10402 RODNEY ST / P.O. BOX 1066, PINEVILLE, NC 28134 ♦ PH: (704) 889-7281 FAX: (704) 889-7270

AMCO Digital Space Humidifier Installation & Operation

WARNING

It is the customer's responsibility to provide some means of security or monitoring of the system and its controls to guard against water or air leaks and/or system or controls failure that would result in the loss of, or damage to, persons or property.

AMCO Digital Space Humidifiers are available in 24 and 36 pounds-per-hour configurations. The 24 and 36 pounds-per-hour units can also be further customized to have all four nozzles facing forward (*in-row mount*) or to have all four nozzles evenly spaced around the top of the unit facing North, South, East and West (*conventional mount*). Your packing slip should designate which model you have received.

Installation:

The Digital Space Humidifier may be suspended from the ceiling or placed on a flat surface or mounted on a column.

Electrical Supply:

The unit is provided with a 115-VAC electric cord. This should be connected to a 115 VAC outlet with circuit breaker protection. (**NOTE**: the electric plug converts the 115 VAC supply to 24 VDC to operate the internal electrical components).

Consult your local, county and state laws for connection requirements.

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Air Supply:
24 and 36 Pounds-Per Hour Units

- Minimum 3/8" air supply line connected to the bulkhead tube connector on the bottom, right side of the box.

- The air supply is then set to 30 PSI by adjusting the regulator knob on the in side of the box

Water Supply:
24 and 36 Pounds-Per Hour Units

- Minimum 3/8" water supply line connected to the bulkhead tube connector on the bottom, right side of the box.

- The water supply is then set to 1 PSI by adjusting the regulator knob on the in side of the box

Operation:
Set the humidity controller to the desired setting. Once the desired humidity level is reached, the unit will turn off and stay idle until the humidity level falls below the desired setting. At this point, it will cycle on again and repeat the process, controlling the humidity level within the zone to the desired set point.

Dimensions & Weight:
24 and 36 Pounds-Per Hour Units

- 13 ¾" x 11¾" x 8" (*width, height and depth*)
- 25 Pounds (*dry*)

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USE AND CARE OF THE SILVERMIST ATOMIZERS

For getting the best from your SILVERMIST atomizers, we recommend the following:

The SILVERMIST is typically a gravity type atomizer, utilizing compressed air at 25-30 P.S.I. to aspirate water from 4 1/2" below the atomizer and deliver a very fine mist without spitting or dribbling, and keeping its superior performance longer, with less attention than any other type. It is also used in applications utilizing pressurized air and pressurized water. A brief look at the assembly drawing and the following description of its operation reveal why.

Operating air pressure entering the air connection (*7) strokes the piston (*12) to the adjusting screw (*16), and also discharges through the air orifice in the front cap (*1). The motion of the piston simultaneously withdraws the cleaning wire (*14) from the water jet in the jet plate (*2), and opens the water valve seat (*4). When the piston is stopped by the adjusting screw, the tapered portion of the cleaning wire is positioned in the metering orifice (*6) at the correct point for the calibrated delivery. Air pressure against the piston rises to operating pressure and airflow toward the piston stops. All operating air then discharges through the air orifice. Therefore, the amount of air carried contamination reaching the piston is greatly reduced, insuring long service without the piston seal (*13) fouling.

Air discharging from the air orifice creates a suction in the water jet. The amount of suction created here is one of two factors, which determine the moisture delivery capacity of the

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atomizer. The other factor is the position of the tapered section of the cleaning wire within the metering orifice, which is set with the adjusting screw during calibration. The amount of suction is strongly influenced by the relative positions of the front of the water jet and the face of the air orifice. For this reason, very close manufacturing tolerances are maintained on machined dimensions, which insure that maximum suction, is developed. If an accumulation of oil, dust, lime, and other foreign matter builds up on the face of the atomizer, the effect is reduced suction, and therefore, lower delivery of moisture. The single most important consideration for good operation is therefore, to KEEP THE FACE CLEAN. This is simply and easily done with the SILVERMIST merely by wiping off any accumulation of dirt. This should be done as often as necessary, which varies greatly with the amount of oil deposit from the compressed air.

Only after a prolonged period of operation will any disassembly of the SILVERMIST be required, the time being determined by the amount of contaminants in the compressed air supply and by the quality of the water used. Only experience with a particular installation will reveal the rate of accumulation of air carried contaminants or water scale.

To disassemble the SILVERMIST, first remove the front cap using the SILVERMIST Grip Wrench or similar tool, and remove any oil, grease or dirt from the front cap, the jet plate assembly, and front interior of the body by wiping with wet cloth or cloth wet with an approved safety solvent. At this point, the SILVERMIST may be reassembled and returned to operation without affecting calibration. If removal of the cleaning wire and piston is required for inspection and cleaning, first remove the front cap, jet plate and front spring. Then unscrew and remove the rear cap with the SILVERMIST Grip Wrench, and then remove the rear spring. The piston and cleaning wire may be removed by applying air pressure to the unit with the front cap

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and jet plate loosely in place, or by gripping the inside bore of the piston with the opened tip of long-nose pliers inserted into the inside of the piston. The seal plug may be unscrewed and removed with a 5/32" hex wrench. The lantern gland (*10) with wire seals (*9A and 9B) may then be removed. Clean any accumulation of oil and dirt with an approved safety solvent. Any accumulation of water scale may be removed by soaking the affected parts in an approved descaling solution. Wash thoroughly with water. Inspect the wire seals (*9A, 9B and 9C) and the piston seal (*13) for signs of age-hardening or cracking. Replace if necessary.

To reassemble the SILVERMIST, proceed as follows:

Apply a very light coating of silicone grease to the cylinder surface at the rear of the body. Apply a very light coating of the same grease to the wire seals (*9A and 9B), and to the threads of the seal plug (*11). Insert the rounded end of the seal guide pin through the rear of the seal plug, following in order with the wire seal (*9B), lantern gland (*10), and wire seal (*9A). Press the wire seals into the ends of the lantern gland. Now insert the guide pin with the parts so assembled into the rear of the body, and with the hex wrench, push the pin forward just enough to engage the wrench into the plug. Lightly tighten the plug, and withdraw the wrench while pushing the pin rearward about 1" and leave the pin in place. Make sure the piston seal is clean, properly in its groove, and lightly coated with silicone grease. Insert the piston into the rear of the body, being careful not to distort the piston seal, and push piston forward so that the guide pin projects rearward through the piston. Put wire seal (*9C) in place against the retainer at the back of the cleaning wire. Insert the tip of the cleaning wire into the hole in the rear of the guide pin, and move the two forward together, and remove the guide pin. Inspect the front of the cleaning wire to make sure that it has not picked up any grease or dirt from the hold in the guide

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pin, and that it has not been bent. Insert the rear spring in bore of piston and bottom on shoulder of retainer on rear end of cleaning wire. Place and tighten rear cap with adjusting screw on body, making sure that back end of spring centers in counter bore inside rear cap.

Be sure it seats cleanly against the bottom of the bore in the body, and then insert front spring. With jet seal (*3) and valve seat (*4) in place on the jet plate, insert the jet plate and attach and tighten front cap. Note that the front cap (*1) may be furnished with one of four air orifices, identified A, B, C, or D for 6, 9, 12 or 15 pound per hour moisture delivery respectively. The SILVERMIST with any front cap may be calibrated down from these deliveries to approximately 2 pounds per hour.

Using a flow meter, adjust the amount of water passing through the atomizer by turning the Adjusting Screw on the rear cap either clockwise or counterclockwise to increase or decrease the flow. Set it to the desired pound per hour setting. After calibration, the SILVERMIST may be returned to service.

One of the common problems with atomizers is lowering of delivery after a period of operation. This is most often due to the accumulation of dirt on the front face, which lowers suction. With the SILVERMIST, merely wipe it clean without removing it from service. Excess dirt on the front may also cause a coarse spray by lowering exit velocity or interfering with discharge.

A less frequent problem may be intermittent or rapidly interrupted delivery. This will result in a lowered delivery and frequently produce large droplets of water. This problem is

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almost entirely due to air entering the water before discharge from the atomizer, from any of several possible sources. Remember that the water section of the atomizer operates under negative pressure within the atomizer. Frequently, there may be a loose connection in the water head, on the clamp tee, or on the water tube connection, which is not enough to show up by water dripping, but enough to permit air to enter under negative pressure. The use of clear plastic water tubes allows easy detection of air bubbles. If the wire seals have become hardened, cracked, or excessively worn with age, air may enter here, and the seals should be replaced.

Periodic inspection of the water level in the gravity water tank, and adjustment of the float if necessary, should be done. Air pressure measurement with a reliable pressure gauge should be part of the routine inspection. Pressure variation of plus or minus 5 P.S.I. from the normal operating pressure will make very little difference in the amount of moisture delivered. However, if the pressure is allowed to fall under about 22 P.S.I., spray quality will be affected.

Frequent purging of the compressed air lines, either manually or with the Model D Automatic Drain Valve, will minimize problems from condensation carried contaminants. Condensate discharge with the air through the air orifice will produce large droplets.

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SILVERMIST Jet Assembly Part #s

No.	Part #	Description	
1	SMA-4	Front Cap A 6#	Not Available
1	SMA-5	Front Cap B 9#	Not Available
1	SMA-6	Front Cap C 12#	Not Available
1	SMA-7	Front Cap D 15#	Not Available
2	SMA-18	**Jet Assembly**	
3	SMA-24	**Jet Seal**	
4	SMA-8	**Valve Seat**	
5	SMA-16	Front Spring	Not Available
6	SMA-9	**Metering Orifice**	
7	SMA-10	**Air Screen**	
8	SMA-1	SilverMist Atomizer Body	Not Available
9	SMA-25	**Cleaning Wire Seal**	
10	SMA-11	Lantern Gland	Not Available
11	SMA-12	Seal Plug	Not Available
12	SMA-13	Piston	Not Available
13	SMA-26	**Piston Seal**	
14	SMA-19	Cleaning Wire	Not Available
15	SMA-17	Rear Spring	Not Available
16	SMA-14	Adjusting Screw	Not Available
17	SMA-15	Rear Cap	Not Available
18	SMA-21	Lock Nut; 1/4-28	Not Available
19	SHF-22	**Male Elbow**	
20	SMA-3	Air Boss	Not Available
**	SMACC-91	**Lubricant, Silicone; 5.3 oz**	

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