PURE Humidifier

READ AND SAVE THESE INSTRUCTIONS

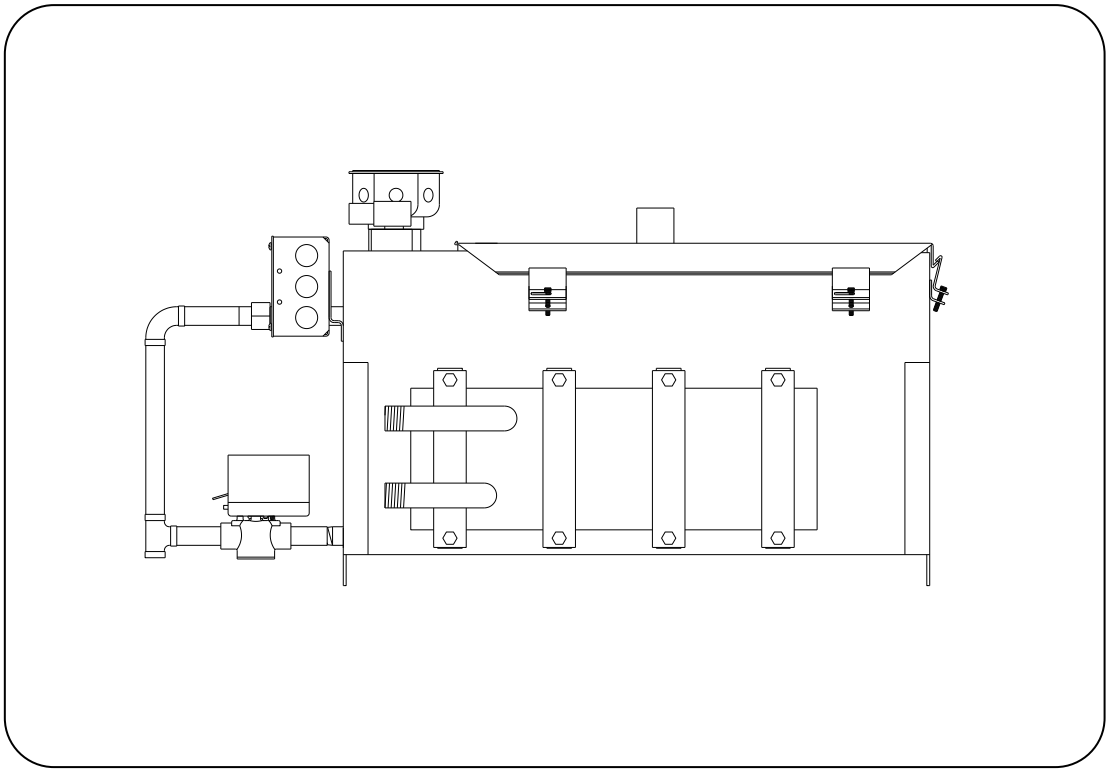
Standard Water

"SX" Series

Steam Heat Exchanger Humidifier

Installation Instructions

Operation and Maintenance Manual



Our results are comforting

Form No: SXOM-10-19

Introduction

To the user of PURE Humidifier Co.'s "SX" Humidifiers

We at PURE Humidifier Co. thank you for choosing one of our quality products. PURE Humidifier Co.'s "SX" Series humidifiers are models of simplicity to install, operate and maintain. However, they must be maintained to provide maximum operating efficiency.

PLEASE READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY. PROPER OPERATION AND HUMIDITY CONTROL IS POSSIBLE ONLY WITH PROPER INSTALLATION AND MAINTENANCE.

The "SX" Series Humidifier utilizes a Tri-Probe conductive type water control system for standard (hard or soft) tap water. Use of demineralized, deionized or reverse osmosis water will cause a failure of the water level control system and void the warranty.

PURE Humidifier Co.'s "SXDDR" Series should be installed on applications that require demineralized, deionized or reverse osmosis water.

High chloride content in feed water can cause chloride stress cracking and chloride pitting in stainless components. Chloride stress corrosion cracking (CSCC) and chloride pitting of stainless steel components is not covered by warranty. Do not use hydrochloric acid descalers or bleach to clean the tank. We offer an easy-to-use, non-toxic descaling solution to help keep your units clean and operating with maximum efficiency. Please contact your local PURE Humidifier representative for more information about our PURE Clean descaling solution.

To ensure proper installation of this product, it must be installed by qualified HVAC and electrical contractors, and must be in compliance with local, state, federal, and governing codes. If installed improperly this product may cause damage to property, severe personal injury, or death as a result of electric shock, burns, and/or fire.

Do not adjust any components inside humidifier control panel without consulting the factory.

Installation of humidifier in high humidity or salt water atmospheres will cause accelerated corrosion, resulting in a reduction of the normal lifespan of the unit.

For indoor use only unless supplied with an Outdoor Enclosure.

Table of Contents

The PURE Humidifier Co. Warranty

PURE Humidifier Co. guarantees its products to be free from defects in material and workmanship for a period of two years from the date of shipment; provided the product is properly installed, serviced, and put into the service for which it was intended.

PURE Humidifier Co. is obligated under the terms of this warranty to the repair or replacement of the defective part(s), excluding any labor charges, or to refund the purchase price at our option. PURE Humidifier Co. assumes no obligation for incidental or consequential damages. The above provisions are in lieu of all other guarantees, obligations, liabilities or warranties, expressed or implied.

Steam Supply Piping

The "SX" Series humidifier requires a steam supply source for the heat exchanger. The steam supply pressure should be at the rated pressure shown on the humidifier nameplate. ***WARNING: Do not exceed the steam pressure rating shown on the humidifier nameplate. Heat exchanger failure and bodily harm may result.***

The steam supply should be taken from the top of the steam main, and the steam main should be adequately trapped to assure dry steam is delivered to the humidifier.

The strainer (provided) should be installed prior to the humidifier control valve. The steam control valve should be connected to the TOP connection of the heat exchanger. The valve must be connected to the heat exchanger with unions to allow for exchanger removal. Reference illustrations on pages 3, 5 & 7.

Condensate Piping

The SX-1R thru SX-4R humidifiers have one 3/4"-IPS condensate drain piping connection, the SX-8R has two, and the SX-12R has three. The condensate trap (provided) should be piped to the BOTTOM connection on the heat exchanger. A drip leg should be installed prior to the condensate trap. Reference illustrations on pages 3, 5 & 7.

The condensate piping should be schedule 40 black piping, stainless steel, or as specified by the project engineer.

In order for the steam trap to remove condensate, it is essential that the pressure in the condensate return line be substantially below the steam supply pressure. In the event the return line is at a higher elevation than the steam trap, a condensate collection and pump system will be required (available from PURE Humidifier).

Capacities & Piping

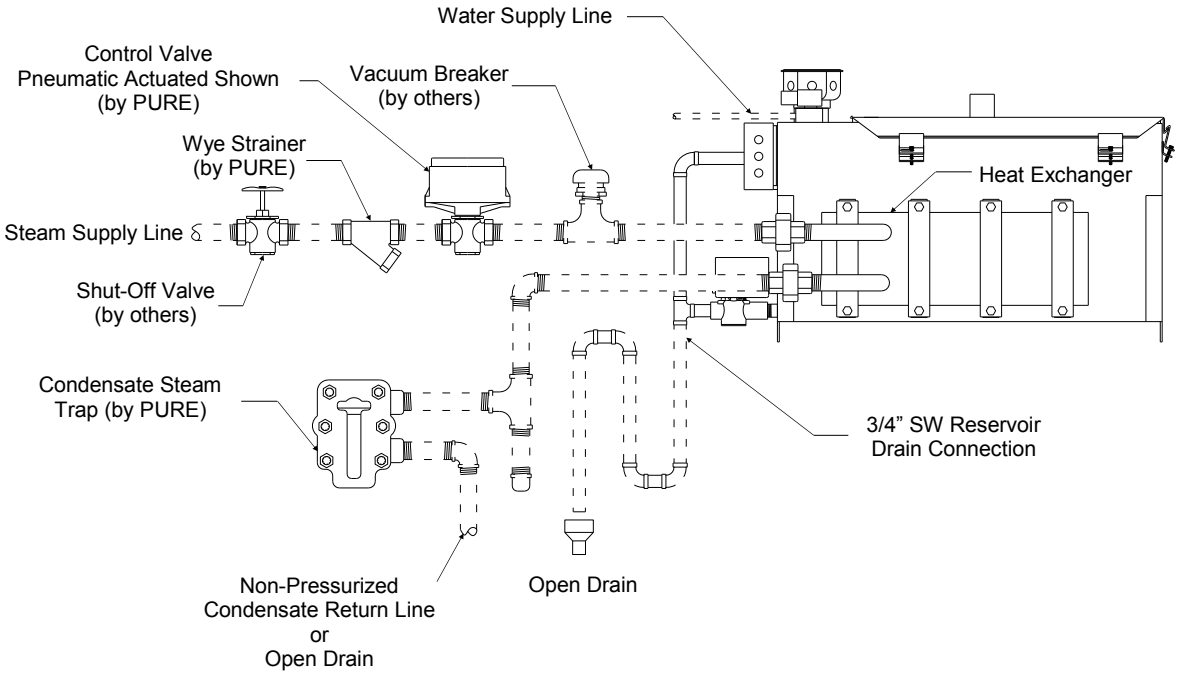
SX-1R thru SX-4R

Humidifier Capacity in pounds per hour (Kg/hr) †

Model Number	Steam Pressure in psig (Kpa) at the control valve			
	5 psig (34.5)	10 psig (69.0)	13 psig (89.6)	15 psig (103.4)
SX-1R	32.0 (14.5)	76.0 (34.5)	100.0 (45.3)	122.0 (55.3)
SX-2R	52.0 (23.6)	108.0 (48.9)	140.0 (63.5)	169.0 (76.7)
SX-3R	102.0 (46.3)	228.0 (103.4)	292.0 (132.5)	348.0 (157.8)
SX-4R	192.0 (87.1)	484.0 (219.5)	655.0 (297.1)	753.0 (341.7)

†Actual humidifier capacity may vary due to the heat loss from the humidifier reservoir. The ambient air temperature, air velocity and injection tube system will affect the rate of heat loss from the reservoir.

The capacities shown are based on a non-insulated humidifier reservoir tested in a 70°F environment.



PIPING NOTES:

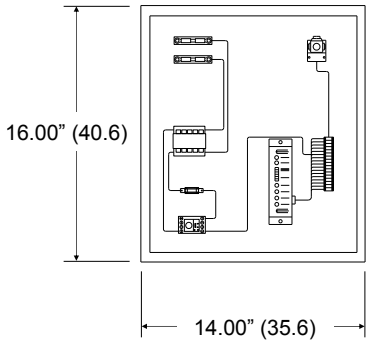
1. Do not install piping across the front of the heat exchanger.
2. Dashed line piping is by others.
3. Do not use PVC or plastic for any of the piping connections to the humidifier.
4. A shut-off valve must be installed in the steam supply line prior to the wye strainer (valve by others).
5. A vacuum breaker must be installed downstream of the humidifier control valve (by others).
6. Allow a minimum side clearance equal to the unit width dimension for removal of the heat exchanger (see page 4 for unit dimensions).

Dimensions, Weights & Layout

SX-1R thru SX-4R

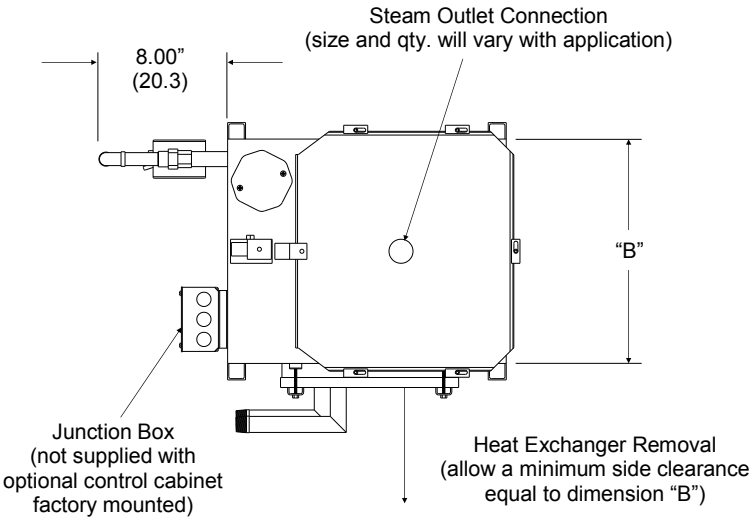
NEMA-12 Humidifier Control Cabinet

(reference control cabinet notes)

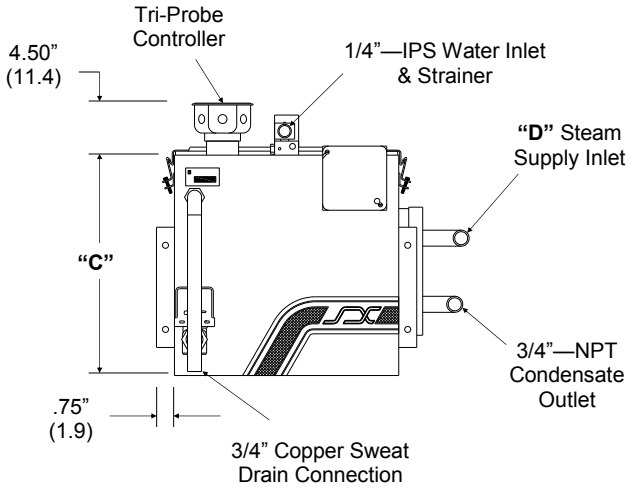


Cabinet Depth: 6.00" (15.2)

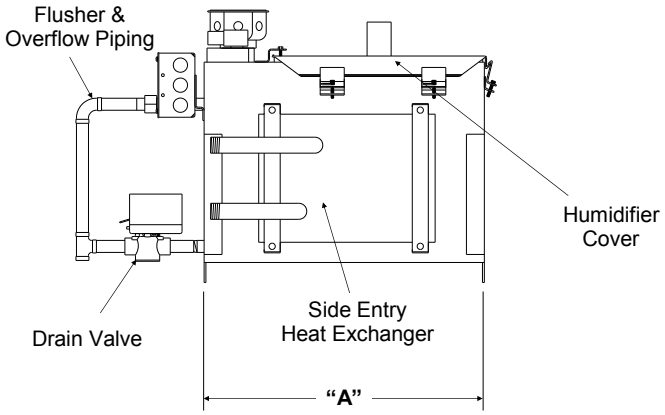
1) Door has been removed from the drawing for clarity
2) Control cabinet is shipped loose for field mounting unless optional factory mounting is specified
3) Control cabinet weight: 28 lbs (12.7 kg)



Top View



Front View



Right Side View

Unit Dimensions in Inches (cm) and Weight in Pounds (kg)*

Model Number	Dim. "A"	Dim. "B"	Dim. "C"	Dim. "D"	Shipping Weight (kg)	Operating Weight (kg)
SX-1R	17.50" (44.5)	14.00" (35.6)	13.75" (34.9)	3/4" (NPT)	62 lbs (28.2)	139 lbs (63.2)
SX-2R	25.50" (64.8)	14.00" (35.6)	13.75" (34.9)	3/4" (NPT)	85 lbs (38.6)	203 lbs (92.2)
SX-3R	34.00" (86.4)	18.25" (46.4)	13.75" (34.9)	1-1/2" (NPT)	139 lbs (63.1)	272 lbs (123.4)
SX-4R	54.00" (137.2)	27.50" (69.9)	13.75" (34.9)	2" (NPT)	269 lbs (122.1)	742 lbs (336.9)

*When calculating the total dry weight of the humidifier, the control cabinet weight must be added to the reservoir weight.
Due to product improvement, catalog dimensions and specifications are subject to change without notice.

Capacities and Piping

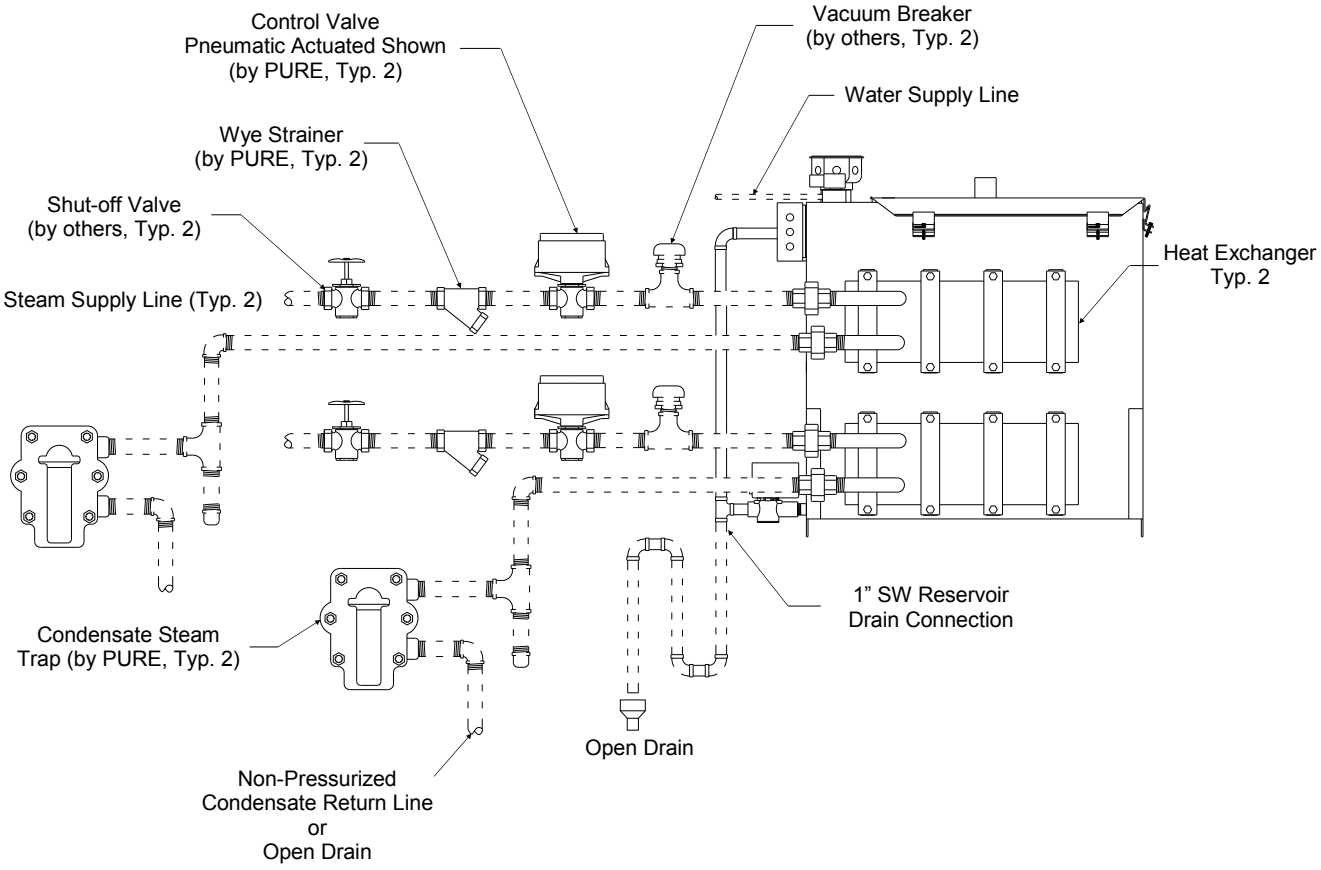
SX-8R

Humidifier Capacity in Pounds per Hour (kg/hr)†

Model Number	Steam Pressure in psig (Kpa) at the valve			
	5 psig (34.5)	10 psig (69.0)	13 psig (89.6)	15 psig (103.4)
SX-8R	370 (167.8)	840 (381.0)	1200 (544.3)	1350 (612.4)

† Actual humidifier capacity may vary due to the heat loss from the humidifier reservoir. The ambient air temperature, air velocity, and injection tube system will affect the rate of heat loss from the reservoir.

The capacities shown are based on a non-insulated humidifier reservoir tested in a 70°F environment.



PIPING NOTES:

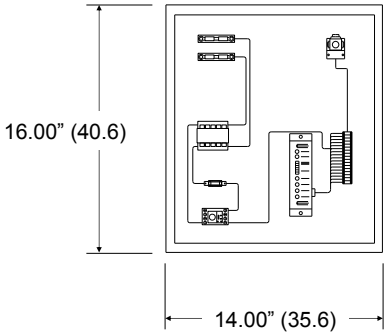
1. Do not install piping across the front of the heat exchanger.
2. Dashed line piping is by others.
3. Do not use PVC or plastic piping for any of the piping connections to the humidifier.
4. A shut-off valve must be installed in the steam supply line prior to the wye strainer (valve by others).
5. A vacuum breaker must be installed downstream of the humidifier control valve (by others).
6. Allow a minimum side clearance equal to the unit width dimension for removal of the heat exchanger (see page 6 for unit dimensions).

Dimensions, Weights & Layout

SX-8R

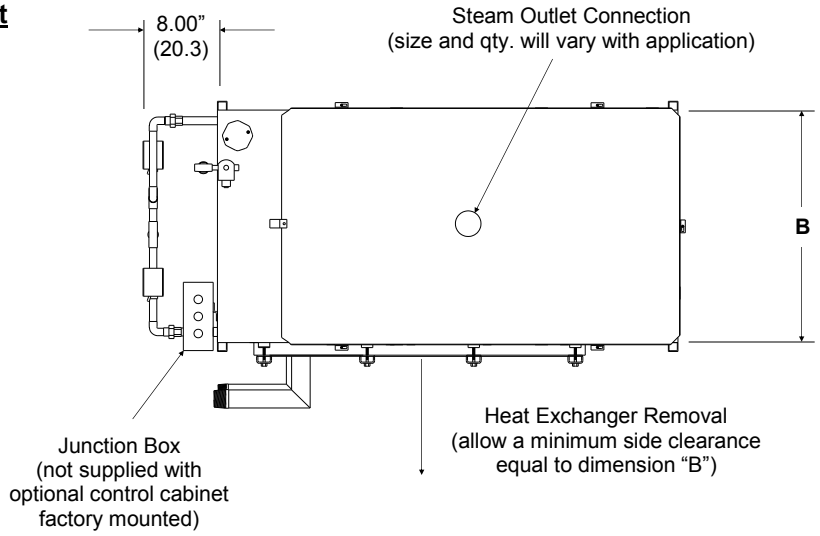
NEMA-12 Humidifier Control Cabinet

(reference control cabinet notes)

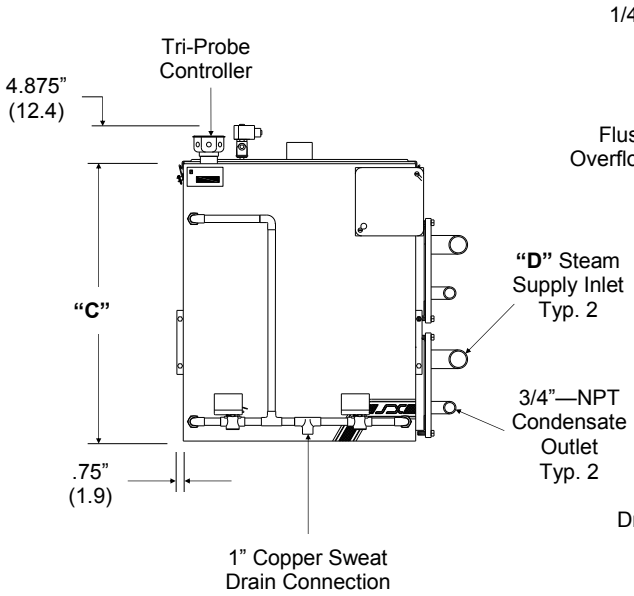


Cabinet Depth: 6.00" (15.2)

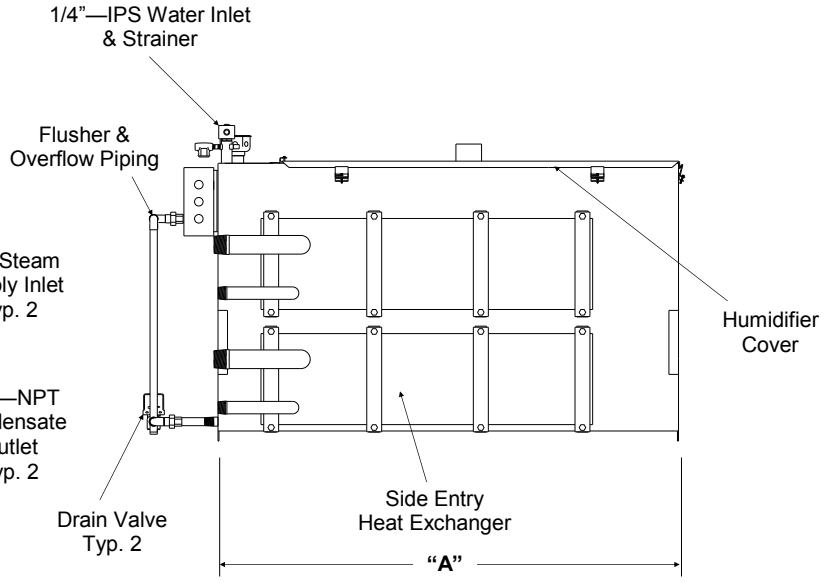
1) Door has been removed from the drawing for clarity
2) Control cabinet is shipped loose for field mounting unless optional factory mounting is specified
3) Control cabinet weight: 28 lbs (12.7 kg)



Top View



Front View



Right Side View

Unit Dimensions in Inches (cm) and Weight in lbs (kg)*

Model Number	Dim. "A"	Dim. "B"	Dim. "C"	Dim. "D"	Shipping Weight (kg)	Operating Weight (kg)
SX-8R	54" (137.2)	27.25" (69.2)	32.5" (82.6)	2" (NPT)	697 lbs (316.2)	1480 lbs (671.3)

*When calculating the total dry weight of the humidifier, the control cabinet weight must be added to the reservoir weight.
Due to product improvement, catalog dimensions and specifications are subject to change without notice.

Capacities and Piping

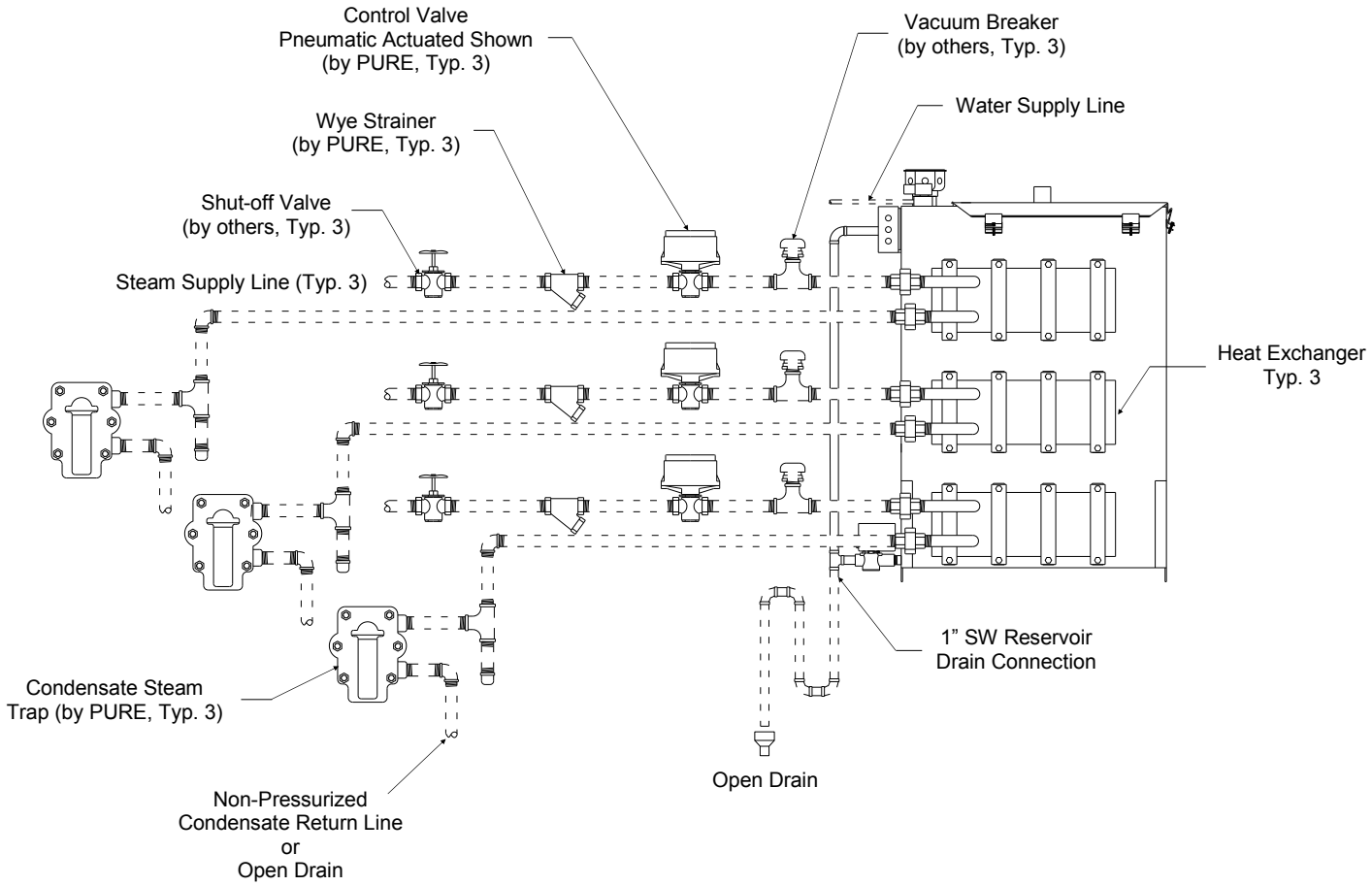
SX-12R

Humidifier Capacity in Pounds per Hour (kg/hr)†

Model Number	Steam Pressure in psig (Kpa) at the control valve			
	5 psig (34.5)	10 psig (69.0)	13 psig (89.6)	15 psig (103.4)
SX-12R	560(254.0)	1265 (573.8)	1810 (821.0)	2035 (923.1)

† Actual humidifier capacity may vary due to the heat loss from the humidifier reservoir. The ambient air temperature, air velocity, and injection tube system will affect the rate of heat loss from the reservoir.

The capacities shown are based on a non-insulated humidifier reservoir tested in a 70°F environment.



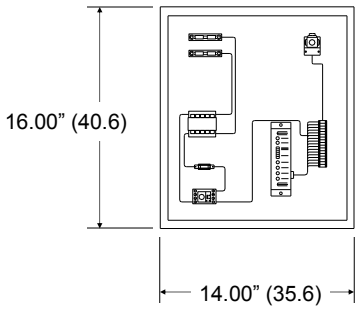
PIPING NOTES:

1. Do not install piping across the front of the heat exchanger.
2. Dashed line piping is by others.
3. Do not use PVC or plastic piping for any of the piping connections to the humidifier.
4. A shut-off valve must be installed in the steam supply line prior to the wye strainer (valve by others).
5. A vacuum breaker must be installed downstream of the humidifier control valve (by others).
6. Allow a minimum side clearance equal to the unit width dimension for removal of the heat exchanger (see page 8 for unit dimensions).

Dimensions, Weights & Layout

SX-12R

NEMA-12 Humidifier Control Cabinet
(reference control cabinet notes)



Cabinet Depth: 6.00" (15.2)

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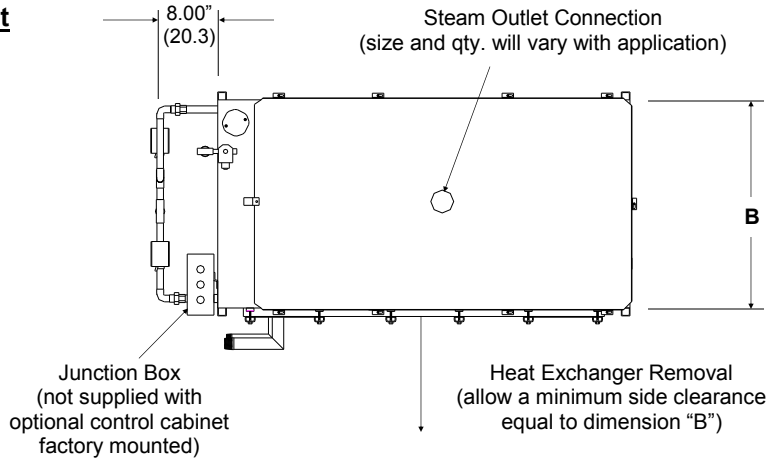
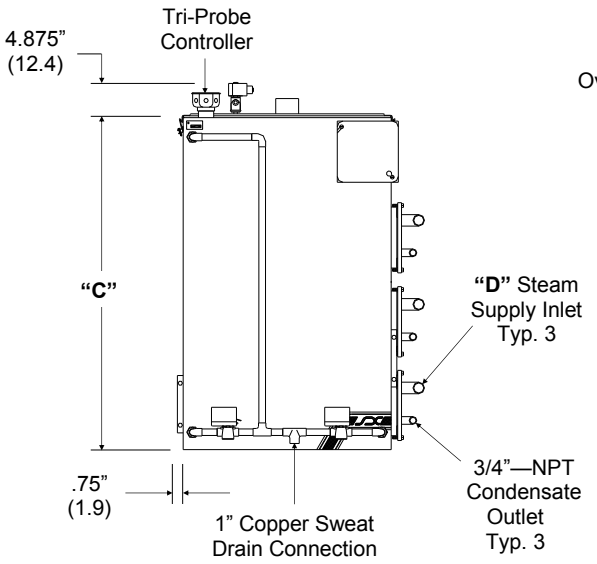
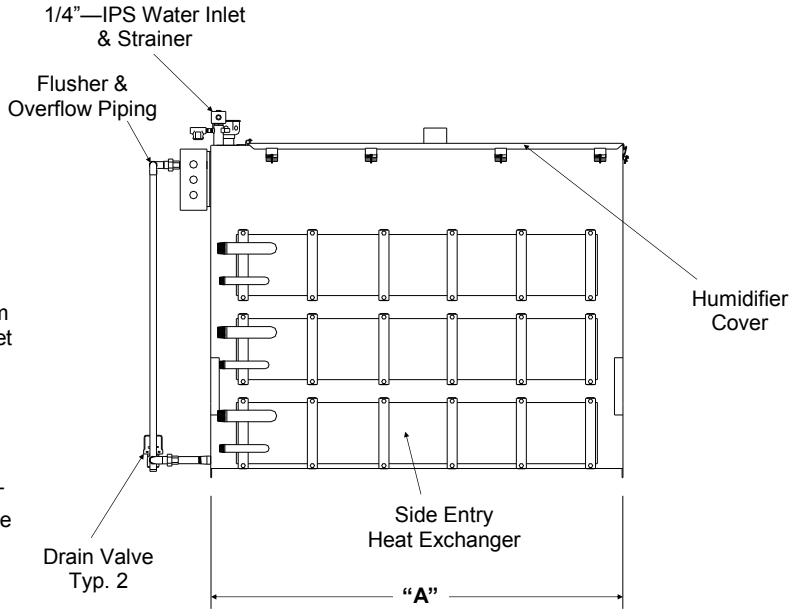
3) Control cabinet weight: 28 lbs (12.7 kg)



Top View



Front View



Right Side View

Unit Dimensions in Inches (cm) and Weight in Pounds (kg)*

Model Number	Dim. "A"	Dim. "B"	Dim. "C"	Dim. "D"	Shipping Weight (kg)	Operating Weight (kg)
SX-12R	54" (137.2)	27.25" (69.2)	43.5" (110.5)	2" (NPT)	845 lbs (383.3)	1628 lbs (738.4)

*When calculating the total dry weight of the humidifier, the control cabinet weight must be added to the reservoir weight.
Due to product improvement, catalog dimensions and specifications are subject to change without notice.

Location

The location selected must provide for electrical service, cold or hot water supply, and sanitary drain.

When selecting a location, try to keep the humidifier within 10 feet (305 cm) of the duct to avoid unnecessary heat losses and condensation within the steam supply line.

Visible "fog" will saturate and condense when it contacts objects such as turning vanes, filters, fans, elbows or take-offs. The warmer the air, the more easily it will dissipate the visible steam. The most active and warmest portion of the duct will provide better mixing of the steam and air. The injection tube should be mounted a minimum of 2 feet (61 cm) downstream from an elbow or other turbulent air flow area.

Avoid mounting single style injection tube(s) closer than 8-10 feet (244-305 cm) upstream of objects that could become saturated and condense the steam (reference the paragraph above). If the duct layout does not provide a straight unobstructed run of 8-10 feet (244-305 cm), a multiple injection tube system should be considered to reduce the visible steam travel distance.

For Fast-Pac and Insty-Pac multiple tube assemblies please consult factory for job specific non-wetting distances.

Reference Fast-Pac or Insty-Pac O&Ms for full installation details.

CAUTION: Do not humidify upstream of filters. Consult factory.

CAUTION: Smoke alarms should not be located downstream of injection tube assemblies.

Location of Controls

It is important to avoid mounting any controls within the visible steam. The controls should be mounted a minimum of 8-10 feet (244-305 cm) downstream from the humidifier injection tube. Due to the temperature rise that exists within the visible steam dissipation area, thermostats should not be mounted near the injection tube.

High-limit humidistats should be installed before any duct obstruction to make sure the humidifier is interrupted before saturation can occur on the object. The high-limit should be mounted a minimum of 8-10 feet (244-305 cm) downstream from the injection tube. Installing the high-limit closer than 8 feet (244 cm) from the humidifier may cause erratic control.

Mounting

The humidifier should be mounted dead level in both directions. PURE Humidifier Co. recommends that the humidifier be mounted using one of the following two methods (ref. page 10):

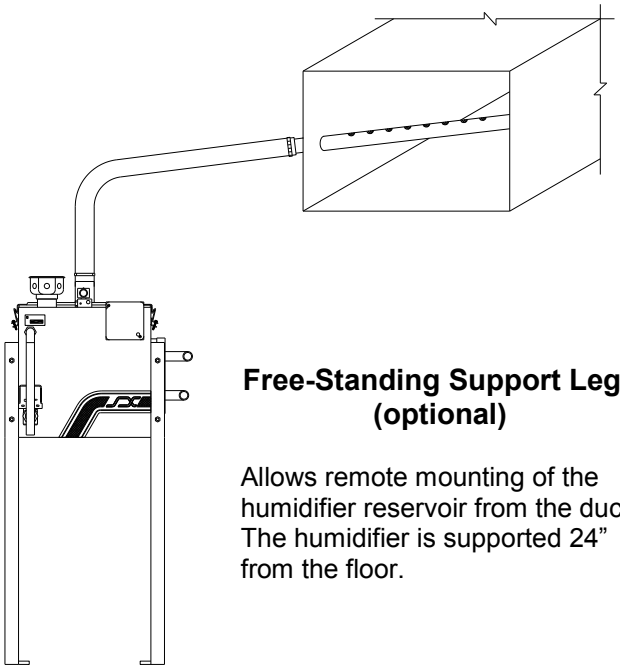
1. Mounted on the wall. PURE Humidifier Co. offers wall-mounting brackets as an option. The wall bracket installation sheet should be followed when installing the brackets. *Not recommended for SX-4R, 8R, or 12R humidifiers.*

2. Mounted off the floor with floor legs. PURE Humidifier Co. offers floor support legs as an option. The humidifier is mounted 24" (61 cm) up from the floor. Simple floor legs can be constructed from 1¼" x 1¼" x ¼" angle iron. The support legs should be secured to the humidifier side mounting holes.

Drain Pan Mounting

A drain pan is an additional safety feature which may be required to be supplied in the field. In a proper humidifier installation, a drain pan is not required. However, if the humidifier and injection tube are located in an area that contains valuable equipment or is a water sensitive area, PURE Humidifier Co. recommends the addition of a drain pan under the humidifier and under the injection tube. The drain pan should extend past all edges of the humidifier and if installed in the duct, it should extend a minimum of 3 feet (91 cm) downstream from the injection tube. The pan should be of a size which is sufficient to retain sudden drainage of the humidifier's contents. The pan should be drained to a sanitary drain.

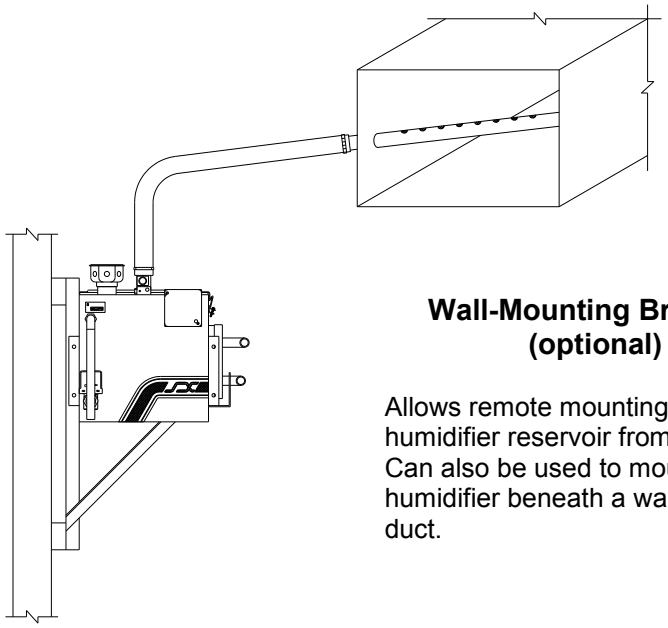
Mounting Applications



Free-Standing Support Legs (optional)

Allows remote mounting of the humidifier reservoir from the duct. The humidifier is supported 24" from the floor.

The "SX" Series Humidifier offers a wide variety of mounting applications. If the duct is remote from the humidifier reservoir, free-standing floor support legs or wall brackets (both optional) are available. The humidifier can even be mounted directly within an air handling unit (local codes may require moisture proof construction of certain components). Single or multiple injection tubes can be used to custom-fit any duct or air handler size.



Wall-Mounting Brackets (optional)

Allows remote mounting of the humidifier reservoir from the duct. Can also be used to mount the humidifier beneath a wall mounted duct.

Injection Tube and Flexible Hose

Installation

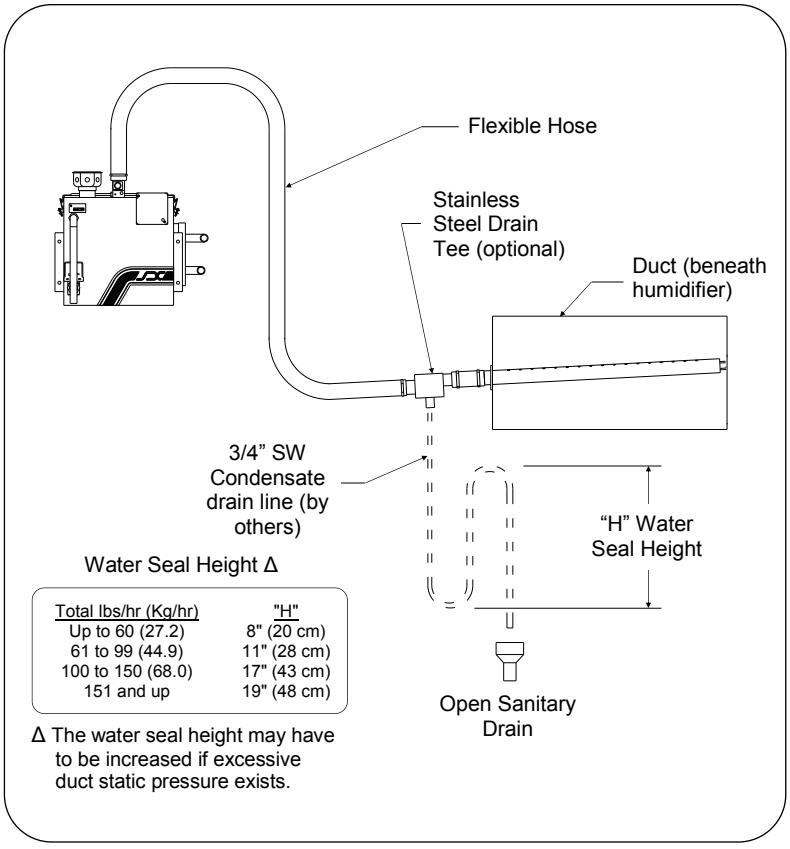
Injection tube shall be installed in the center of the duct. Multiple-tube hose kits should have the tubes staggered within the duct as shown in the illustration.

The hose and injection tube should be pitched back to the humidifier two inches (5 cm) per foot (31 cm). If proper pitch cannot be maintained, or the injection tube is mounted lower than the humidifier, a drain "tee" will be required (reference drain "tee" illustration).

Install the tube with the steam ports injecting steam up. NOTE: If narrow ducts (6" / 15 cm or less, in height) are utilized, install the tube with the steam ports injecting into the air flow.

The hose connects to the injection tube and humidifier with stainless steel hose clamps (by PURE Humidifier Co.).

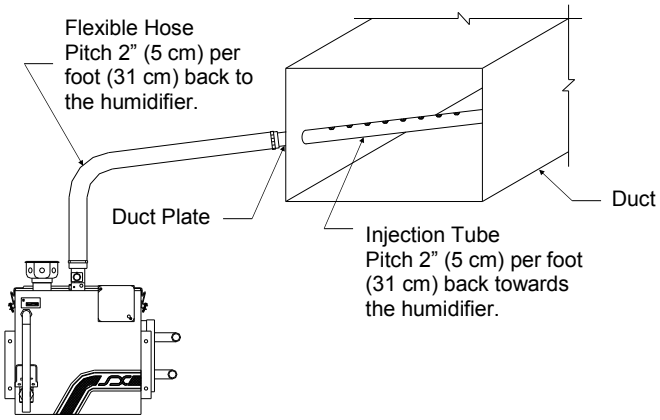
Galvanized steel duct plates are provided to seal the opening where the tube enters the duct.

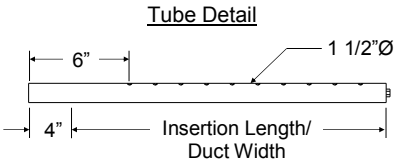


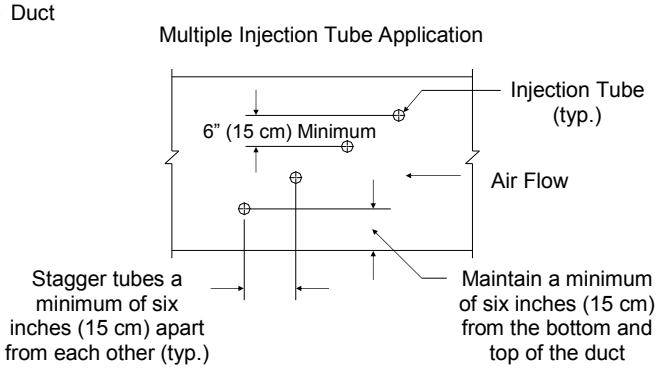
Water Seal Height Δ

Total lbs/hr (Kg/hr)	"H"
Up to 60 (27.2)	8" (20 cm)
61 to 99 (44.9)	11" (28 cm)
100 to 150 (68.0)	17" (43 cm)
151 and up	19" (48 cm)

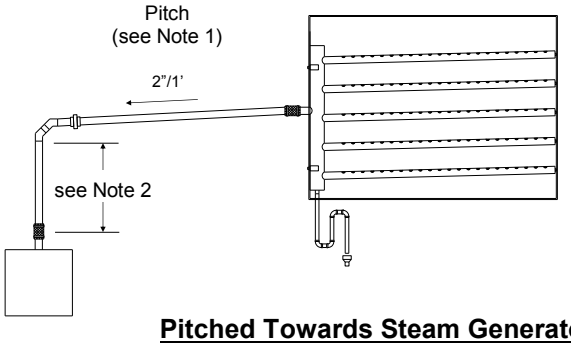
Δ The water seal height may have to be increased if excessive duct static pressure exists.



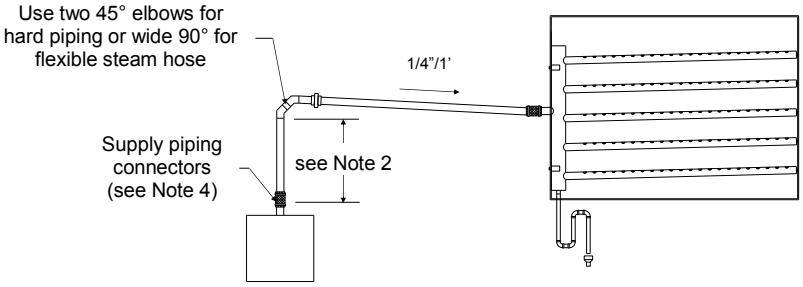




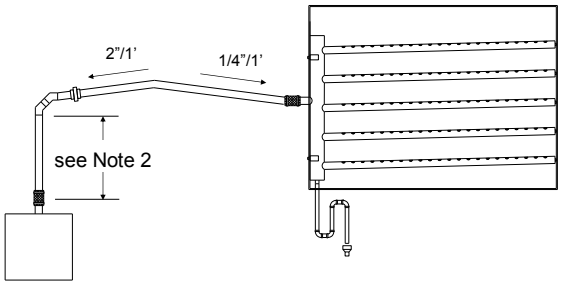
Steam Supply Piping Examples



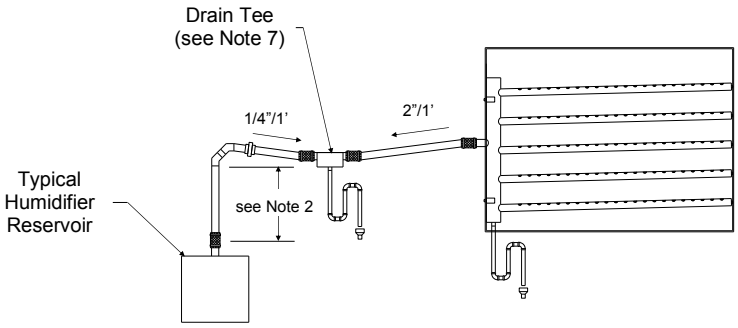
Pitched Towards Steam Generator



Pitched Towards Tube Assembly



Pitched Towards Steam Generator and Tube Assembly



Pitched Towards Drain Tee

Notes:

1. Pitch hard piping or flexible hose 2" per foot if steam is flowing uphill, 1/4" per foot if the steam is flowing downhill. Reference piping examples shown.
2. When feasible to do so, install a minimum one-foot riser from the top of the tank to reduce condensate carryover.
3. Use flex connectors or unions to allow for easy removal of cover.
4. Support flexible hose every 18" to avoid sagging.
5. Hard piping or flexible hose must match reservoir outlet size. Do not use supply piping with a smaller inside diameter than the reservoir outlet.
6. Failure to follow the piping recommendation on this page may result in blown water seals, leaking cover gasket, or dispersion tubes spitting.
7. Install a Drain Tee at any low spots in supply piping run where condensate will accumulate. **All horizontal to vertical up transitions require a water-sealed drip leg.**
8. Reference job specific tube assembly O&M included with your order for complete details.

Water Supply Piping

This style humidifier utilizes a Tri-Probe conductive-type water control system that is designed for use with standard (hard or softened) tap water. Use of demineralized, deionized, or reverse osmosis water will cause failure of the water level control system and void the humidifier warranty.

Cold or hot standard tap water can be supplied to the humidifier. A minimum water pressure of 35 psi (2.4 Bar) should be maintained to provide the proper water level within the humidifier. If the water pressure is above 95 psi (6.6 Bar), water hammer could occur and a pressure reducing valve or shock arrester should be used. The humidifier has a factory built-in 1.5" (4 cm) air gap between the water inlet and the overflow. Local codes should be checked to see if the addition of the vacuum breaking device is required.

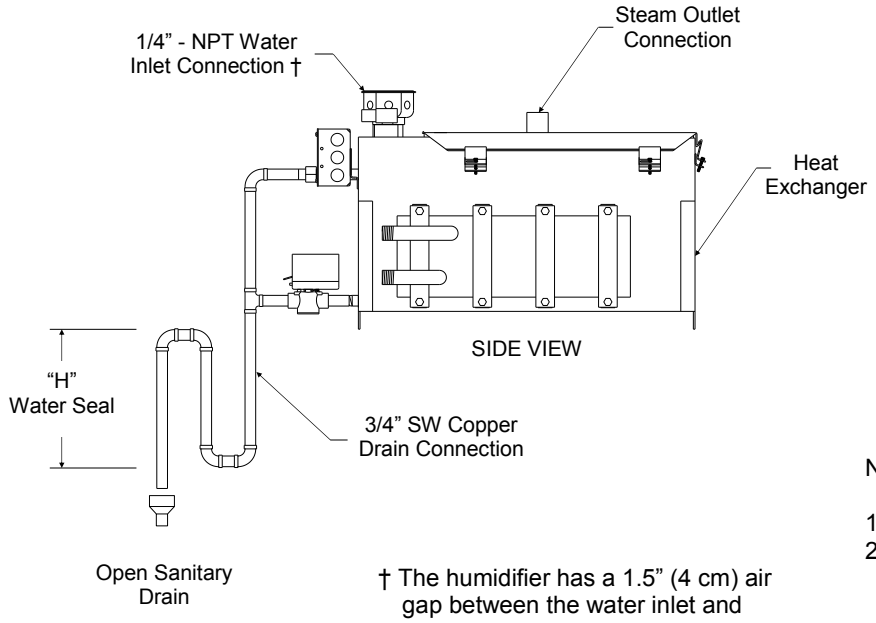
Drain Piping

The "SX" style humidifier requires one 3/4" SW copper drain piping connection. The drain line should be piped to a water seal as shown in the drain piping illustration.

A water seal (as shown in the piping illustration) should be installed to prevent steam from escaping through the drain line. The water seal should be of sufficient height to overcome the pressure developed in the humidifier (reference water seal height table) and the duct static pressure.

The drain piping should be copper or stainless steel. The use of PVC piping is not recommended; the humidifier temperature may cause the PVC to soften and fail.

If gravity drain is not possible please use a condensate pump rated for 212°F water or contact a PURE Humidifier Co. representative to purchase one.



Water Seal Height Δ

Total lbs/hr (Kg/hr)	"H"
Up to 60 (27.2)	8" (20 cm)
61 to 99 (44.9)	11" (28 cm)
100 to 150 (68.0)	17" (43 cm)
151 and up	19" (48 cm)

Δ The water seal height may have to be increased if excessive duct static pressure exists.

† The humidifier has a 1.5" (4 cm) air gap between the water inlet and humidifier water level. Consult the local code to determine if a vacuum breaking device is required.

NOTES

1. All drain piping is by others.
2. Drain and overflow piping are factory piped. One 3/4" SW copper drain connection is required.
3. Do NOT use PVC or other plastic piping that is not rated for 220°F or higher.

Pre-Startup Checklist

Before starting the "SX" PURE Humidifier Co. Steam Heat Exchanger Humidifier, check the following installation items:

_____ 1. MOUNTING - Verify that the humidifier evaporating chamber is securely supported and that the evaporating chamber is level in both directions. If humidifier is installed above equipment or not located near a floor drain than a drain pan should be installed below the humidifier steam generator.

_____ 2. INJECTION TUBE - Verify that the humidifier injection tube is mounted within the duct with the proper pitch back to the humidifier (2"/5 cm per foot / 31 cm). NOTE: If the humidifier evaporating chamber or the flexible hose (optional) is mounted higher than the injection tube, a drain "tee" is required to drain the condensate out of the injection tube steam line. If it is an Insty-Pac or Fast-Pac refer to the respective O&M to determine if they are mounted properly and have the proper p-trap size.

_____ 3. ELECTRICAL - Verify that all wiring connections have been connected in accordance with the wiring diagram. **CAUTION: Live power may exist in the control cabinet. Turn off the main power at the disconnect switch before verifying the electrical connections!**

_____ 4. SAFETY CONTROLS – The supply air duct RH high-limit should be installed at least 10 feet downstream from the humidifier tube(s). Any other control sensors should be at least 10 feet downstream from the humidifier tube(s). Smoke detectors should not be installed downstream of the humidifier tube(s). If a smoke detector absolutely has to be installed downstream from the humidifier tubes than it should be installed as far from the tubes as possible.

_____ 5. PIPING: Water Supply - Verify that all piping connections have been completed as recommended and that water pressure is available to the humidifier. Verify that the supply water pressure is 35-50 psi. There should be at least 5 ft of metal pipe and check valve between the tank and any plastic pipe.

_____ 6. PIPING: Drain - Make sure a water seal of the proper height (refer to steam generator O&M for height) is provided in the drain line.

_____ 7. PIPING: High Pressure Steam Inlet - Make sure a shut-off is installed before the strainer. Make sure a strainer is installed before control valve(s). Make sure vacuum breaker(s) and union(s) is/are installed between the control valve(s) and heat exchanger(s).

_____ 8. PIPING: High Pressure Steam condensate line - The condensate line should not be elevated but should run to a non-pressurized condensate pump receiver or through a drain cooler to an open drain.

_____ 9. PIPING: Steam Outlet - Refer to attachment for proper outlet steam piping from the generator to the tube(s). **Any horizontal to vertical transition in the outlet steam pipe requires a water sealed drip leg!** Improper outlet steam piping will cause steam to leak from the steam generator. Runs over 20 ft long may require upsizing of the steam pipe.

Signature:_____ Date:_____

Non-INTAC® Start-Up Procedure

Start-Up Procedure

_____ 1. Make sure the electric power is shut off to the humidifier. Set the toggle switch on the level controller into the "Standby" position (the level controller is the blue controller located within the humidifier control panel).

_____ 2. Close the humidifier motorized drain valve (located on the left side of the humidifier evaporating chamber faceplate). The valve has a manual opening lever so make sure it is not locked in the open position.

_____ 3. Turn the controlling humidistat to the lowest setting (no call for humidity)

_____ 4. Turn the power on to the humidifier control cabinet. The "Power" LED light on the level controller should be illuminated.

_____ 5. Switch the toggle switch on the level controller to the "Normal" position. Verify the drain toggle switch on the level controller is in the "Auto Drain" position.

_____ 6. Open the water supply isolation valve (by others) and allow the humidifier evaporating chamber to fill to the proper level.

_____ 7. After the humidifier is full of water the "Heat Ready" LED will illuminate.

_____ 8. Verify the low water safety circuit by closing the water supply isolation valve, opening the motorized drain valve by using the manual lever. As the humidifier tank is draining, the "Fill" LED should illuminate. Eventually the "Heat Ready" LED turns off. At this point verifying that the low voltage pilot relay within the control cabinet "pulls out" when the water level is dropped to the "low" region (you can hear the relay switch "out").

_____ 9. Close the drain valve, open the water supply valve, and allow the humidifier to fill to the proper level.

_____ 10. Make sure all the optional safety switches are satisfied (airflow proving switch, high-limit humidistat, etc.).

_____ 11. Turn the humidistat up to a "call" for humidity. The modulating steam control valve actuator should begin to open the valve and allow steam to enter the heat exchanger. NOTE: the valve actuator can be either pneumatic or electric modulating.

_____ 12. Condensate should begin passing through the steam trap.

_____ 13. Check operation of optional field-installed safety switches (air flow proving switch, high-limit humidistat, etc.) to make sure that they turn the power off to the low voltage pilot relay. The safety switches should shut off the humidifier steam control valve whenever one or more of the optional safety switches create an open circuit. The actuator should spring closed.

_____ 14. Check the main incoming supply steam pressure. The pressure should match the factory nameplate. A greater pressure than design will cause the steam generator to leak and may damage the heat exchanger. NOTE: Do not exceed the factory nameplate pressure rating! See warning label on the humidifier.

_____ 15. Inspect installation for leaks by operating humidifier at a full rolling boil. This may take up to 15 minutes from a cold start. Any leaks should be sealed. Just tightening a pressure clamp will not work if the gasket is not properly positioned between the sealing surfaces. If necessary remove the cover or side entry plate, reseat gasket and replace cover or side entry plate. A small amount of adhesive (super glue, gorilla glue, spray adhesive, etc.) to hold the gasket in place while repositioning the cover or side entry plate will aid in this process.

_____ 16. After the unit is producing steam, check and retighten all hose clamp connections in the system and make sure they are torqued to 35-40 in-lbs.

Signature:_____ Date:_____

INTAC® Start-Up Procedure

Start-Up Procedure

_____ 1. Make sure the electric power to the humidifier is shut off.

_____ 2. Close the humidifier motorized drain valve (located on the left side of the humidifier evaporating chamber faceplate). The valve has a manual opening lever so make sure it is not locked in the open position.

_____ 3. Turn the electric power "on" to the humidifier. The display on the INTAC® controller should illuminate "Normal Operation".

_____ 4. Set menu 101 "RH Setpoint" to the lowest setting (no call for humidity). If 100 menu shows "No Parameters Available" the procedure must be done through the Building Management System.

_____ 5. Open the water supply on/off control valve by others and allow the humidifier evaporating chamber to fill to the proper level.

_____ 6. After the humidifier is full of water, menu 004 will read "FULL".

_____ 7. Verify the low water safety circuit by closing the water supply, opening the drain valve and verifying that the low voltage pilot relay within the control cabinet de-energizes when the water level is dropped below the low water shut off switch (you can hear the relay switch "out"). Menu 004 should now read "LOW"; this indicates that the low water safety circuit is operational. The pilot relay opening should shut down the humidifier steam control valve actuator.

_____ 8. Close the drain valve, open the water supply valve, and allow the humidifier to fill to the proper level.

_____ 9. Make sure all the optional safety switches are satisfied (airflow proving switch, high-limit humidistat, etc.).

_____ 10. Turn menu 101 "RH Setpoint" up to a call for humidity or set the Building Management demand to 100%. The modulating steam control valve actuator should begin to open the valve and allow steam to enter the heat exchanger. NOTE: the valve actuator can be either pneumatic or electric modulating.

_____ 11. Condensate should begin passing through the condensate trap.

_____ 12. Check operation of optional field-installed safety switches (airflow proving switch, high-limit humidistat, etc.) to make sure that they turn the power off to the low voltage pilot relay. The safety switches should shut off the humidifier steam control valve whenever one or more of the optional safety switches create an open circuit. The actuator should spring closed.

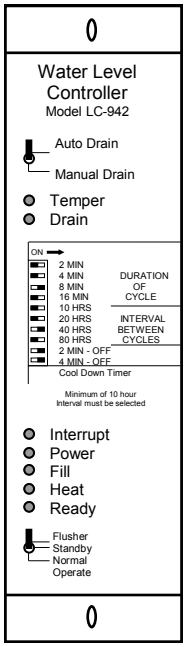
_____ 13. Check the main steam supply pressure. The pressure should match the factory nameplate. NOTE: Do not exceed the factory nameplate pressure rating! See warning label on the humidifier.

_____ 14. Inspect installation for leaks by operating humidifier at a full rolling boil. This may take up to 15 minutes from a cold start. Any leaks should be sealed. Just tightening a pressure clamp will not work if the gasket is not properly positioned between the sealing surfaces. If necessary remove the cover or side entry plate, reseat gasket and replace cover or side entry plate. A small amount of adhesive (super glue, gorilla glue, spray adhesive, etc.) to hold the gasket in place while repositioning the cover or side entry plate will aid in this process.

_____ 15. After the unit is producing steam, check and retighten all hose clamp connections in the system and make sure they are torqued to 35-40 in-lbs.

Signature:_____ Date:_____

LC-942 Water Level Controller



System Description

The LC-942 water level controller is a solid-state logic controller which controls the water level, fill, drain, and safety circuit interlocks for PURE Humidifier Co.'s "SX" Series Humidifiers. The LC-942 also includes an accumulative timer circuit to control the automatic drain cycle (optional) and the drain cooldown circuit.

Drain Circuit Operation

The LC-942 contains three timer circuits. The duration of the drain cycle is field-adjustable from 2 to 30 minutes in 2-minute intervals, and the interval between drain cycles is field adjustable between 10 hours and 150 hours in 10-hour intervals. Also, the amount of cold water tempering can be adjusted from 2 minutes to 6 minutes.

NOTE: A minimum of a 10 hour drain interval must be selected to

LED Indicators

Red "Interrupt": Turns on when the safety circuit is open
Green "Power": Is illuminated when 24 vac control circuit voltage exists
Yellow "Fill": Turns on when the unit is in a fill mode
Red "Heat Ready": Indicates that the water level is within the safe limits and the unit is ready to produce steam on demand from the controlling humidistat.

Field Adjustments

Auto / Manual Drain:
- When "Auto" is selected, the humidifier will automatically drain after the proper time has accumulated
- When in the "Man." mode, the drain valve is electrically opened and the humidifier steam control valve is closed.

Flusher / Standby / Normal Operate:
- "Flusher" mode automatically flushes the humidifier by energizing the fill valve; NOTE: the drain valve should be manually opened if this position is selected.
- "Standby" shuts down the humidifier control system; MAIN power still exists within the humidifier control panel.
- "Normal Operate" allows the humidifier to be automatically controlled by the humidifier control system; this is the operating position.

Drain Times:
- Reference "Drain Circuit Operation" description above

Cool-Down Timer:
- This feature allows cold water tempering of the humidifier water before the drain valve opens, assuring a safe drain water temperature. The amount time can be adjusted from 2 to 6 minutes

Specifications

Power Requirements: 24 vac-5 watts (provided by PURE Humidifier Co.)
5 amp. AC contact rating

Operation

A motor operated drain valve with a brass body is installed, and a cumulative timer is incorporated into the Tri-Probe water level control module. When the system is activated, the steam control valve is closed and the drain valve will open. The drain period is field-adjustable in 10-hour increments between 10 and 110 hours, with the drain duration adjustable in 2-minute increments from 2 to 30 minutes (see chart below for suggested settings). During the drain period, the humidifier chamber will drain completely and the fill valve will be energized to provide a thorough rinsing action. After the drain period is completed, the drain valve will close and the humidifier will refill and provide humidity on demand.

Recommended time and duration settings for various water conditions

Water Hardness Grains/Gallon	Hours of Humidifier Operating Time*
13-17	40
18-22	30
23-26	20
27-32	10

Humidifier Model No.	Drain Duration (Minutes)
SX-1R	6
SX-2R	12
SX-3R	22
SX-4R	30
SX-8R	30
SX-12R	30

* NOTE: Due to various water conditions, the above settings are recommended starting points only. Time settings may require field adjustment depending on the mineral buildup within the humidifier chamber.

The automatic drain valve can be manually opened by two methods:

1. Switch the drain toggle switch on the LC-942 level controller (located inside of the control cabinet) to the manual drain position
2. Place the manual override lever (located on the front side of the drain valve) into the manual position

CAUTION: The drain valve must be reset before the humidifier can produce any humidity.

NOTE: The LC-942 Water Level Controller is standard equipment on the SX series humidifier. If your humidifier is equipped with the optional *INTAC*® microprocessor controller please reference that product specific O&M for operation.

PURE Humidifier Co. "SX" Maintenance Instructions

The "SX" Series Humidifier is designed to provide the best possible operation with minimum maintenance. However, the humidifier should be inspected and placed on a dedicated maintenance schedule to ensure continued operation of the humidifier and its accessories. **PURE Humidifier Co. recommends that the following items be inspected and/or cleaned on a minimum basis of twice a year.** If excessive mineral buildup occurs, the maintenance schedule should be increased.

Inspect/Maintenance Item	**Procedure to Follow**
Water Fill Valve	Check to make sure the fill valve is operating properly. If the valve appears to continually fill, check the valve seat and seal (see Troubleshooting instructions).
Safety Interlocks (air flow, high-limit)	Check to make sure the safety interlocks (airflow, high-limit, etc.) will shut down the humidifier.
Heat Exchanger	Clean and inspect for any leaks. Completely remove all mineral buildup on the heat exchanger, transfer tubes, and headers.
Humidifier Cover/Tank	Inspect for any leaks. Repair as required. Remove the heat exchanger and remove mineral deposits from the floor of the humidifier reservoir. If excessive mineral buildup is found, the cover may need to be removed to facilitate complete cleaning of the humidifier.
Tri-Probe	Remove Tri-Probe assembly from humidifier (set-screw and o-ring seal) and inspect for excessive mineral buildup. Probe ends should be cleaned and the probe assembly re-installed.
Drain Valve & Drain Piping	The drain valve seat and seal should be inspected and cleaned as required. The drain line and water seal should be inspected and cleaned to ensure free flow of the overflow and drain line.
Flexible Hose	Inspect for cracks or leaks. It is normal for the hose to become hard and develop a "set".

Cleaning Instructions

Hard Makeup Water
If utilizing hard makeup water, humidifier tanks will likely need to be cleaned manually. This can be done from the side entry plate or cover. Remove all loose solids from tank and/or exchanger with a wet vacuum or putty knife and bucket. After removal of solids, replace the side entry plate/cover. At this point you may wish to add a descaling solution. Contact your local representative for our easy to use, non-toxic PURE Clean descaling solution.

Softened Makeup Water
If utilizing softened makeup water, help eliminate buildup in the tank simply by adding a descaling solution. Contact your local representative for our easy to use, non-toxic PURE Clean descaling solution.

DO NOT use Hydrochloric acid-based descalers; this will corrode stainless steel.

Exchanger Gasket Replacement Instructions

WARNING
Disconnect the humidifier power and allow the unit to cool prior to servicing. Drain water level below the level of the exchanger being serviced.

- Loosen the exchanger cover clamp screws with a 7/16" socket wrench until the locknuts can be slid out from the mounting clamps. Repeat this step for all clamps. Remove exchanger.

- Remove the old gasket and adhesive left of the heat exchanger. Make sure this surface is clean, dry, and free of oil, grease or water. Turpentine may be used to clean the surface areas.

- Spray contact adhesive such as 3M product Super 77 on one side of the new gasket and on the exchanger surface where the gasket is to be applied. Allow both surfaces to dry a minimum of one minute or until the surfaces become tacky to assure proper bonding.

- Square one end of the new gasket on one end of the exchanger and set by applying light to moderate pressure to the gasket. Square the other end of the gasket on the other end of the exchanger. It is common for the gasket to appear too long. Now slowly start setting the gasket from the ends towards the middle of the exchanger. A slight compression of the gasket will occur ensuring proper fit on the ends.

- Apply moderate to heavy pressure on the newly installed gasket all the way around ensuring proper fit. A properly installed gasket will lay flat with no raised areas.

- Reinstall the heat exchanger into the humidifier.

- Loosely install all of the exchanger cover clamps.

- Using a 7/16" torque wrench set at 60 inch-pounds tighten all clamp screws.

- In a reverse manner, reconnect all electrical connections. Fill humidifier with water and check for leaks.

- Observe for leaks and tighten slightly if a leak area is found. DO NOT EXCEED 80 inch-pounds.

Cover Gasket Replacement Instructions

Remove the reservoir cover. While looking at the top of the unit, reference Figure A and B to determine which humidifier tank style you have.

Figure A Installation

Fit the gasket around the entire lip of the tank opening. Cut the gasket 1/8" longer than required, this will ensure proper fit when the cover is clamped back on. Slide the gasket onto lip of tank around the entire perimeter, and seal the ends together with a small amount of silicone.

Figure B Installation

Fit the gasket around the entire lip of the tank opening. Cut the gasket 1/8" longer than required, this will ensure proper fit when the cover is clamped back on. Slide the gasket onto lip of tank around the entire perimeter. Notch only the bottom flap of the gasket (reference Fig. C) in the corners of the tank. Seal the ends together with a small amount of silicone.

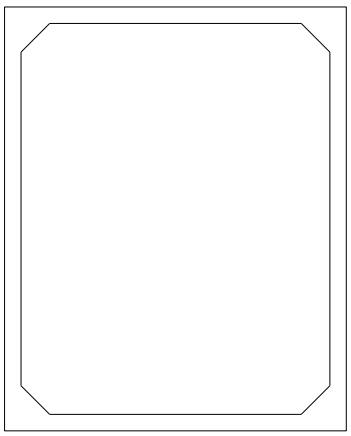


Fig. A
Plan View of Humidifier

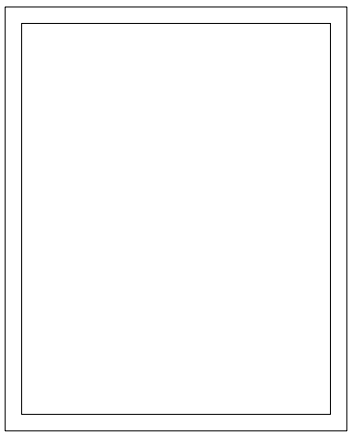
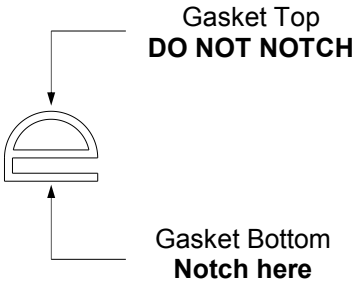
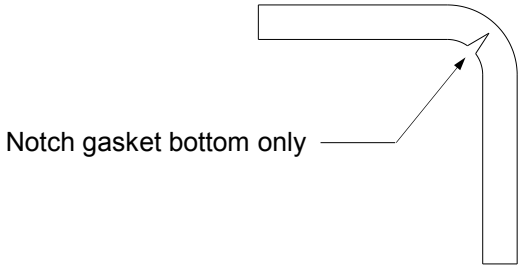


Fig. B
Plan View of Humidifier



Section View of Gasket



Bottom View of Gasket

Fig. C

Problem	Possible Cause	Recommended Action
Humidifier will not heat	Blown main power fuse(s)	Check and replace.
	Control transformer not producing 24 vac control voltage	Check transformer output. Verify voltage across terminals #6 (comm.) and #7 (hot).
	Safety controls open (airflow proving, high-limit, etc.)	Verify that all safety controls are completing the safety circuit.
	Faulty valve actuator	Check and verify actuator voltage or pneumatic signal. Compare to diagram or nameplate label ratings.
	Faulty humidistat	Verify humidistat electric or pneumatic signal. Compare to diagram or nameplate label ratings.
	Steam trap malfunction	Check and verify that the trap is passing condensate.
Humidifier will not fill	Main steam supply	Check and verify that the main steam supply valves are open and that the steam pressure is at the rated pressure.
	No water pressure	Check water supply.
	Drain valve open	Close drain ball valve. If auto-drain system is utilized, verify that the manual drain lever on the front of the drain valve is closed.
	No power to fill valve	Check for 24 vac across terminals #6 (comm.) and #5 (hot). If no voltage, check for dirt under valve seat.
Humidifier does not stop filling or is short cycling	Fill valve stuck open	Close drain ball valve. If auto-drain system is utilized, verify that the manual drain lever on the back of drain valve is closed.
	Probes need cleaning	Remove Tri-Probe assembly and clean probe ends.
	Check probe wiring on terminals #1 thru #4	Make sure Tri-Probe wiring is run in separate conduit from power wiring.
	Incorrect panel to tank ground	Make sure terminal #4 (ground) is a dedicated ground wire (conduit is not sufficient).
	Line noise or radio frequency	Shielded cable may be necessary.

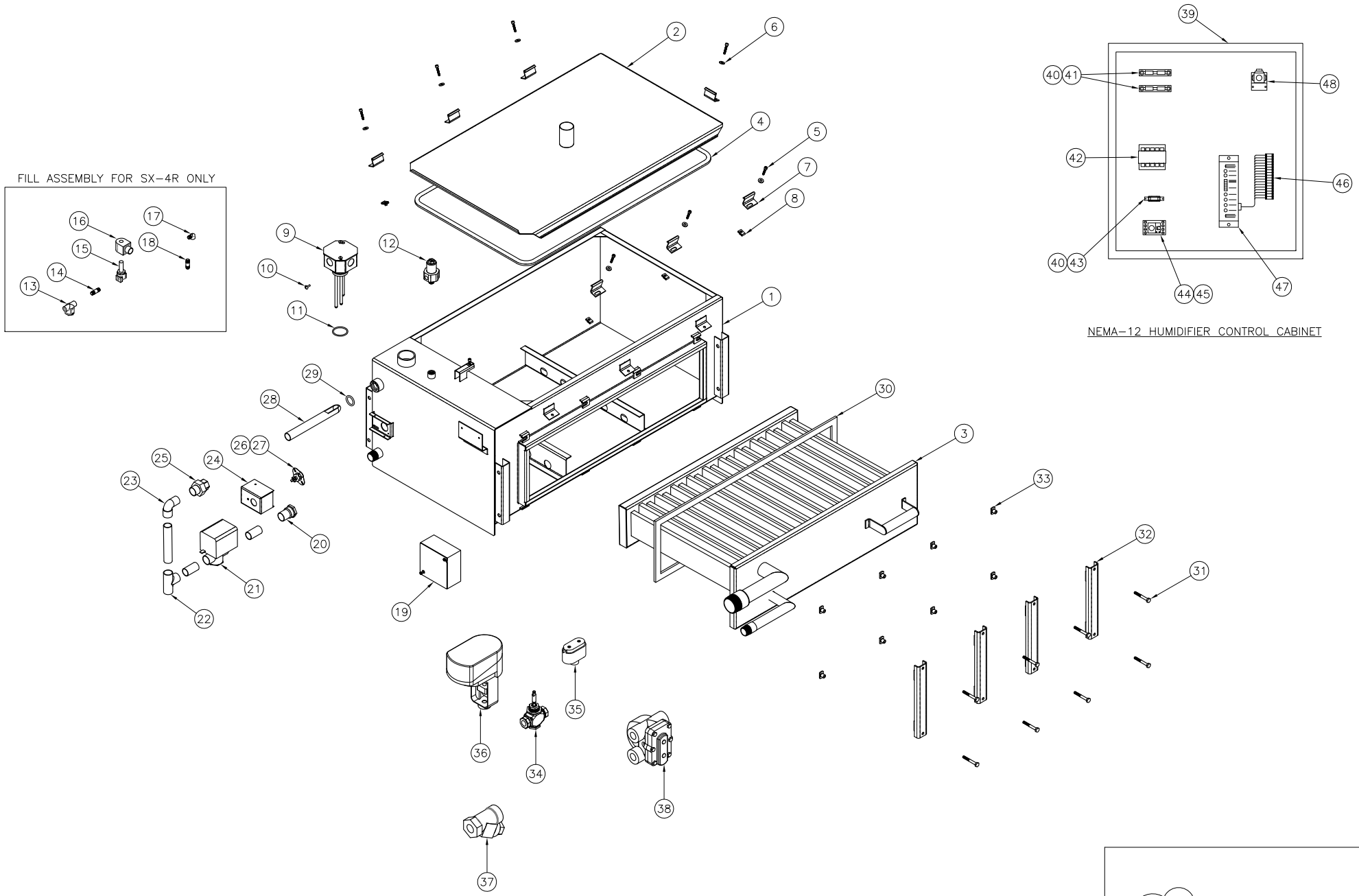
Tool Requirements & Torque List

Recommended Maintenance Tool List
7/16” Wrench
3/4” Wrench
Crescent Wrench
11/32” Nut Driver or Socket
3/8” Nut Driver or Socket
5/32” Allen Head
Flat Head Screwdriver
Wire Stripper
Wire Crimper

Torque List	
Cover Bolts	18 inch/pounds MAX
Side Entry Exchanger Bolts	80 inch/pounds MAX
Hose Cuff Screws	35-40 inch/pounds MAX when hot

Maintenance Notes

Maintenance Performed	Date	By



Title: SX-1R thru SX-4R ASSEMBLY			
Scale: No Scale	Date: Dec. 3, 2013	Drwn: S.A.M.	Dwg No: SX-1R thru SX-4R

PURE Humidifier

Section 4—List Prices for "SX" Steam Heat Exchanger Humidifier Replacement Parts

When ordering replacement or spare parts, please have Model Number, Serial Number and any options.

	Item No.	Description	Part No.	Qty Per Unit	
SX-1R	1	SX SIZE 1 Tank	10007	1	
	2	SX SIZE 1 Top Cover	99084	1	
	3	SX-1R Heat Exchanger	05397	1	
	4	Cover Gasket	15520	1	
	5	Cover Clamp Screw (10-24 x 1" Hex Socket)	15522	6	
	6	#12 SAE Zinc Washer	15184	5	
	7	Cover Clamp	15930	5	
	8	Cover Clamp Nut (10-24 U-Nut)	15524	6	
	9	SX Tri-Probe	05328	1	
	10	Tri-Probe Set Screw (10-32 x 3/8" SST)	15525	1	
	11	Tri-Probe O-Ring	15166	1	
	12	1/4" Stainless Steel Fill Valve with Strainer	09128	1	
	13	N/A			
	14				
	15				
	16				
	17				
	18				
	19	Electrical Box & Cover	15076	1	
	20	3/4" Sweat Adaptor	08012	1	
	21	Motorized Drain Valve	A	1	
	22	3/4" Copper Sweat Tee	08014	1	
	23	3/4" 90 Degree Copper Elbow	08011	1	
	24	Thermocouple Housing - plain	16071	1*	
	25	Sweat Union	08015	1	
SX-1R	26	Freeze Protection Temp Switch (Non-INTAC)	16059	1*	
	27	Standby Water Temp Switch (160°F) (Non-INTAC)	18036	1*	
	28	Copper Flusher	01113	1	
	29	Flusher O-Ring	15164	1	
	30	SX SIZE 1 Heat Exchanger Gasket	05383	1	
	31	Clamp Bar Bolt (1/4"-20 x 2" Hex)	15841	4	
	32	Clamp Bar	99136	2	
	33	Clamp Bar Nut (1/4"-20 Weld Nut)	15702	4	
	34	Valve Body	A	1	
	35	Pneumatic Valve Actuator	03013	1**	
	36	Electric Valve Actuator	09132	1**	
	37	3/4" Wye Strainer	15141	1	
	38	Float & Thermostatic Trap	16065	1	
	39	Control Enclosure	Consult Factory		
	40	Fuse Holder	12085	3	
	41	Primary Fuse	12209	2	
SX-1R	42	Step-Down Transformer	12160	1	
	43	Secondary Fuse	12063	1	
	44	Low Voltage Plug In Relay	12018	1	
	45	Relay Base	12020	1	
	46	Terminal Strip	12044	1	
	47	Level Controller	A	1	
	48	Pneumatic 3 Way Valve	09039	1	

NOTES/CODES:

A = Part Number, quantity and price vary with model number.

* Optional feature that may not be on all equipment

** Only one style valve actuator will be used.

Section 4—List Prices for "SX" Steam Heat Exchanger Humidifier Replacement Parts

When ordering replacement or spare parts, please have Model Number, Serial Number and any options.

	Item No.	Description	Part No.	Qty Per Unit	
SX-2R	1	SX SIZE 2 Tank	10009	1	
	2	SX SIZE 2 Top Cover	99085	1	
	3	SX-2R Heat Exchanger	05398	1	
	4	Cover Gasket	15520	1	
	5	Cover Clamp Screw (10-24 x 1" Hex Socket)	15522	6	
	6	#12 SAE Zinc Washer	15184	5	
	7	Cover Clamp	15930	5	
	8	Cover Clamp Nut (10-24 U-Nut)	15524	6	
	9	SX Tri-Probe	05328	1	
	10	Tri-Probe Set Screw (10-32 x 3/8" SST)	15525	1	
	11	Tri-Probe O-Ring	15166	1	
	12	1/4" Stainless Steel Fill Valve with Strainer	09128	1	
	13	N/A			
	14				
	15				
	16				
	17				
	18				
	19	Electrical Box & Cover	15076	1	
	20	3/4" Sweat Adaptor	08012	1	
	21	Motorized Drain Valve	A	1	
	22	3/4" Copper Sweat Tee	08014	1	
	23	3/4" 90 Degree Copper Elbow	08011	1	
	24	Thermocouple Housing - plain	16071	1*	
	25	Sweat Union	08015	1	
SX-2R	26	Freeze Protection Temp Switch (Non-INTAC)	16059	1*	
	27	Standby Water Temp Switch (160°F) (Non-INTAC)	18036	1*	
	28	Copper Flusher	01113	1	
	29	Flusher O-Ring	15164	1	
	30	SX SIZE 2 Heat Exchanger Gasket	05384	1	
	31	Clamp Bar Bolt (1/4"-20 x 2" Hex)	15841	6	
	32	Clamp Bar	99136	3	
	33	Clamp Bar Nut (1/4"-20 Weld Nut)	15702	6	
	34	Valve Body	A	1	
	35	Pneumatic Valve Actuator	03013	1**	
	36	Electric Valve Actuator	09132	1**	
	37	3/4" Wye Strainer	15141	1	
	38	Float & Thermostatic Trap	16065	1	
	39	Control Enclosure	Consult Factory		
	40	Fuse Holder	12085	3	
	41	Primary Fuse	12209	2	
SX-2R	42	Step-Down Transformer	12160	1	
	43	Secondary Fuse	12063	1	
	44	Low Voltage Plug In Relay	12018	1	
	45	Relay Base	12020	1	
	46	Terminal Strip	12044	1	
	47	Level Controller	A	1	
	48	Pneumatic 3 Way Valve	09039	1	

NOTES/CODES:

A = Part Number, quantity and price vary with model number.

* Optional feature that may not be on all equipment

** Only one style valve actuator will be used.

Section 4—List Prices for "SX" Steam Heat Exchanger Humidifier Replacement Parts

When ordering replacement or spare parts, please have Model Number, Serial Number and any options.

	Item No.	Description	Part No.	Qty Per Unit	
SX-3R	1	SX SIZE 3 Tank	10011	1	
	2	SX SIZE 3 Top Cover	99086	1	
	3	SX-3R Heat Exchanger	05399	1	
	4	Cover Gasket	15520	1	
	5	Cover Clamp Screw (10-24 x 1" Hex Socket)	15522	8	
	6	#12 SAE Zinc Washer	15184	7	
	7	Cover Clamp	15930	7	
	8	Cover Clamp Nut (10-24 U-Nut)	15524	8	
	9	SX Tri-Probe	05328	1	
	10	Tri-Probe Set Screw (10-32 x 3/8" SST)	15525	1	
	11	Tri-Probe O-Ring	15166	1	
	12	1/4" Stainless Steel Fill Valve with Strainer	09128	1	
	13	N/A			
	14				
	15				
	16				
	17				
	18				
	19	Electrical Box & Cover	15076	1	
	20	3/4" Sweat Adaptor	08012	1	
	21	Motorized Drain Valve	A	1	
	22	3/4" Copper Sweat Tee	08014	1	
	23	3/4" 90 Degree Copper Elbow	08011	1	
	24	Thermocouple Housing - plain	16071	1*	
	25	Sweat Union	08015	1	
SX-3R	26	Freeze Protection Temp Switch (Non-INTAC)	16059	1*	
	27	Standby Water Temp Switch (160°F) (Non-INTAC)	18036	1*	
	28	Copper Flusher	01113	1	
	29	Flusher O-Ring	15164	1	
	30	SX SIZE 3 Heat Exchanger Gasket	05385	1	
	31	Clamp Bar Bolt (1/4"-20 x 2" Hex)	15841	8	
	32	Clamp Bar	99136	4	
	33	Clamp Bar Nut (1/4"-20 Weld Nut)	15702	8	
	34	Valve Body	A	1	
	35	Pneumatic Valve Actuator	A	1**	
	36	Electric Valve Actuator	09132	1**	
	37	1-1/2" Wye Strainer	15144	1	
	38	Float & Thermostatic Trap	16065	1	
	39	Control Enclosure	Consult Factory		
	40	Fuse Holder	12085	3	
	41	Primary Fuse	12209	2	
SX-3R	42	Step-Down Transformer	12160	1	
	43	Secondary Fuse	12063	1	
	44	Low Voltage Plug In Relay	12018	1	
	45	Relay Base	12020	1	
	46	Terminal Strip	12044	1	
	47	Level Controller	A	1	
	48	Pneumatic 3 Way Valve	09039	1	

NOTES/CODES:

A = Part Number, quantity and price vary with model number.

* Optional feature that may not be on all equipment

** Only one style valve actuator will be used.

Section 4—List Prices for "SX" Steam Heat Exchanger Humidifier Replacement Parts

When ordering replacement or spare parts, please have Model Number, Serial Number and any options.

	Item No.	Description	Part No.	Qty Per Unit	
SX-4R	1	SX SIZE 4 Tank	10013	1	
	2	SX SIZE 4 Top Cover	99087	1	
	3	SX-4R Heat Exchanger	05400	1	
	4	Cover Gasket	15520	1	
	5	Cover Clamp Screw (10-24 x 1" Hex Socket)	15522	14	
	6	#12 SAE Zinc Washer	15184	11	
	7	Cover Clamp	15930	11	
	8	Cover Clamp Nut (10-24 U-Nut)	15524	14	
	9	SX Tri-Probe	05328	1	
	10	Tri-Probe Set Screw (10-32 x 3/8" SST)	15525	1	
	11	Tri-Probe O-Ring	15166	1	
	12	1/4" Stainless Steel Fill Valve with Strainer	09128	1	
	13	1/4" Fill Valve Strainer Brass	15139	1	
	14	1/4" x 1 1/2" Nipple Brass	08021	1	
	15	1/4" Fill Valve	09075	1	
	16	Fill Valve Solenoid	09078	1	
	17	1/4" Street Elbow Brass	08020	1	
	18	1/4" x 1 1/2" Stainless Steel Nipple	07043	1	
SX-4R	19	Electrical Box & Cover	15076	1	
	20	3/4" Sweat Adaptor Copper	08012	1	
	21	Motorized Drain Valve	A	1	
	22	3/4" x 3/4" x 3/4" Sweat Tee Copper	08014	1	
	23	3/4" 90 Degree Elbow Copper	08011	1	
	24	Thermocouple Housing - plain	16071	1*	
	25	3/4" Sweat Union Copper	08015	1	
	26	Freeze Protection Temp Switch	16059	1*	
	27	Standby Water Temp Switch (160°F)	18036	1*	
	28	Copper Flusher	01113	1	
	29	Flusher O-Ring	15164	1	
	30	SX SIZE 4 Heat Exchanger Gasket	05386	1	
	31	Clamp Bar Bolt (1/4"-20 x 2" Hex)	15841	12	
	32	Clamp Bar	99136	6	
	33	Clamp Bar Nut (1/4"-20 Weld Nut)	15702	12	
	34	Valve Body	A	1	
	35	Pneumatic Modulating Actuator	A	1**	
	36	Electric Modulating Actuator	09132	1**	
	37	2" Wye Strainer	15145	1	
	38	Float & Thermostatic Trap	16065	1	
	39	Control Enclosure	Consult Factory		
SX-4R	40	Fuse Holder	12085	3	
	41	Primary Fuse	12209	2	
	42	Step-Down Transformer	12160	1	
	43	Secondary Fuse	12063	1	
	44	Low Voltage Plug In Relay	12018	1	
	45	Relay Base	12020	1	
	46	Terminal Strip	12044	1	
	47	Level Controller	A	1	
	48	Pneumatic 3 Way Valve	09039	1	

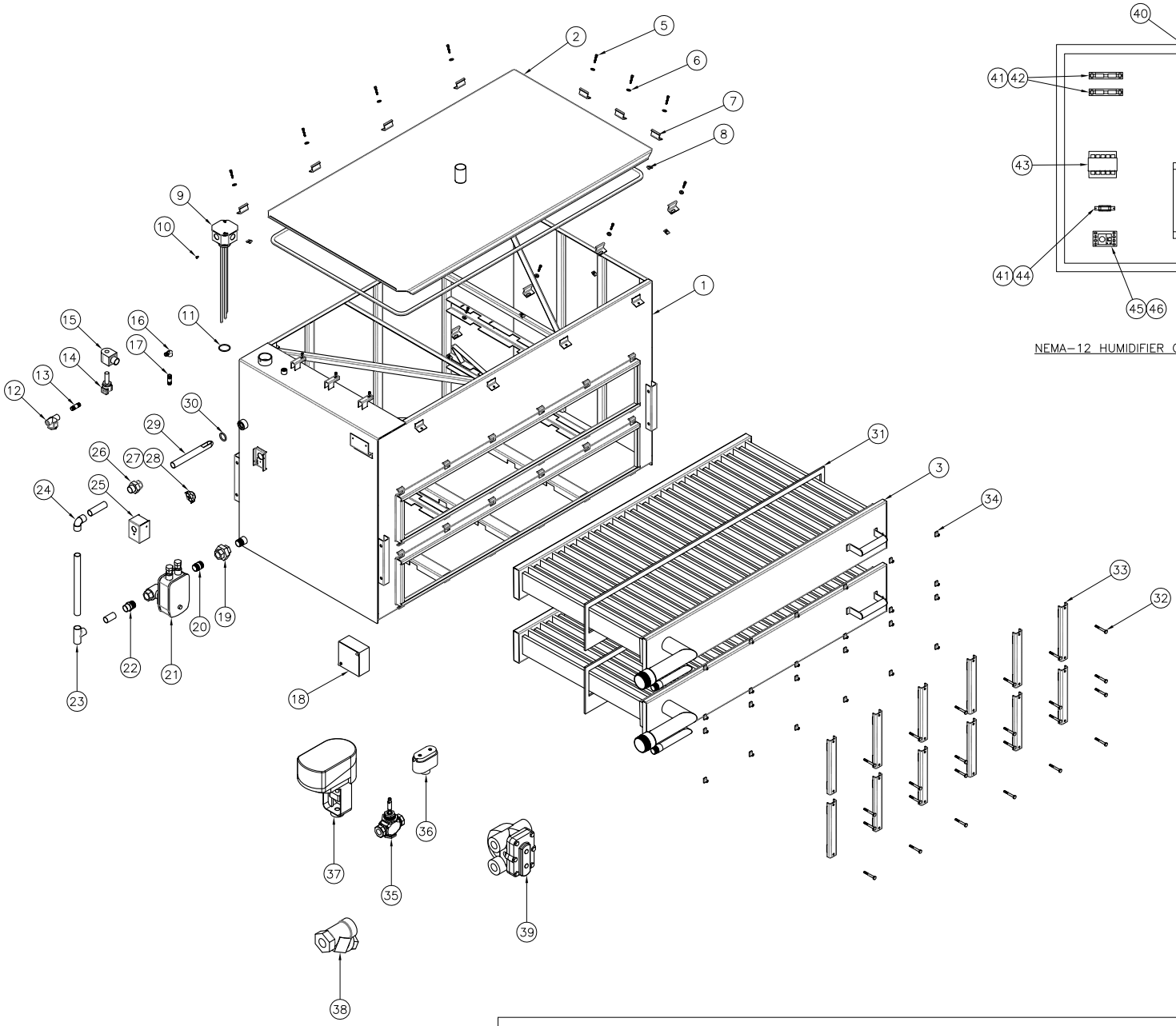
NOTES/CODES:

A = Part Number, quantity and price vary with model number.

* Optional feature that may not be on all equipment

** Only one style valve actuator will be used.

SX-4R Fill system for 2013 units and newer



NEMA–12 HUMIDIFIER CONTROL CABINET

Title: SX–8R ASSEMBLY PARTS LIST			
Scale: No Scale	Date: Nov. 20, 2013	Drwn: S.A.M.	Dwg No: SX–8R Exloded Assembly

PURE Humidifier

Section 4—List Prices for "SX" Steam Heat Exchanger Humidifier Replacement Parts

When ordering replacement or spare parts, please have Model Number, Serial Number and any options.

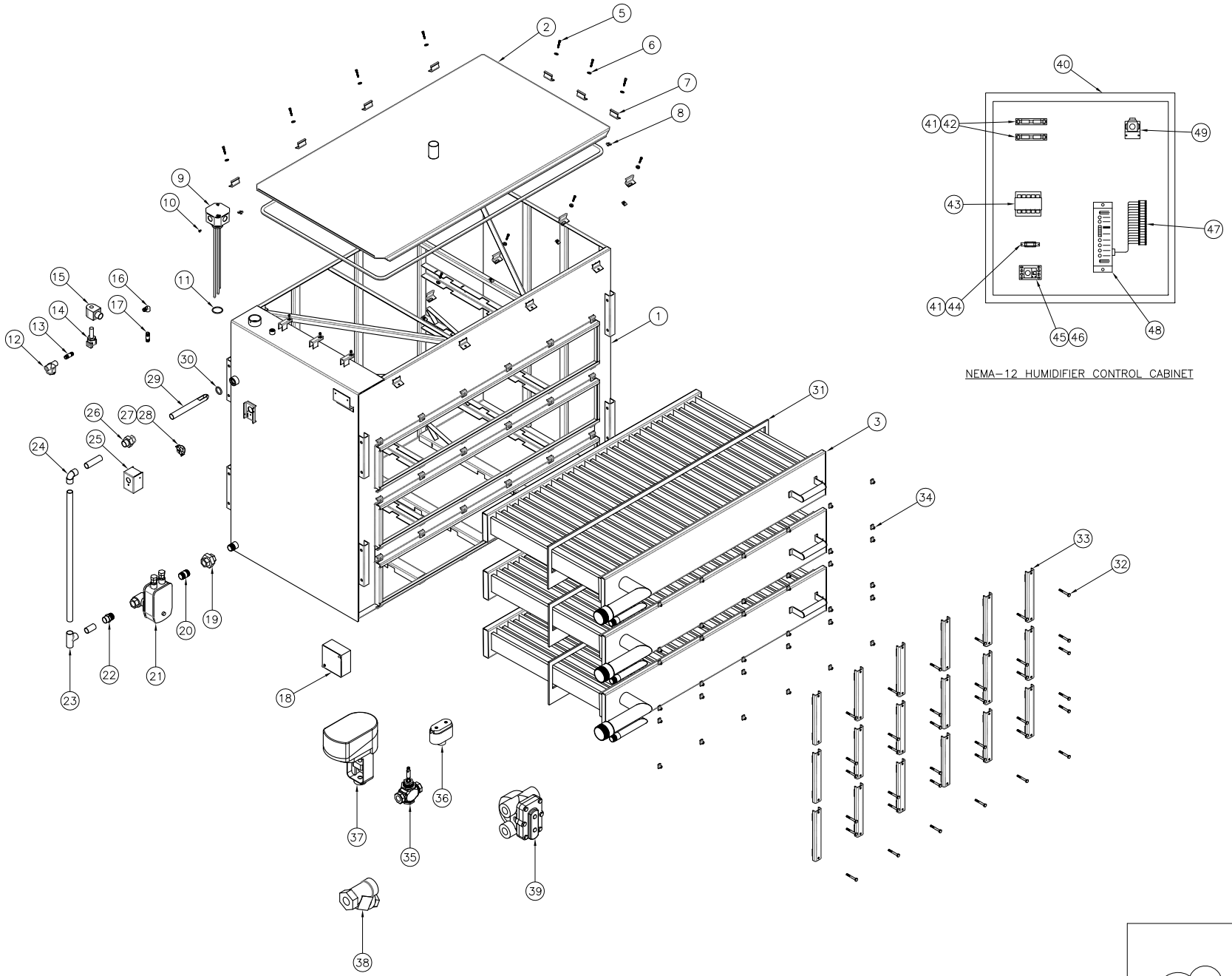
	Item No.	Description	Part No.	Qty Per Unit	
SX-8R	1	SX SIZE 8 Tank	10015	1	
	2	SX SIZE 8 Top Cover	99087	1	
	3	SX-4R Heat Exchanger	05400	2	
	4	Cover Gasket	15520	1	
	5	Cover Clamp Screw (10-24 x 1" Hex Socket)	15522	14	
	6	#12 SAE Zinc Washer	15184	11	
	7	Cover Clamp	15930	11	
	8	Cover Clamp Nut (10-24 U-Nut)	15524	14	
	9	SX-8R Tri-Probe	05884	1	
	10	Tri-Probe Set Screw (10-32 x 3/8" SST)	15525	1	
	11	Tri-Probe O-Ring	15166	1	
	12	1/4" Fill Valve Strainer Brass	15139	1	
	13	1/4" x 1 1/2" Nipple Brass	08021	1	
	14	1/4" Fill Valve	09075	1	
	15	Fill Valve Solenoid	09078	1	
	16	1/4" Street Elbow Brass	08020	1	
	17	1/4" x 1-1/2" Nipple	07043	1	
	18	Electrical Box & Cover	15076	1	
	19	3/4" Union Stainless Steel	07114	1	
	20	3/4" x 1 1/2" Nipple Stainless Steel	07081	1	
	21	3/4" Motorized Drain Valve Stainless Steel - NC	09117	1	
	22	3/4" Female Adaptor Copper	08012	1	
	23	3/4" x 3/4" x 3/4" Sweat Tee Copper	08014	1	
	24	3/4" 90 Degree Elbow Copper	08022	1	
	25	Thermocouple Housing - plain	16071	1*	
SX-8R	26	3/4" Sweat Union Copper	08015	1	
	27	Freeze Protection Temp Switch	16059	1*	
	28	Standby Water Temp Switch (160°F)	18036	1*	
	29	Copper Flusher	01113	1	
	30	Flusher O-Ring	15164	1	
	31	SX SIZE 4 Heat Exchanger Gasket	05386	2	
	32	Clamp Bar Bolt (1/4"-20 x 2" Hex)	15841	24	
	33	Clamp Bar	99136	12	
	34	Clamp Bar Nut (1/4"-20 Weld Nut)	15702	24	
	35	Valve Body	A	2	
	36	Pneumatic Modulating Actuator	A	2*	
	37	Electric Modulating Actuator	09132	2**	
	38	2" Wye Strainer	15145	2	
	39	Float & Thermostatic Trap	16065	2	
	40	Control Enclosure	Consult Factory		
	41	Fuse Holder	12085	3	
SX-8R	42	Primary Fuse	12209	2	
	43	Step-Down Transformer	12160	1	
	44	Secondary Fuse	12063	1	
	45	Low Voltage Plug In Relay	12018	1	
	46	Relay Base	12020	1	
	47	Terminal Strip	12044	1	
	48	Level Controller	A	1	
	49	Pneumatic 3 Way Valve	09039	1	

NOTES/CODES:

A = Part Number, quantity and price vary with model number.

* Optional feature that may not be on all equipment

** Only one style valve actuator will be used.



NEMA–12 HUMIDIFIER CONTROL CABINET

Title: SX–12R ASSEMBLY PARTS LIST			
Scale: No Scale	Date: Nov. 12, 2013	Drwn: S.A.M.	Dwg No: SX–12R Exloded Assembly

PURE Humidifier

Section 4—List Prices for "SX" Steam Heat Exchanger Humidifier Replacement Parts

When ordering replacement or spare parts, please have Model Number, Serial Number and any options.

	Item No.	Description	Part No.	Qty Per Unit	
SX-12R	1	SX SIZE 12 Tank	10018	1	
	2	SX SIZE 12 Top Cover	99087	1	
	3	SX-4R Heat Exchanger	05400	3	
	4	Cover Gasket	15520	1	
	5	Cover Clamp Screw (10-24 x 1" Hex Socket)	15522	14	
	6	#12 SAE Zinc Washer	15184	11	
	7	Cover Clamp	15930	11	
	8	Cover Clamp Nut (10-24 U-Nut)	15524	14	
	9	SX-12R Tri-Probe	05884	1	
	10	Tri-Probe Set Screw (10-32 x 3/8" SST)	15525	1	
	11	Tri-Probe O-Ring	15166	1	
	12	1/4" Fill Valve Strainer Brass	15139	1	
	13	1/4" x 1 1/2" Nipple Brass	08021	1	
	14	1/4" Fill Valve	09075	1	
	15	Fill Valve Solenoid	09078	1	
	16	1/4" Street Elbow Brass	08020	1	
	17	1/4" x 1 1/2" Stainless Steel	07043	1	
	18	Electrical Box & Cover	15076	1	
	19	3/4" Union Stainless Steel	07114	1	
	20	3/4" x 1 1/2" Nipple Stainless Steel	07081	1	
	21	3/4" Motorized Drain Valve Stainless Steel - NC	09117	1	
	22	3/4" Female Adaptor Copper	08012	1	
	23	3/4" x 3/4" x 3/4" Sweat Tee Copper	08014	1	
	24	3/4" 90 Degree Elbow Copper	08022	1	
	25	Thermocouple Housing - plain	16071	1*	
SX-12R	26	3/4" Sweat Union Copper	08015	1	
	27	Freeze Protection Temp Switch	16059	1*	
	28	Standby Water Temp Switch (160°F)	18036	1*	
	29	Copper Flusher	01113	1	
	30	Flusher O-Ring	15164	1	
	31	SX SIZE 4 Heat Exchanger Gasket	05386	3	
	32	Clamp Bar Bolt (1/4"-20 x 2" Hex)	15841	36	
	33	Clamp Bar	99136	18	
	34	Clamp Bar Nut (1/4"-20 Weld Nut)	15702	36	
	35	Valve Body	A	3	
	36	Pneumatic Modulating Actuator	A	3*	
	37	Electric Modulating Actuator	09132	3**	
	38	2" Wye Strainer	15145	3	
	39	Float & Thermostatic Trap	16065	3	
	40	Control Enclosure	Consult Factory		
	41	Fuse Holder	12085	3	
SX-12R	42	Primary Fuse	12209	2	
	43	Step-Down Transformer	12160	1	
	44	Secondary Fuse	12063	1	
	45	Low Voltage Plug In Relay	12018	1	
	46	Relay Base	12020	1	
	47	Terminal Strip	12044	1	
	48	Level Controller	A	1	
	49	Pneumatic 3 Way Valve	09039	1	

NOTES/CODES:

A = Part Number, quantity and price vary with model number.

* Optional feature that may not be on all equipment

** Only one style valve actuator will be used.

DISCLAIMER

Product Changes: Changes in products may be required from time to time due to factors beyond the Seller's control, or the need for continuing improvement of products. The Seller reserves the right to make reasonable changes in products, specifications and performance of any kind without notice or liability. The Seller also reserves the right to deliver revised designs or models of products against any order, unless this right is specifically waived in writing by the Seller. The Seller shall have no responsibility whatsoever with respect to changes made by the manufacturer in products sold but not manufactured by the Seller.

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