

**COMMERCIAL STEAM GENERATORS
INSTALLATION INSTRUCTIONS FOR SG SERIES
SG-9, SG-14, SG-18, SG-23, SG-27, SG-36**

1. STEAM GENERATOR LOCATION

The RELAX-A-MIST steam generator and its controls must be located in a dry environment preferably 3 feet above the floor. The steam generator is approximately a 3 foot cube and there should be a minimum clearance of 30 inches on each side, the back, the top and at the front. There should be no more than 25 feet of steam pipe per steam line between the generator and the steam nozzles. The steam generator must be accessible for service and maintenance. There must be a drain close by into which the steam generator can be drained on a daily basis. Preferably, the steam generator and its thermostat controls will be in a mechanical room adjacent to the steam room. Install the steam unit on the Relax-A-Mist metal stand (purchased separately) Ask dealer for details. The steam unit must be level. There are four 1/2" bolts holding the shipping boards to the bottom of the steam generator. The bolts are to be used for leveling purposes once the shipping boards have been removed.

Note: Do not install the steam generator on the shipping boards.

- 2. GENERAL** The commercial Relax-A-Mist steam generator is designed specifically to heat and steam areas for steam bath purposes. The controls are all supplied (built-in where feasible), including a digital 7 day, 24 hour time clock to start the steam operation in the morning and stop it at night. An automation option is built-in to allow the operation of remote switching to replace the time clock operation. The generator is designed to operate continuously, or intermittently, as heat and steam are required by the steam room thermostats. The steam room thermostats single temperature sensor is connected by a factory supplied 25 foot wire.

These thermostats control 2 steam room temperatures. One thermostat is LOW or standby temperature and the other is for HIGH or operating temperature. The low temperature cycle is activated by the time clock switching the steam unit on for its daily operation. The high temperature cycle is activated by an air switch button mounted on the factory supplied plate light assembly. Locate this button plate assembly inside or outside the steam room and close to the door. When a person wishes to steam bath, they push the button activating the steam cycle for 30 minutes and the light illuminating indicates the cycle has started. The button also turns the cycle and light off should a person end their steam bathing before the 30 minute cycle is completed.

There is a built-in drain/flush system that operates when either the time clock or the remote switch turns the steam operation off. At the start of the drain/flush operation, the flush valve introduces a burst of water to the interior of the steam generator to cool the boiling water. Then the automatic motorized drain valve opens followed by six separate 14 second flushes over a 20 minute period.

This is necessary as the only substance that leaves the generator during a steam operation is pure steam and all of the dissolved solids carried in with the water remain in the steam generator. During a 10 hour operational day, the dissolved solids from approximately 30 to 90 gallons of water (depending on the boiling tank size) are left in the approximate 2-1/2 gallons of water in the steam generator. If this residue is not drained on a daily basis, the resulting mineral buildup may hamper the steam unit operation and void the warranty.

Note: See "WATER SUPPLY" on page 2 and "CAUTION 6" on page 5.

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3. CONTROLS

All of the steam unit controls are a maximum 24 volts and are protected by 2amp. fuses located on the electronic circuit board. The circuit board and the terminals for connecting the external controls are located in the left (low voltage) side of the main electrical connection box. The circuit board controls:

- a. steam boiling tank water level.
- b. one of the boiling tank low water cutoffs.
- c. the main heating element relay contactors.
- d. the drain flush system.
- e. a timer for the HI TEMP operating temperature air switch button.
- f. use of either the time clock or remote switch.

The wiring connections will be described later.

4. WATER SUPPLY

The water supply connection to the steam generator must be according to local codes. The water supply line must be flushed to eliminate any construction debris prior to connecting to the steam generator.

SEE "CAUTION 9" on page 5.

Commercial Relax-A-Mist steam generators are equipped with two fresh water systems; one for the normal steam operation and one for the drain flush system. There are two 1/2" solenoid valves located on the back of the main electrical connection box on the steam generator (one for each system). These two valves each have a 1/2" copper pipe with a flared union stubbed out. They can be connected together so a single shutoff can be installed or each can have its own shutoff.

The "steam operation" water supply valve is connected to a 3/8" copper pipe which goes into the top of the boiling tank (left of center). The "drain flush" water supply valve is connected to a 1/2" copper pipe with a trap, which goes into the top center of the boiling tank, between the steam pipes.

If not already in the water system, a "water bumper" should be supplied and installed.

The water supply should be analyzed to determine the presence of any minerals and/or other impurities that could coat, corrode, or impede the operation of the Relax-A-Mist water boiling tank interior. If necessary, the water must be treated to offset any adverse condition which may arise, or the warranty may be null and void. See GENERAL on page 1 and "CAUTION 6" on page 5.

5 DRAIN VALVES, PIPING & FLUSH SYSTEM

There is a drain piping kit (with a union) that connects to the steam generator pipe marked "DRAIN". The two drain valves supplied with the commercial Relax-A-Mist are installed to/or on this piping kit.

- a. A 1" electric automatic drain valve that opens at the end of each day.
- b. A 3/4" manual drain valve (installed to loop the electric valve - see illustration of drain valve piping kit) for use when manual draining is desired.

The boiler is drained by gravity alone, so the drain system through the electric drain valve must not be less than 1". The drain piping kit discharge union should be piped directly to a floor drain, (leave an air gap between drain pipe and floor drain). The drain piping kit provides for the pressure relief loop connection. See the illustration on the Component Description page.

DRAIN VALVE ELECTRICAL CONNECTION

The drain valve is 24 Volts A.C., and is connected to the terminal strips in the left side of the electrical box on the steam unit:

- a - Connect terminal #1 on the valve to terminal #1 in the control box.
- b - Connect terminal #2 on the valve to terminal #2 in the control box.
- c - Connect terminal #4 on the valve to terminal #4 in the control box.

Note: See wiring diagram on the inside cover of the low voltage connection box.

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6. STEAM PIPING & STEAM NOZZLES

See "CAUTION 1, 2 & 5" on page 5. The steam nozzle piping should be roughed in 18" above the finished floor of the steam room. Steam nozzles must be located away from user pathways where the steam will not burn anyone sitting on a bench or where they would come in contact with the steam. Care must be taken to AVOID A STEAM TRAP.

Use each of the steam nozzles supplied, one per steam pipe. For maximum efficiency, all steam pipes must be:

- a. secured or suspended.
- b. of rigid copper.
- c. insulated.
- d. sloped so that no condensate will collect.
- e. installed by the most direct or shortest route using the fewest number of elbows, will in most cases, maintain a lower pressure, less than 1 lb. in the boiling tank, than will a longer route with many elbows).

There is to be no restriction in the steam pipes between the steam generator and the steam nozzles that would in any way cause pressure to build in the boiling tank. See "CAUTION 1, 2 & 3" on page 5. ALL condensate MUST be able to drain from ALL sections of the steam pipes at ALL times. Warning steam nozzle is Hot!

There are two copper steam lines with unions stubbed out of the top of the steam generator. On each of the two steam lines supply and install hard copper steam pipes (maximum 25 ft. per pipe) to a steam nozzle on each pipe. Each of the two steam pipes is to be terminated with a single steam nozzle sized to the steam pipe. See "CAUTIONS 2 & 3" on page 5. See "Figure 1" below for model, steam pipe and steam nozzle count and sizes. For other steam nozzle configuration consult with Relax-A-Mist 1-800-987-8326 or the warranty will be void.

Figure 1.

model no.	steam pipes steam heads	size inches
SG-9	2	3/4"
SG-14	2	3/4"
SG-18	2	1"
SG-23	2	1 - 1/4"
SG-27	2	1 - 1/4"
SG-36	2	1 - 1/2"

7. THERMOSTATS

The electronic thermostats supplied with the Relax-A-Mist are Johnson Controls models A350 HI TEMP (operating temperature), S350 LO TEMP (standby temperature) and D350 digital readout. When plugged together, these thermostats control 2 room temperatures with one sensor. The readout D-350 displays the room temperature or the set point, in real time.

During the room construction, there should be a 3/4 inch conduit (i.e. plastic) installed in the wall to facilitate the installation of the room temperature sensor. The conduit should enter the room so the sensor will be positioned 5 feet from the finished floor or at the shoulder height of a person sitting at the highest seating level.

The acrylic temperature sensor guard, supplied with the generator, must be installed in a vertical position to encourage the passage of air around the sensor. This makes it much easier to accurately monitor the room temperature. Mount the thermostat din rail and controls on a wall next to the steam generator where they can not be tampered with.

THERMOSTAT HOOKUP

The thermostats are to be electrically connected to the sensor and to the steam generator using #18 AWG LVT wire, or equivalent, as follows:

Note: Connect the A-350, the S-350 and the D-350 controls by plugging them together on the din rail provided. Then proceed with the wiring.

TEMPERATURE SENSOR TO CONTROL

- i. Identify the "SEN" and the "COM" terminals in the upper left side of the HI TEMP model A350 (left) thermostat control.
- ii. Connect one wire from the room temperature sensor to the "SEN" terminal.
- iii. Connect the 2nd wire from the room temperature sensor to the "COM" terminal.

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STEAM UNIT THERMOSTAT TERMINALS

- i. - Identify the HI TEMP and the LO TEMP terminals in the low voltage control side of the steam unit main electrical connection box.
- ii. -Connect the two HI TEMP terminals in the low voltage control box to the "COM" and "NO" terminals in the bottom of the A350 thermostat control.
- iii. -Connect the two LO TEMP terminals in the low voltage control box to the "COM" and "NO" terminals in the bottom of the S350 (right) thermostat control.

POWER SUPPLY TO A350 (LEFT) THERMOSTAT

- i - Identify the "Thermostat 24 Volt" terminals in the low voltage control side of the steam unit main electrical connection box.
- ii - Identify the "24V" and "COM" terminals in the upper left side of the HI TEMP model A350 thermostat. The COM terminal will already have one wire from the temperature sensor connected.
- iii - Connect the + (plus) terminal in the control box to the 24V thermostat terminal.
- iv - Connect the - (minus) terminal in the control box to the COM thermostat terminal together with the wire from the temperature sensor.

The thermostat temperatures have been pre-set at the factory. The HI TEMP at 115°F, and the LO TEMP at 90°F. The differential is preset at 1 degree.

8. AIR SWITCH

To facilitate the final installation of the air switch actuator button, indicator light, and mounting plate assembly, cut a diamond shaped hole (4 inches across the flats) in the wall at standard switch height, just outside or inside the steam room door. Install a conduit to give access to this 4 inch diamond shaped hole for installation of a 5/16 inch plastic air line hose and a #18 AWG 2 LVT wire for the indicator light.

When mounting the button and plate assembly to anchors in the wall, care must be taken to protect the wires attached to the back of the LED indicator light, as they can be damaged by careless handling. Care must also be taken not to kink the air line hose.

- i - Using the plastic tubing provided, connect

the sender button, (on the back) to the air switch nipple located on the outer upper side of the steam unit low voltage electrical box.

- ii - At the "Indicator Lamp" terminals in the steam unit low voltage control box, connect the orange wire to the + (plus) terminal and the white wire to the - (minus) terminal. The polarity must be correct for the LED indicator to operate.

Note: Silicone may be used to seal around the Air Switch assembly plate when mounting it to the wall.

9 ELECTRICAL SUPPLY Must be wired to comply with local code. See "CAUTION 7" on page 5. According to most electrical codes, a disconnect must be placed within easy reach or sight of the steam generator. NOTE: Use Copper Wire Only

The heater elements installed in the SG series Relax-A-Mist steam generators will be one of the combinations listed in Figure 2, depending on the combination that was ordered. Please check the product label on your Relax-A-Mist generator to ensure it is compatible with the electrical supply. Connect the supply wires to terminals L1, L2 and L3, (if provided) which are found in the right side of the main electrical connection box (see the wiring diagram in these instructions and on the inside of the electrical connection box cover.)

Note: The dash ---- lines denote field hookup.

10. PRESSURE RELIEF The boiling tank pressure relief is a 23 inch water column that must be piped to an open drain (through the drain piping kit). Fill the pressure relief loop with water when installing, before startup and insert it into the drain kit column. Install the pressure relief loop so there is an air gap at the drain column to avoid siphoning it dry. See "Component Description" diagram page.

11. OPTIONAL EQUIPMENT All Relax-A-Mist model SG steam generators are equipped to accept the installation of a metal stand, remote switching, a scent pump and a no steam switch, (all purchased separately).

Remote Switch A remote device, such as a building computer may control the daily operation. This switch must be capable of switching 3 Amps @ 24 Volts AC. See "CAUTION 8" on page 5.

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SCENT PUMP

A scent pump will automatically add a fragrance to the steam room during the high temperature bather cycle. The pump requires a separate 120 Volt 5 Amp electrical supply. The pump comes complete with all hardware for installation.

It is important that only pure essential oils be used with the Relax-A-Mist scent pump. Call 1-800-987-8326 for details. Note: the pump Warranty may be void if corrosive or alternate products are used.

NO STEAM SWITCH

For temporary shut down purposes, a no steam switch can interrupt steam from being produced. Some examples of when this may be required are: if the facility decides to have the steam room cleaned during the daily operation, should a steam patron require assistance in the steam room, or should the facility not have patrons present that day. Call 1-800-987-8326 for details.

Figure 2

Electrical specifications of the Relax-A-Mist steam generators are:

MODEL	SG-9	SG-14	SG-18	SG-23	SG-27	SG-36
WATTS	9,000	13,500	18,000	22,500	27,000	36,000
SINGLE PHASE VOLTS	240	240	240	240	-	-
	208	208	208	208	-	-
THREE PHASE VOLTS	208	208	208	208	208	208
	480	480	480	480	480	480
	575	575	575	575	575	575

CAUTION CAUTION CAUTION CAUTION

1. Do not interconnect or manifold steam pipes, reduce in size or cause a restriction.
2. Use only the steam nozzles supplied, **one steam nozzle per steam pipe**.
3. The steam pipe(s) must not be restricted to - the equivalent of less than the inside diameter of the steam nozzle(s). See Figure 1 for steam pipe and steam nozzle diameter.
4. Steam Nozzles must be located in an area where the steam will not discharge onto the users' pathways and the steam will not burn anyone. Note: A steam guard may be required.
5. **AVOID A STEAM TRAP.** All condensate **MUST** be able to drain from all sections of the steam pipe at all times.
6. Impure, mineralized, or other types of hard water that may hamper the operation of the steam generator may **VOID THE WARRANTY** if not treated properly.
7. Check the electric service voltage and phase requirements of your Relax-A-Mist steam generator to ensure your electrical supply is compatible. Use copper wire only.
8. A remote switch that is connected to the terminals in the low voltage side of the electrical control box must be capable of handling 3 Amps at 24 volts AC.
9. Flush 5 gallons of water through the water supply line to remove construction debris before completing the water connection to the steam generator.

WARRANTY POLICY

For a period of one year from the date of installation, or 18 months from date of manufacture, which ever comes first, all parts and assemblies are warranted as to workmanship and materials used in their manufacture. There is no cosmetic warranty on installed parts or controls. Any Relax-A-Mist TM products containing defective parts, if returned prepaid to an authorized Relax-A-Mist Service Depot within the one year or 18 months time limit, will be repaired free of charge, F.O.B. the authorized Service Depot making such repairs.

The Company will not be responsible for any breakdown, damage, or losses, direct or indirect, arising in contract or in tort from any cause whatsoever, including failure to read the Relax-A-Mist installation instructions specifically, careless handling, improper voltage supply, corrosion and/or electrolysis or a build-up of minerals on the parts or assemblies for any reason or from any source; nor for transportation and/or other charges incurred in the removal, replacement or repair of defective products or parts; and there are no warranties or conditions expressed or implied or otherwise applicable, to the company's products except as expressly stated herein.

FOR INFORMATION REGARDING WARRANTY OR INSTALLATION QUESTIONS PLEASE CALL 1-800-Y-U-STEAM

AUTHORIZED SERVICE DEPOTS

BRITISH COLUMBIA

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1392 Pembina Highway
Winnipeg, MB R3T 2C1

TEL 204-475-1506
FAX 204-287-2222

ALBERTA

FRASER-BOND LTD.
9452 Almond Crescent S.E.
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ONTARIO

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ALBERTA

ALWAYS PLUMBING LTD.
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For assistance phone Relax-A-Mist at 1-800-Y-U-STEAM (1-800-987-8326) or e-mail: steamman@relax-a-mist.com