



READ AND SAVE THESE INSTRUCTIONS

Standard Water
“EC” Series
Electric Humidifier

Installation Instructions

Operation and Maintenance Manual



Our results are comforting

PURE HUMIDIFIER® and INTAC® are registered trademarks of PURE Humidifier Co.

Form No: ECOM-10-19



Introduction

To the user of PURE Humidifier Co.'s Electric Humidifiers

We at PURE Humidifier Co. thank you for choosing one of our quality products. PURE Humidifier Co. Electric 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 "EC" Series Humidifier utilizes a Tri-Probe Sensor conductive-type water control system, which is designed for use with standard (hard or soft) tap water. Use of deionized, demineralized, or reverse osmosis water will cause a failure of the water level control system and void the warranty.

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.

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

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.

Table of Contents

Introduction	1
Capacity & Electrical Specifications	2
Dimensions & Layout	3
Humidifier Layout	4
Location & Mounting	5
Wall Mounting Detail	6
Dispersion Methods	7
Injection Tube and Flexible Hose	8
Steam Supply Piping Examples	9
Piping	10
Blower Pack	11-12
Pre-Startup Checklist	13
Non-INTAC® Startup Procedure	14
INTAC® Startup Procedure	15
Maintenance & Cleaning Instructions	16
Cover Gasket Replacement Instructions	17
Troubleshooting	18
Tool Requirements & Torque List	19
Maintenance Notes	20
Exploded Parts Drawing	21
Parts List	22

The PURE Humidifier Co. Warranty

PURE Humidifier Co. guarantees its products to be free from defects in material and workmanship for a period of one year 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.



Capacity & Weights Electrical Specifications

Capacity & Weights “EC” Series

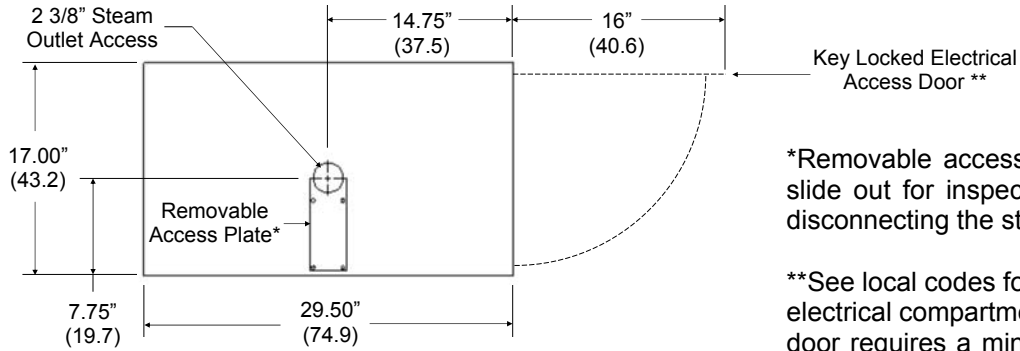
Standard Water Unit Model No.	Steam Output Capacity †		Humidifier Weight			
	lbs/hr	kg/hr	Empty		Full	
			lbs	kg	lbs	kg
EC-5	15.0	6.8	139.0	63.1	223.0	101.2
EC-10	30.0	13.6	140.0	63.5	224.0	101.6
EC-15	45.0	20.4	141.0	64.0	225.0	102.1
EC-20	60.0	27.2	142.0	64.4	226.0	102.5
EC-25	75.0	34.0	143.0	64.9	227.0	103.0
EC-35	102.0	46.3	146.0	66.2	230.0	104.3

Electrical Specification “EC” Series

Standard Water Unit Model No.	KW	No. of Heaters	Single Phase Amperage					Three Phase Amperage				Control Circuit Voltage			
			120V	208V	240V	480V	600V	No. of Heaters	208V	240V	480V		600V		
EC-5	5	Single	41.7*	24.0	20.8	10.4	8.3	Triple	13.9	12.0	6.0	4.8	24 vac		
EC-10	10	Double			41.7	20.8	16.7	Triple	27.8	24.1	12.0	9.6	24 vac		
EC-15	15	Triple				31.3	25.0	Triple	41.7	36.1	18.1	14.4	24 vac		
EC-20	20	Triple					41.7	33.3	Triple		24.1	19.2	24 vac		
EC-25	25	Triple						41.7	Triple			30.1	24.1	24 vac	
EC-35	34	Triple							Triple				40.9	32.7	24 vac

* EC-5 at 120/1 requires 3 heating elements.

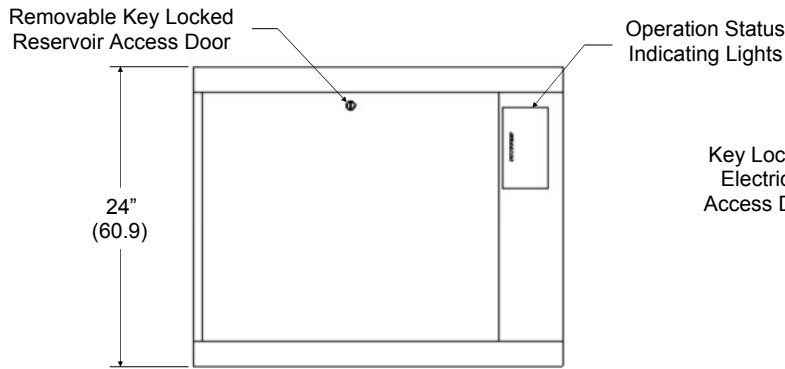
† The above capacities are based on 100% efficiency. Actual humidifier capacity may vary due to the heat loss from the humidifier reservoir. The ambient air temperature, air velocity, and injection tube system will affect the rate of heat loss from the humidifier reservoir.



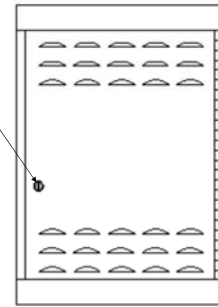
TOP VIEW

*Removable access plate allows reservoir to slide out for inspection and cleaning without disconnecting the steam supply piping.

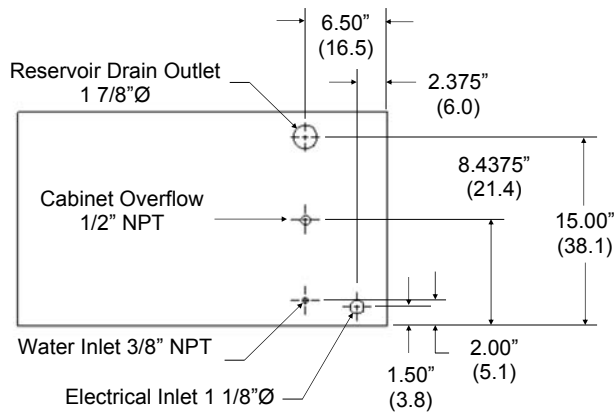
**See local codes for minimum clearance to electrical compartment. The electrical access door requires a minimum clearance of 16" to fully open.



FRONT VIEW

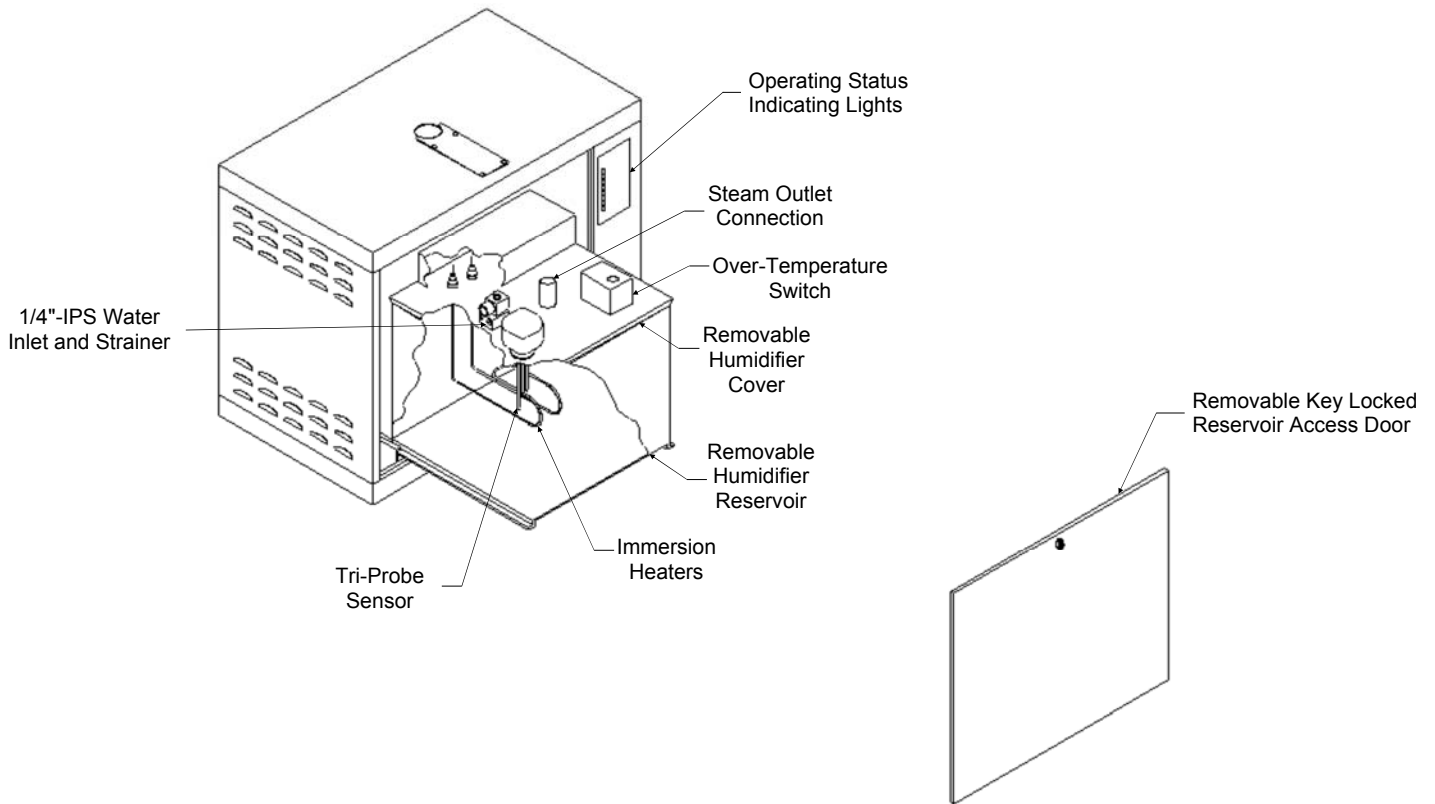


RIGHT SIDE VIEW



BOTTOM VIEW

NOTE: Dimensions are typical for all EC models.



Humidifier Features

- SCR modulating control
- Visible status and diagnostic LED indicator lights
- Electronic water level control system
- Accumulative automatic timed drain system
- Seasonal end-of-use drain system*
- High efficiency incoloy immersion water heaters
- 18 gauge steel cabinet with baked enamel paint finish
- Internal stainless steel evaporating reservoir mounted on slides for easy removal
- Key locked doors for both reservoir and electrical access
- Easy and simple installation options
- Dispersion methods include Insty-Pac*, Fast-Pac* Injection Tube*, or Blower Pack assembly* for room distribution
- Manual reset over-temperature safety switch
- INTAC® microprocessor control system*
- VAV dual modulating control system*

* Optional features



Location & Mounting

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, condensation within the steam supply line and excessive pressure buildup in the reservoir.

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 uneven 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 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&M's for full installation details.

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

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

Location of Control Sensors

It is important to avoid mounting any control sensors within the visible steam. The control sensors 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

Mounted on the wall. The humidifier should be mounted dead level in both directions. PURE Humidifier Co. supplies the wall mounting bracket. Bracket is mounted to wall studs first. The bracket must be mounted to wall studs or additional support must be provided in the field. EC cabinet is then hung on the slip-fit bracket.

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 injection tube. The drain pan 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.

Injection Tube Installation

Single tube units should have the injection tube installed in the center of the duct. Multiple tube units should have the tubes staggered within the duct. See Injection Tube and Flexible Hose Installation on page 8 for details.

Injection tube should be pitched 2 inches (5 cm) per foot (31 cm), back to the humidifier. If proper pitch cannot be maintained, or the injection tube is mounted lower than the humidifier, a drain “tee” will be required.

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 with the air flow slightly (2 o'clock position).

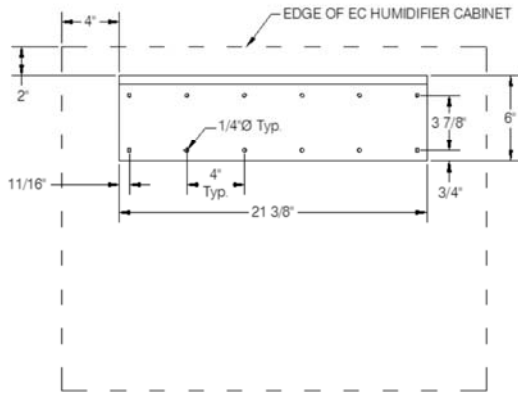
Galvanized steel duct plates are provided to seal the opening where the tube enters the duct.

Multiple Injection Tube Assemblies

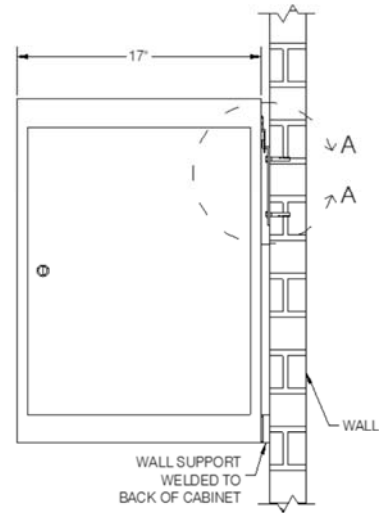
See page 9 for details.



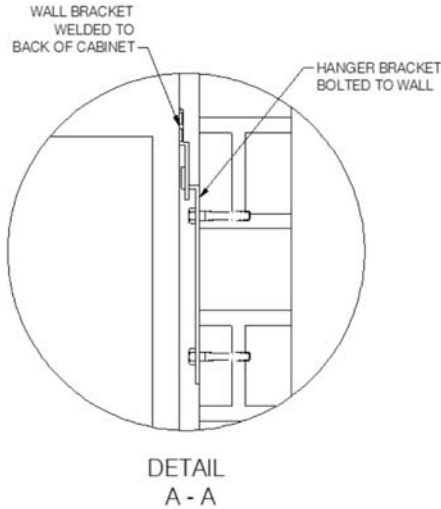
Wall Mounting Detail



HANGER BRACKET HOLE DETAIL
FRONT VIEW

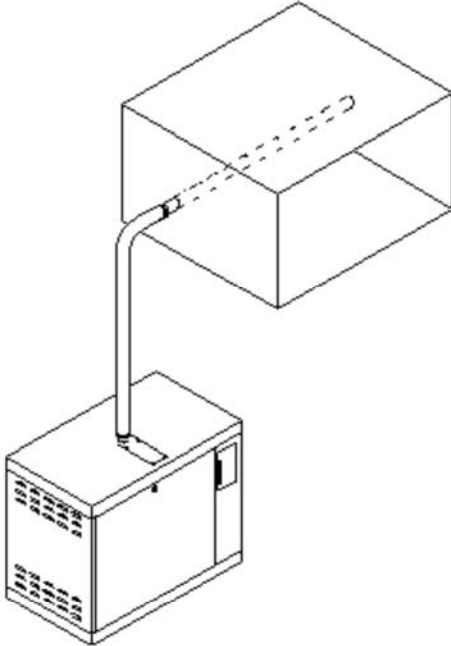


RIGHT SIDE VIEW



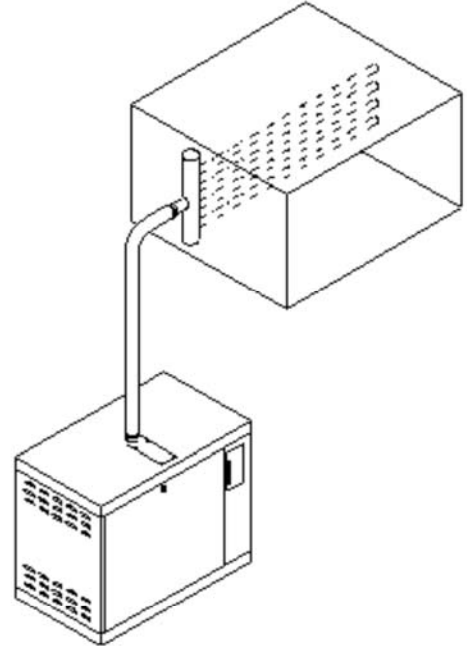
Mounting

The humidifier should be mounted dead level in both directions. PURE Humidifier Co. supplies a wall mounting bracket. Bracket is mounted to wall studs first. The bracket must be mounted to wall studs or additional support must be provided in the field. EC cabinet is then hung on slip-fit bracket.



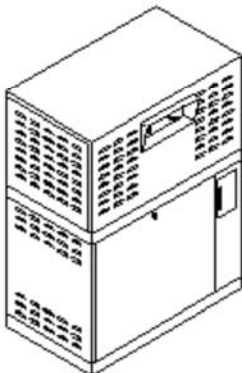
Injection Tube and Flexible Hose

Allows remote mounting of the humidifier reservoir from the duct. Also allows the humidifier to be located below a wall-mounted duct. See page 8 for details.



Insty-Pac and Fast-Pac Multiple Injection Tube Assemblies

For applications where you need a short dissipation distance. Allows remote mounting of the humidifier reservoir from the duct. Also allows the humidifier to be located below a wall-mounted duct. See page 9 for details.



Blower Pack for Direct Room Humidification

Allows humidifier to be mounted directly on the wall within the space to be humidified. See page 11 and 12 for details.



Injection Tube and Flexible Hose

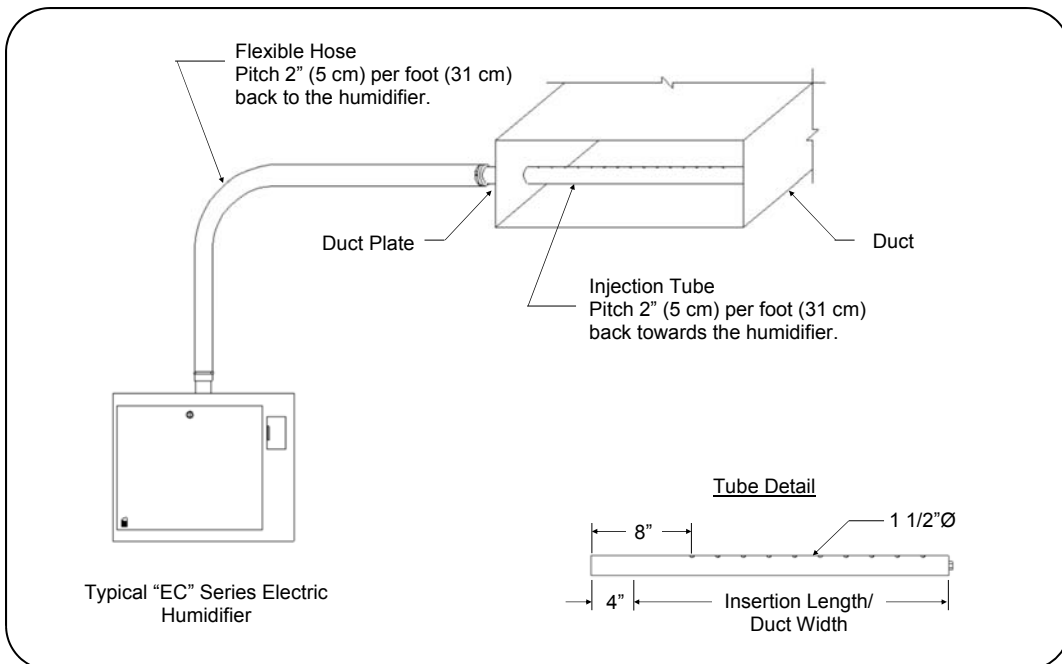
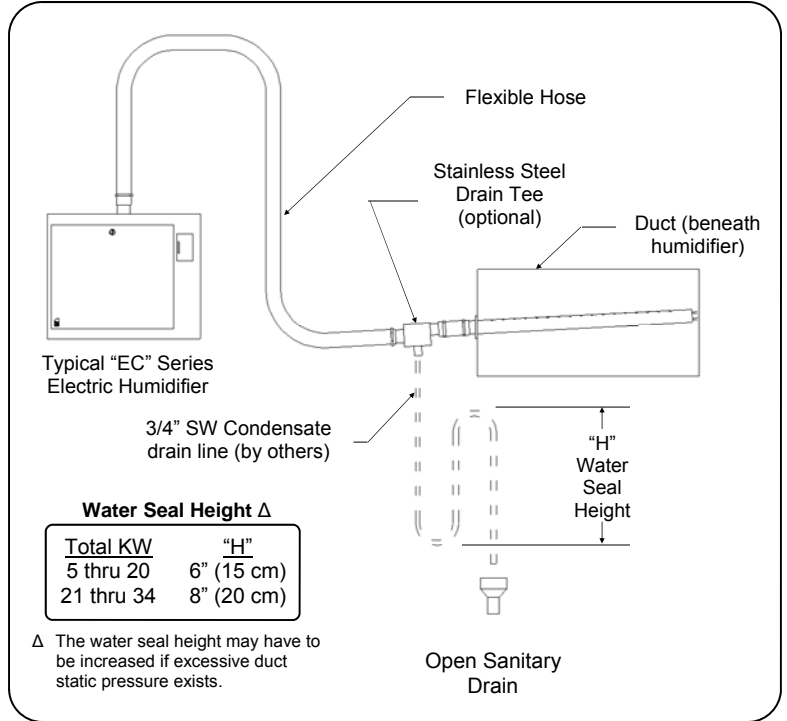
Installation

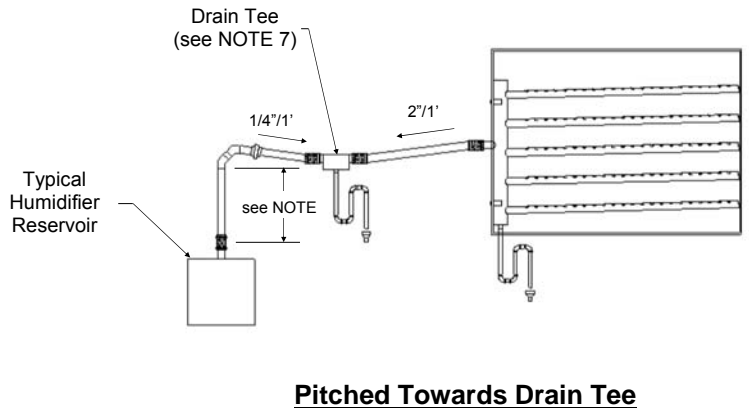
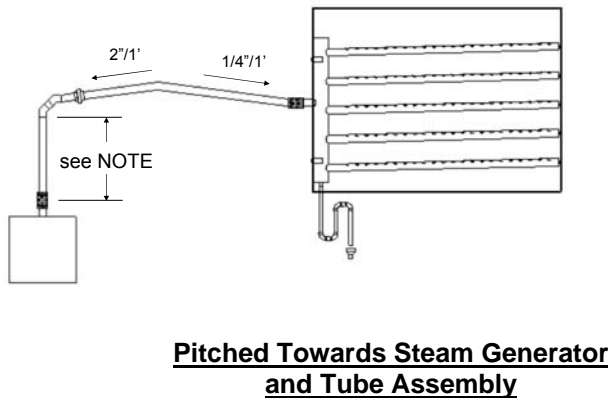
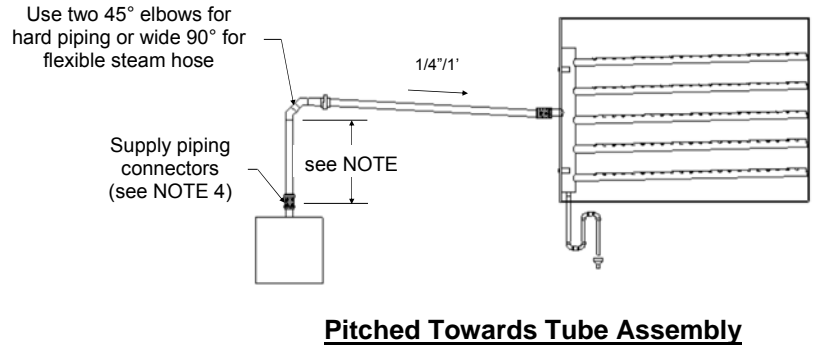
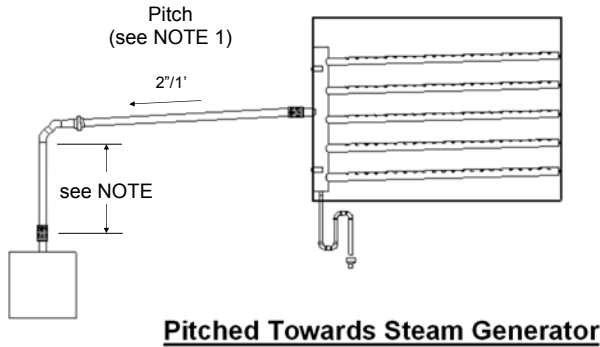
Injection tube shall be installed in the center of the duct. Hose and injection tube should be pitched back to the humidifier two inches (5 cm) per foot (31 cm). If proper pitch cannot be maintained, or the injection tube is mounted lower than the humidifier, a drain "tee" will be required (reference 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 slightly with the air flow (2 o'clock position).

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.





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 Sensor conductive-type water control system that is designed for use with standard (hard or softened) tap water. Use of deionized, demineralized, 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. **DO NOT** exceed the maximum acceptable water pressure of 60 psi (4.1 Bar). If the water pressure is above 60 psi (4.1 Bar) a pressure reducing valve should be installed. Failure to do so will cause the supply water hose to burst due to excessive heat and pressure.

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 a vacuum braking device is required. Water connection is made at the bottom of the humidifier with 3/8" NPT piping.

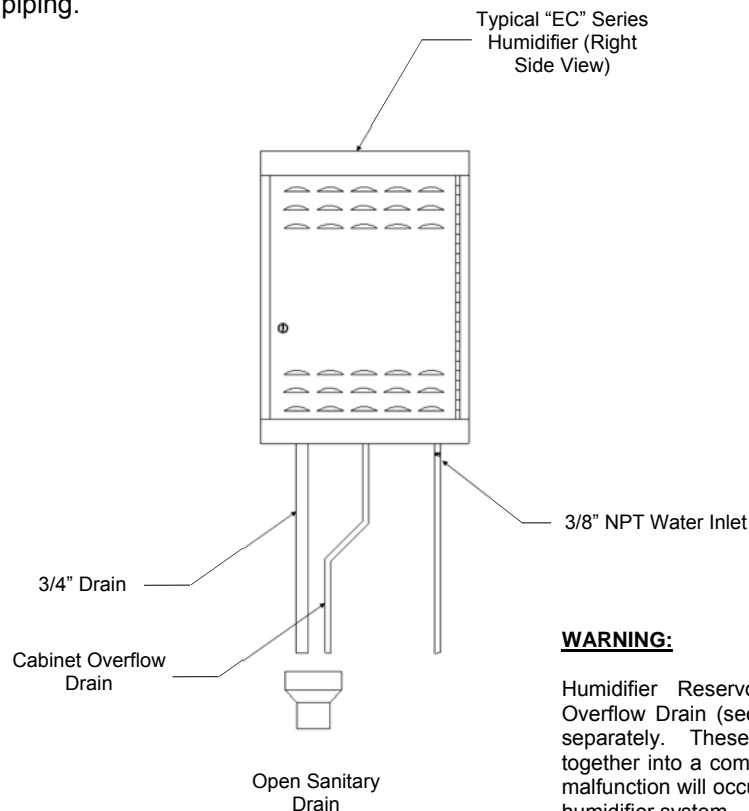
Drain Piping

The "EC" style humidifier requires two copper drain piping connections run to an open drain.

The drain piping should be copper or stainless steel. The use of PVC piping is not recommended; the humidifier water temperature may cause the PVC to soften and fail. Use a drain tempering kit before transition to PVC.

The "EC" humidifier has a factory-piped internal water seal/overflow. The water seal must be filled (primed) prior to operation. Remove the Tri-Probe sensor from the tank until the water overflows into and primes the water seal. Once this is done replace the Tri-Probe sensor.

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.



WARNING:

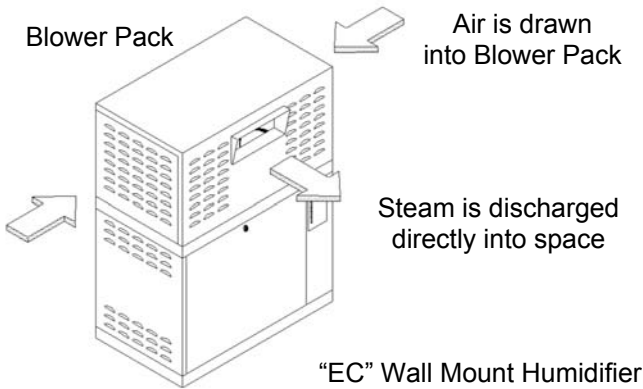
Humidifier Reservoir Drain and Cabinet Overflow Drain (see page 3) **MUST** be run separately. These lines **CANNOT** be tied together into a common drain line. Draining malfunction will occur causing damage to the humidifier system.

Optional Blower Pack

In applications where a ducted air system is not available, PURE offers the optional Blower Pack. The Blower Pack contains a two-speed adjustable blower that moves the air over the steam discharge outlet and disperses the steam directly into the space (see Fig. 1). The Blower Pack mounts directly on top of the “EC” humidifier or can be remote mounted (see Fig. 2).

Locating Blower Pack

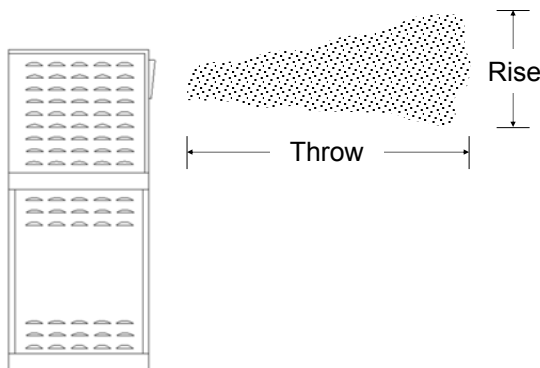
The distance that visible steam will travel after leaving the Blower Pack is dependent upon the relative humidity in the room and the capacity of the humidifier. If this visible steam comes in contact with any solid object (walls, beams, machinery, etc.), it may form condensate and drip. Refer to Fig. 3 and Table 4 (Table 4 is located on page 12) for data on visible steam travel. This will aid you in planning the location of the Blower Pack.



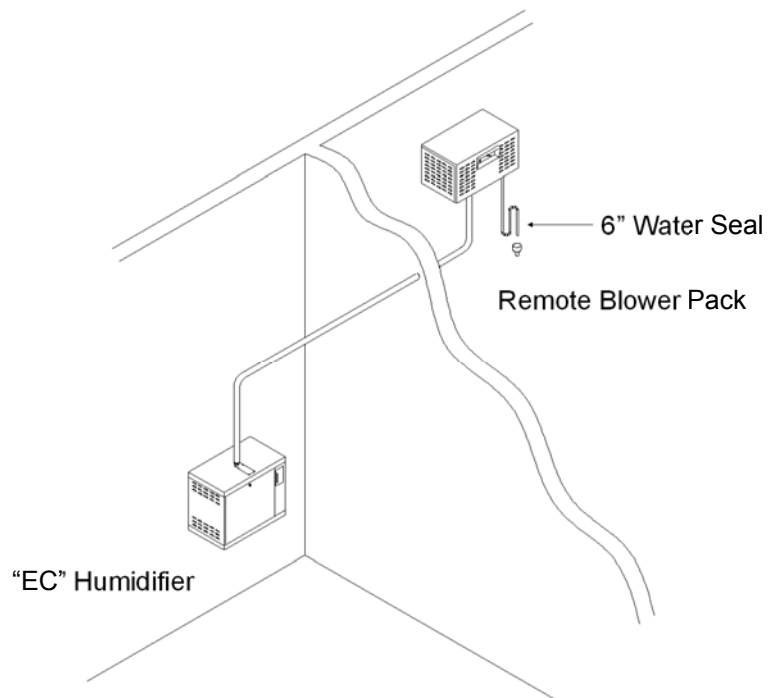
Remote Mounting

The Blower Pack may be remote-mounted up to ten feet away from the “EC” wall mount humidifier (see Fig. 2).

“EC” With Optional Blower Pack
Fig. 1



Visible Rise and Throw
Fig. 3



Remote-Mounted Blower Pack
Fig. 2



Blower Pack

Locating Blower Pack

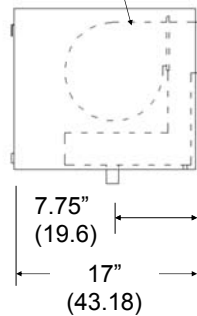
The distance that visible steam will travel after leaving the Blower Pack is dependent upon the relative humidity in the room and the capacity of the humidifier. If this visible steam comes in contact with any solid object (walls, beams, machinery, etc.) it may form condensate and drip. Refer to Fig. 3 (Fig. 3 is located on page 11) and Table 4 for data on visible steam travel. This will aid you in planning the location of the Blower Pack.

Visible Steam Rise & Throw		Humidifier Model					
		EC-5	EC-10	EC-15	EC-20	EC-25	EC-35
50% RH	Rise (ft)	1'	2'	3'	4'	5.5'	8'
	Throw (ft)	8'	10'	13'	16'	18'	23'
60% RH	Rise (ft)	2'	3'	4'	5'	6'	8'
	Throw (ft)	13'	14'	16'	18'	20'	25'

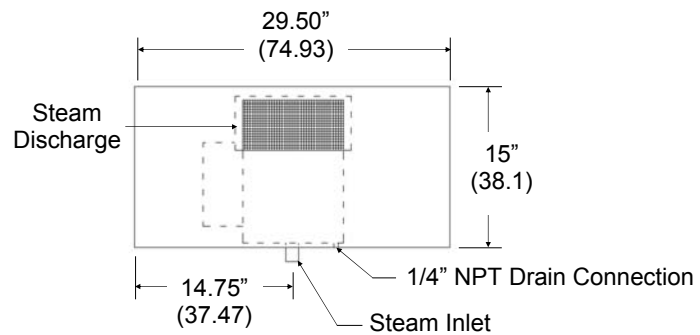
Throw is the horizontal distance the visible steam travels from the steam discharge.
Rise is the vertical distance the visible steam travels from the steam discharge.
 Objects in the direct line of the visible steam or objects that are cooler than the ambient temperature may accumulate condensation.
NOTE: Data above based on 70°F room temperature.

Table 4

296/435 CFM Fan
 120/1/60*, 2.17 amps
 1/15 HP



Left Side View



Front View

Optional Blower Pack Dimensions

Fig. 5

Blower Pack weight is 60 lbs (27.2 kg)

* Blower requires a separate 120/1 circuit (by others)



Pre-Startup Checklist

Pre-Startup Checklist

Before starting the "EC" PURE Humidifier Co. Electric 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.
- _____ 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 then 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 35-60 psi. There should be at least 5 feet of metal pipe and check valve between the tank and any plastic pipe.
- _____ 6. PIPING: Steam Outlet - Refer to attachment for proper outlet steam piping from the generator to the tube(s). **Any horizontal to vertical up 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 feet long may require upsizing of the steam pipe.

Signature: _____ Date: _____



Non-INTAC® Startup Procedure

Start Up Procedure

- _____ 1. With the power "off", set the switch on the control board to the "Standby" position (the control board is located within the humidifier control panel door).
- _____ 2. Make sure the manual drain valve lever (located on the front of the drain valve) is in the "closed" position.
- _____ 3. Turn the controlling humidistat to the lowest setting (no call for humidity).
- _____ 4. Turn the electric power "on" to the humidifier. The "Power" LED light on the controller should be illuminated.
- _____ 5. Set the switch on the control board to the "Normal" position.
- _____ 6. Open the water supply on/off control valve (by others) and allow the humidifier evaporating chamber to fill to the proper level.
- _____ 7. After the humidifier is full of water, the "Water Level Full" LED will illuminate. Turn the humidistat up to call for humidifier demand.
- _____ 8. Make sure all the optional safety switches are satisfied (airflow proving switch, high-limit humidistat, etc.).
- _____ 9. The heater(s) should energize on a call from the humidistat.
- _____ 10. Verify the low water safety circuit by closing the water supply and opening the manual drain lever on the drain valve. As the humidifier tank is draining, the "Water Level Full" and "Heater Energized" lights should go out and you should hear the contactor drop out when the low water level is reached; this indicates the low water safety circuit is operational. This should only take a couple of minutes maximum.
- _____ 11. Close the drain valve and allow the humidifier to fill to the proper level.
- _____ 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 control circuit power. The safety switches should shut-off the humidifier heaters whenever one or more of the optional safety switches create an "open circuit".
- _____ 13. Check heater amperage draw by testing and recording voltage and amperage in each phase. Readings should match the factory heater nameplate.
Amps A: _____ Amps B: _____ Amps C: _____
- _____ 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, reseal gasket and replace the cover. A small amount of adhesive (super glue, gorilla glue, spray adhesive, etc.) to hold the gasket in place while repositioning the cover 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. There are 6 clamps total inside the cabinet.

Signature: _____ Date: _____



INTAC[®] Startup Procedure

Start Up Procedure

- _____ 1. Make sure the manual drain valve lever (located on the front of the drain valve) is in the “closed” position.
- _____ 2. Turn the electric power “on” to the humidifier. The LCD display on the INTAC[®] controller should illuminate “H2O Level Low - E07”. The “System Fault” LED should be illuminated
- _____ 3. 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. Consult the INTAC[®] manual for further instructions.
- _____ 4. Open the water supply on/off control valve (by others) and allow the humidifier evaporating chamber to fill to the proper level.
- _____ 5. Make sure all the optional safety switches are satisfied (airflow proving switch, high-limit humidistat, etc.).
- _____ 6. After the humidifier is full of water, menu 004 will read “FULL” and the “Normal Operation” LED will illuminate.
- _____ 7. Verify the low water safety circuit by closing the water supply and opening the manual drain lever on the drain valve. As the humidifier tank is draining, the “Fill” LED should illuminate. The humidifier should drain to a level where menu 004 reads “LOW”; this indicates that the low water safety circuit is operational. Verify that the “Pilot Relay” is de-energized.
- _____ 8. Close the drain valve and allow the humidifier to fill to the proper level.
- _____ 9. Turn menu 101 “RH Setpoint” up to a call for humidity. If a Building Automation System is controlling the humidifier have it call for 100% demand. For Building Automation System verify 0% and 100% demands are displayed as 0% and 100% on the INTAC[®] display or adjust the input high and low values to match accordingly.
- _____ 10. The heater(s) should energize on a call from the humidistat.
- _____ 11. 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 control circuit power. The safety switches should shut-off the humidifier heaters whenever one or more of the optional safety switches create an “open circuit”.
- _____ 12. Check heater amperage draw by testing and recording voltage and amperage in each phase. Readings should match the factory heater nameplate.
Amps A: _____ Amps B: _____ Amps C: _____
- _____ 13. 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, reseal gasket and replace the cover. A small amount of adhesive (super glue, gorilla glue, spray adhesive, etc.) to hold the gasket in place while repositioning the cover will aid in this process.
- _____ 14. 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. There are 6 clamps total inside the cabinet.

Signature: _____ Date: _____



Maintenance & Cleaning Instructions

PURE Humidifier Co. "EC" Maintenance Instructions

The "EC" Series Electric 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
(airflow, high-limit)

Check to make sure the safety interlocks (airflow, high-limit, etc.) will shut down the humidifier.

Immersion Heaters

Verify the correct amperage is being drawn by the heating element. Reference the wiring diagram for correct amperage.

Humidifier Cover/Tank

Inspect for any leaks. Repair as required. Remove the mineral deposits from floor of the humidifier reservoir. If excessive buildup is found, the cover may need to be removed to facilitate complete cleaning of the humidifier.

Tri-Probe Sensor

Remove Tri-Probe Sensor from humidifier (set-screw and o-ring seal) and inspect for excessive mineral buildup. Inspect plastic housing for cracks. 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

All humidifier tanks should be cleaned manually from the reservoir cover. Turn off the water supply, disconnect controls by unplugging the mox in the small octagon box, disconnect power wire from contactor and remove conduit connection from cabinet, disconnect all the hose connections from the tank and slide the tank out of the cabinet. Remove all loose solids with a wet vacuum, stainless steel brush, scouring pad, putty knife and/or bucket. Heaters should also be cleaned and loose build-up removed by hand (if applicable). After removal of solids and replacing the cover you may wish to add a de-scaling solution. **DO NOT** use Hydrochloric acid-based de-scalers; this will corrode stainless steel. PURE Humidifier Co. recommends the use of a vinegar, citric acid, diluted phosphoric acid or diluted nitric acid-based cleaner. Follow all precautions on the cleaner packaging. Some cleaners will give off overwhelming and noxious odors, so make sure there is proper ventilation in the working area and the steam outlet pipe is removed so that fumes are not spread throughout the building. After cleaning the tank, flush the tank multiple times to remove any remaining acid. Drain tank completely and allow the tank to air dry for a few hours. This will ensure that the outer protective layer of the stainless steel will passivate and ensure corrosion resistance.



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.

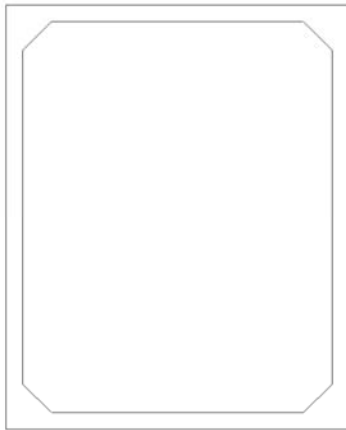


Fig. A
Plan View of Humidifier

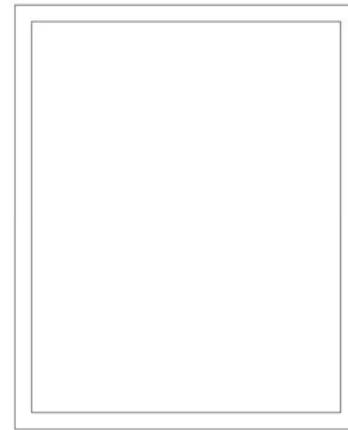
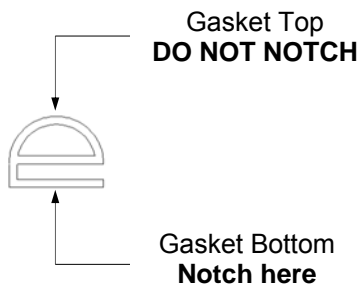
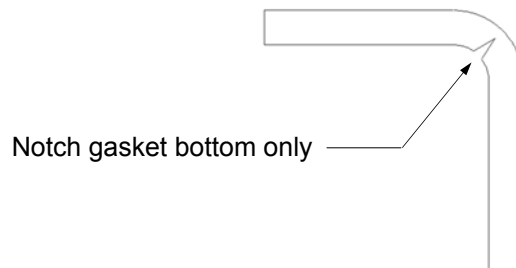


Fig. B
Plan View of Humidifier



Section View of Gasket



Bottom View of Gasket

Fig. C



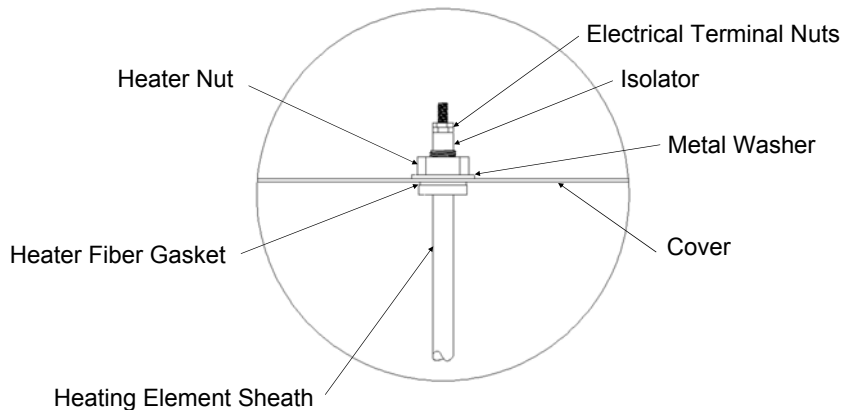
Troubleshooting

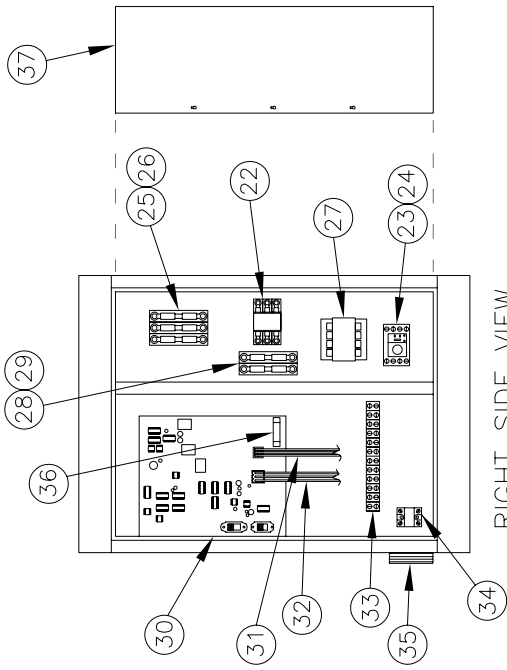
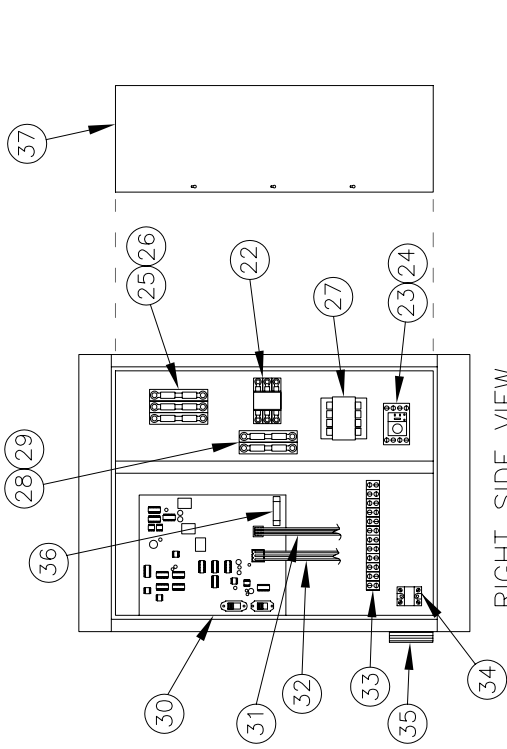
<u>Problem</u>	<u>Possible Cause</u>	<u>Recommended Action</u>
Humidifier will not heat	Blown heater fuse(s)	Check and replace.
	Control transformer not producing 24 vac control voltage	Check transformer output, and verify voltage.
	Safety controls open (air flow switch, high-limit, etc.)	Verify that all safety controls are completing the safety circuit.
	Over-temp switch	The level control circuit has interference or is damaged. Tri-probe Sensor wires should be run separate from power wiring. Do not reset the switch until the source of the problem is identified and corrected. Consult factory if you are unsure of the source of the problem.
	Faulty humidity sensor	Verify voltage to and from humidity sensor.
Humidifier will not fill	Faulty immersion heater	Check and verify heater voltage and amperage. Compare to diagram or nameplate label ratings.
	No water pressure	Check water supply.
	Drain valve open	If auto drain system is utilized, verify that the manual drain lever on the front of the drain valve is closed.
Humidifier will not stop filling or is short cycling	No power to the fill valve	Check for 24 vac across solenoid valve.
	Fill valve stuck open	Check for 24 vac across solenoid valve. If no voltage, check for dirt under valve seat.
	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.
	Probes need cleaning	Remove Tri-Probe Sensor and clean probe ends.
	Check probe wiring	Grey wire to probe #1 (shortest probe) Violet wire to probe #2 (middle probe) Blue wire to probe #3 (longest probe)
Line noise or radio frequency	Shielded cable may be necessary.	

Recommended Maintenance Tool List
7/16" Wrench
5/16" Nut Driver or Socket
11/32" Nut Driver or Socket
3/8" Nut Driver or Socket
5/32" Nut Driver or Socket
Flat head screwdriver
Wire stripper
Wire crimper

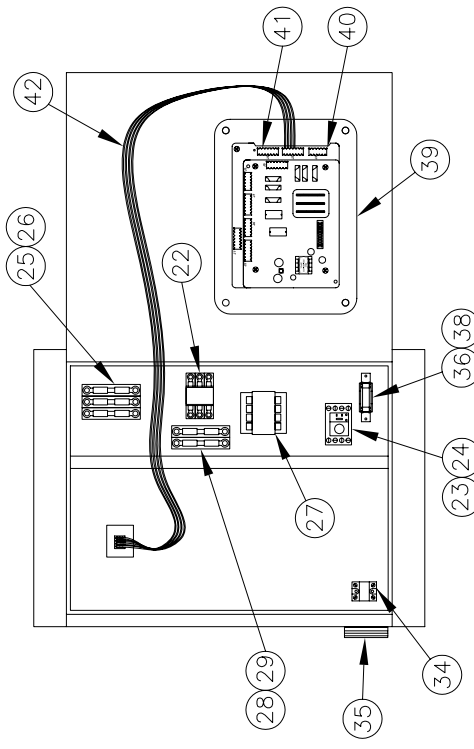
Torque List	
Cover Bolts	18 inch/pounds MAX
Hose Cuff Screws	35-40 inch/pounds MAX when hot
Heater Nut	18-20 foot/pounds*
Heater Electrical Terminal	35 inch/pounds
* Use a pliers to hold heater sheath from twisting.	

Heater Assembly Sectional Detail





RIGHT SIDE VIEW OF EC CABINET WITH STANDARD CONTROLS



RIGHT SIDE VIEW OF EC CABINET WITH INTAC® MICROPROCESSOR

BACK OF CABINET DOOR INSIDE OF EC CABINET WITH INTAC® MICROPROCESSOR



Title: EC ASSEMBLY		Dwg No:
Scale: No Scale	Date: Mar. 25, 2010	Drwn: P.R.G.
		1548

**PURE Humidifier Co. "EC" Series
Parts List & Two Year Recommended Spare Parts**

Item No.	Description	Part No.	Qty Per Unit.	Rec. SpareQty.
1	EC Exterior Cabinet	18001	1	
2	EC Cabinet Door, no lock, see item 21	18002	1	
3	EC Reservoir Assembly	A	1	
4	EC Reservoir Cover Assembly	A	1	
5	Immersion Heating Elements	A	A	
6	EC Tri-Probe Sensor	05327	1	
7	Tri-Probe O-Ring	15166	1	
8	Tri-Probe Set Screw	15525	1	
9	Cover Gasket	A	A	
10	Cover Clamp	15930	A	
11	Cover Clamp Screws	15522	A	
12	10-24 U-Nut	15524	A	
13	Overtemp Protection Switch	15047	1	
14	Overtemp Switch Housing	15072	1	
15	1/4" Stainless Steel Fill Valve with Strainer	09128	1	
16	Motorized Drain Valve	09038	1	
17	3/4" Brass Ball Valve	09037	1	
18	Fill Tube	05781	1	
19	Cabinet Cover Plate	18005	1	
20	Heater Cover	96038	1	
21	Door Lock and Keys	12001	1	
22	Heater Contactor	A	1	
23	Pilot Relay	12018	A	
24	Relay Socket	12020	A	
25	Fuse Block	A	1	
26	Heater Fuses	A	3	
27	Step-Down Transformer	A	1	
28	Primary Fuse Holder	A	1	
29	Primary Fuses	A	2	
30	Control Board	A	1	
31	Wiring Harness P3-A	18027	1	
32	Wiring Harness	A	A	
33	14 Point Terminal Strip	12044	1	
34	SCR Relay	A	A	
35	SCR Heat Sink	A	A	
36	Secondary Fuse	A	1	
37	Power Supply Cover	18008	1	
Optional INTAC® Microprocessor Equipped Units				
38	Secondary Fuse Holder	12085	1	
39	INTAC® Microprocessor	A	1	
40	6 Pin Terminal Strip	12309	A	
41	7 Pin Terminal Strip	12310	A	
42	INTAC® EC Wiring Harness	A	1	

NOTES/CODES:

A = Part Number and quantity vary with model number.

When ordering replacement or spare parts, please have the following information available: Model Number, Primary Volage, Serial Number, No. of Heaters & Heater KW and any options (ie, automatic drain, modulating control or insulation etc.)

Some parts shown may not be required for your unit.

7/13/2015

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.



141 Jonathan Blvd. North
Chaska, MN 55318
Tel: (952) 368-9335 Fax: (952) 368-9338
www.purehumidifier.com