



MANUAL

Models

WS30	WS40	WS60	WS80	WS150	WS180
WS50	WS60	WS100	WS120	Autodrain Built-in	
Attaching Autodrain		Autodrain Built-in		Autodrain Built-in	



3.0kW 4.0kW
5.0kW 6.0kW



6.0kW 8.0kW
10.0kW 12.0kW



15.0kW
18.0kW

STEAM GENERATOR

Please read the manual carefully before using the steam generator.

WinSpa Steam Generator

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IMPORTANT

- Do not make sharp bends or elbows along the steam pipe.
- The steam head must be installed with outlet facing down to floor.
- Do not allow the sags or water pocket along the steam pipe and/or the ventilation duct. **IMPORTANT!** There must not be any type of obstruction along the steam line, such as a stopoff valve or tap. The internal diameter of the steam pipe must not be reduced.
- Ensure that steam rooms that are used continuously for more than 2 hours at a time are ventilated by 10-20 cubic meters of air per person and hour.
- Make sure that the drainage pipe slopes all the way down to the waste outlet.
- The ambient temperature outside the steam room and around the steam generator must not exceed 35°C.
- Place the steamroom temperature sensor as far away from the steam jet as possible.
- Descale the steam generator at regular intervals as instructed. In hard water areas, where calcium levels exceed 5 dH, we recommend the installation of a water filter and/or softener.
- Clean the steam room regularly.
- **CAUTION!** Stay at least 12" (30cm) away from hot steam escaping from steam outlet.
- **IMPORTANT.** The steam generator's wastepipe must always discharge into a drain outside the steam room itself. The water is very hot.

Before Installing

Use the following information together with the consultation of your contractor, architect or designer in determining all factors necessary in providing a suitable and safe steam room.

Check that the supply voltage is suitable to your steam generator.

Ensure that the steam generator kilowatt corresponds to the volume of your steam room. Refer to Technical Data (Page 13)



The voltage of the light output is 12V, use appropriate transformer for low voltage. WinSpa is not responsible of damages caused by WARNING using higher voltage inside the steam room.

Steam Room Guidelines

1. The Steam Room must be fully enclosed, complete with walls, door, flooring and ceiling.
2. Rubber linings (e.g. gaskets) are recommended for the door to effectively seal the heat and the steam inside the Steam Room.
3. If tiles are used for the flooring or some other smooth surface material, provide suitable anti-skid strips or rubberized mats to prevent slipping resulting to injury.
4. Materials used for the walls and ceiling should have water-resistant, non-corrosive surfaces such as tiles, marbles, molded acrylic, or other non-porous materials. The ceiling should be dome-shaped to prevent the dripping of condensate.
5. A drain must be provided in the flooring.
6. Heating, venting or air conditioning devices should not be installed inside the Steam Room.
7. Steam Room windows should be double paned.
8. Limit the Steam Room ceiling to a height of 2.5 meters. Exceeding 2.5m will require a higher-rated steam generator.

Using Steam Room

Warning

All generators is connected to 240/415 volt power supply. All service work to be performed by a licensed, qualified electrician.

Bathing time should not exceed 30 minutes; extending bathing time may cause rapid heart beat, headache, dizziness or weak feeling. If any of the above symptoms occur leave steam room immediately.

People with following conditions should not use steam room unless advised safe to do so by a doctor:

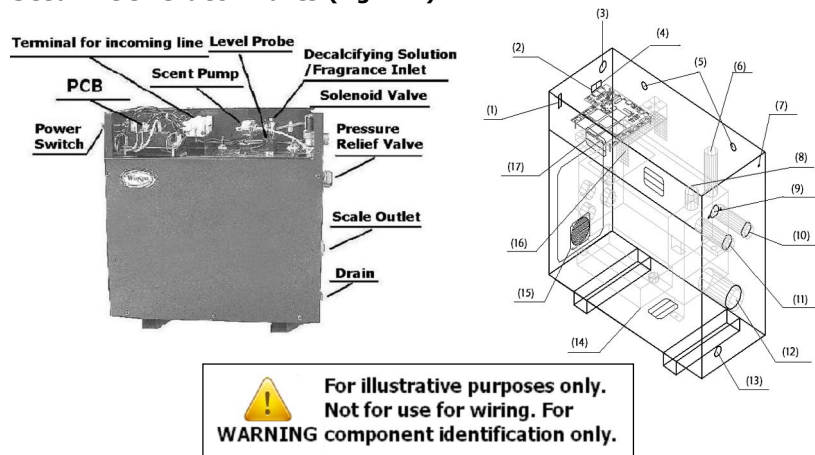
(1). Pregnant woman (2). Heart condition (3). High blood pressure (4). Diabetes (5). After consumption of alcohol (6). On any medication.

Children should not be left unattended or alone in steam room.

Do not touch steam head during operation or scalding will occur.

For any reason should over heating occur, immediately open door to reduce temperature.

Steam Generator Parts (Figure 1)



(1) Power switch; (2) Communication adapter; (3) Hole for Power supply cable; (4) Communication; (5) Fixing holes; (6) Fragrance/Decalcifying Solution inlet; (7) Fragrance tube inlet; (8) Water level probe; (9) Water inlet; (10) Pressure relief valve; (11) Steam outlet; (12) Scale outlet; (13) Drain; (14) Transformer; (15) Exhaust fan; (16) Terminal for incoming line; (17) Lights output.

Instructions of use

When power supply to steam generator is switched on, a high beep will confirm the supply and the screen displays the generator tank's temperature.

There are four different operation modes in the control unit: On/Off, Warmstart, Timer/ Temperature and Light. The user can easily set the unit, making the steam bathing more convenient with less energy consumption.

Press On button on the control unit to activate the generator. When generator is active, the control unit alternately displays time and temperature in steam room.

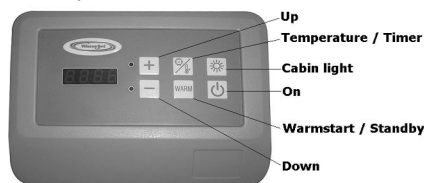


Figure 2

On/Off Mode

When the power switch of steam generator is turned on, press On/Off on control panel to activate steam generator.

Once generator is activated, the screen alternatively displays time and the set temperature in steam room



Warmstart / Standby Mode

Activate warmstart-mode if the steam room is not used constantly. During the warmstart-mode the water in the steam generator tank is kept hot, with minimal energy usage. The generator is able to produce steam shortly after pressing On button on the control panel for the convenience of the user.

The default setting of warmstart is of OFF-mode. To activate, press WARM button, the screen displays OFF, press WARM button again to change to ON (= OH) mode.

To set / change remaining warmstart time press and hold the WARM button for 4 seconds, then press up or down buttons.

When warmstart is set to 00:00 and on ON-mode, auto drain feature will not be available.

When warmstart time expires, cabin light and generator go off automatically.

To activate on-mode again short press the WARM button to ON (= OH) mode.



Temperature/ Timer

The temperature/timer button can be used to switch between the temperature and session time.

When the power switch of steam generator is turned on, the tank temperature is displayed. To set/change temperature at desired level press up and down buttons directly. The default set temperature is 45°C degree. (maximum temperature possible is 60°C degrees).

Under temperature control only the temperature in the steam room will be kept in the preferred set temperature with continuous discharge of steam. The generator will keep running until it has been switched off manually. In this mode the light also needs to be manually turned off.

If the temperature/timer button is pressed, the remaining session time will be displayed. It can be changed by pressing up and down buttons. The temperature / session time will be saved as default settings if there is no buttons are pressed within 4 seconds and the display will return to tank's temperature until generator is activated.

Press On button and screen displays 00:00 then short press up or down button to set session time. When session time is set 00:00 generator will keep running until warmstart time expires or it has been manually switched off.

When under both temperature and timer control and warmstart is of OFF-mode generator and cabin lights will be switched off automatically when session time expires.



Changing the values

Pressing up or down button in control unit will increase or decrease the currently displayed value. A value cannot be in- or decreased above or below its maximum or minimum value.

The up and down buttons are repetitive. Holding the up or down button will cause the value to in- or decrease with an increased rate.

If no keys are pressed within 4 seconds, changes in the values are confirmed.

If no keys are pressed for 4 seconds, the display will automatically display the water tank temperature.



Cabin Light

The cabin light must be switched on manually. It can be manually or automatically switched off:

- If session time is set, cabin light goes off automatically 15 minutes after session time expires.
- If warmstart time is set and warmstart is on On-mode, when warmstart time runs off, cabin lights switch off automatically.
- If warmstart time is set to 00:00 and warmstart is on On-mode, however no session time is set, cabin lights must be switched off manually.
- When generator is under temperature control only, cabin light must be manually switched off.



Key Lock

Lock and unlock the key pad by pressing or holding On button for 4 seconds, the screen shows current mode: ULOC = Unlock, LOC = LOCK, press either up or down buttons to change the mode.

Only On/Off, warmstart and cabin light buttons are usable when the control unit is locked. If other buttons are pressed, relative current status is shown in the display.

The key lock function is set automatically if it was left active during the previous operation.

Auto Drain

The auto drain feature automatically drains the water system after every use. The tank is flushed and will remain empty until the steam generator is used again.

After the warmstart time runs out, control unit automatically goes to Auto Drain mode. After hot water drains, the generator's tank will be flushed with cold water and then drains again, which restrains scale from forming on the inside surface of tank and heating elements. The draining process will take about 10 minutes.



Steam Room Extractor Fan

The steam room extractor fan feature will draw out the vaporous wastes from previous use. The extractor fan will be activated automatically when session time expires.

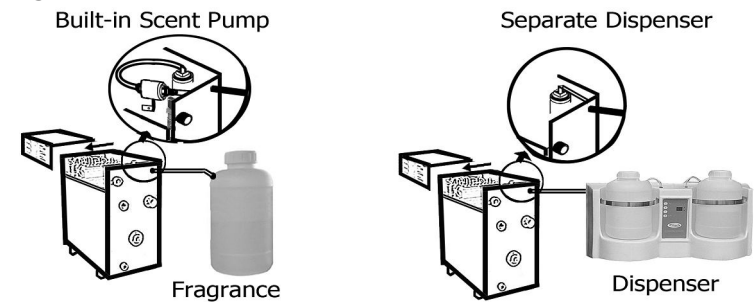
Long press cabin light button for 4 seconds, the control unit displays remaining steam room vaporous wastes extracting time. To change the remaining exhaust time press up or down button.

The default extractor fan time is 10 minutes, maximum exhaust time can be set is 240 minutes. When the extractor fan time is set 00:00, extractor fan on steam room will keep operating until generator goes On-mode again.

Optional Feature

User can choose generator with Scent Pump built in or a separate WinSpa Doser Unit.

Figure 3



Built-in Scent Pump

Built-in Scent pump will be operated when generator goes On-mode. Before switching generator on make sure there is enough aroma in the aroma container. Never run the scent pump dry.

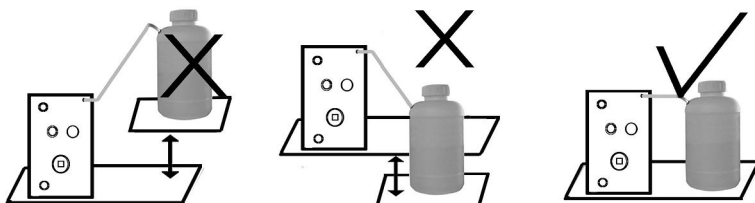
Aroma oil will be filled with each water recruitment of steam generator for 2 seconds. When session time expires or generator is turned off, scent pump will turn off too. It will take about 10 seconds for every 1 meter of pipeline for aroma liquid to reach the pump.

Fragrance container should be placed at the same level with steam generator. Never place the container upper or lower than generator. Make sure to fill the pipeline fully with water using the injector in the pack.

When aroma oil is changed, check that the pipeline is not broken and is full of liquid. It is also recommended to wash the fragrance container between changes, especially when using different fragrances.

Use only fragrance meant for steam generator use. Follow the instructions in the fragrance packing.

Figure 4



Operating Steam Room

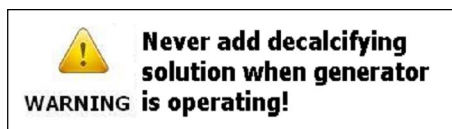
1. Ensure power supply to steam generator is switched on.
2. Ensure water supply is turned on.
3. The steam room is now ready to use, press On button on the control unit to activate the generator.

Maintenance

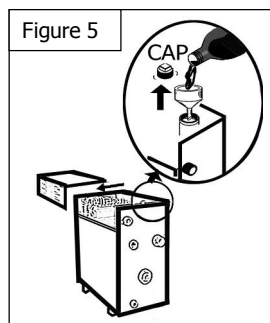
1. Decalcification

Tap water contains impurities, for example lime, that can cause calcium deposit and block the internal parts of the steam generator. To prevent this and prolong the lifetime of steam generator it is recommended to have a water filter and water softener. They are connected to the water source of steam generator's water inlet.

Follow these guidelines to perform preventative maintenance of steam generator.



- ①. Turn on the generator and press WARM button to switch on warmstart mode and wait until water inside generator tank starts to boil. Disconnect steam generator from main power supply before opening generator's cover. Only licensed electrician or professional maintenance person can open covers and do cleaning.
- ②. Use adjustable wrench to remove the tube cap of the scale remover inlet. Before opening, make sure that the generator is off. Cool down the angled tube with wet cloth if needed.
- ③. Pour the solution through tundish into the water tank. Do it slowly enough to prevent solution to splash into the generator.
- ④. Close the cap firmly and let the solution stay in the tank for 30 minutes. Do not switch the generator on.
- ⑤. Drain the water tank by activating the generator for 2 minutes. Press On button again manually to start auto drain.
- ⑥. Repeat the step 5 two more times.



Use Decalcifying Solution as follows:

Steam Generator (kW)	Decalcifying Solution (ml)
3 - 8	250
10-18	500

For steam generators in commercial use (over 5 hours continuously daily) additional service plan is recommended three times a year. Please contact your service center for details.

Frequency for decalcification:

Unit dH where 1 dH is 10 mg calcium in 1 liter of water

< 3^o dH = very soft water, decalcification every 500 operation hours

3-6^o dH = soft water, decalcification every 100 operation hours

6-9^o dH = hard water, decalcification every 50 operation hours

9-18^o dH = very hard water, decalcification every 30 operation hours

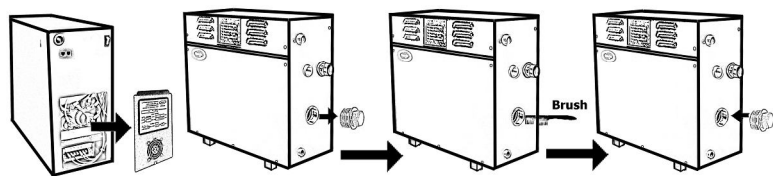
2. Level probes cleaning

Tips of WinSpa Water level probes are protected by a patented coating from scale attaching. For generator in commercial use (over 5 hours continuously daily), service plan is recommended minimum 4 times a year.

- Disconnect steam generator from main supply before opening generator's covers. Only licensed electrician or professional maintenance person can open covers and do cleaning.
- Use adjustable wrench to deattach 2 wires from level probes. Make sure that when connecting wires back, wires are connected to right probe.
- Use adjustable wrench to remove level probe. Clean tip of the pins from impurities using sandpaper and replace coatings on tip in every cleaning service! Don't damage plastic coating on pins. If coating is damaged, replace level sensor. Tighten level sensor by hands and use adjustable wrench only for final tightening.

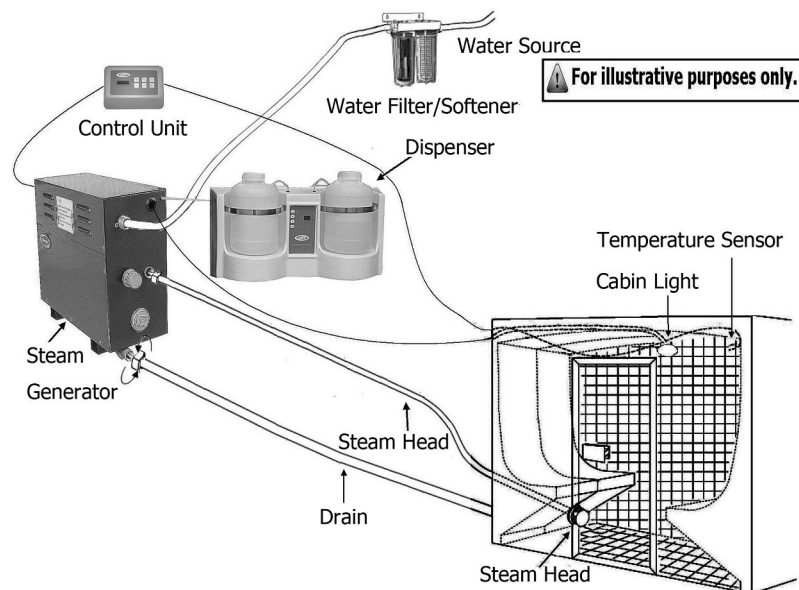
3. Tank cleaning

- Disconnect steam generator from main supply before opening generator's covers. Only licensed electrician or professional maintenance person can open covers and do cleaning.
- Open side cover of heating elements.
 - Disconnect heating elements and exhaust fan.
 - Remove heating elements and clean deposits from the elements.
- Open the scale outlet plug on side of generator using adjustable wrench.
 - Remove deposits from bottom and sides of the tank and wash away deposits. Don't use auto drain valve since big particles can block the valve.
 - Attach the plug and use Teflon pipe seal if needed.
 - Screws in the heating elements. Make sure that heating elements and exhaust fan are connected correctly. **Figure 6**



Assembly and Installation

- 1). Location of the steam generator has to be near the steam room. Place it within 7.5 meters to the steam room.
- 2). Steam generator has to be installed outside the steam room.
- 3). The steam generator must not be installed outdoors or areas that may damage the unit due to climate conditions.
- 4). Do not install the steam generator or plumbing lines in unheated attic or any locations where water could freeze.
- 5). The steam generator must not be installed in areas near flammable or corrosive materials or chemicals such as gasoline, paint thinners, chlorine or the like.
- 6). Provide a level surface to install steam generator. Side hole slots are provided for wall mounting. Make sure that the steam generator is secured and is level when mounted on the wall.
- 7). The steam generator has to be installed in an upright position only.
- 8). Install water filter and softener or alike when necessary.
- 9). Leave enough space for service and maintenance of the generator. **Figure 7**



Plumbing

All plumbing has to be installed by a licensed qualified plumber. Plumbing should be in accordance with national or local codes. Use unions for piping connections. Use only 12mm brass piping or copper tubing. Never use black or galvanized pipe for the plumbing as it can easily crack or damage.

Water Supply

Provide a shut off valve on the water source for the steam generator. Turn off the inlet water line before installing the unit. Recommended water pressure is 1 to 3 bar and maximum water pressure without water filter/softener is 4 bar. Water softener is recommend to use.

Steam Outlet

The steam must move in a continuous flow to the steam room. Do not install valves on the steam line. Use insulated, rated 120°C or higher, brass pipe or copper tubing for steam line to connect to the steam head as permitted by codes. Slope the steam line height by 20mm per meter towards the steam head to avoid trapping of the condensate and eliminate steam trap that blocks the flow of the steam. Never use bends wherever possible. But when necessary always install sweeping bends to allow easy flow of steam. For best operating results install a 20mm line and 2 steam outlets are required for generator up to 15kW, however, for generators up to 8kw a 12mm line will suffice.

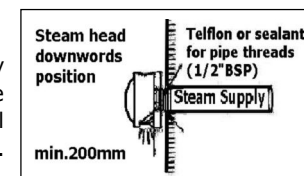
Pressure Relief Valve

The pressure relief valve activates when there is an overpressure in the steam line. It automatically opens and releases the pressure steam. When this happens, please check your steam line for servicing.

Steam Head

Figure 8

Install steam head in location to avoid body contact and scalding. The steam head must be installed with outlet facing down to floor. Seal thread using Teflon tape and do not over tighten.



Drain

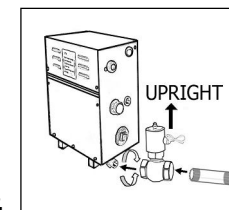
Drain valve is installed inside steam generators over 6.0kW, for generators below 6.0kW a drain valve is provide for maintenance. Set drain connection for your steam generator according to national or local plumbing requirements. Make sure the valve is installed upright. When connections are made always use two wrenches/spanners.

Attaching Autodrain

Figure 9

(for 3.0~ 6.0kw steam generator)

1. Attach the autodrain to the outlet. Make sure the valve is installed upright. Union is recommended when connecting pipeline .
2. Plug the wire into the plinth on circuit board of steam generator.



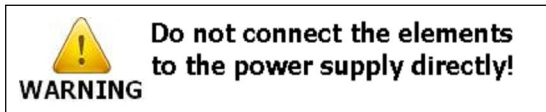
Power Wiring

Only a qualified electrician should do the Electrical wiring connections.

Check the power supply before installing your unit. Single Phase connection, a 220 – 240V supplied is required. Use two-wire supply source and equipment grounding wire for single phase connection. Check size of wires in Ampere Chart in accordance with the National Electrical Code and local electrical code.

The installation must include switch for all pole disconnection. Circuit breaker with 3mm control gap is recommended.

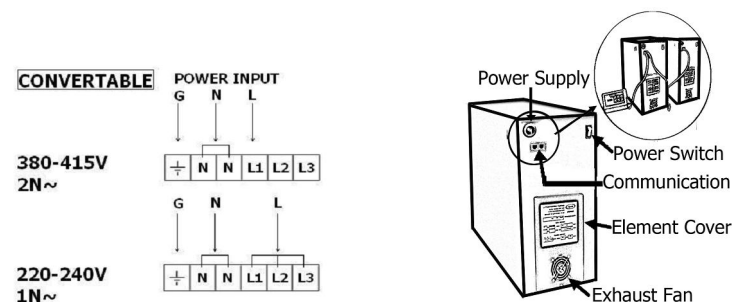
Technical Data



Model	kW	Steam Room Volume (m ³)	Voltage (V)	Current (A)	Phase	Wire Size mm ²	Size of Steam Room (mm)		
							Width	Depth	Height
WS 30	3.0	3 max	220-240 / 380-415	14 / 8	1N / 2N	4.0 / 2.5	430	170	360
WS 40	4.0	4 max	220-240 / 380-415	17 / 10	1N / 2N	4.0 / 2.5	430	170	360
WS 50	5.0	3-6	220-240 / 380-415	22 / 8	1N / 2N	4.0 / 2.5	430	170	360
WS 60	6.0	3-10	220-240 / 380-415	26 / 9	1N / 2N	6.0 / 2.5	430	170	360
WS 60	6.0	3-10	220-240 / 380-415	26 / 9	1N / 3N	6.0 / 2.5	480	200	420
WS 80	8.0	8-20	220-240 / 380-415	37 / 19	1N / 3N	8.0 / 4.0	480	200	420
WS 100	10.0	9-22	220-240 / 380-415	46 / 23	1N / 3N	10.0 / 6.0	480	200	420
WS 120	12.0	15-28	380-415	28	3N	6.0	480	200	420
WS 120	12.0	15-28	380-415	28	3N	6.0	480	250	420
WS 150	15.0	22-40	380-415	19	3N	4.0	480	250	420
WS 180	18.0	26-45	380-415	28	3N	336.0	480	250	420

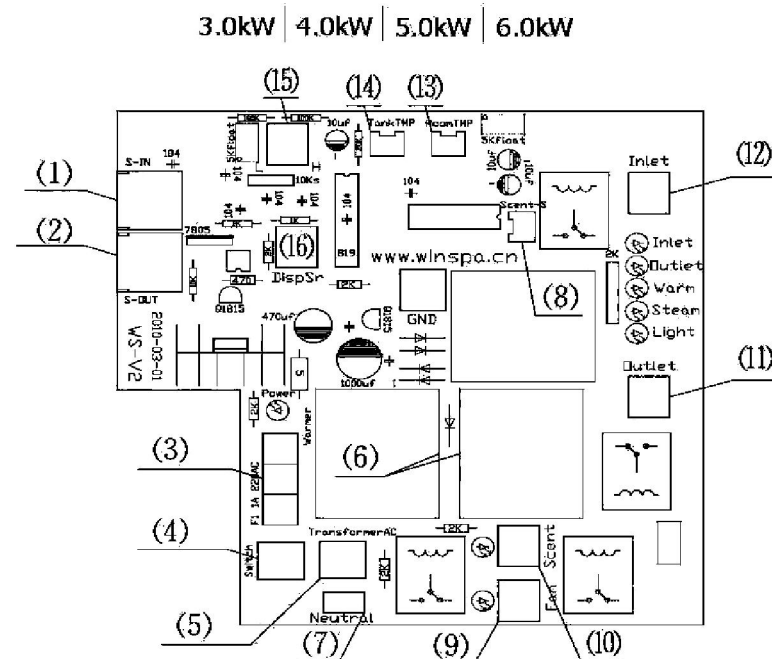
NOTE: This table is for steam rooms built in with light walls (tempered glass or acrylic). Steam rooms with thick walls or ventilation, please use higher kilowatt steam generators.

Electrical Diagrams (Figure 10)

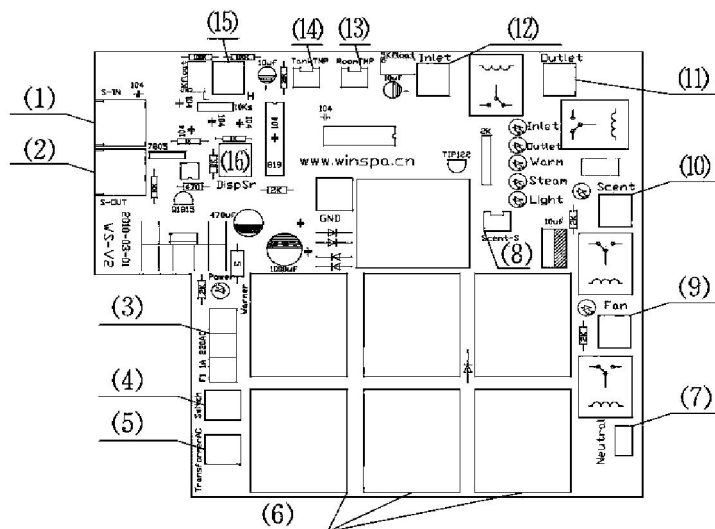


Circuit Card

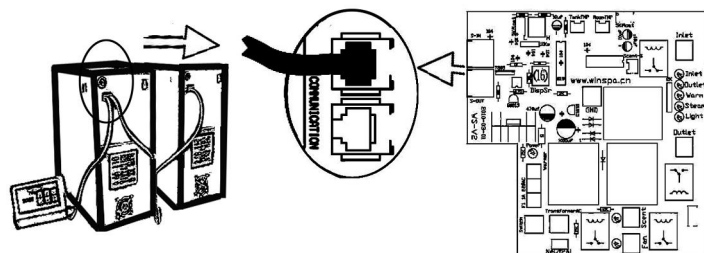
(1)=Communication; (2)=Communication adapter; (3)=Fuse; (4)=Main Switch; (5)=Transformer; (6)=Relays for heating elements; (7)=Neutral wire input; (8)=Level sensor for built-in Scent Pump; (9)=Steam Room Exhaust Fan; (10)=Interface for built-in Scent Pump; (11)=Drain; (12)=Solenoid Valve; (13)=Steam Room Temperature sensor; (14)=Tank Temperature sensor; (15)=Water Level Probes; (16)= Dispenser Unit Control



6.0kW | 8.0kW | 10.0kW | 12.0kW | 15.0kW | 18.0kW



Connection of WinSpa Control to the PCB (Figure 11):



Installing Control Unit

Mount the steam control unit on an accessible area outside the steam room. It is recommended not to place the steam control near to showers or similar wet places. Do not install the control unit inside the steam room! Never attempt to modify or to fix the steam control. Ask your licensed technician or your nearest dealer service center for repair. The control cable is recommended not longer than 30 meters. **Figure 12**



Installing the Temperature Sensor

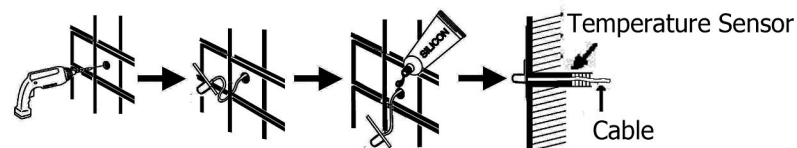
Before installation the generator must be switched off from main power supply.

The temperature sensor comes along with the WinSpa steam generator. It is recommended to use only WinSpa temperature sensor with WinSpa generator as it may otherwise not function correctly. Temperature sensor wiring should not be routed near power cables or hot areas as it may cause electronic interference or damage to the wires.

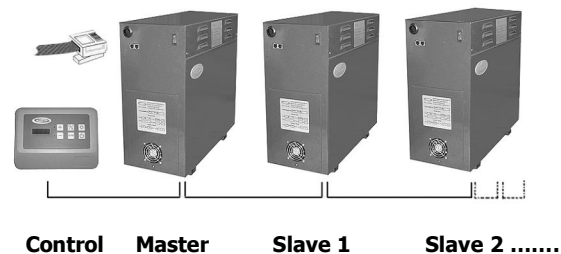
1. The temperature sensor has to be installed:
 - a. On a surface where there is no obstruction below it.
 - b. Height has to be 1.5-1.7 meters above the floor.
 - c. It should be away from the steam head so that the steam will not hit the sensor directly.

The sensor has an integrated 9-meter cable. If longer cable is needed, please consult your WinSpa technician.

2. A 4mm hole is required to insert the temperature sensor. Do not create bigger or smaller hole. Clean the hole before inserting the sensor.
3. Either make a hole in the cable lead-in on back of control unit to pull the cable through, or plug the cable into the plinth on PCB inside generator. See **figure 10**.
4. Pull the temperature sensor through the steam room wall. Do not apply staples or other material that may damage the cable.
5. Insert the temperature sensor into the steam room. Screw or glue the sensor to the wall
6. Apply silicone sealant on the hole in the wall to create a moisture seal. Make sure there is no trace of silicone on the sensor as it may interfere its reading. **Figure 13**



Steam Generator Series Connection (Figure 14)



NOTE! In the event of faulty operation occurs in any one of the slave units, a warning beep will alarm the user from the faulty generator, however the rest of the generators can operate normally.

Troubleshooting

If an error occurs, the steam generator should be switched off. There will be a warning beep sound to alarm the user every 2 seconds. There will be 3 different beep sounds. See below **Sound Identification**:

	: Power supply and self-test confirmation
	: Tank's temperature too high that elements might dry burn
	: Check solenoid valve
	: Check drain valve

IMPORTANT! only a qualified electrician or maintenance personnel are allowed to make the service operations and repairs!

Checking and Fault-finding

In the event of faulty operation, first check the following:

- Are the control panel and steam generator connected properly?
- Is the steam generator correctly installed in accordance with these instructions?
- Dose the drainage pipe slope down properly towards the waste outlet?
- Is the filter clogged? To clean the filter, disconnected the feed pipe, remove the filter and rinse it free from particles of calcium carbonate and other deposits.
- Are there any sharp bends in the steam pipe? (the minimum permitted radius of bends is 50mm,2")
- Does the construction and ventilation of the steam room comply with instructions?

Followings are for a **quick check**:

After generator is powered on, the display on control panel shows **-00-**.

Cause: The temperature sensor on water tank is loose connected.

Solution: Disconnect the power supply to steam generator, open the front cover of the generator. Tighten the spade connector on the tank using a cross screwdriver.

The display on control panel shows **99** and time alternatively:

Cause: The steamroom temperature sensor is loose connected to the control panel – or to the main circuit card (steamroom temperature sensor can be either connected to control panel or to the main circuit card inside the steam generator).

Solution: Disconnect it and plug it in again properly.

Cause: the steamroom temperature sensor is faulty.

Solution: Replace a temperature sensor.

Chicklist

Steam generator buzzes all the time

Causes	Solution
Tap water pressure is too low and/or the filter is clogged which cause unstable incoming water flow	Increase the water pressure or clean the filter
Solenoid valve for water supply has stuck or been defective.	Clean or replace the solenoid valve
Malfunction CPU of main circuit board is defective	Replace the faulty component
The water level probes are covered by excessive calcium carbonate deposits which may cause a too great high temperature in water tank and/or heating elements' dry burn.	Clean or replace the level probes
Drainage valve has stuck by calcium carbonate deposits or been defective	Clean or replace the drain valve

The steam room maintains the desired temperature (40-50°C, 105-122°F), but no steam is produced

Causes	Solution
Cause: Insufficient ventilation in the steam room	Increase ventilation. The ventilation is insufficient if less than 10-20 cubic meters (13-28 cub.yd) of air per person per hour is evacuated via the outlet vent.
Cause: The air coming into the steam room is too warm	Reduce the intake air temperature to 35°C (95°F)
Cause: The ambient temperature is higher than 35°C (95°F)	Ensure that the ambient temperature does not exceed 35°C (95°F)
Cause: The thermometer is faulty or wrongly placed.	The thermometer should be placed approximately 170cm (67") above floor level and as far away from the steam jet as possible.

Erratic steam production right from the start.

Causes	Solution
Cause: The steamroom thermostat sensor is wrongly placed in relation to the steam jet. See TEST 1.	Move the sensor or alter the direction of the steam jet.
Cause: Calcium carbonate or other foreign bodies in the filter.	Remove and clean the filter.

The steam room requires an abnormally long time to heat up

Causes	Solution
Cause: The generator is not powerful enough. See Table on Page 13	Replace the steam generator with one with a higher heat output.
Cause: Excessive ventilation in the steam room.	Reduce the ventilation to evacuate 10-20 cubic meters (13-26 cub.yd) of air per person per hour.
Cause: The ambient temperature is lower than 15°C (59°F)	Increase the ambient temperature or replace the steam generator with a more powerful one
Cause: Heating element is broken.	Replace heating elements.
Cause: The steamroom thermostat sensor is too close to the steam jet. See TEST 1.	Move the sensor or change the direction of the steam jet.

Neither steam nor heat is generated in the steam room

Causes	Solution
Cause: The control panel is incorrectly set	Check the time and temperature on the control panel
Cause: The water is not reaching the steam generator.	Open the tap connected to the piping to allow incoming water to flow into the steam generator.
Cause: The filter is clogged	Remove the filter which is placed in the connection for incoming water. Clean off any metal filings or other foreign bodies.
Cause: The solenoid valve for water supply has stuck or been defective.	Remove the solenoid valve and clean off any metal filings or other foreign bodies. Or replace a solenoid valve.
Cause: Excessive calcium carbonate deposits in the steam generator's water tank.	Clean the water tank by following steps of Tank Cleaning on page 10
Cause: Malfunction in the circuit board or control panel.	Replace the faulty component.
Cause: The steam generator is wired up for the wrong voltage	Check the voltage and the connection to the generator. See Figure 10 on page 14.

A continuous trickle of hot water from the steam generator's drainage pipe.

Causes	Solution
Cause: The drainage valve has stuck.	Disconnect the power supply to steam generator, remove the drainage valve and clean it. If the fault persists after cleaning, replace a drainage valve.

Hot water comes out of the steam head in spurts or in a slight, even flow mixed with steam.

Causes	Solution
Cause: Small water pocket along the steam pipe.	Eliminate the water pocket by sloping down the steam pipe to steam room.
Cause: The steam pipe is uninsulated along too Great a portion of its length.	Insulate the steam pipe.

Pressure Relief Valve opens is activated.

Causes	Solution
Cause: The steam pipe is blocked.	Remove the blockage.
Cause: The internal diameter of the steam pipe is considerably reduced.	Replace the pipe or the pipe joint which is causing the reduction; refer to Steam Outlet on page 12
Cause: Sharp bends along the steam pipe. See TEST 2.	Take out the sharp bends in the pipe. Bends are to be gently rounded (minimum radius 50mm, 2").
Cause: Large water pocket somewhere along the steam pipe. See TEST 2	Adjust the steam pipe to eliminate the water pocket.
Cause: Excessive calcium carbonate deposits in the steam generator's reservoir.	Clean the water tank. See Tank Cleaning on page 10

TEST 1

Temperature sensor test.

Soak a small towel in cold water. Hang the wet towel over the thermostat sensor. If, within 20 minutes, the steam generator has started to produce steam continuously, the equipment is not defective, but the thermostat sensor is located in an unsuitable position, or the thermostat itself is faulty. If steam production does not begin, use the checklist to find out the cause.

TEST 2

Steam pipe test if the pressure relief valve is activated.

Disconnect the steam pipe from steam generator. Start the generator and let it remain on for about 10 minutes. If the pressure relief valve is not activated during this test, there is a blockage along the steam pipe which is preventing the passage of steam. Take the necessary steps according to the information in the checklist.

Spare Parts Replacement Chart

Spare Parts#	Model	Series No.	Replacement Date
Main Circuit Card (PCB)	WS_____		____/____/____
Control Panel	WS_____		____/____/____
Water Level Probe	WS_____		____/____/____
Steamroom Temperature Sensor	WS_____		____/____/____
Heating Element	WS_____		____/____/____
Transformer	WS_____		____/____/____
Water Inlet Valve	WS_____		____/____/____
Drainage Valve	WS_____		____/____/____
Pressure Relief Valve	WS_____		____/____/____
Exhaust Fan	WS_____		____/____/____
Fragrance Feeding Pump	WS_____		____/____/____
Steamroom Exhaust Fan	WS_____		____/____/____
Others_____	WS_____		____/____/____



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