Instructions for installation and use

SUNNY – electric sauna stove

Product numbers:
12545DAH, 12560DAH, 12575DAH
12545DAK, 12560DAK, 12575DAK
12545DR, 12560DR, 12575DR

Letters in the end of the product number tell the colour of the product:
DAH=antique silver DAK=antique copper DR=stainless steel
E.g. the product no. of 8 kW antique silver Sunny is 12575DAH

Table 1

Stove no.	Power kW	Voltage	Sauna room dimensions		Stove dimensions				Stones kg
			min.-max m³	height min. cm	Width cm	Depth cm	Height cm	Weight kg	
12545D	4,5	400V 3N~	3 - 6	190	44	32	67	15	15
12560D	6,0	400V 3N~	5 - 8	190	44	32	67	15	18
12575D	8,0	400V 3N~	6 - 11	190	44	32	67	15	20

INSTALLATION

Location of stove in the sauna room

Only one sauna stove must be used in one sauna room. Do not line the walls around the stove with for instance mineral or other board, since this type of covering may raise the wall temperature excessively. Do not build an enclosed casing around the stove.
When placing the stove in the sauna room, pay attention to protective distances to flammable surfaces. These minimum distances have been given in the Table 2 below, and in the Figure 1, as well as in the type plate of the stove. The stove can be installed to a niche of the wall which height is min. 1900 mm (Figure 2). The distances are the same for all stoves referred to in this instruction. If a guard rail is built around the stove the minimum protective distances must be followed.

Table 2

Minimum protective distances:			
To sides	9 cm	At front	9 cm
To floor	13 cm	To ceiling	110 cm

Figure 1

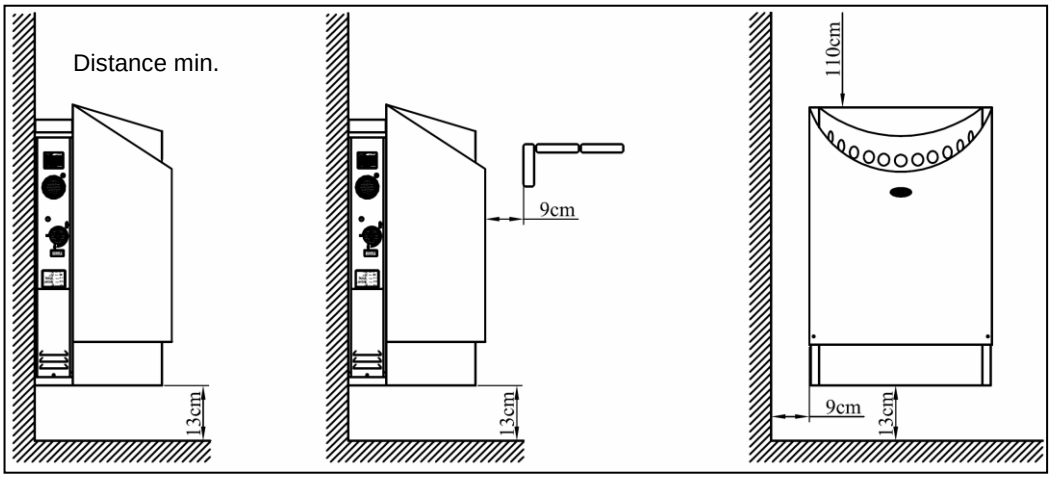
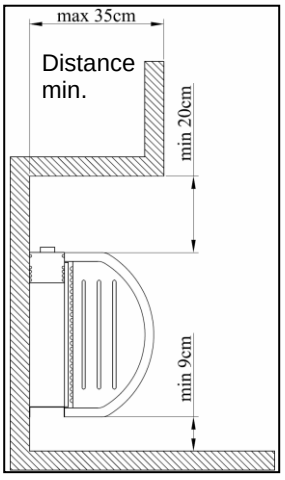


Figure 2



Effect of stove

The effect needed for the sauna stove is determined by the volume of the sauna room, when the walls and ceiling of the sauna room are of wooden panel and insulated enough. If it is used in the sauna room on surfaces uninsulated wall materials like brick, masonry, concrete, glass tiles or tiles on, must the volume calculated be added by 1 m³ for each square metre of such material. Each window square metre also increases the figure by one cubic metre. This final result is to be compared with the suggested volumes of each sauna stove.

Mounting of stove to the wall

Mount the stove to the wall with the four screws. See the Figure 3. There must be for example a board as a support structure behind the wall panel where to the fixing screws will firmly be fixed.

Figure 3

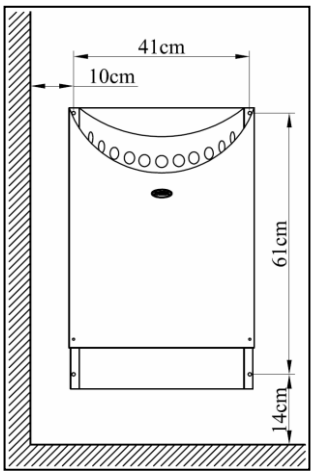
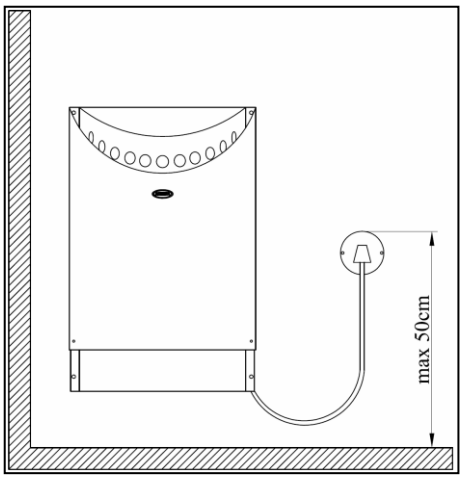


Figure 4



Fixing screws that come with the stove

For installing the remote control: 2 pcs screws, countersunk screws Zn 4x30 mm + plastic plugs
For installing the thermostat sensor: 1 pc screw, cylinder top A2 4x50 mm + plastic plug
For installing the cover lists: 25 pcs screws, cylinder top Zn 3x25 mm
For installing the stove: 4 pcs screws, cylinder top Zn 5x30 mm

Connection to electricity supply

All connection work can only be carried out by a licensed and qualified electrician in accordance with valid local regulations. The sauna stove is connected as semi-stationay connection to the junction box on the wall of the sauna room. The junction box must be splash-proof and its height from the floor must be max. 50 cm (Figure 4). As supply cable, use only rubber cable, type H07RN-F or similar (60245 IEC 66). NOTE! Do not use cables with PVC insulation.

If the supply cables come to the sauna room at the height of over 100 cm from the floor, must the cables endure loaded minimum temperature of 170 °C (T170). The electric devices installed at the height of over 100 cm from the floor, must be approved to be used in a temperature of 125 °C (T125).

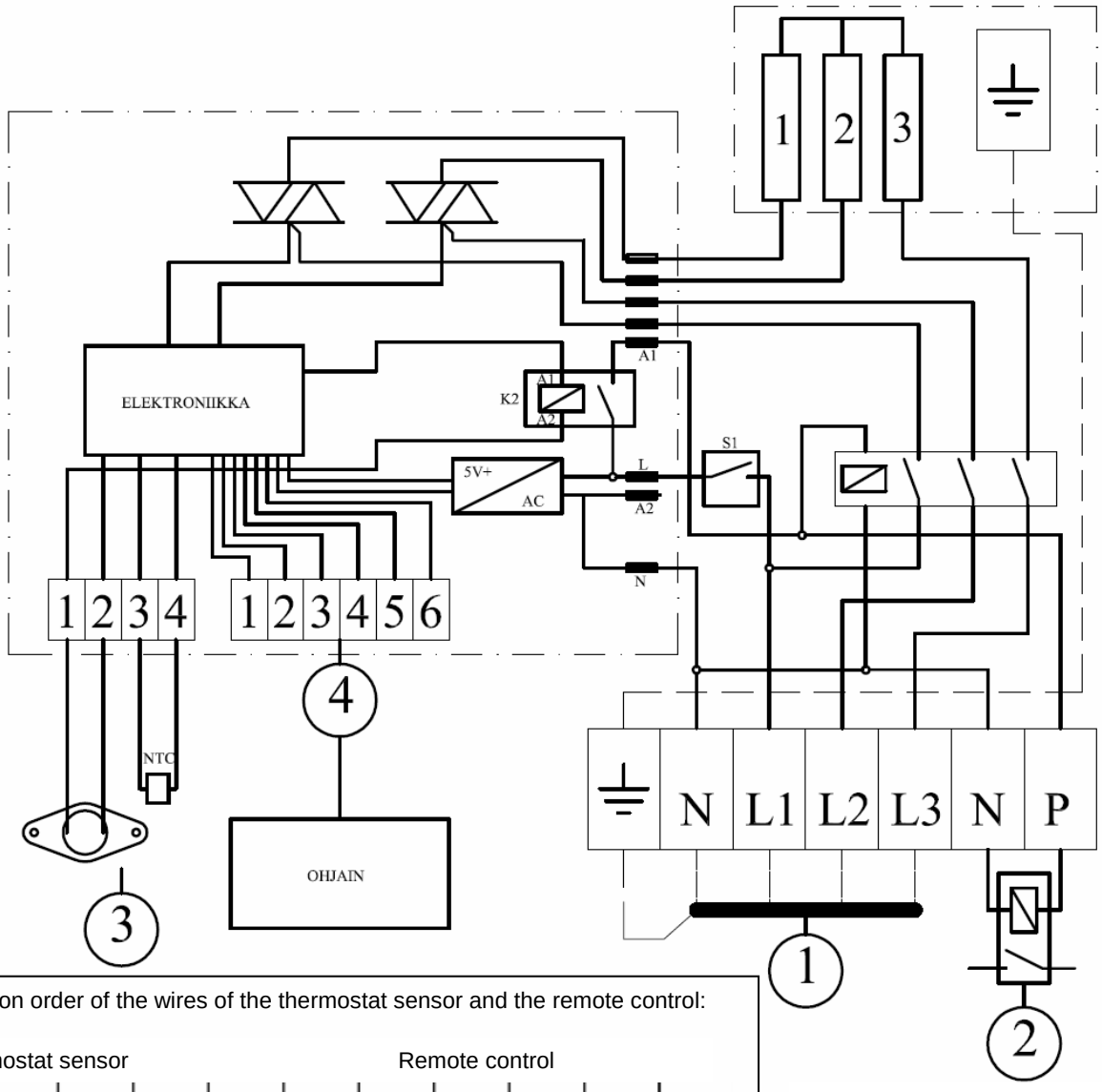
The connection box of the control unit is located at the back of the stove. The cover of the connection box is opened for connection. The supply cable of the stove is brought through the

bottom of the control box. The opening is equipped with the draft removal device. There is reserved own opening also for the control cable of the electrical heating if applicable.
The stove is connected for the voltage of 400 V 3N~ at the factory by the manufacturer. The voltage of the resistor elements is 230 V. The classification of the connection box is IPX4. The sauna stove must be properly grounded through the grounding terminal of the stove.
There can be absorbed moisture to the resistor elements of the stove e.g. during the storing. That might cause leakage current in metering of the insulating resistance. The moisture disappears from the resistor elements after couple of heating times. Do not connect the electric supply of the stove through the residual current device.

Table 3

Stove no.	Power kW	Voltage	Fuses	Supply cable to stove	Cable of control of electric heating	Resistor elements
12545D	4,5	400 V 3N~	3 x 10	5 x 1,5 mm² S	2 x 1,5 mm²	3 x 1500 W
12560D	6,0	400 V 3N~	3 x 10	5 x 1,5 mm² S	2 x 1,5 mm²	3 x 2000 W
12575D	8,0	400 V 3N~	3 x 16	5 x 2,5 mm² S	2 x 2,5 mm²	3 x 2667 W

Wiring diagram



Connection order of the wires of the thermostat sensor and the remote control:

Thermostat sensor

BROWN	WHITE	GREEN	YELLOW
1	2	3	4

Remote control

BROWN	BLUE	PINK	WHITE	GREEN	YELLOW
1	2	3	4	5	6

1 SUPPLY
2 CONTROL OF ELECTRIC HEATING OF HOUSE
3 SENSOR OF THERMOSTAT
4 REMOTE CONTROL

MOUNTING OF THE THERMOSTAT SENSOR

The thermostat sensor is mounted to the wall of the sauna room, so that the distance from the ceiling to the upper edge of the sensor is ca. 30 cm. The minimum distance from the side of the stove to the sensor is 60 cm. The sensor must not be mounted close to a door or a window. The minimum distance from the possible inlet vent of fresh air to the sensor is 100 cm. The sensor is fixed to the wall with the screw that comes with the stove. The sensor is connected to the line connector of the stove according to the order of the colours informed on the side 3. For finishing the installation comes with the stove a cover list for the wire of the sensor.

MOUNTING OF THE REMOTE CONTROL

The remote control can be mounted in the sauna room. The remote control must be mounted in the sauna room so that the maximum distance from the floor to the upper edge of the remote control is 100 cm. The minimum distance from side of the stove to the remote control is 50 cm. The remote control is connected to the line connector of the stove according to the order of the colours informed on the side 3. The remote control is fixed to the wall with the screws that come with the stove. The fixing is done as follows:

-find a suitable location for the remote control

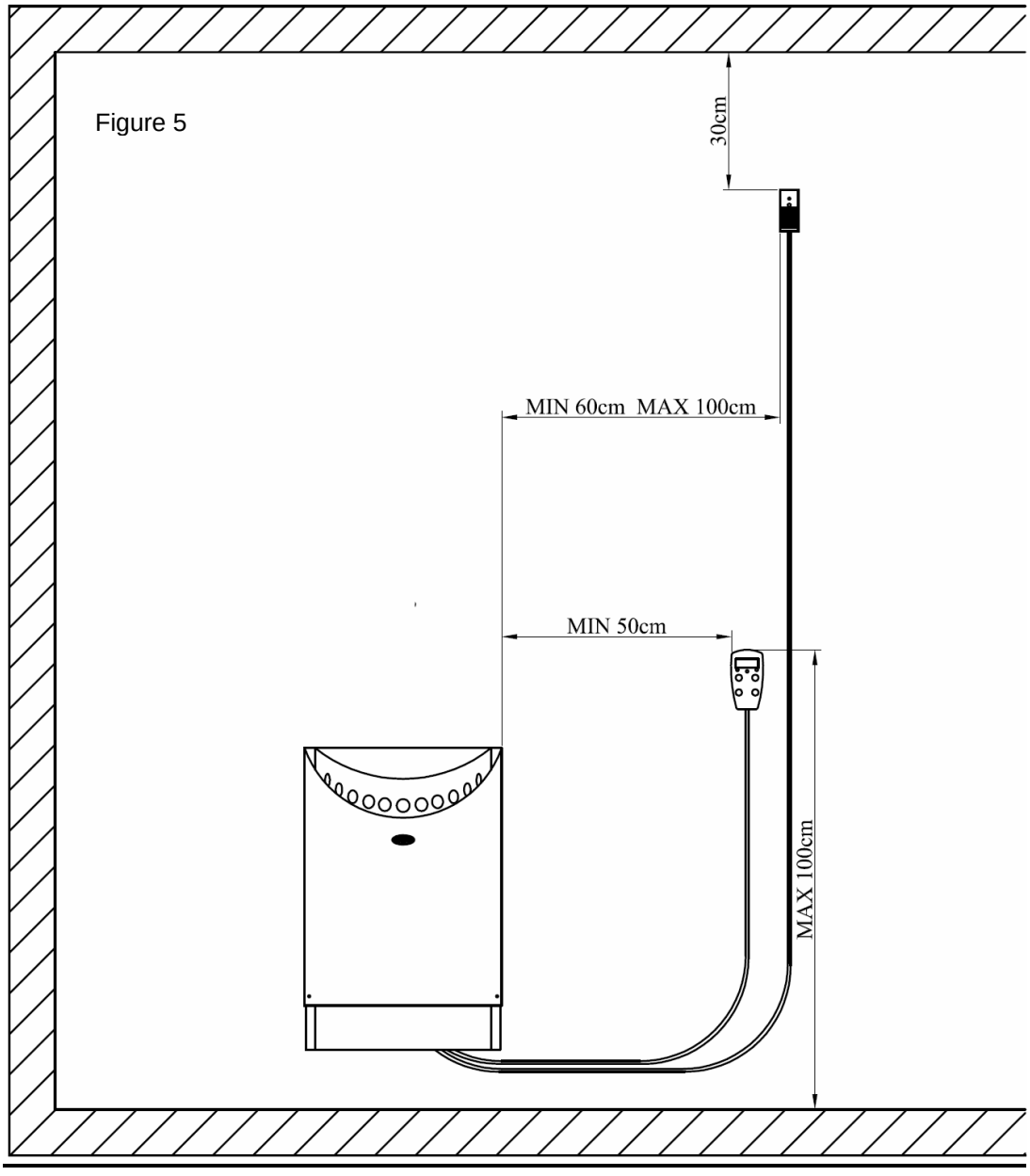
-screw the fixing screws to the wall with the paper pattern that comes with the stove (remove the paper pattern after the screws are fixed)

-screw the screws to the wall so that the tops of the screws remain 3 mm out of surface of the wall

-put the remote control on tops of the screws on the wall so that the tops of the screws go into the holes in back of the remote control

-pull the remote control downwards, so that the remote control is locked to the tops of the screws

Figure 5

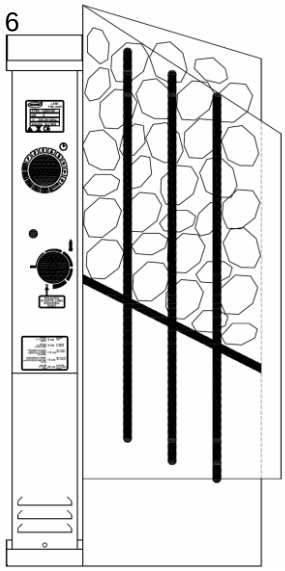


Sauna stove stones

The sauna stove stones must be purposely meant for use in sauna stoves. Stones must endure well temperature changes and heavy surface disintegration. Suitable sizes of the stones are 5-8 cm in diameter. Misa sauna stove stones, product no. 19211, are peridotite stones (diam. 5-8 cm, 25 kg/box). The use of soap stones in the sauna stove is only permitted in the top stone layer. The use of the light, same size ceramic stones is forbidden, because they can cause overheating and breakage of the resistor elements. The stones must be washed before placing them in the stove.

The stones must be laid with care. Start laying the stones from the corners and sides of the stone space with larger stones. The resistor elements of the stove must not bend against the stone space wall or against each other. The stoves must not be laid too tight. There must be left plenty of air gaps between the stones allowing unobstructed air circulation in the stone space. Air circulation heats the sauna room air and cools the resistors so that their surface temperature does not rise excessively. The stone space must be filled up with stones, but there must not be a mound of stones at the top of the stone space, see Figure 6. The small holes at the back part of the stove body must be left open, i.e. do not block them with stones. The cooling air flow discharges through those holes and cools the structure of the stove. The air resistance in the holes also balances the intensity of the steam flow directed upwards, hence distributing the steam evenly in the room.

Figure 6



WARNING!
If the stone space ii filled partially only, a risk of fire is caused. However, a loosely filled stone space and a partially filled stone space are two different things.

SAUNA ROOM

Materials of walls and ceiling

All the massive wall surface materials (e.g. brick, masonry, concrete, glass tile) store lots of heat. If it is wanted to be chosen a sauna stove which effect if relatively low, must the walls and ceiling be sufficiently insulated. The thickness of the insulating wool is 100 mm (min. 50 mm) in well insulated wall and ceiling structures. For moisture protection can be used e.g. aluminium paper, which seams are thoroughly taped and which glossy side is laid towards the sauna room. For surface material is recommended low mass wooden panel boards (thickness ca. 12-16 mm). Between the damp proofing and the wooden panel boards is left air gap of ca. 10 mm. Between the upper end of the wall panel boards and the ceiling panel boards is left air gap of couple of millimetres.

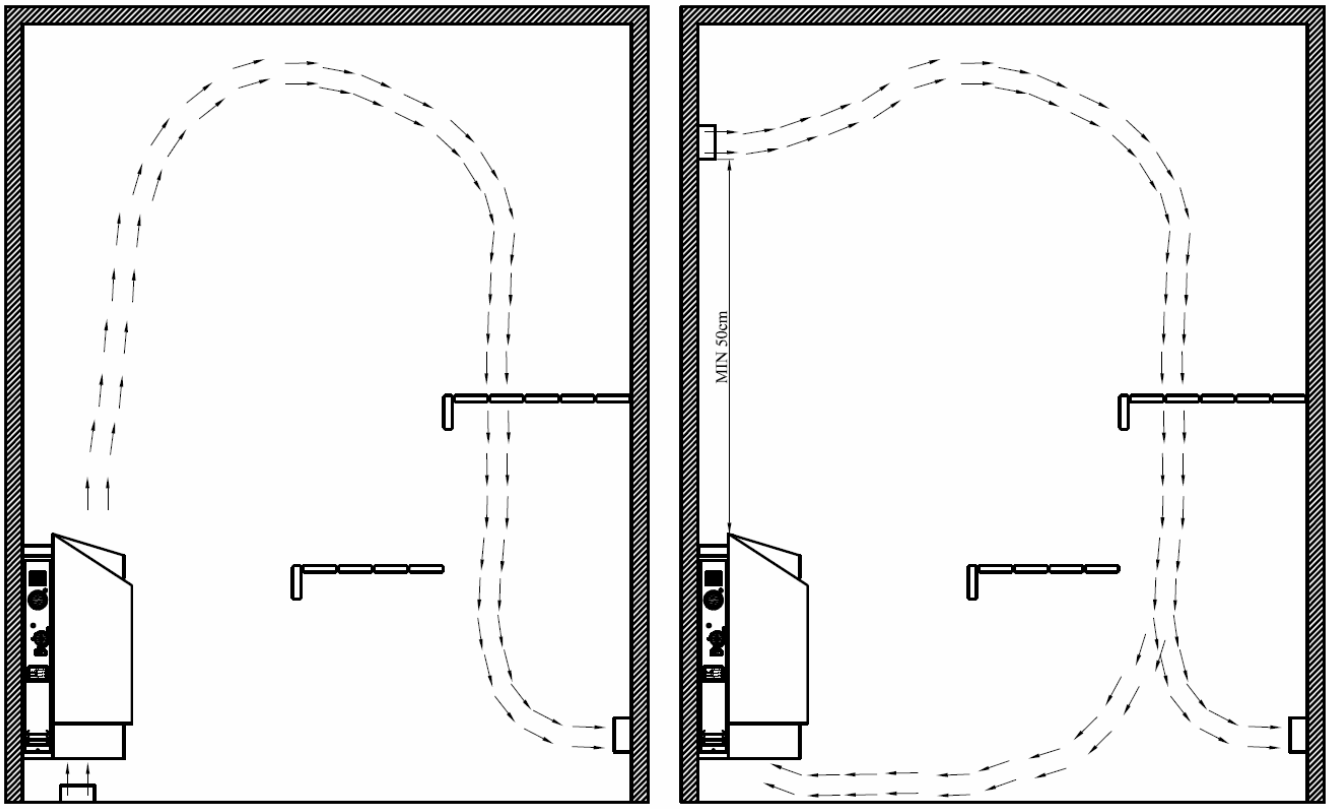
If the sauna stove of lower effect is wanted to be chosen, can the ceiling of the sauna room be built at the lower level. The ceiling is normally at the height of 210-230 cm and the minimum height of the sauna room is 190 cm.
For the height from the upper bench to the ceiling is recommended max. 110-120 cm.

Air circulation in the sauna room

Correct ventilation in the sauna room guarantees a pleasant sauna experience. If no mechanical ventilation is used, the inlet air is preferably led to below the sauna stove using a ca. Ø 5-10 cm pipe which is equipped with an adjusting device. Used air is exhausted through a discharge vent located at the bottom of the wall opposite the sauna stove. This vent must have a diameter twice as large as that of the air inlet pipe. If mechanical ventilation is used the inlet air should be led to above the sauna stove at the height of min. 50 cm upwards from the sauna stove. Air exhaust vents located on the wall near the ceiling or on the ceiling, potentially provided with mechanical exhaust, are kept closed during heating and bathing. They are only used for drying the sauna and for post-ventilation.

Examples for ventilation of the sauna room in Figure 7.

Figure 7



Water

For purpose of throwing water on the heated stones, always use clean water that fulfils the quality requirements of the water for household. On the quality of the water effects for instance humus in water: recommended to be less than 12 mg/l, iron contents: recommended to be less than 0,2 mg/l, hardness: most important substances for that are: manganese (Mn): recommended to be less than 0,05 mg/l and calcium (Ca) i.e. lime: recommended to be less than 100 mg/l. Humous water (e.g. lake water) must not be used for throwing water on the heated stones because of the precipitates that is causes. Use of salty seawater is definitely forbidden.

USE OF THE STOVE

The electronic control of the stove is equipped with a main switch. The main switch is located on back of the stove, next to the openings for the cables. Switch on the control from the main switch. If the stove is unused for a longer time, the electronics of the stove can be switched off from the main switch.

Heating for the first time
The electronics of the stove must be switched on from the main switch. In the screen can be seen the temperature of the sauna room.
Do the following settings:

1. Press the ”Mode”-button
   - the signal light on left switches on
   - in the screen can be seen the desired temperature
   - the temperature can be lowered or raised with the arrow buttons
   - the adjusting scale of the desired temperature is 40 - 110°C, one step is 5°C
2. Press the ”Mode”-button
   - the signal light on right switches on
   - in the screen can be seen the desired heating period
   - the time can be shortened or prolonged with the arrow buttons
   - the adjusting scale of the heating period is 1.0 – 6.0 h, one step is 0,5 h
3. Press the ”Mode”-button
   - the signal light on right is on
   - in the screen can be seen the pre-heating period
   - the desired pre-heating period can be shortened or prolonged with the arrow buttons
   - the adjusting scale of the pre-heating period is 0.0 – 24.0 h, one step is 0,5 h
   - if the pre-heating period is not used in the screen is 0.0
4. Press the ”Mode”-button
   - in the screen can be seen the temperature of the sauna room (the signal lights are not on)
5. Press ”On/Off”-button
   - the signal light in the middle switches on if no pre-heating period has been set
   - the signal light in the middle switches on and off if the pre-heating period has been set
   - the sauna stove starts to warm the sauna up to the desired temperature. In the right lower corner is a point which is burning always when the resistor elements of the stove are on
   - the sauna stove is heating the period that has been set
   - if the pre-heating period has been set, starts the sauna stove to warm up after the pre-heating period
   - during the heating/pre-heating period can the desired temperature be checked or changed, the remaining heating and pre-heating time be checked by repeating the steps 1, 2, 3 and 4 described above
   - if wanted the stove can be switched off before the set heating period has ended, by pressing again the ”On/Off”-button

Next heating times

- if the desired temperature, heating or pre-heating periods that have been set previous time are not wanted to be changed, press the ”On/Off”-button and the heating/pre-heating period starts
- if the desired temperature, heating or pre-heating periods are wanted to be changed, follow the instructions described above under the heading *“Heating for the first time”*
- the control of the stove always remembers the previous settings
- the stove/control must be switched on from the main switch, that the stove/control works
- the stove can always be switched off from the ”On/Off”-button, before the heating period has ended

Error situations:

- if it is informed in the screen:
  - Er1 = the sensor of the thermostat is missing -> connect the thermostat sensor to the stove
  - Er2 = there is a short circuit in the sensor of the thermostat -> change the sensor of the thermostat
  - PCb = inner fault -> change the remote control
- the stove is not warming up (the screen of the control is working normally)
  -check that the temperature limiter of the thermostat sensor on the wall of the sauna room has not switched off the stove -> can be reset by pressing the reset button in the sensor
- the remote control is not working
  -check that the electronics has been switched on from the main switch
  -check that the fuses have not been blown
- if there is a break down in the distribution of the electricity during the heating/pre-heating period, stops the control system the pre-heating/heating period which does not start again without switching on again from the remote control when the electricity distribution returns back to normal

SERVICE

When needed the stones in the sauna stove must be laid again and changed.
The repairing work of the electric devices can only be carried out by a licensed and qualified professional electrician.

If the stove is not warming up, check first the following things:

- that the stove has been switched on
- that the time has been set according to the scale where the stove is heating
- that the thermostat has been adjusted to the higher level than the temperature in the sauna room
- that the fuses have not been blown
- that the temperature limiter has not cut the current

SPARE PARTS

If you ever need spare parts for your sauna stove, please first record the model number of your sauna stove from the type plate (e.g. 12560DAK), which is needed to know and must be given when the spare parts are ordered.

Warning !
Never cover the sauna stove. Do not hang anything flammable, such as towels, above or near the stove, since they may cause a risk of fire.
Electric products can be repaired only by a licensed and qualified electrician.