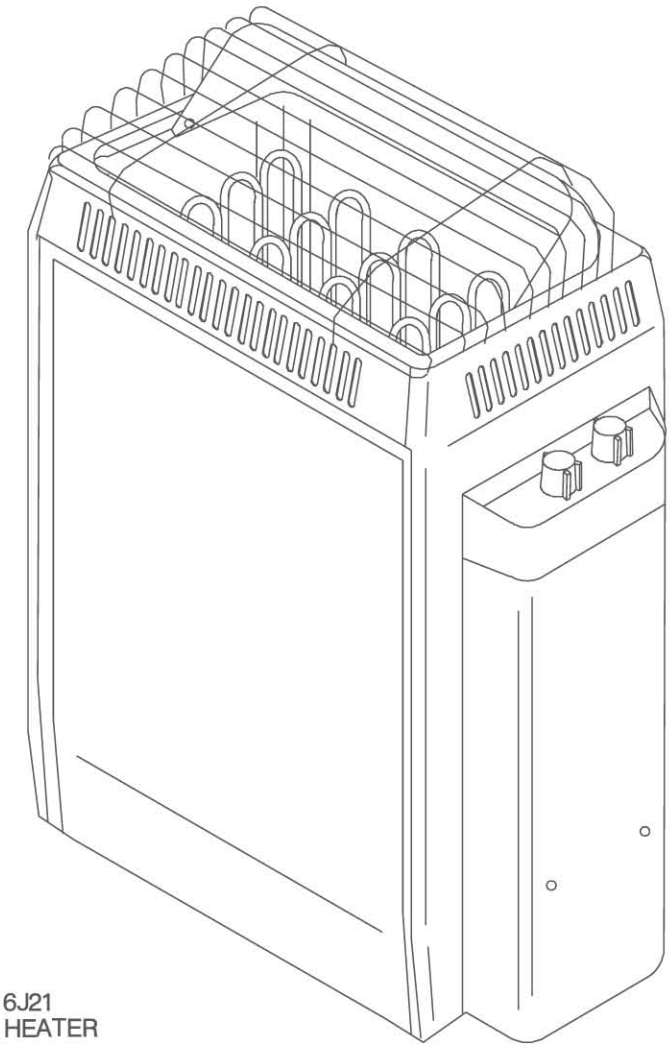
HARVIA

FINLANDIA sauna

KV-45, KV-60, KV-80

Instructions for installation and use of Electric Sauna Heater



c UL us LISTED 6J21 SAUNA HEATER

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01/2001H

Purpose of the electric heater:

The KV heater is designed for the heating of family saunas to bathing temperature. It is forbidden to use the heater for any other purposes.

The guarantee period of a KV electric heater in family use is one year and, in communal use, 3 months.

Please read the user's instructions carefully before using the heater.

NOTE!

These instructions for installation and use are intended for the owner or the person in charge of the sauna, as well as for the electrician in charge of the electrical installation of the heater.

After completing the installation, the person in charge of the installation should give these instructions to the owner of the sauna or to the person in charge of its operation.

Congratulations on your choice!

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1. INSTRUCTIONS FOR USE

This heater shall not be operated unless the rock compartment in the top of the heater is filled with the rocks, and the guard is in place.

1.1. Piling of the Sauna rocks

The sauna rocks for an electric heater should be 1 9/16" – 3 1/8" (4–8 cm) in diameter. The heater rocks should be solid blocks of rock specially intended for use in the heater. **Neither light, porous ceramic "rocks" of the same size nor soft potstones should be used in the heater, because they may cause the resistance temperature to rise too high as a result of which the resistance may be broken.**

Rock dust should be washed off before piling the rocks. **The rocks should be piled into the rock compartment over the grating, between the heating elements (resistances) so that the rocks support each other. The weight of the rocks should not lie on the heating elements.**

The rocks should not be piled too tightly, so that air can flow through the heatgr. See figure 1. The rocks should be fitted loosely, and not wedged between the heating elements. Very small rocks should not be put into the heater at all.

The rocks should completely cover the heating elements. However, they should not form a high pile on the elements.

The rocks disintegrate with use. Therefore, they should be rearranged at least once a year or even more often if the sauna is in frequent use. At the same time, any pieces of rocks should be removed from the bottom of the heater, and disintegrated rocks should be replaced with new ones.

The guarantee does not cover any faults caused by the use of rocks not recommended by the plant. Neither does the guarantee cover any faults caused by disintegrated or too small rocks blocking the heater ventilation.

No such objects or devices should be placed inside the heater rock space or near the heater that could change the amount or direction of the air flowing through the heater, thus causing the resistance temperature to rise too high, which may set the wall surfaces on fire!

1.2. Heating of the Sauna

When the heater is switched on for the first time, both the heater and the stones emit smell. To remove the smell, the sauna room needs to be efficiently ventilated.

The purpose of the heater is to raise the temperature of the sauna room and the sauna rocks to the required bathing temperature. If the heater output is suitable for the sauna room, it will take about an hour for a properly insulated sauna to reach that temperature. See item 2.1., "Insulation and wall materials of the Sauna Room". A suitable temperature for the sauna room is about +150°F – +175°F (+65°C – +80°C).

The sauna rocks normally reach the required bathing temperature at the same time as the sauna room. If the heater capacity is too big, the air in the sauna will heat very quickly, whereas the temperature of the rocks may remain insufficient; consequently, the water thrown on the rocks will run through. On the other hand, if the heater capacity is too low for the sauna room, the room will heat slowly and, by throwing water on the rocks, the bather may try to raise the temperature of the sauna. However, the water will only cool down the rocks quickly, and after a while the sauna will not be warm enough and the heater will not be able to provide enough heat.

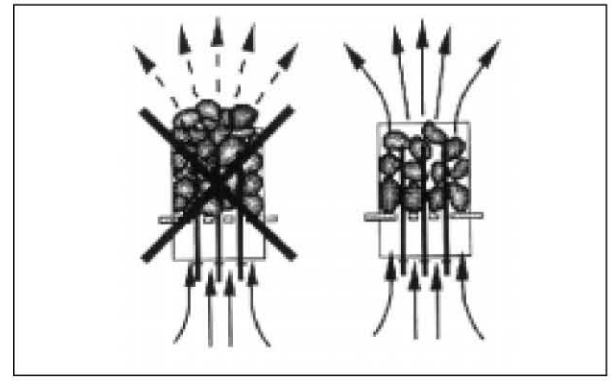


Figure 1. Piling of the sauna rocks

In order to make bathing enjoyable, the heater capacity should be carefully chosen to suit the size of the sauna room. See item 2.3. "Heater Output".

1.3. Control Unit

1.3.1. Timer

The heater is switched on by using the timer switch. The indicator lights will come on. The timer has two scales: the first one (with larger figures) is the "instantly on" section; that is, the heater is on for a selected period of time (0–1 hours). The other section is the so called "pre-set section" (1–8 hours), which is used to start the heater after a certain time. The heater starts when the timer has turned the switch back to the "instantly on" section, that is, at number one(1). After this, the heater will be on for about 1 hour, unless the switch is turned to zero before that. At zero (0), the supply to the elements is cut off and the heater is switched off. See fig 2.

If you wish to use the full 60 min. cycle, turn the timer knob past the first 1 to number 2 or 3 on the dial. Then turn backward to the large 1 until a click is heard. Leave knob at that setting, and Sauna will operate for 1 hour before shutting off automatically.

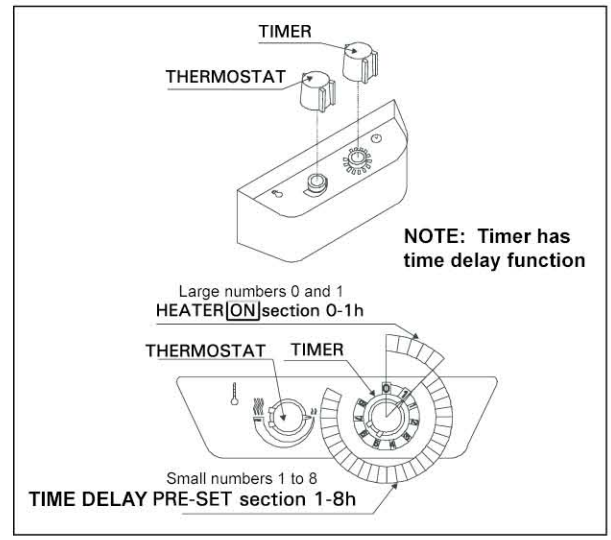


Figure 2. Control panel

Example 1.
You want to go jogging and have a sauna bath after that. The estimated duration of your run is 5 hours. Turn the timer clockwise over the scale 0–1 to the pre-set section (scale 1–8) at number 4.

The timer will start, and after four hours, the heater will come on. Because it takes about one hour for the sauna to be heated, it will be warm and ready for bathing after about 5 hours, that is, when you come back from your run.

Example 2.
If you want to bathe "immediately" and thus do not want to use the pre-set timing, the timer must be set to the desired point in the section 0–1. Then, the heater will be switched immediately on and the sauna will be ready for bathing after about one hour.

Switch the heater off immediately after bathing and check that the sauna stones are dry. Sometimes it may be advisable to leave the heater on for a while to let the wooden parts of the sauna dry properly.

NOTE! It is absolutely necessary to check that the timer has cut off the supply of the elements after the set time.

1.3.2. Thermostat
The temperature is adjusted by the thermostat to a position between minimum and maximum. The correct position of the thermostat switch is found by experimenting.

Begin experimenting at the maximum position (far right) to find how quickly the sauna room and stones can be heated to the desired temperature. If, during bathing, the temperature seems to be becoming too high, turn it down a little by turning the switch counter-clockwise. It must be noted that even a small difference within the maximum section will change the temperature of the sauna considerably.

1.3.3. Overheating limiter
Each heater is equipped with a overheating limiter which is a safety device.

If, for some reason, the temperature of the sauna room becomes too high, the overheating limiter will permanently cut off the supply of the resistances. The overheating limiter cannot be reset to the position allowing electricity until the heater has cooled down. The overheating limiter is reset by pressing the reset button, which is located in bottom of heater. See figure 3.

To reset the overheating limiter, locate the reset button and push upward until contactor kicks in. If reset button continues to trip, contact a qualified service person. Do not remove the overheating limiter bulb. See spare parts no. 2.

Prior to pressing the button, the cause of the fault must be found:

- are the stones crumbled and pressed together?
- has the heater been on for a long time while unused?
- has the heater been banged or shaken?
- heater must be in the on position when reset buton is pressed.

1.4. Throwing Water on Heated Stones
The air in the sauna room becomes dry when warmed up. Therefore, it is necessary to throw water on the heated rocks to reach a suitable level of humidity in the sauna.

The humidity of the air in the sauna room is controlled by the amount of water thrown on the rocks. A correct level of humidity makes the bather's skin sweat and makes breathing easy. By throwing water on the rocks with a small ladle, the bather should feel the effect of air humidity on his skin. Both too high a temperature and air humidity will give an unpleasant feeling.

Staying in the hot sauna for long periods of time makes the body temperature rise, which may be dangerous.

The maximum volume of the ladle is 2 decilitres. The amount of water thrown on the stones at a time should not exceed 2 dl, because if an excessive amount of water is poured on the rocks, only part of it will evaporate and the rest may splash as boiling hot water on the bathers.

Never throw water on the rocks when there are people near the heater, because hot steam may burn their skin.

1.4.1. Sauna Water
The water to be thrown on the heated rocks should meet the requirements of clean household water. The factors essentially affecting the quality of water include the following:

- humuos content (colour, taste, precipitates); recommended content less than 12 mg/litre.
- iron content (colour, smell, taste, precipitates); recommended content less than 0,2 mg/litre.
- hardness – the most important substances are manganese (Mn) and calcium (Ca); recommended content of manganese 0,05 mg/litre, calcium less than 100 mg/litre.

Calcareous water leaves a white, sticky layer on the stones and metal surfaces of the heater. Calcification of the stones deteriorates the heating properties.

Ferrous water leaves a rusty layer on the surface of the heater and elements, and causes corrosion.

The use of humous, chlorinated water and seawater is forbidden.

Only special perfumes designed for sauna water may be used. Follow the instructions given on the package.

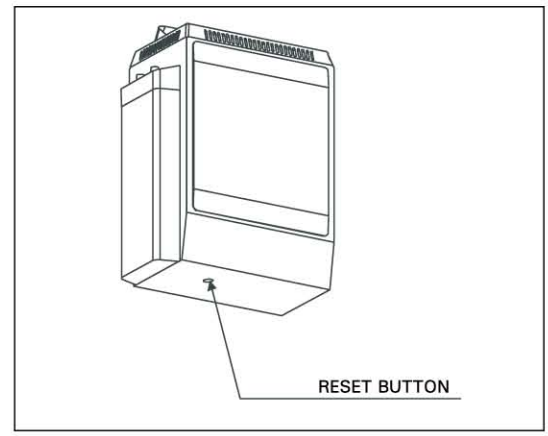


Figure 3. Place of the reset button

1.4.2. Temperature and Humidity of the Sauna Room

Both thermometers and hygrometers suitable for use in a sauna are available. As the effect of steam on people varies, it is impossible to give an exact, universally applicable bathing temperature or percentage of moisture. The bather's own comfort is the best guide.

The sauna room should be equipped with proper ventilation to guarantee that the air is rich in oxygen and easy to breathe. See item 2.4. "Ventilation of the Sauna Room".

Bathing in a sauna is considered a refreshing experience and good for the health. Bathing cleans and warms your body, relaxes the muscles, soothes and alleviates oppression. As a quiet place, the sauna offers the opportunity to meditate.

1.5. Instructions for Bathing

- Begin by washing yourself; for example, by taking a shower.
- Stay in the sauna for as long as you feel comfortable. See item "1.6. Warnings".
- According to established sauna conventions, you must not disturb other bathers by speaking in a loud voice.
- Do not force other bathers from the sauna by throwing excessive amounts of water on the rocks.
- Forget all your troubles and relax.
- Cool your skin down as necessary.
- If you are in good health, you can have a swim if a swimming place or pool is available.
- Wash yourself properly after bathing. Have a drink of fresh water or a soft drink to bring your fluid balance back to normal.
- Rest for a while and let your pulse go back to normal before dressing.

1.6. Warnings

- **Sea air and a humid climate may corrode the metal surfaces of the heater.**
- **Do not hang clothes to dry in the sauna, as this may cause a risk of fire. Excessive moisture content may also cause damage to the electrical equipment.**
- **Do not place any combustible material over the sauna heater (towels, bathing suits, wooden bucket or dipper)!**
- **Keep away from the heater when it is hot. The rocks and outer surface of the heater may burn your skin.**
- **Do not throw too much water on the rocks. The evaporating water is boiling hot.**
- **Use only clean tap water on the rocks – Do not use pool or spa water, as chlorine gas can be produced and the heating elements can be damaged!**
- **Do not let young, handicapped or ill people bathe in the sauna on their own.**
- **Consult your doctor about any health-related limitations to bathing.**
- **Parents should keep children away from the hot heater.**
- **Consult your child welfare clinic about taking little babies to the sauna.**
  - **age?**
  - **temperature of the sauna?**
  - **time spent in the warm sauna?**
- **Be very careful when moving in the sauna, as the platform and floors may be slippery.**
- **Never go to a hot sauna if you have taken alcohol, strong medicines or narcotics.**
- **Do not exceed 30 min. in the sauna at one time, as excessive exposure can be harmful to health. The sauna should not be used as an endurance test!**
- **Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98,6°F (37°C). The symptoms of hyperthermia include an increase in the internal temperature of the body, dizziness, lethargy, drowsiness, and fainting.**
- **The effects of hyperthermia include:**
  - **a) Failure to perceive heat**
  - **b) Failure to recognize the need to exit the room**
  - **c) Unawareness of impending hazard**
  - **d) Fetal damage in pregnant women**
  - **e) physical inability to exit the room**
  - **f) Unconsciousness**

1.7. Warning signs

Warning signs – are furnished with Sauna heater. The metal "CAUTION" sign should be fastened to wall, close to heater, in a visible place. The metal "WARNING" sign should be fastened outside, to the Sauna room door.

1.8. Malfunctions

If the heater does not heat, check the following points:

- the electricity has been switched on
- the timer has been switched to a section where the heater should be heated (0–1).
- the thermostat shows a higher figure than the temperature of the sauna.
- breaker to the heater are in good condition. (Note. The breaker switch does not always move to off position when it trips. Turn it fully off and on to reset.
- the high limit has gone off. The timer sound is heard but the elements are not heating. Reset the high limit at the bottom of the heater by pressing the black button upward with a pencil. Do this while the timer is in the ON position. See item 1.3.2, "Thermostat" and 1.3.3. "Overheating limiter."

2. THE SAUNA ROOM

2.1. Insulation and Wall Materials of the Sauna Room

In an electrically heated sauna, all the massive wall surfaces which store plenty of heat (such as bricks, glass blocks, plaster etc.), must be sufficiently insulated in order to keep the heater output at a reasonably low level.

A wall and ceiling construction can be considered to have efficient thermal insulation if:

- the thickness of carefully fitted insulation is 3 1/2" or greater.
- the moisture protection consists of e.g. Type C Building Foil
  Paper must be fitted so that the foil side is facing into the sauna room.
- the inside is covered by 1/2" – 3/4" thick panelling.

When aiming at a reasonable heater output, it may be advisable to lower the ceiling of the sauna (normally 7'). See figure 4. As a result, the volume of the sauna is decreased, and a smaller heater output may be sufficient. The ceiling can be lowered so that the ceiling joists are fixed at a suitable height. The spaces between the joists are insulated (minimum insulation 3 1/2") and surfaced as described above.

Because heat goes upwards, a maximum distance of 47" (1200 mm) is recommended between the bench and ceiling.

NOTE! Consult fire-extinguishing authorities to find out which part of the fireproof wall may be insulated.

NOTE! The protection of the walls or ceiling with heat protection, such as mineral board fitted directly on the wall or ceiling, may cause the temperature of the wall and ceiling materials to rise dangerously high.

2.1.1. Room construction – general information

FRAMING	2 x 4 Douglas Fir, 16" o.c.
CEILING HEIGHT	See figure 4.
INSULATION	R13 fiberglass insulation for walls and ceiling.
DRYWALL	See local codes. Is not required in most residences. See local codes for commercial. If dry wall is used, apply 1 x 2 nailers so that wall and ceiling boards can be attached to solid wood.
PANELING	Use kiln-dried, clear, T & G softwood such as California Redwood, Western Red Cedar, Alaska yellow Cedar, with moisture content not exceeding 11%.
BENCHES	Use matching wood of vertical grain with 2 x 2 tops - 3/8" spacing – and 2 x 4 facing, fastening from bottom to prevent burning of bathers.
HEATER GUARDRAIL	Use matching softwood of 1 x 2 or 2 x 2 .
DOOR	Must open out and should not have a lock. Size – 2' 0"x 6'8" with fir rails and double sealed tempered glass.
ROOM LIGHT	Should be a vapor proof, wall-mounted type, with rough-in box mounted flush with inside paneling. It should mount 6" (150 mm) from ceiling, not directly over the Sauna heater, and not over upper benches; light bulb should not exceed 75 watts.

Note! Receptacles OR PLUGS are not allowed in a Sauna room. If a speaker is installed in a Sauna room, it should not be installed higher than 3' from floor, away from the Sauna heater (consult manufacturer for ratings).

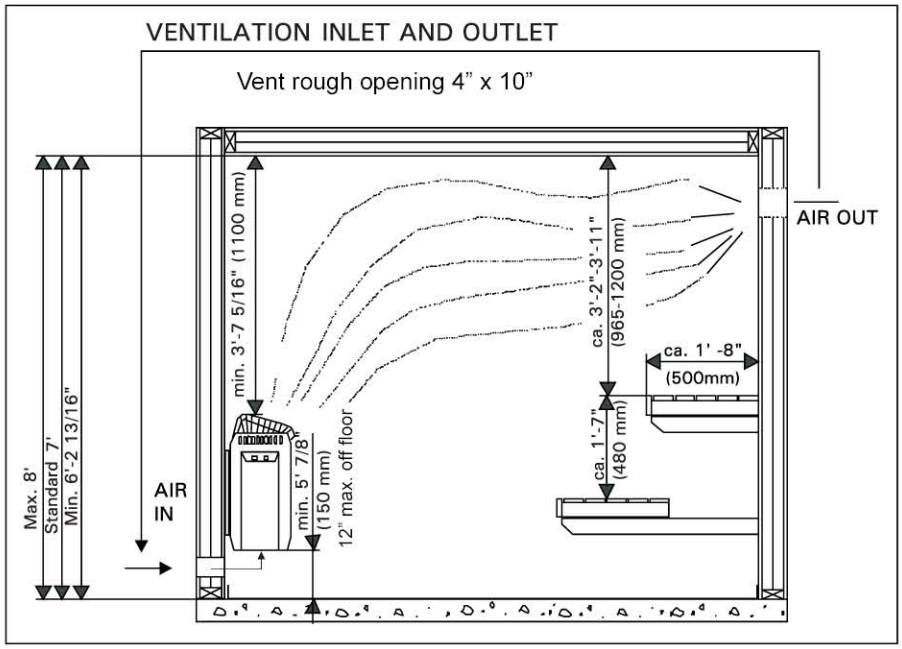


Figure 4. Sauna room

2.2. Sauna Room Floor

Due to a large variation in temperature, the sauna rocks disintegrate in use.

Small pieces of rock are washed down on the sauna room floor along with the water thrown on the stones. Hot pieces of rock may damage plastic floor coverings installed underneath and near the heater.

A light-cocoured joint grout, used for a tiled floor, may absorb impurities from the rocks and water (e.g iron content).

To prevent aesthetic damage (due to the reasons presented above) only dark joint grouts and floor coverings made of rock materials should be used underneat and near the heater.

2.3. Heater Output

When the walls and ceiling are covered with panels, and the insulation behind the panels is sufficient to prevent thermal flow into the wall materials, the heater output is defined according to the cubic volume of the sauna. See table 1.

If the sauna has visible uninsulated wall surfaces, such as walls covered with brick, glass block, concrete or tile, each 10 square feet (ca 1m²) of said wall surface causes the cubic volume of the sauna to increase by 42 Cu.Ft. (1.2 m³). The heater output is then selected according to the values given in the table.

Because log walls are heated slowly, the cubic volume of a log sauna should be multiplied by 1.5, and the heater output should then be selected on the basis of this information.

2.4. Ventilation of the Sauna Room

Sufficient ventilation is recommended in the sauna. Air can vent into the house or to outside air if desired.

Inlet ventilation openings shall be located at the bottom of the wall, as close to the floor level as possible.

Outlet ventilation openings shall be located at the top of the wall, as close to the ceiling as possible, and shall comply with the minimum size requirements for inlet ventilations openings. See fig. 4.

Sauna shall be provided with intended ventilation as required per the local code authorities.

2.5. Hygienic Conditions of the Sauna Room

Good hygienic standards of the sauna room will make bathing a pleasant experience.

The use of sauna seat towels is recommended to prevent sweat from flowing onto the platforms. The towels should be washed after each use. Separate towels should be provided for guests.

It is advisable to vacuum or sweep the floor of the sauna room in connection with cleaning. In addition, the floor may be wiped with a damp cloth.

The sauna room should be thoroughly washed at least every six months. Brush the walls, platforms and floor by using a scrubbing-brush and sauna cleanser.

Wipe dust and dirt from the heater with a damp cloth.

3. INSTRUCTIONS FOR INSTALLATION

3.1. Prior to Installation

Prior to installing the heater, study the instructions for installation, as well as checking the following points:

- Is the output and type of the heater suitable for the sauna room?

The cubic volumes given in table 1 should be followed.

- Are there a sufficient number of high quality sauna rocks?
- Is the supply voltage suitable for the heater?
- The location of the heater fulfils the minimum requirements concerning safety distances given in fig. 5 and table 1.

It is absolutely necessary to ensure that the installation is carried out according to these values.
Neglecting them can cause a risk of fire.
Only one electrical heater may be installed in the sauna room.

HEATER			SAUNA ROOM			
inch		mm	Min. height	Floor area		Volume
Width 17 11/16		450				
Depth 11 13/16		300	inch mm	Sq.Ft. m²		Cu.Ft. m³
Height 24 11/16		650				
MODEL	kW			Min.	Max.	Min.	Max.
KV-45	4,5		74 13/16 1900	16	33	105	210
				1,5	3,1	3	6
KV-60	6,0			28	45	175	280
				2,6	4,2	5	8
KV-80	8,0			40	67	245	420
				3,7	6,3	7	12

Table 1. Installation details of a KV heater. See fig. 4 and item 2.3. "Heater output"

Heater Model	A min. inch	mm	B. min. inch	mm
KV-45	1 3/8	35	3 1/8	80
KV-60	1 15/16	50	4 3/4	120
KV-80	3 15/16	100	5 7/8	150

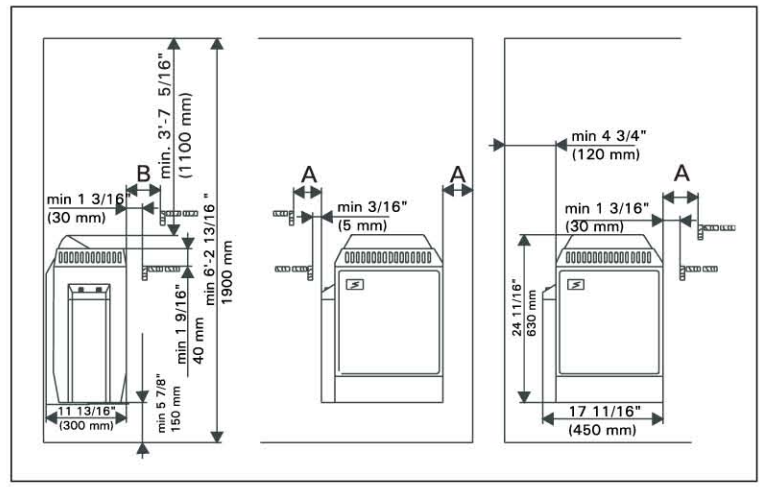


Figure 5. Min. distances to combustible materials

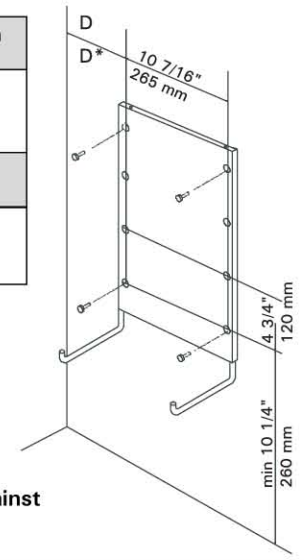
3.2. Fastening the Heater on a Wall

1. Fasten the wall-mounting rack on the wall by using the screws which come with the rack. Observe the minimum safety distances given in table 1 and fig. 5. The fastening of the mounting rack is shown in figure 6.

NOTE! There should be a support, e.g. a board, behind the panel, so that the fastening screws can be screwed into a thicker wooden material than the panel. If there are no boards behind the panel, the boards can also be fastened on the panel. See figure 4.

2. Lift the heater onto the rack on the wall so that the ends of the fastening bars go into the holes in the bottom of the heater and the connecting box switches are easily accessible.
3. Fasten the upper part of the heater to the wallmounting rack by using the fastening clamp.
4. The steam distributor must always be fastened on the wall side of the heater. To turn the distributor, loosen the fastening screws and then turn it. See figure 9.

Model	D min inch	D* min inch
KV-45 KV-60 KV-80	4 5/16 4 15/16 4 7/8	7 11/16
Model	**D min mm**	**D* min mm**
KV-45 KV-60 KV-80	110 125 175	195



D* Connection box against the wall

Figure 6. Location of the mounting rack of the heater

*******IMPORTANT*******

3.3. Installation capillary tubing and bulb

Before hooking up electrical wires to junction box of heater, remove capillary tubing and bulb from junction box and bring up wall to left or right side of heater. Cover tubing with wooden molding provided, coil up excess tubing, and place under heater close to floor.

Be sure to cover thermostat bulb with protective metal cover by threading bulb through holes in cover, and fasten bulb cover to wall with screws provided. Also, take care when nailing protective wood strips over capillary tubing, so that nails do not puncture tubing. If punctured, entire thermostat must be replaced. See figure 7.

3.4. Safety Railing

If a safety railing is built around the heater, the minimum distances given in fig. 8 must be observed.

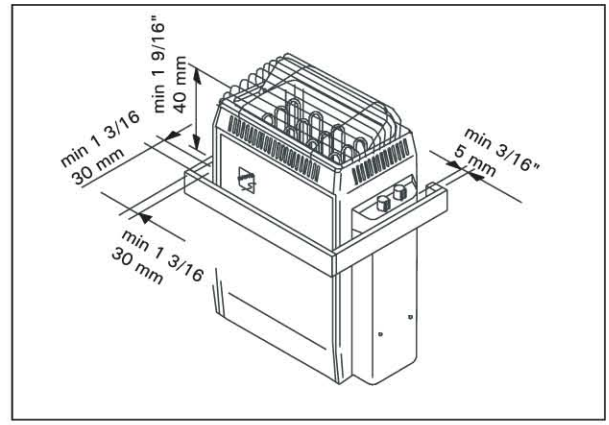


Figure 8. Safety railing of the heater

MAKE SURE THERMOSTAT WIRE AND BULB ARE RUN UP THE WALL AS SHOWN.

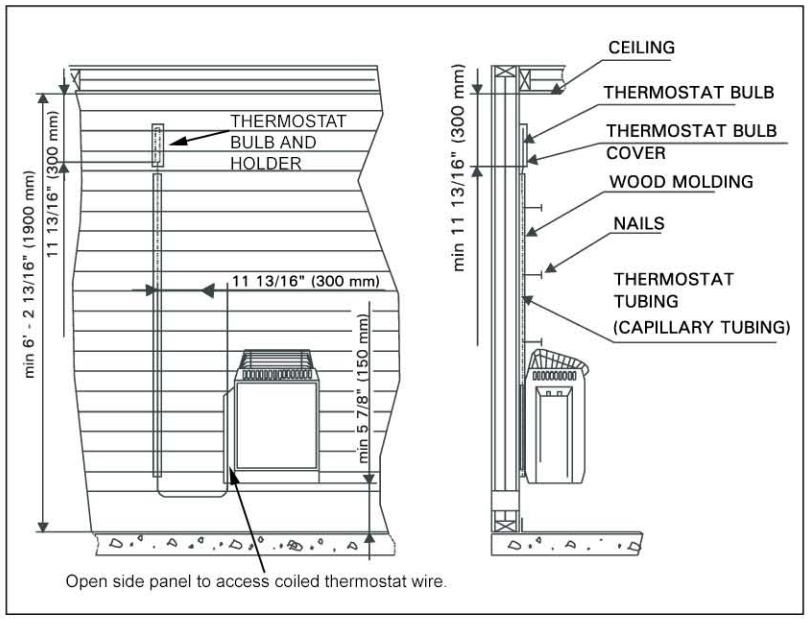


Figure 7. Installation of the thermostat sensor

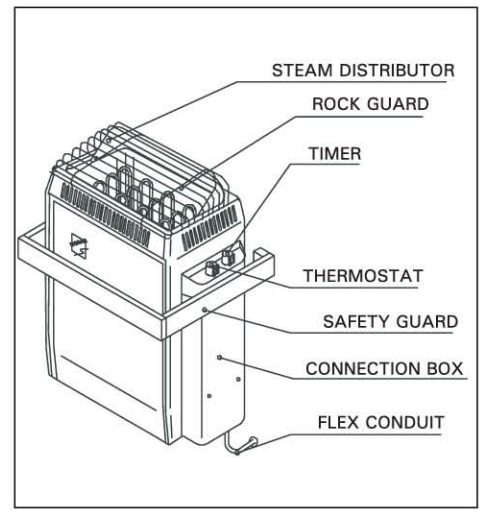


Figure 9. Connections and parts of the heater

3.5. Electrical Connections

The heater may only be connected to the electrical network in accordance with the current regulations by an authorised, professional electrician.

Refer to the chart in table 2 to determine the wire size and circuit protection required. The complete sauna system should be properly grounded as per NEC or as required by local codes. A grounding terminal is provided in the wiring compartment of each heater, complate the wiring according to the appropriate wiring figure 10.

See table 1 for required clearances. Any wiring within internal Sauna walls must be rated for 90°C (194°F) and copper wire must be used. Run wire through seal tight flex conduit from wall to heater and connect to junction box.

Note! If connection to heater will be made at a later time, bring flex into Sauna room 4–6" (100–150 mm) from floor, and leave 3' (900 mm) of flex for hookup (can be cut to right lenght later).

Further instructions concerning exceptional installations can be obtained from local electrical authorities.

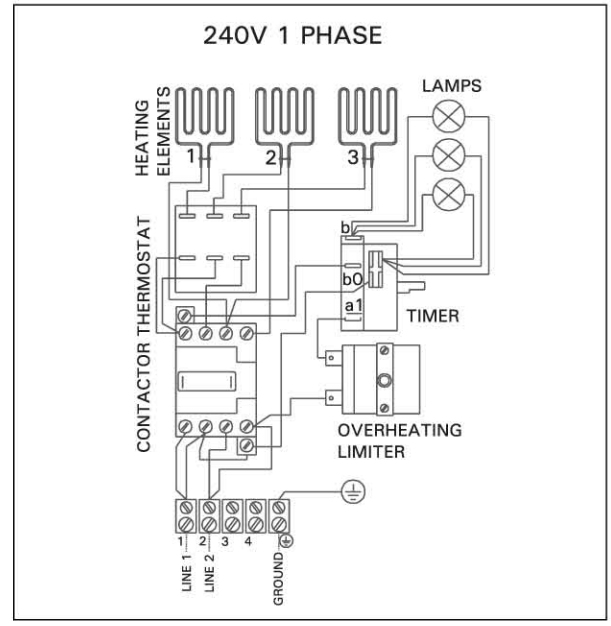


Figure 10. Electrical connections of the heaters KV-45, KV-60 and KV-80

3.6. Electric heater insulation resistance

When performing the final inspection of the electrical installations, a "leakage" may be detected when measuring the heater's insulation resistance. The reason for this is that the insulating material of the heating resistors has absorbed moisture from the air (storage transport). **After operating the heater for a few times, the moisture will be removed from the resistors.**

Note! A ground fault interrupter (GFI) shoud not be installed in and does not belong in a Sauna.

3.7. Testing of Sauna heater

Before testing heater, fill rock cavity with igneous stones provided with heater and fasten rock guard at top of heater. See item 1.1." Piling of the Sauna rocks".

1. After Sauna heater has been properly wired, according to appropriate wiring diagram and local codes, turn Sauna breaker on in the main breaker panel. (Note! Electrician must label "Sauna" breaker.)
2. Turn thermostatic (heat) control to on position (this is located on your heater). Set timer to 10 or 15 minutes.
3. Within 5 minutes, you should be able to feel heat from heater elements when holding your hand over heater.
4. if Sauna does not heat, refer to troubleshooting information.
5. It is normal for smoke to appear during the first heating, as protective element coating needs to burn off. TURN SAUNA ON FOR 1 HOUR BEFORE USING THE FIRST TIME, TO ELIMINATE SMOKING.

MODEL KV

HEATER MODEL	MIN./MAX. CUBIC FT.	WATTS	AMPS	VOLTAGE & PHASE	WIRE SIZE 90° C COPPER	CONTROLS	SEPARATE CONTACTOR	DIM. DxWxH	SHIPPING WEIGHT LBS.
KV45	100-210	4,000	18.8	240/1	#10	ON HEATER	NONE	10x18x25	46
KV60	170-300	6,000	25	240/1	#10	ON HEATER	NONE	10x18x25	46
KV80	250-425	8,000	33.3	240/1	#8	ON HEATER	NONE	10x18x25	46
45# STONES AND 4# HEATER GRILL SHIPPED WITH HEATER IN SEPARATE BOXES									

Tables 2. Supply wire

3.8. Troubleshooting

A. If sauna does not operate after initial installation and wiring:

1. Check breaker to be sure that it is on. Also, breaker should be correct size.
2. Check circuit breaker in contactor to be sure that it has not been shorted out.
3. Be sure that thermostat and timer are both in on position.
4. Be sure that timer winds down. If timer has been shorted out, heater will not operate.

B. If sauna has been in operation, but heater ceases to operate:

1. Check breaker to make sure it is on.
2. Check timer to see if it winds down.
3. Check high limit reset button in heater (reset is under the heater).
4. Call your electrician or service person for further help.

C. If Sauna heater operates, but room does not come up to Sauna temperature (160–185°F (70 – 85°C) normal Sauna temperature):

1. You must allow at least 30 minutes for Sauna heat-up time.
2. Is Sauna thermometer located 6" (150 mm) from ceiling, and is it above or close to Sauna heater? (This is proper location for Sauna temperature reading.) Thermometer readings vary with room heights and location. Eg. 180°F (82°C) above Sauna heater = 165°F (74°C) on opposite wall = 140°F (60°C) on upper bench level = 120°F (49°C) on lower bench level 100°F (38°C)at floor level.
3. Check for proper wire size, amp size and proper wiring (according to diagrams and information) also necessary copper wiring.
4. Check for placement of stones to make sure they are loosely spaced around elements, to insure good air flow. Stones packed too tightly will restrict air flow and reduce heating capacity.
5. Check for heat loss (around or under door, around ceiling light or fan – we do not recommend ceiling light and a fan does not belong in the Sauna.
6. Is room properly insulated?
7. Is ceiling higher than in figure 4?
8. After checking all of the above, remove rocks and check heater elements for holes or burned areas. (Only if heater has been in use for some time.)

3.9. Caution! Electrician or service person!

1. Before servicing heater, control, or contactor, turn power off at breaker!
2. Open junction box to make sure wires are tightly secured with no loose connections. Heater wire and all connecting wires should be copper.
3. Check for burned spots or short in wiring of timer or thermostat.

3.10. Maintenance instructions

1. Use only clean water on Sauna stones. **Do not** use spa or pool water as it will destroy your heater.
2. Clean water should always be used in Sauna buckets and water should be dumped out after every use. Scour buckets and dippers occasionally when film collects from usage. Use plastic bucket liner in bucket to prevent water leakage.
3. Scrub benches with a soft brush, using soap and water or a mild disinfectant, when needed – about once a week in commercial Saunas, or depending upon sauna usage. For sanitation, each bather should sit or lie on a towel (this will prolong bench life).
4. Remove Super Dek and wash waterproof floor with disinfectant (e.g. Pine Sol) about once a week or as often as needed. Hose off Super Dek to clean.
5. To maintain beautiful appearance of Sauna heater, remove water stains by wiping a damp cloth occasionally.
6. Harvia Sauna Heaters require no special maintenance when properly installed by a qualified electrical contractor. After 1 years of usage, the rocks may need replacing if they have crumbled or powered.
7. Harvia Sauna strongly recommends a floor that can be easily cleaned (concrete, ceramic tile, or a poured type of flooring). When this is provided, the Sauna can be easily cleaned and kept in a sanitary condition with little effort. A carpet is NOT recommended for a Sauna! A carpet becomes a perfect breeding ground for bacteria in the moist conditions of a Sauna; and a carpet promotes the spread of foot diseases such as athlete's foot. For same reasons, wooden duckboard should not be used for flooring.
8. In new construction, a floor drain should also be provided, especially in commersial Saunas for sanitary cleaning and maintenance.
9. Seal wood around glass in door – inside and outside – with *Thompson's Water Seal* to prevent warpage.
10. When Sauna wood becomes stained from perspiration, the wood may lightly sanded with fine sandpaper to restore beautiful appearance. We do not recommend stains or sealers as toxic vapors may appear when heated. However, 2 coats of *Thompson's Water Seal* may be used on the wood benches in a commersial Sauna, so that the wood may be more easily cleaned and kept sanitary – the wood will not absorb perspiration.
11. The Sauna room will heat faster if the higher vent is kept in a closed position when heating. The lower vent may always be kept in an open position.
12. Required warning signs should be posted according to the instructions.

3.11. Guarantee

This HARVIA SAUNA heater is guaranteed for one year date of purchase, and includes all heater parts such as heating elements, controls, contactors, etc.

This guarantee covers faults in manufacture and material only, and includes the exchange of new parts supplied by the manufacturer or manufacturer's agent, after the faulty parts have been returned to same. The replacement of parts under warranty does not extend the warranty period beyond the original one year.

The guarantee does not cover defects caused by normal wear and tear, defects caused by improper installation, poor maintenance, or failure to follow the manufacturer's instructions for installation, use and care, or alterations made to the Sauna product.

This guarantee is void if the heater is used improperly. Pool or spa water should not be poured over the Sauna stones, as chemicals are harmful to the heater; the Sauna room must be heated for at least 30 minutes before water is poured over the stones; only one or two dippers ful of water should be poured over the hot stones at one time. This guarantee will be void if a shower has been installed in the Sauna room.

The guarantee does not cover delivery costs of the faulty part or costs of the person carrying out the repair in the field. If the Sauna heater is returned to the manufacturer or manufacturer's agent within five years after date of purchase, the agent will provide free labor for repair, but will charge for parts if date of purchase is past one year.

This guarantee will be void if installation and wiring is not carried out by a certified electrician or authorized and qualified service representative, who must sign below.

This guarantee will be void if information below is not filled out and returned within 15 days of purchase, and it applies only to original installation of product and to original purchaser.

SAUNA HEATER _____

MODEL NUMBER _____

DATE OF PURCHASE _____

ORIGINAL OWNER _____

ADDRESS _____

_____

PURCHASED FROM _____

_____

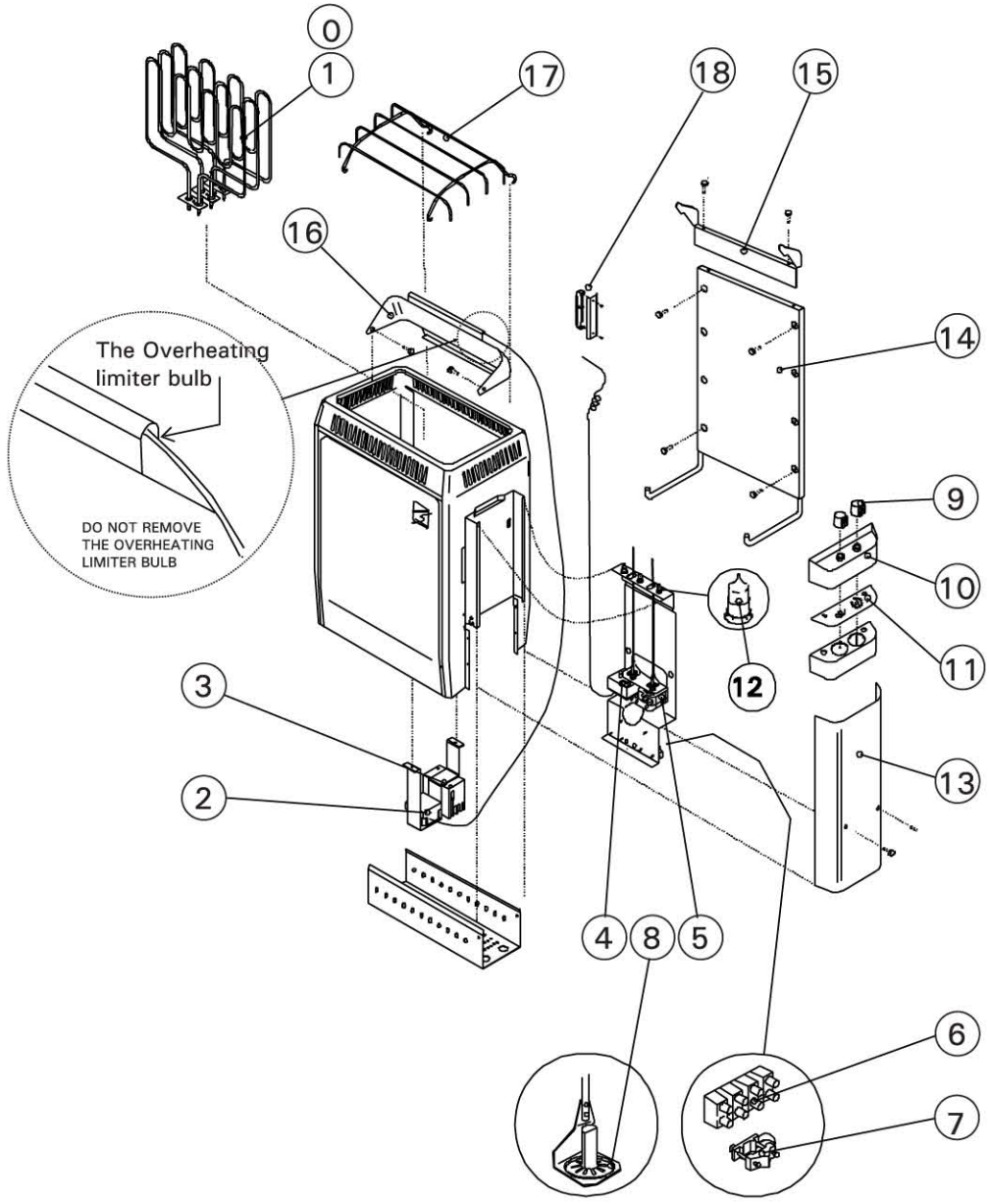
ELECTRICAL CONTRACTOR

MUST SIGN HERE _____

DATE OF ELECTRICAL

WIRING & HOOKUP _____

4. SPARE PARTS



0.	Heating elements 240V	
1.	Heating elements 208V	ZSV-2L
2.	Overheating limiter	ZSV-330
3.	Contactor	ZSK-778
4.	Thermostat	ZSK-762
5.	Timer	ZSK-766
6.	Supply terminal block	ZSK-779
7.	Fitting	ZSK-555
8.	Axlelock ø6	ZSA580
9.	Knob + Cap	ZSA-660
10.	Control box plastic part	ZSA-480
11.	Scale plate	ZSJ-3
12.	AV Lamp	ZSA-530
13.	Control compartment cover	ZSV-150
14.	Mounting rakk	ZSV-101
15.	Fastening clamp	ZSV-120
16.	Steam distributor	ZSV-60
17.	Rock guard	ZSV-320
18.	Bulb cover	ZSV-2F