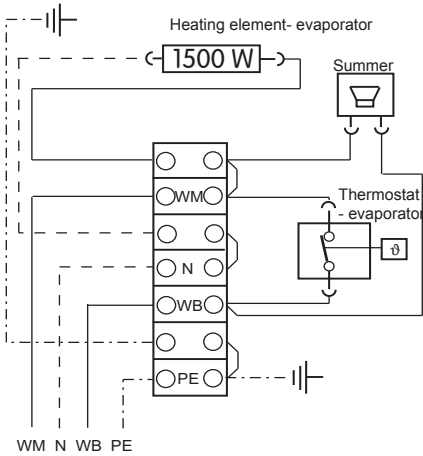


Fig.7

If you are using the sauna with a master control device, but without low water-level switch, the terminal marked Wm is not used.

Filling the water tank

Depending on how your cabin has been put together by the sauna builder, the tank can be filled with a pourer directly into the pot or you can use a separate funnel. This funnel is connected by a silicone tube to the pipe support on the tank so that filling up is then 'indirect'.

The tank can hold about 5 litres.

Fill up with water until the colour indicator 'pink-blue-pink' becomes visible on the float (Fig. 8). The second blue mark must be no more than 1 cm above the herb sieve.

This amount will normally be enough for a 2 – 3 hour climatic bath.

If the float is only visible at 'pinkblue' the tank is only about half full. If you can see only the pink, the tank is empty (Fig. 9).

If all the water has been used, you will hear a warning signal telling you this. As long as you can hear the warning, the evaporator heater will remain off.

If your control device has a water level identifier, the entire sauna will be switched off at the the master controls unless you add more water within 2 minutes.

Do not use any etheric oils or steam bath essence except in the special dish.

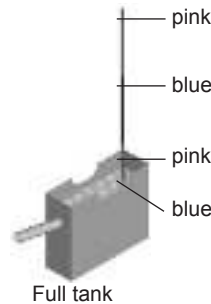


Fig. 8

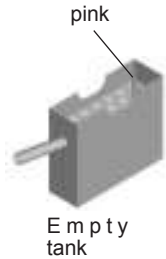


Fig. 9

You must check that the water tank is empty before starting a climatic bath. Drain off any water still inside and then pour in about 4 litres. This amount of water will be enough for a three to four hour climatic bath. Use the main controls to adjust the humidity level.

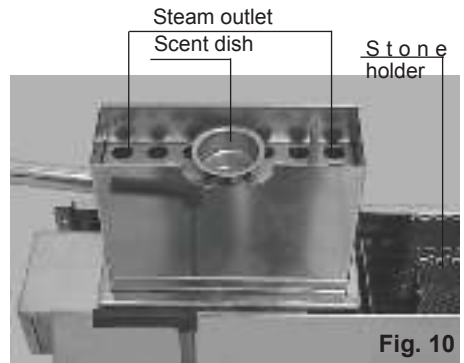


Fig. 10

Operation with vaporizer

(only for Bi-O / Vapor heaters)



Please clean the vaporizer in advance before the first use.

The control of the vaporizer is managed by the control unit. The humidity level is controlled either proportionally (time basis) or in the case a humidity sensor is connected it is controlled basing on the relative humidity value.

Please note that the relative humidity varies greatly due to the varying temperature distribution in the cabin. The readings of the hygrometer and the readings at the control unit can for that reason be very different.

Make sure that sufficient water is in the water tank of the vaporizer before use.

Never add essences, oils or herbs directly to the water tank; instead add these to the herbal bowl on the holder of the vaporizer.

The volatile oils released from essences are carried with the hot rising steam and will be distributed throughout the cabin.

In the case of the low water level in the water tank during operation a buzzing signal indicates the water shortage. To continue your sauna session, you have to refill the tank after a 5 minutes stop of the sauna control or after switching to Finnish (dry) sauna for 5 minutes.

The heating element in the vaporizer must cool down for 5 minutes before cold water is refilled.



Never pour water on the glowing heating elements. Besides of the danger of scald, the heating element could be damaged. Fill in the water up to the upper water level marking.



Add herbs and essences to the herbal bowl only. **Do not** pour essences into the vaporizer tank!



By adding essences or any other additives for air humidity, a health hazard cannot be removed. It is advised not to use those ad-

ditives apart from the recommended ones by the manufacturer of the oven.

If additives are put in the water, this generally leads to a foaming of the water. In this case the water must be drained and the interior of the cold reservoir washed out with a cloth soaked in alcohol or mineral spirits. Even small remainders of essences in the vaporizer will change the natural molecular structure of the water.



Attention: Risk of scalding at the steam outlet. Essences and herbs are to be placed in the herb dish only.



Caution by control units with after-heating mode! Never leave herbal bags in the herbal bowl during the after-heating mode after a humid (steam) operation. These may dry out rapidly in this case and a present a fire hazard! For fire safety reasons only herbs in perforated aluminium bags may be used.

De-scaling of the vaporizer

Consult your water company to determine the hardness level of your water. In areas with hardness level 1 (0-8,4° German hardness levels - soft water), the system generally works without special precautions and must be de-scaled only occasionally when necessary.

Should your water lie within the hardness levels 2-3 (hard water), the vaporizer must be de-scaled regularly (in accordance with the hardness level). Control the vaporizer on regular basis!

To descale the vaporizer add the de-scaling liquid (descalers for household appliances are generally suitable), which is suitable for aluminium, to the water in the vaporizer in accordance with manufacturer's instructions. Bring the water and de-scaling product mixture to a boil for about 10 minutes and allow to cool. After cooling, drain the mixture from the vaporizer and rinse at least twice with clear water. Note also the instructions given by the de-scaling product manufacturer.

Sauna stones

The sauna stone is a natural product. Check the sauna stones at regular intervals. Strong infusion concentrates especially can weaken the sauna stones and cause them to disintegrate over time. Consult your sauna supplier if necessary.

Thoroughly clean the sauna stones provided under running water and then place them in the stone receptacle so that the convection air current can circulate easily between the stones (Illust. 9 + 10).

The number of stones is adequate to create a steam burst, vaporizing about 10 cl of water per m³ cabin volume. Always wait 10 minutes after infusion before repeating the infusion. Only then are the sauna stones sufficiently hot.

Never add more infusion agents or volatile oils than instructed on the packaging. Never use alcohol or undiluted concentrates. Caution! Fire hazard!

Maintenance and care

All sauna heating units are made of low-corrosion material. Still, to enjoy your sauna heating unit for a long time, you should maintain and care for the unit. To this end, always make sure that the vents and reflection plating in the area of air intake are free of objects. These can easily become clogged with fuzz and dust when drawing in fresh air. This reduces the air convection in the sauna heating unit and can be a cause of unacceptable temperatures.

Clean or de-scale the units when needed. Refer to your sauna supplier or directly to the manufacturing plant in case of defects or signs of wear and tear.

Only use original manufacturer's replacement parts, which can be obtained from your supplier or directly from the manufacturer.

If you do not use your sauna for a significant period of time, always check before next use that cloths, cleansers or other objects have not been placed on the sauna heating unit or the vaporizer before turning them on.



Please be sure to note!

Do not stack the stones in layers; stack them loosely instead, leaving as many spaces as possible to allow the rising hot air to circulate.

Instructions

Leakage current on sauna heaters

For the installation of sauna heaters, please pay attention to the DIN VDE 0100 part 703 !

This standard makes the following statement valid in your newest expenditure, since February 2006, paragraph 703.412.05;

Quotation:

The additional must be planned for all electric circuits of the Sauna by one or more fault current protection device (RCDs) with a calculation difference stream not more largely than 30 mA, excluded of it is Saunaheating.

The EN 60335-1 DIN VDE 0700 part 1 of January 2001 states the following in paragraph 13; quote:

The leakage current may not exceed the following values during operation:

- for stationary heaters of protection class I 0,75 mA; or 0,75 mA each kW input of the appliance, depending on the higher value, at a maximum value of 5 mA.

If the appliance is equipped with a protective device for leakage current (ELCB), please pay attention to the fact that no other electrical units will be protected by this ELCB.

Under current manufacturing methods, it is not yet possible to produce tubular heating elements for sauna heaters which do not attract moisture on each end from the surrounding air.

Therefore, should the ELCB be triggered during start-up, the electrical installation must be checked.

It is also possible that moisture from the surrounding air has been concentrated in the magnesium-oxide filling in the heating elements during transport or storage and is now causing the ELCB to be triggered.

In this case, the oven must be heated up under supervision of an expert, during which the PE conductor is not connected. After about 10 minutes, when moisture has evaporated from the heating elements, the oven must be reconnected to the PE conductor!

If the sauna heater is not in use for a significant period of time, we recommend running it every 6 weeks, so as to avoid moisture concentrating in the heating elements.

Installation of the sauna heater and control unit may be undertaken only by an authorized electrician. Without documentation of such installation, a warranty is fundamentally invalid.

Please keep this address in a safe place together with the installation guide.

To help us answer your questions quickly and competently please provide the information printed on the type shield including the model, item no. and serial no., in all inquiries.

Service Address:

EOS Saunatechnik GmbH
Schneiderstriesch 1

35759 Driedorf, Germany

Tel: +49 (0)2775 82-514

Fax: +49 (0)2775 82-431

servicecenter@eos-sauna.de

www.eos-sauna.de

WARRANTY

The warranty is provided according to the legal regulations at present.

Manufacturer's guarantee:

- The period of guarantee starts from the date of purchase and lasts up to 2 years by commercial use and 3 years by private use.
- Always include the completed guarantee certificate when returning equipment.
- The guarantee is void for appliances which have been modified without manufacturer's explicit agreement.
- Damages caused by incorrect operation or handling through non-authorized persons are not covered under the terms of guarantee.
- In the event of a claim please indicate the serial number as well as the item number and model name with detailed description of the fault.
- This guarantee covers defective parts and labour but not the defects caused by wear and tear.

In case of complaint please return the equipment in its original packaging or other suitable packaging (caution: danger of transport damage) to our service department.

Always include the completed warranty certificate when returning equipment.

Possible shipping costs arising from the transport to and from point of repair cannot be overtaken by us.

Outside of Germany please contact your specialist dealer in case of warranty claims. Direct warranty processing with our service department is in this case not possible.

Equipment commissioning date:

Stamp and signature of the authorized electrician:

Handling procedures for return shipments (RMA) - Details for all returns !

Dear customer

we hope that you will be satisfied with the purchased EOS product. In the rear case if you may have a claim and will need to return a product, please follow the procedures specified below. This will enable to ensure a quick and effective handling of the return shipment.

Please observe for all returns!

- Please add the provided **RMA-voucher completely filled out** together with an **invoice copy** to the return shipment! Do not stick it on the goods or on the packaging. **We do not accept return shipments without these papers.**
- Not prepaid parcels **will be refused** and returned to Sender! Please always ask your dealer or EOS service department about the most economical return shipment way.
- **Please pay attention that** the goods have to be sent back in the **original scope of delivery** and in **original packing**.
- We recommend to use an **additional solid and break-proof covering box** which should be padded out with styrofoam, paper or similar. Transport damages as a result of faulty packing are for the sender's account.

Reason of complaint and proceedings:

1) Transportation damage

- Please check the content of your parcel immediately and advise the forwarding company of a claim (parcel service/freight forwarder)
- Do not use damaged goods!
- Ask the forwarder **for a written acknowledgement of the damages.**
- **Report the claim promptly by phone to your dealer.** He will discuss with you how to act in this case.
- If the transport box has been damaged, please use an additional covering box. Do not forget to add the **acknowledgement of the damage of the forwarding company!**

2) Faulty goods

- The implied warranty period is 2 years. Please contact your dealer in case of **faulty or wrong articles or missing accessories.** He will discuss with you the individual case and try for immediate and customer-friendly solution.
- For **economic returns** within Germany you will get an **RMA-number from the manufacturer.**
- All returns have to be in the **original packing of the goods with corresponding accessories.** Please repack the goods to avoid damages. In case of wrong delivery, please do not use this article .

3) Problems of installation and functioning

- Please **read the manual carefully first of all** and pay attention to the indicated assembly or installing instructions.
- **Your dealer should be the first contact person** because he knows his products best and also knows possible problems.
- **In case of function problems with an article,** please check at first whether there is an obvious material defect. The quality system in our factory reduces malfunctions of new appliances to almost zero.