2024.06.28

LD SERIES SAUNA HEATER(LD60 LD70 LD90)

Instructions for Installation and Use of Electric Sauna Heater

EQUIP WITH DIGITAL CONTROL PANEL CON6

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. Please read the instructions for use carefully before using the heater.

The heater is designed for the heating of a sauna room to bathing temperature. It is not to be used for any other purpose.

Congratulations on your choice!

Guarantee:

◆ The guarantee period for heaters and control equipment used in family saunas is one year. .

◆ The guarantee does not cover any faults resulting from failure to comply with installation, use or maintenance instructions.

◆ The guarantee does not cover any faults resulting from the use of stones not recommended by the heater manufacturer.

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1. INSTRUCTIONS FOR USE

1.1. Piling of the Sauna Stones

The piling of the sauna stones has a great effect on both the safety and the heating capability of the heater.

Important information on sauna stones:

◆ The stones should be 5 – 10 cm in diameter.

◆ Use solely angular split-face sauna stones that are intended for use in a heater.

Peridotite,olivine-dolerite and olivine are suitable stone types.

◆ Neither light, porous ceramic “stones“ nor soft soap stones should be used in the heater. They do not absorb enough heat when warmed up. This can result in damage in heating elements.

◆ Wash off dust from the stones before piling them into the heater.

Please note when placing the stones:

◆ The aim is to pile a dense layer of stones against the steel grid and pile the rest of the stones loosely. The dense layer prevents the direct heat radiation from overheating materials around the heater. Be especially careful with the corners where the heating elements are near the grid. The loose piling of stones in the middle lets the air flow through the heater,resulting in good heating of sauna and sauna stones.

◆ Do not drop stones into the heater.

◆ Do not wedge stones between the heating elements.

◆ Pile the stones so that they support each other instead of lying their weight on the heating elements.

◆ Support the heating elements with stones so that the elements stay vertically straight.

◆ Do not form a high pile of stones on top of the heater

◆ No such objects or devices should be placed inside the heater stone space or near the heater that could change the amount or direction of the air flowing through the heater.

!! A bare heating element can endanger combustible materials even outside the safety distances. Check that no heating elements can be seen behind the stones.

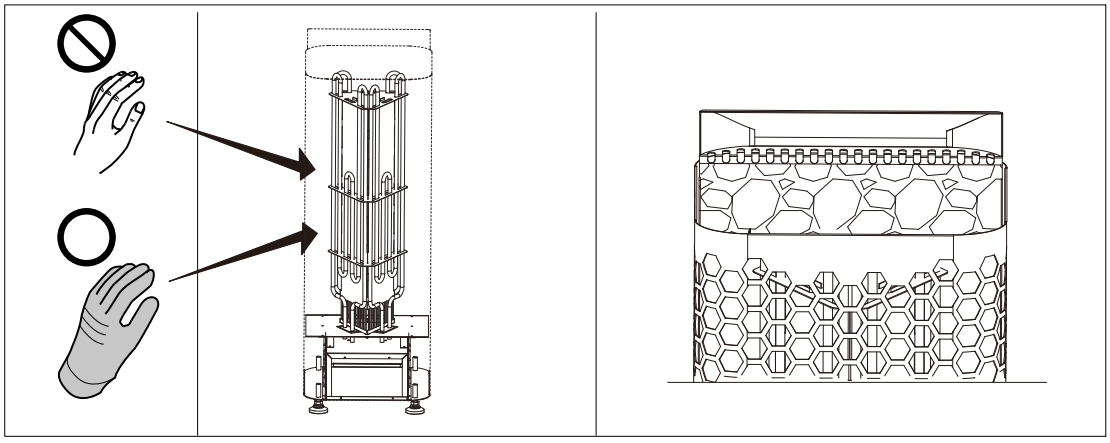


Figure 1. Piling of the sauna stones

1.1.1. Maintenance

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

--Rearrange the stones at least once a year or even more often if the sauna is in frequent use. At the same time, remove any pieces of stones from the bottom of the heater and replace any

disintegrated stones with new ones. By doing this, the heating capability of the heater stays optimal and the risk of overheating is avoided.

!! Pay attention especially to the gradual settling of the stones. Be sure that the heating elements do not appear with time. The stones settle most rapidly within two months of piling.

1.2. Warnings when using the Heater

!! To check the sauna room before restart the controller.

Before connecting sauna stove to electricity, check the sauna room first to make sure there's no other things near the sauna stove.When first time use the sauna stove, the stove and the stone might emit smell, so be sure to ventilate the sauna room for at least one hour. If the output is normal, the sauna room achieve appropriate temperature within one hour of heating.

The appropriate sauna room temperature is 60 ~ 90 ℃. It is important to match a suitable stove with the sauna room. If the stove power is too large, sauna will heat up too fast for the sauna stones to absorb enough heat, pouring water on cold stone could not produce enough steam. On the contrary, insufficient sauna stove makes the heating time too long or the sauna room never reach desired temperature. .

!! Warning: Covering the sauna stove will cause fire.

- Do not use without sauna stone, easy to cause fire.
- Do not place anything on heater or to bake food.
- Do not use chlorine water (For example, water from the pool).
- Do not connect to power supply when maintain or repair the stove.
- Staying in the hot sauna for long periods of time makes the body temperature rise, which may be dangerous.
- Keep away from the heater when it is hot. The stones and outer surface of the heater may burn your skin.
- Keep children away from the heater.
- 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.
- Consult your child welfare clinic about taking little babies to the 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.
- Never sleep in a hot sauna.
- 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

1.3. 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 stones to reach a suitable level of humidity in the sauna. The effect of heat and steam on people varies – by experimenting, you can find the levels of temperature and humidity that suit you best.
You can adjust the nature of the heat from soft to sharp by throwing water either to the front of the heater or straight on top of the stones.

!! The maximum volume of the ladle is 0.2 litres.If an excessive amount of water is poured on the stones, only part of it will evaporate and the rest may splash as boiling hot water on the bathers. Never throw water on the stones when there are people near the heater, because hot steam may burn their skin.

The water to be thrown on the heated stones should meet the requirements of clean household water (table 1). Only special aromas designed for sauna water may be used. Follow the instructions given on the package.

Table 1. Water quality requirements

Water property	Effect	Recommendation
Humus concentration	Colour, taste, precipitates	<12 mg/l
Iron concentration	Colour, odour, taste, precipitates	<0,2 mg/l
manganese (Mn) and lime, i.e. calcium (Ca)	Precipitates	Mn: <0,05 mg/l Ca: <100 mg/l
Chlorinated water	Health risk	Forbidden to use
Seawater	Rapid corrosion	Forbidden to use

1.4.Troubleshooting

The stove does not heat:
- check the fuse.
- check all wiring.
- check whether the room temperature is higher than the setting temperature.
- check the overheating protection switch

Heating is slow and rocks are cold:
- check the fuse.
- check whether all heating elements are heating
- check whether the power output is enough for the sauna. .
- check whether the sauna stones are piled too tightly to block the air flow, and thus reduce the heating efficiency.
- check sauna room ventilation.

Sauna room heating fast, but the temperature of the stone is still insufficient
- whether the temperature setting is too low.
- check whether the power output of the stove is too high for the sauna room.
- check the sauna room vents is properly installed.

Wood panels around sauna stove turn black quickly:
- check whether the required safety distance.
- check whether the sauna stones are piled too tightly to block the air flow, and thus lead to overheating.
- Pile the stones again, so all heating elements are covered with stones.

Smell:
- There might be light smell during the first use. Otherwise check the sauna stove and sauna room if unusual smell detected.

Noise:
- The AC contactor inside the sauna stove will click when working.

2. Sauna room

2.1. Sauna Room Structure

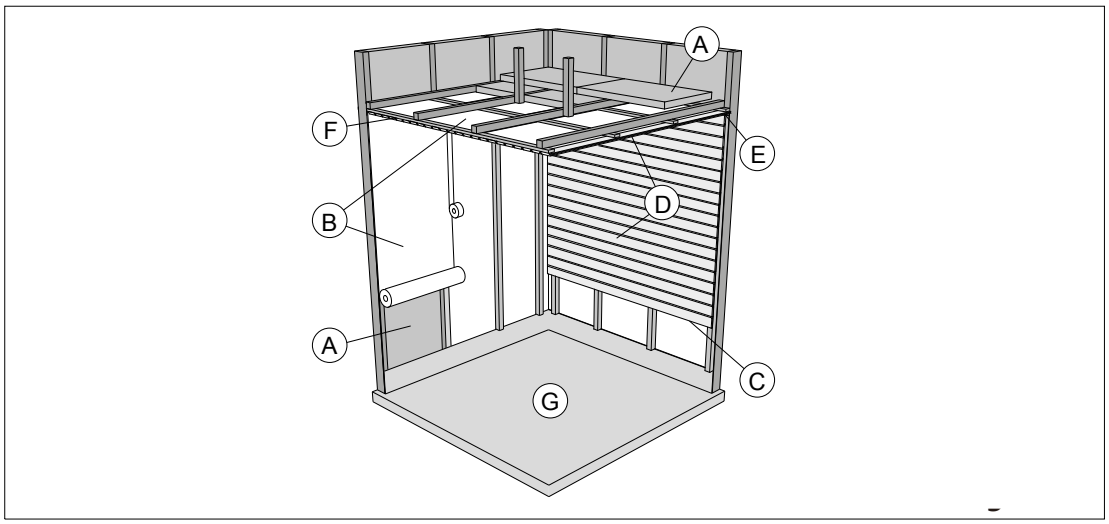


Figure 2 Sauna room Structure

A. Insulation wool, thickness 50–100 mm. The sauna room must be insulated carefully so that the heater output can be kept moderately low.
B. Moisture protection, e.g. aluminium paper. Place the glossy side of the paper towards the sauna. Tape the seams with aluminium tape.
C. Vent gap of about 10 mm between the moisture protection and panel (recommendation).
D. Low mass 12–16 mm thick panel board. Before starting the panelling, check the electric wiring and the reinforcements in the walls required by the heater and benches.
E. Vent gap of about 3 mm between the wall and ceiling panel.
F. The height of the sauna is usually 2100–2300 mm. The minimum height depends on the heater

(see table 2). The space between the upper bench and ceiling should not exceed 1200 mm.
G. Use floor coverings made of ceramic materials and dark joint grouts. Particles disintegrating from the sauna stones and impurities in the sauna water may stain and/or damage sensitive floor coverings.
--**NOTE!** Check from the fire authorities which parts of the firewall can be insulated. Flues which are in use must not be insulated.
--**NOTE!** Light protective covers which are installed directly to the wall or ceiling may be a fire risk.

2.2. Sauna Room Ventilation

The air in the sauna room should change six times per hour. Figure 3 illustrates different sauna room ventilation options.

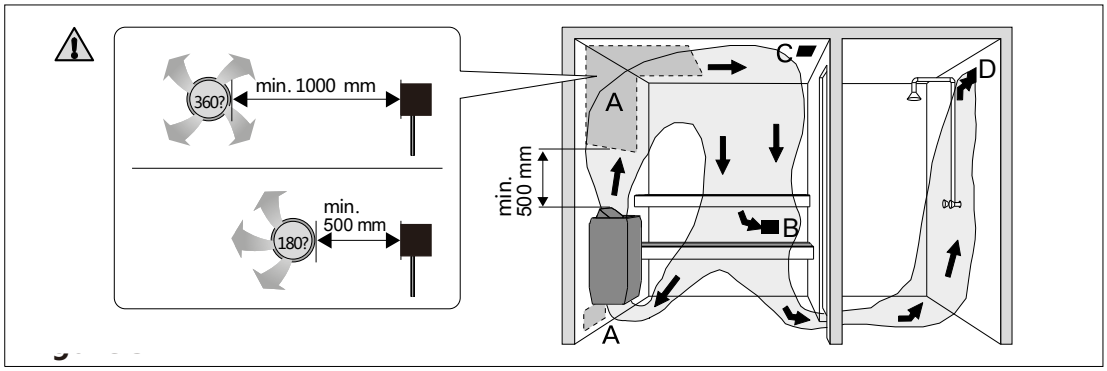


Figure 3 Choices for sauna room ventilation

A. Supply air vent location. If mechanical exhaust ventilation is used, place the supply air vent above the heater. If gravity exhaust ventilation is used, place the supply air vent below or next to the heater. The diameter of the supply air pipe must be 50–100 mm. LD: Do not place the supply air vent so that the air flow cools the temperature sensor (see the temperature sensor installation instructions in the control unit installation instructions)!
B. Exhaust air vent. Place the exhaust air vent near the floor, as far away from the heater as possible. The diameter of the exhaust air pipe should be twice the diameter of the supply air pipe.
C. Optional vent for drying (closed during heating and bathing). The sauna can also be dried by leaving the door open after bathing.
D. If the exhaust air vent is in the washroom, the gap underneath the sauna door must be at least 100 mm. Mechanical exhaust ventilation is mandatory.

2.3. Heater Output

When the walls and ceiling are covered with panels and insulation behind the panels is adequate, the heater output is defined according to the volume of the sauna. Non-insulated walls (brick, glass block, glass, concrete, tile, etc.) increase the need for heater output. Add 1,2 m3 to the volume of the sauna for each non-insulated wall square meter. For example, a 10 m3 sauna room with a glass door equals the output requirement of about a 12 m3 sauna room. If the sauna room has log walls, multiply the sauna's volume by 1,5. Choose the correct heater output from Table 2.

Table 2. Installation details of the heater

Model	Output Power (KW)	dimensions (mm)	Voltage/Current V/A	Power wire(N*mm2)	Breaker(A)	Sauna rocks capacity(KG)	Min room size (m3)	Max room size (m3)	Min room height (mm)
LD60	6	340*340*930	220-240/32	3*6	40	80	4	8	1900
LD60	6	340*340*930	380-415/11	5*2.5	16	80	4	8	1900
LD70	7	340*340*930	220-240/40	3*6	40	80	8	10	1900
LD70	7	340*340*930	380-415/14	5*2.5	16	80	8	10	1900
LD90	9	340*340*930	220-240/40	3*10	60	80	8	14	1900
LD90	9	340*340*930	380-415/14	5*2.5	16	80	8	14	1900

2.4. Sauna Room Hygiene

Bench towels should be used during sauna bathing to prevent sweat from getting onto the benches. The benches, walls and floor of the sauna should be washed thoroughly at least every six months. Use a scrubbing brush and sauna detergent. Wipe dust and dirt from the heater with a damp cloth. Remove lime stains from the heater using a 10% citric acid solution and rinse.

3. INSTRUCTIONS FOR INSTALLATION

3.1. Before Installation

--Before installing the heater, study the instructions for installation. Check the following points:

Is the output and type of the heater suitable for the sauna room? The cubic volumes given in table 2 should be followed.

Is the supply voltage suitable for the heater?

The location is suitable for the heater (3.2.).

--**Note!** Only one electrical heater in each the sauna room.

3.2. Place and Safety Distances

The minimum safety distances are described in figure 4.

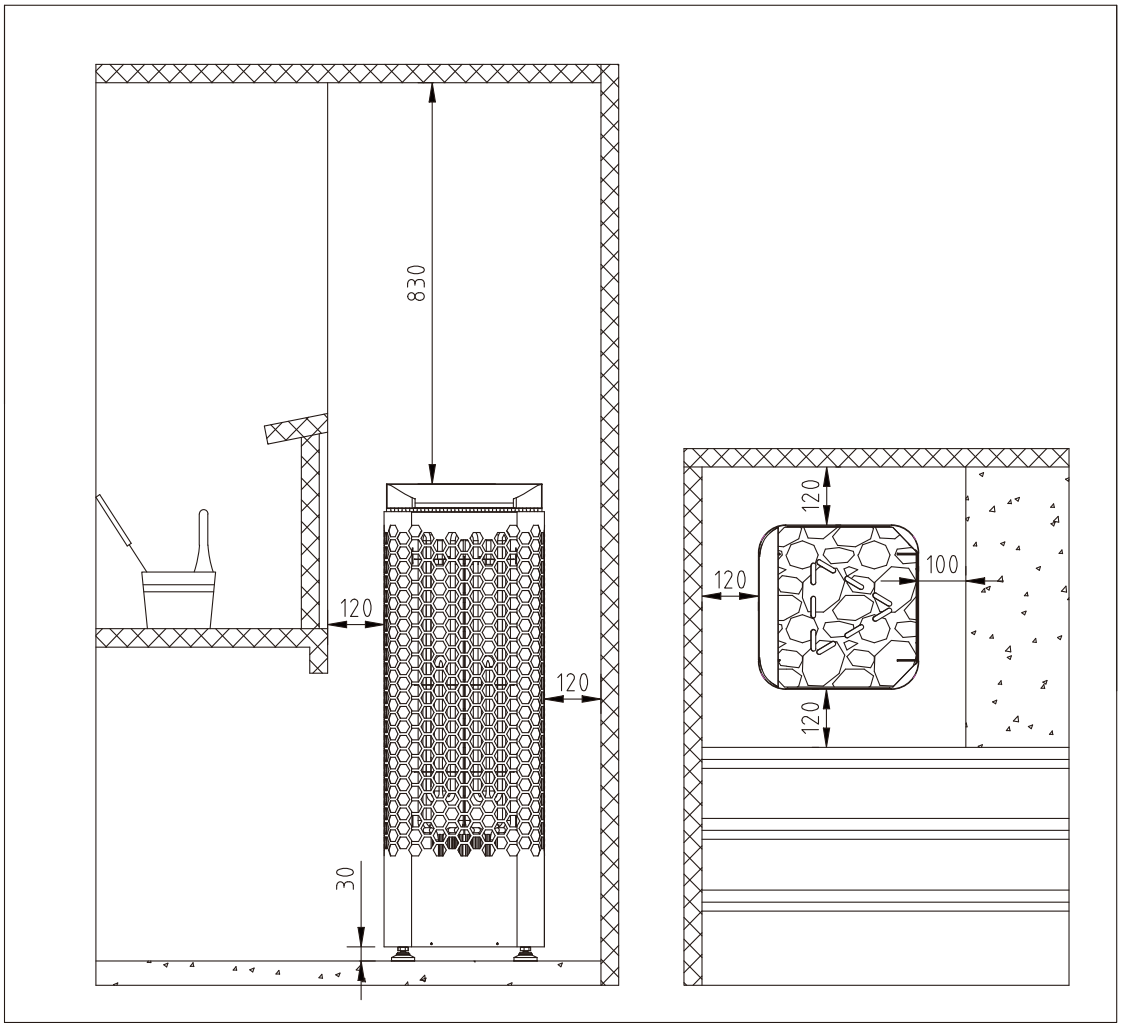
◆ It is absolutely necessary to install the heater according to these values. Neglecting them causes a risk of fire.

◆ Hot pieces of stone can damage floor coverings and cause a risk of fire. The floor coverings of the installation place should be heat-resistant.

◆ If the heater is to be embedded into bench using the embedding flange HPC1, see installation instructions of the flange before making a hole in the bench.

Figure 4. Safety distances (all dimensions in millimeters)

	Min, mm						
	A	B	C 3N	D~		E	F
LD60	100	100	950	30	50	520	520
LD70	30	100	950	30	50	420	470
LD90	30	100	950	30	50	420	470

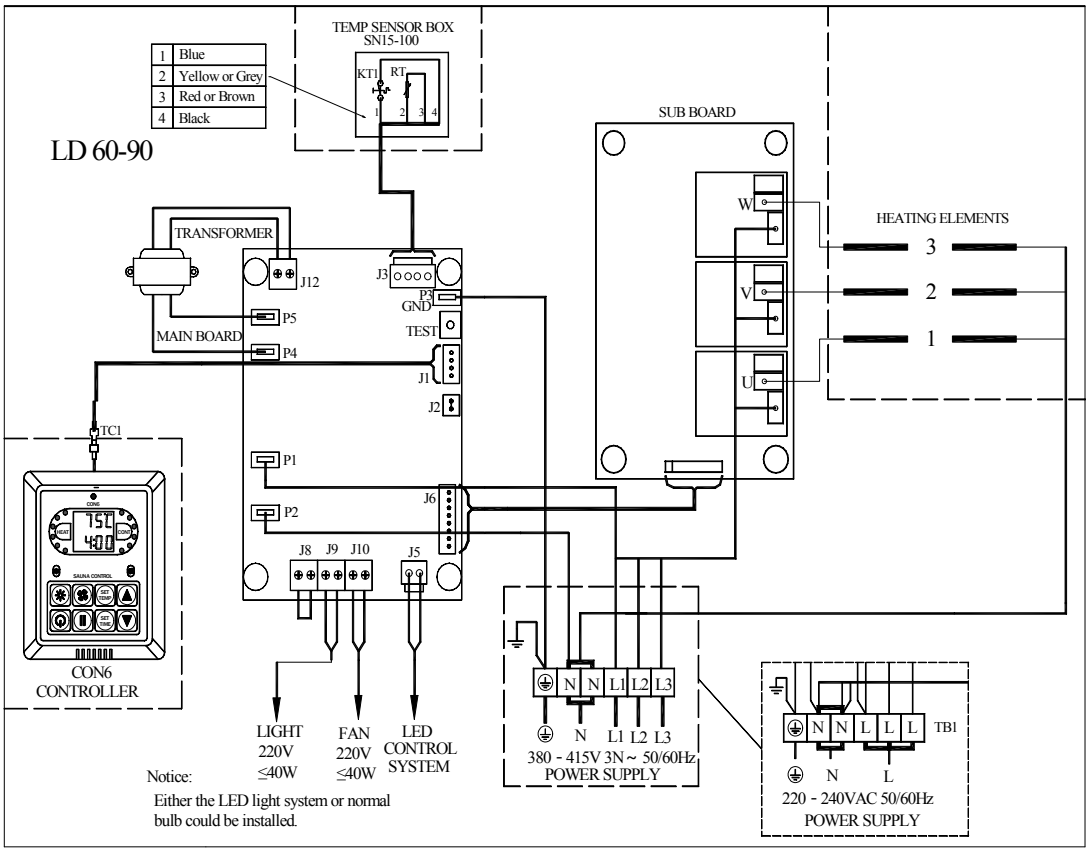


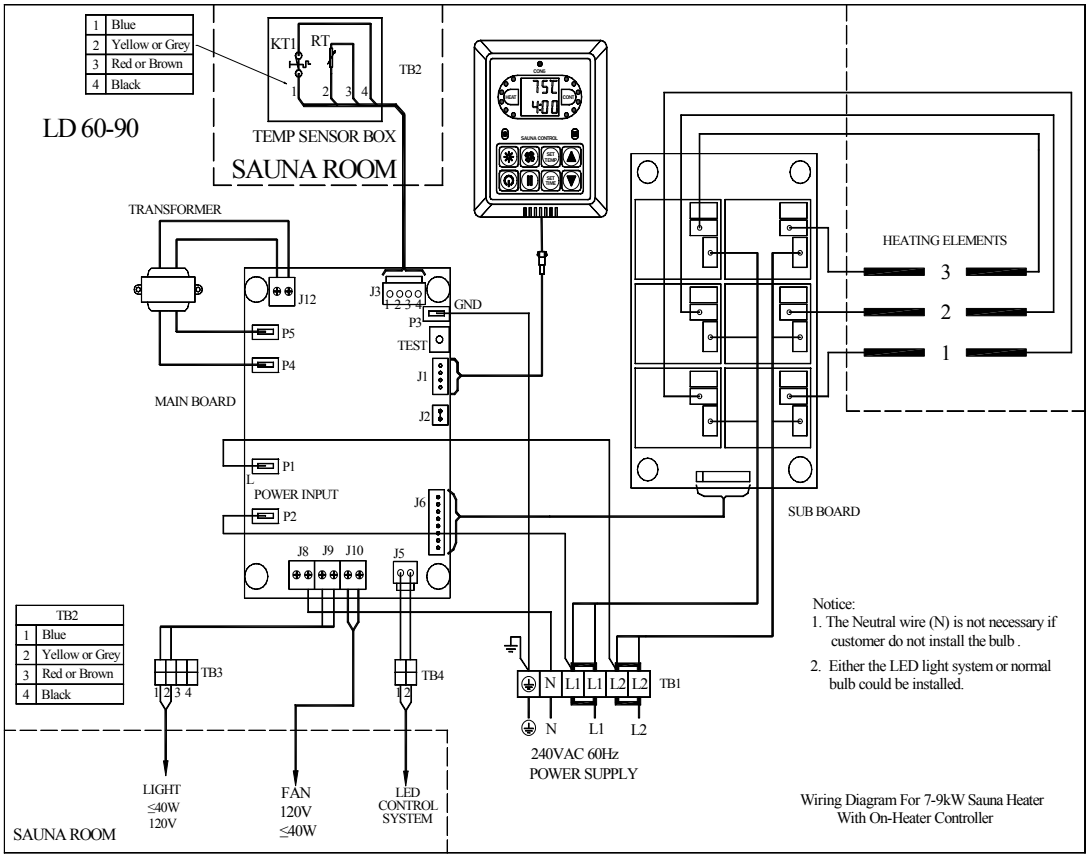
3.3. Electrical Connections

NOTE！The electrical wiring has to be done by licensed electrician.

Warning! Prohibit to use PVC insulated wire as the power wire of the sauna stove, because it could not endure high temperature.

Figure 5. Electrical connections



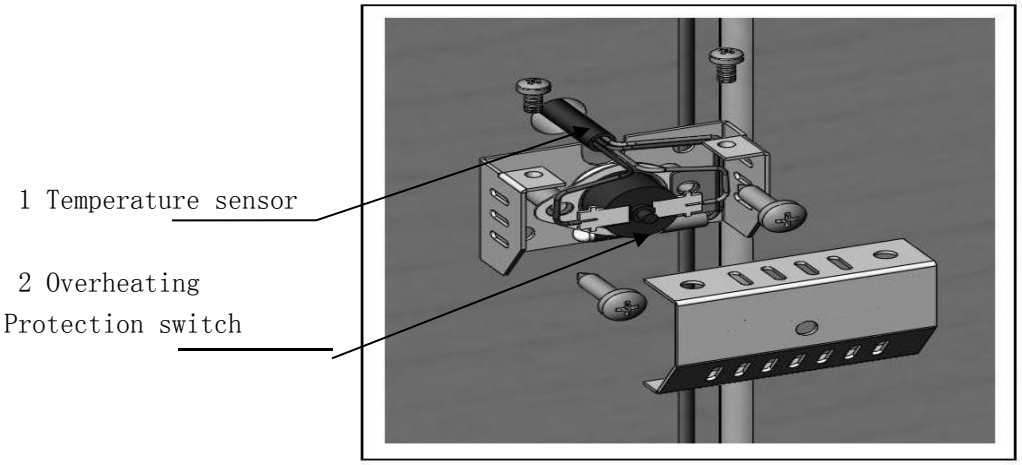


3.3.1. Install the temperature sensor

The temperature sensor box is equipped with 3m long connection wire and plug. Please drill a hole with 5mm diameter on the installation spot, remove the plug first, lead the connecting wire through the hole, put the plug back and then connect it to terminal TB1 (as in Diagram 5). Then open the box cover, fix the temperature sensor on wall with screws, and put back the cover (as shown in figure 6)

.

Figure 6 Install the temperature sensor

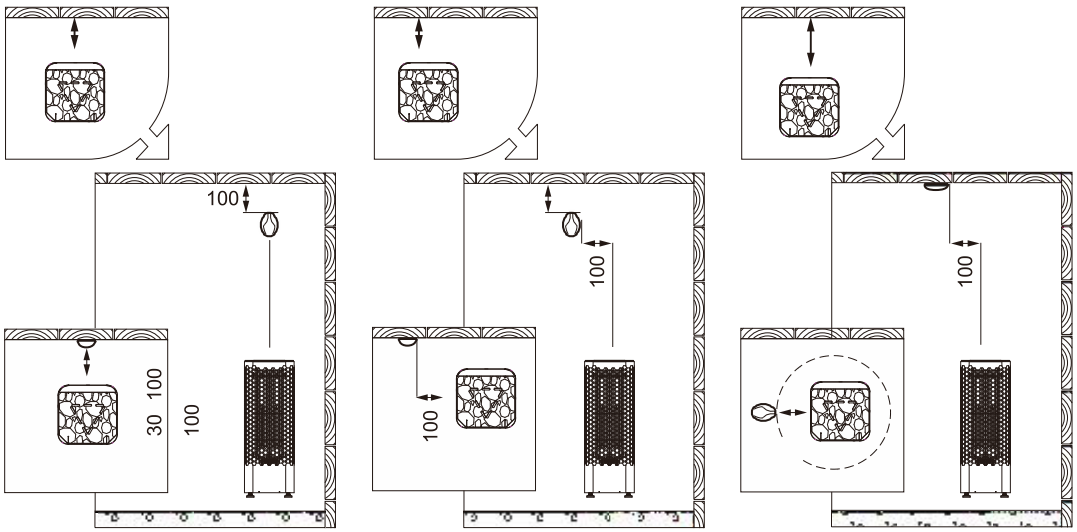


!! Temperature sensor installation position should not be close to air vent.

If sensors is close to air vents, the air flow would cool down sensor to give incorrect temperature reading to the control unit, and cause overheating and even fire risk.

The sensor must be installed according to the specification in Figure 7. If the minimum safety distance could not be meet, please change the vent position.

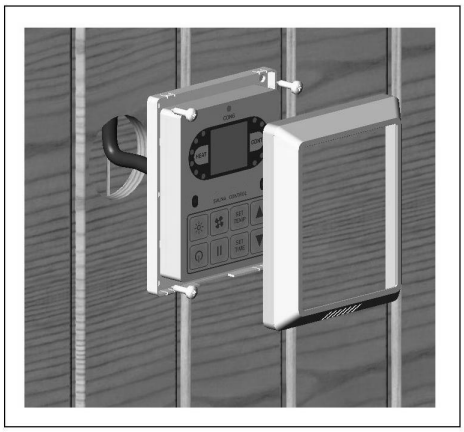
Figure 7. Installing the sensor (all dimensions in millimeters)



Install the control panel

It is recommended that the wall-mounted control panel to be installed near the sauna door or other easy access location outside the sauna room, with 1.2 m height from the floor. Please drill a ¢ 50 mm hole at the installation spot for CON6. The panel is equipped with water-proof connector and 5 m control wire. Please connect one end of the control wire to the water-proof connector of the panel, and another end to the connector on the control box through the reserved wire hole. Then open the panel cover, fix the panel on wall with screws, and put back the cover, please refer to diagram 2. For on-heater control unit, please fit the control wire into the heater and hang the control on the front panel.

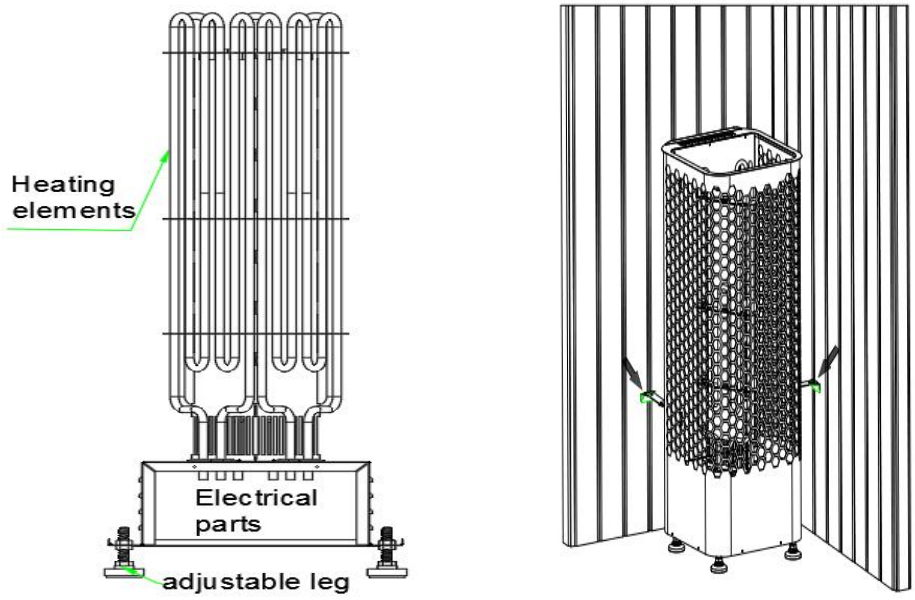
Diagram 7 Install the control panel.



3.4. Installing the Heater

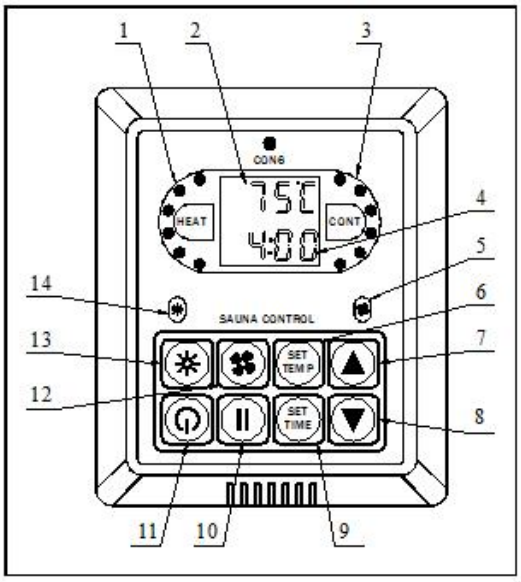
1. Connect all wires to the bottom of the heater (3.3.).
2. Place the heater on site and make it level by adjusting the adjustable legs.
3. If necessary, purchase two metal connectors (not provided with the sauna heater) as shown in Figure 8 to fix the sauna heater firmly on the wall.

Figure 8. Installing the heater



SAUNA CON6

FUNCTIONS AND OPERATION



1.Heating indicator 2.Temperature display 3.Output indicator 4.Time display 5.Fan indicator 6. Temperature setting 7.Up 8.Down 9.Time setting 10.Pause/Start 11.Sauna Start/Stop 12.Fan ON/OFF 13.Light ON/OFF 14.Light indicator

Diagram 1 Sauna control panel CON6

1. Display

Temperature: Upper display window, display range: 6－115℃(43－239℉).

Setting temperature: Adjustable range 70－105℃(158－221℉). Ex-factory value is 75℃ (167℉).

Time: Maximum preset time is 12 hours (0:00-11:59). Heating time is 0-6 hours (0:01-5:59) or non-stop mode. Time is displayed on the lower display window. Ex-factory value: preset time is 0:00, heating time is 0:45. When set to non-stop mode, displays “CH”.

Heating: Indicated by left side LEDs.

Control heating: Indicated by right side LEDs.

External light： Indicated by “”.

Fan： Indicated by “”.

2. Automatic heating control function

Automatic heating control function compares room temperature with user-set value, and then automatically decides groups of element to turn on. When working time is over, heater stop to heating.

3. Button and function

START/STOP: Press this button to change status of heater. If button pressed in preset mode or preset time is over, heater enters heating mode; if button pressed in heating mode or heating time is over, heater stop to heating

SET TEMP: Press this button to change temperature setting. The upper screen blinks and displays the current setting, press "△" or "▽" to adjust the setting, then press"SET TEMP" again to confirm; or the system automatically confirm the changes after 3 seconds, upper screen restore to display current room temperature.

SET TIME: Press this button to change preset time setting, the maximum preset time is 12 hours(0:00-11:59). Press "△" to adjust hour value in the range of 0~11 and circle as 0→1→2……11→0→1. Press "▽" to adjust the minute value. Press "SET TIME" again to confirm you setting and then enters the heating-time setting. Press "△" to adjust hour value in the range of 0～5 or non-stop mode (display "CH"). Press "▽" to adjust minute value. In non-stop mode "CH", minute adjusting is unavailable. Press SET TIME to confirm your setting.

PAUSE: Press this button to pause the heater from heating temporarily, and the heating indicators turn off. The pause function will not affect the status of system counting down. Press this button again to restore to original status.

LIGHT CONTROL: This button is used as ON/OFF switch for normal external light (≤60W220VAC). Or when LED control system is installed, then LED changes color automatically upon the first pressing, fixes color upon the second pressing and turns off upon the third pressing..

FAN CONTROL: Press this button to turn on/off fan for ventilation.

SET TEMP and △ TEMPERATURE UNIT SETTING: Hold SET TEMP and △ at the same time for over 3 seconds to switch temperature unit between ℃ and ℉. Release the buttons when the appropriate unit appears on the display. Then temperature will be displayed in the chosen form. Ex-factory value is ℃.

SET TEMP and ILLUMINATION MODEL SETTING: Hold SET TEMP and at the same time for over 3 seconds to switch Illumination model between filament lamp (bULb on the

display) and LED system (LEd on the display), release the buttons when you need the “bULb” or “LEd” appears on the display. Ex-factory value is bULb.

△ **ADJUSTING BUTTON**.

▽ **ADJUSTING BUTTON.**

6.The spare parts

1	Heating elements 2260W	Item number: D0730660
2	Heating elements 3000W	Item number: D0730661
3	Temperature sensor	Item number: F0540949
4	Circuit board	Item number: E0640910
5	Digital control panel CON6	Item number: E0610971
6	Control cable	Item number: E0830998

Only the original factory spare parts is recommended.