



**READ AND SAVE THESE INSTRUCTIONS**

*Deionized, Demineralized, or Reverse Osmosis Water*

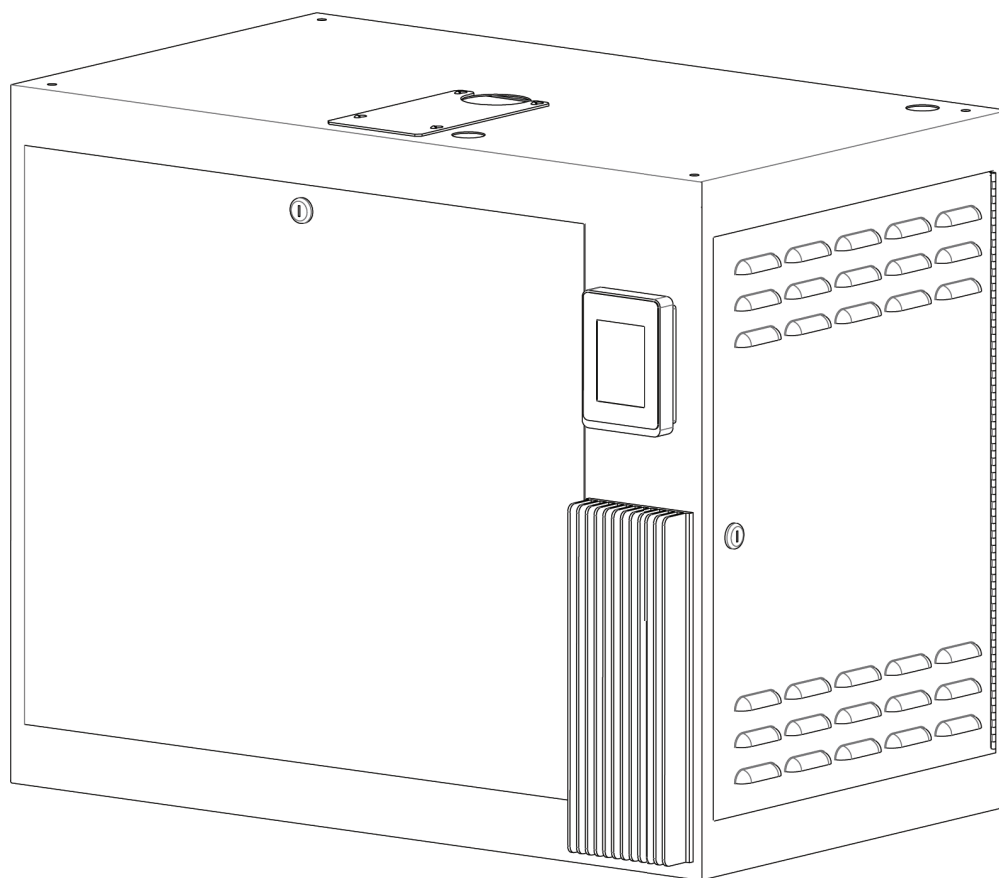
# ***ECDDR Series***

## ***Electric Humidifier***

### **Installation Instructions**

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### **Operation and Maintenance Manual**



*Our results are comforting*

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**Form No: ECDOM-4-2023**



## 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 ECDDR Series Humidifier is specifically designed to operate with deionized, demineralized, or reverse osmosis water. All components that will be in contact with water are constructed of type 304 stainless steel, incoloy, or corrosion resistant materials.

Use of mineralized (hard or soft) tap water will cause fill valve failure and void that warranty. PURE Humidifier Co.'s EC Series should be installed on applications that require tap 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.

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### 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 ECDDR Series

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

## Electrical Specification ECDDR Series

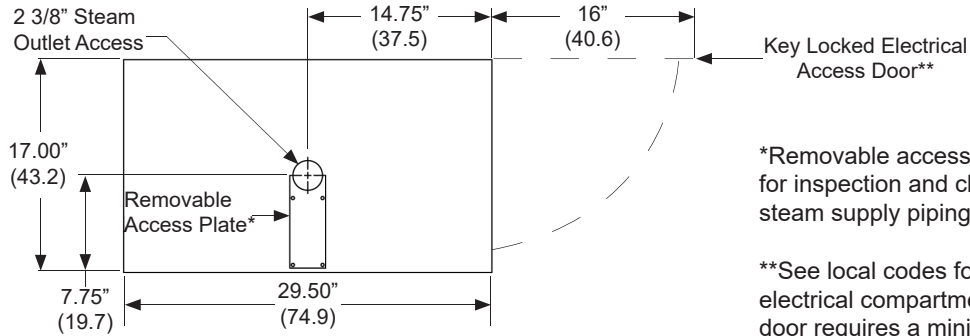
Standard Water Unit Model No.	KW	Single Phase Amperage						Three Phase Amperage				CONTROL CIRCUIT VOLTAGE	
		No. of Heaters	120V	208V	240V	480V	600V	No. of Heaters	208V	240V	480V		600V
ECDDR-5	5	Single	41.7*	24.0	20.8	10.4	8.3	Triple	13.9	12.0	6.0	4.8	24 vac
ECDDR-10	10	Double	41.7			20.8	16.7	Triple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

\* ECDDR-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.



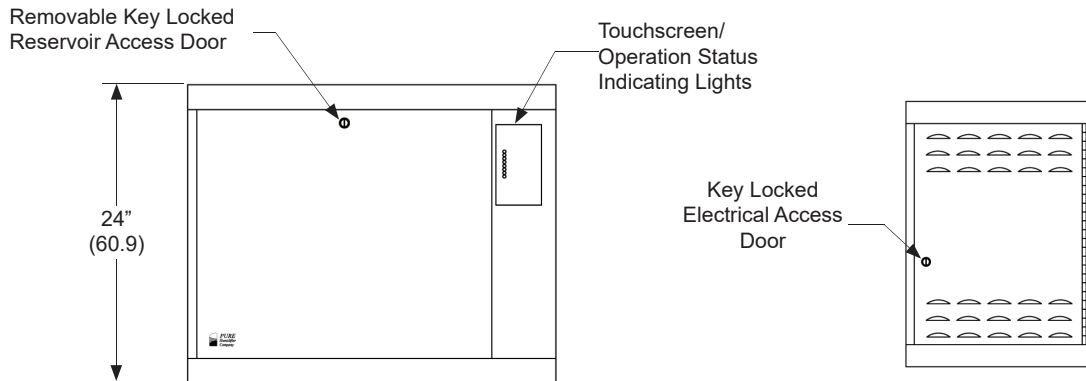
## Dimensions & Layout



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

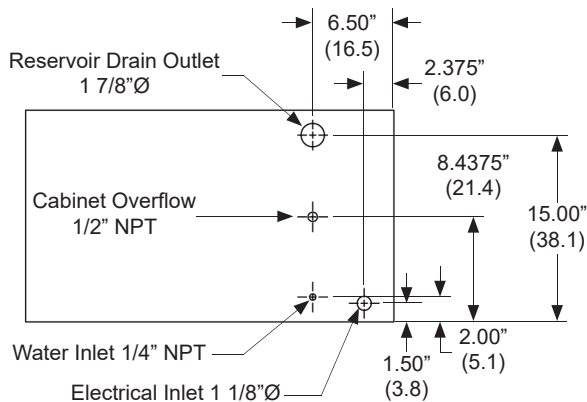
\*\*See local codes for minimum clearance to electrical compartment. The electrical access door requires a minimum clearance of 16" to fully open.

**TOP VIEW**



**RIGHT SIDE VIEW**

**FRONT VIEW**

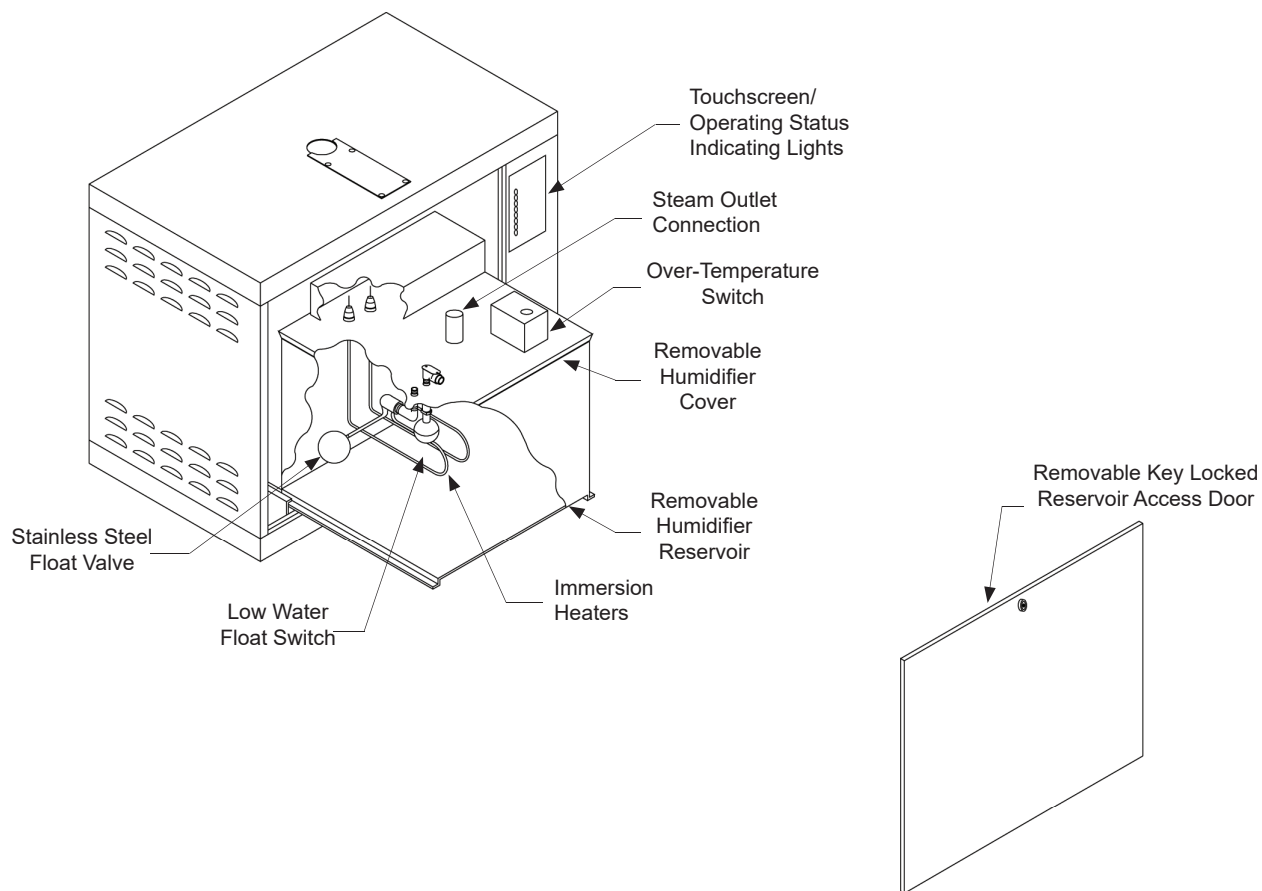


**BOTTOM VIEW**

Note: Dimensions are typical for all ECDDR models.



## Humidifier Layout



### Humidifier Features

- SCR modulating control
- Low water cut-off float switch
- Stainless steel float type make-up water valve
- 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® PLC control system
- VAV dual modulating control system\*

\* Optional features



## *Installation & Location*

**Important:** Remove all shipping brackets and materials before operating the humidifier. Humidifier flue gases must be vented to the outside atmosphere. Power supply disconnect switch must be in the off position while making wiring connections to prevent electrical shock and equipment damage. All units must be wired in strict accordance with wiring diagram furnished with this unit. Turn off all gas while installing the supply gas piping and field installed manual gas shut-off valve for the humidifier.

### **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 detectors should not be located downstream of injection tube assemblies.

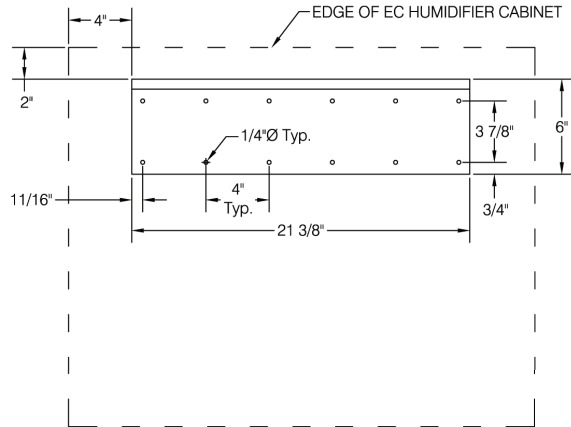
### **Location of Controls**

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.

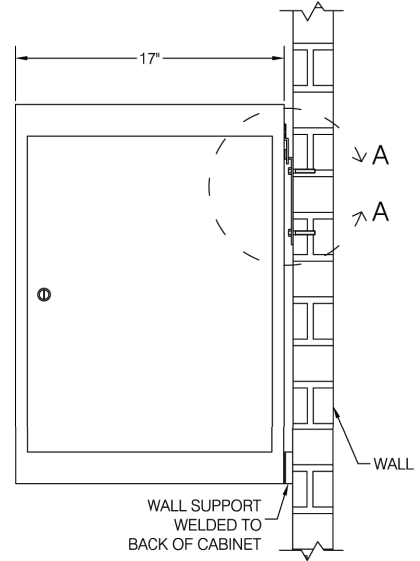
High-limit humidistats should be installed before any duct obstruction to make sure the humidifier is interrupted before saturation can occur on the object. The high-limit should be mounted a minimum of 8-10 feet (244-305 cm) downstream from the injection tube. Installing the high-limit closer than 8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



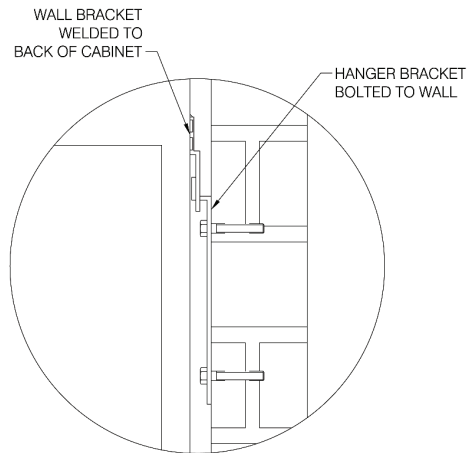
## Wall Mounting Detail



HANGER BRACKET HOLE DETAIL  
FRONT VIEW



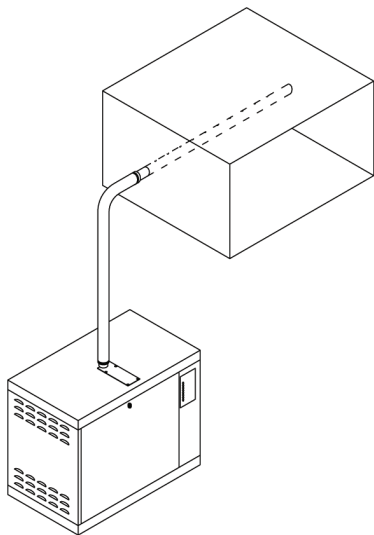
RIGHT SIDE VIEW



DETAIL  
A - A

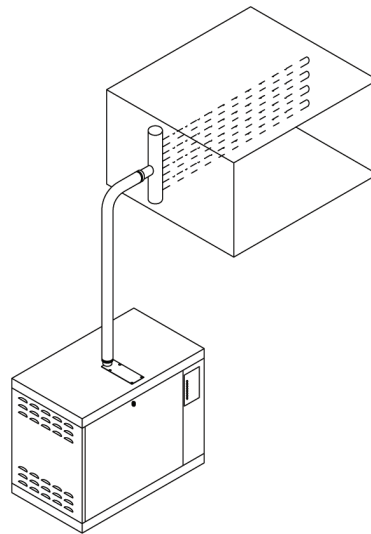
### Mounting

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. ECDDR cabinet is then hung on slip-fit bracket.



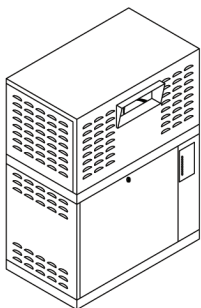
**Injection Tube and Flexible Hose Kit**

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 & Flexible Hose Installation

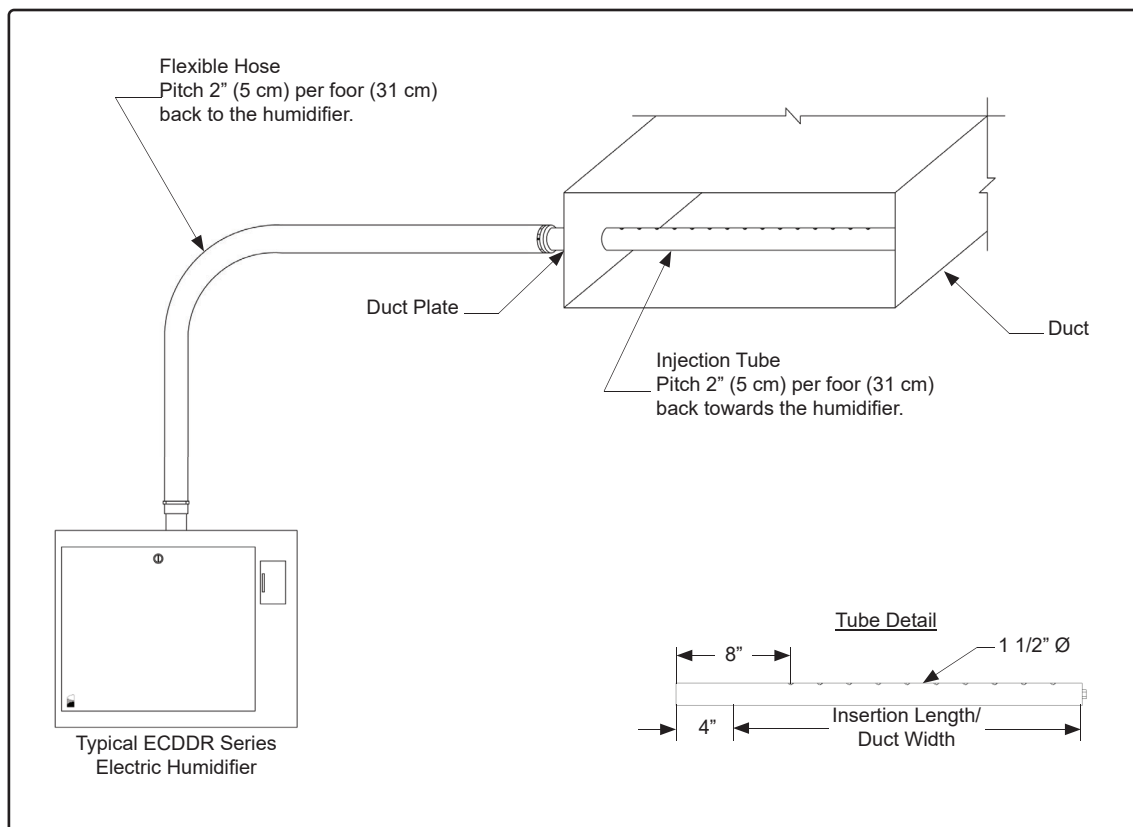
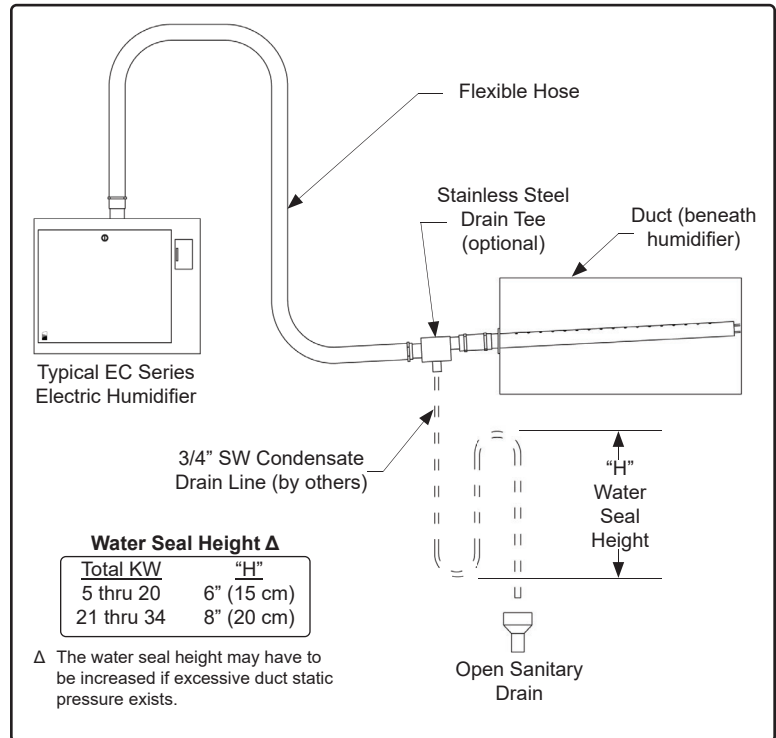
### Flexible Hose Kit Installation

Hose kits should have the injection tube 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).

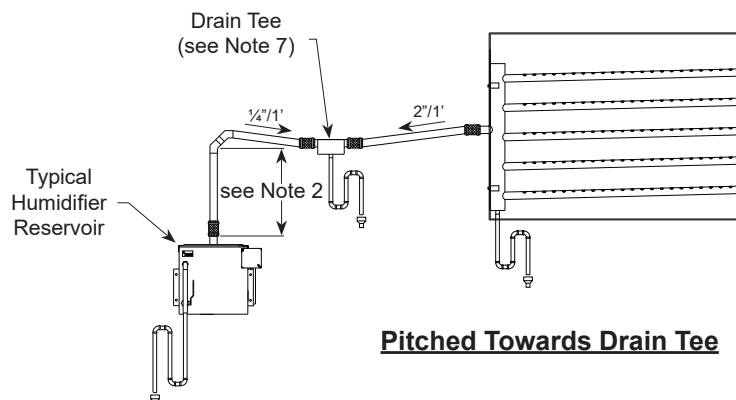
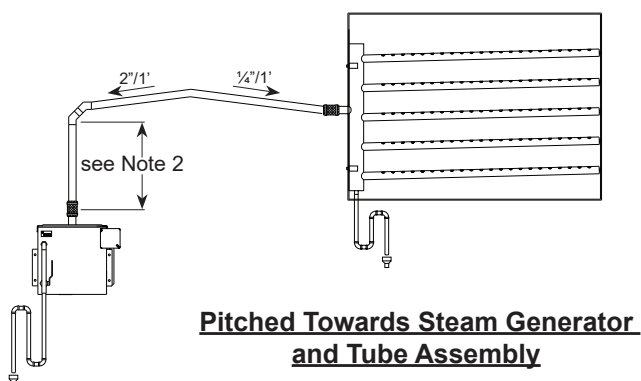
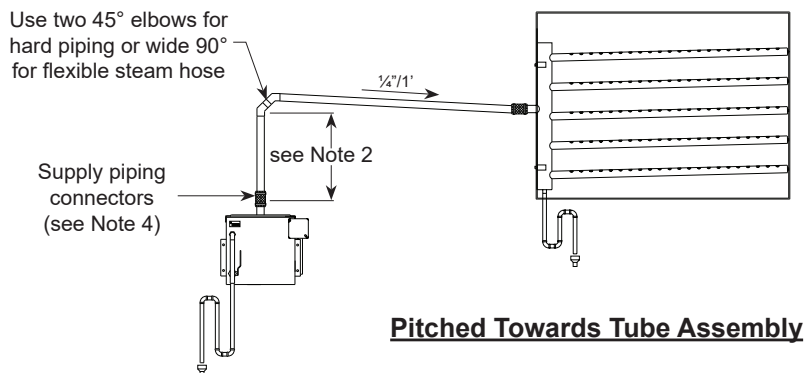
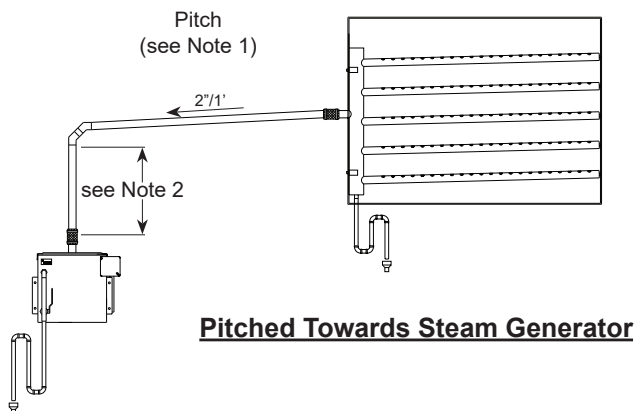
The hose connects to the injection tube and humidifier with stainless steel hose clamps (by PURE Humidifier Co.).

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





## Steam Supply Piping Examples



### 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.



## Piping

### Water Supply Piping

Supply pressure: 35-55 psi optimal

This style humidifier utilizes a float-operated fill valve system which is designed for use with deionized, demineralized, or reverse osmosis water. Use of mineralized tap water will cause fill valve failure and will void the humidifier warranty. Install stainless pipe on makeup water line within 5 feet of humidifier fill valve connection. If plastic pipe is used beyond this point a check valve is required to prevent steam from entering the plastic section in the event that the water treatment system runs out of water.

Cold or hot deionized, demineralized, or reverse osmosis 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 55 psi (3.7 Bar). If the water pressure is above 55 psi (3.7 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 1/4" NPT piping.

### Drain Piping

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

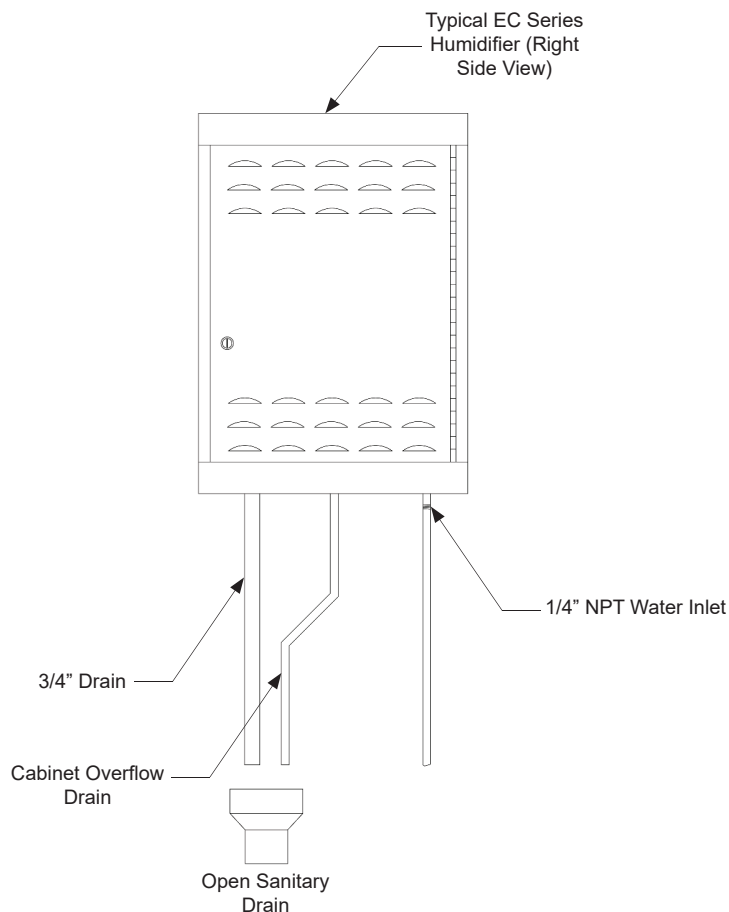
The drain piping should be copper or stainless steel. The use of PVC piping is not recommended; the humidifier water temperature may cause the PVC to soften and fail. Use a drain tempering kit before transition to PVC.

The ECDDR 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.

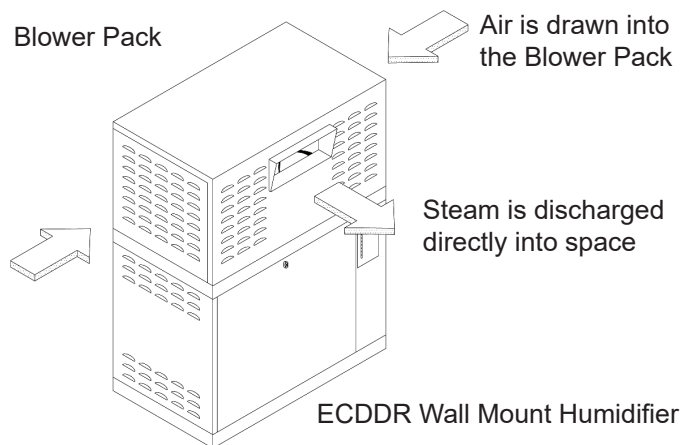
#### **WARNING:**

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.

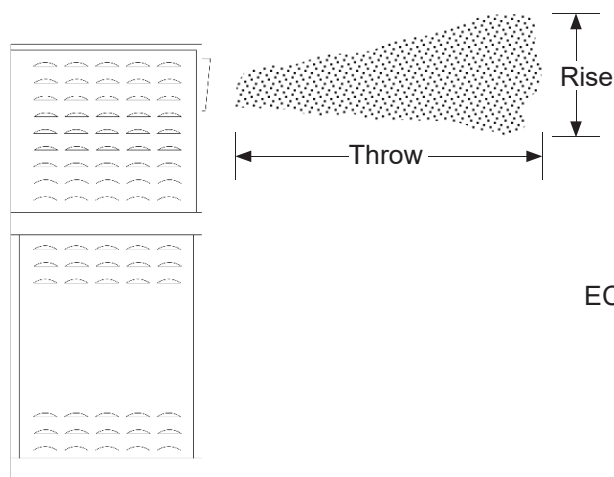


## Optional Blower Pack

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 ECDDR humidifier or can be remote mounted (see Fig. 2).



**ECDDR w/Optional Blower Pack  
Fig. 1**



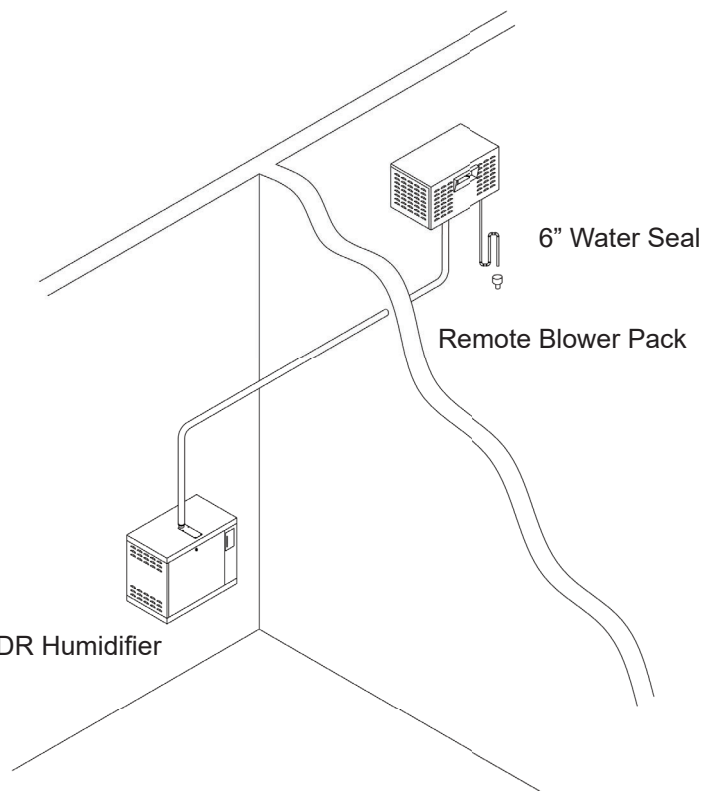
**Visible Rise and Throw  
Fig. 3**

## 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 ECDDR wall mount humidifier (see Fig. 2).



**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					
		ECDDR-5	ECDDR-10	ECDDR-15	ECDDR-20	ECDDR-25	ECDDR-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.

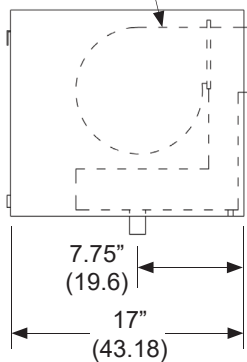
**Rise** is the vertical distance the visible steam travels from the steam discharge.

Objects in the direct line of the visible steam or objects that are cooler than the ambient temperature may accumulate condensation.

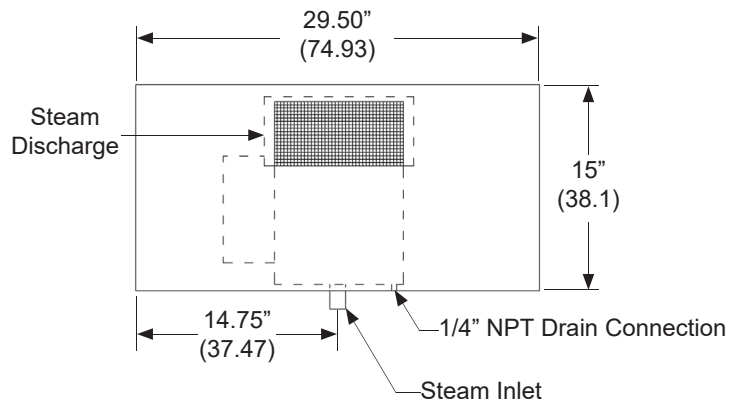
**NOTE:** Data above based on 70°F room temperature.

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)



## *EC Pre-Startup Procedure*

### **Pre-Startup Checklist**

Before starting the ECDDR 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. 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 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 35-55 psi. There should be at least 5 feet 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: 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® PLC Startup Procedure

### Start-Up Procedure

- \_\_\_\_\_ 1. Prime water seal by removing overflow hose and adding water. Replace and tighten hose clamp.
- \_\_\_\_\_ 2. With the power "off", set the switch on the control board to the "Stand-by" position (the control board is located within the humidifier control panel door).
- \_\_\_\_\_ 3. Close the humidifier manual ball valve (located inside the humidifier evaporating chamber compartment).
- \_\_\_\_\_ 4. Turn the controlling humidistat to the lowest setting (no call for humidity).
- \_\_\_\_\_ 5. Turn the electric power "on" to the humidifier. The "Power" LED light on the controller should be illuminated.
- \_\_\_\_\_ 6. Set the switch on the control board to the "Normal" position.
- \_\_\_\_\_ 7. Open the water supply on/off control valve (by others) and allow the humidifier evaporating chamber to fill to the proper level.
- \_\_\_\_\_ 8. After the humidifier is full of water, the "Water Level Full" LED will illuminate. Turn the humidistat up to call for humidifier demand.
- \_\_\_\_\_ 9. Make sure all the optional safety switches are satisfied (airflow proving switch, high-limit humidistat, etc).
- \_\_\_\_\_ 10. The heater(s) should energize on a call from the humidistat.
- \_\_\_\_\_ 11. 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.
- \_\_\_\_\_ 12. Close the drain valve and allow the humidifier to fill to the proper level.
- \_\_\_\_\_ 13. 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".
- \_\_\_\_\_ 14. 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: \_\_\_\_\_
- \_\_\_\_\_ 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, 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.
- \_\_\_\_\_ 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. There are 6 clamps total inside the cabinet.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## INTAC® PLC Startup Procedure

### Start-Up Procedure

- \_\_\_\_\_ 1. Prime water seal by removing overflow hose and adding water. Replace and tighten hose clamp.
- \_\_\_\_\_ 2. Turn the electric power "on" to the humidifier.
- \_\_\_\_\_ 3. RH Setpoint on the touchscreen should be set to 0.0% RH (no call for humidity). If there is no display of actual humidity on the touchscreen the procedure must be done through the Building Management System.
- \_\_\_\_\_ 4. Close the humidifier manual drain ball valve (located on the right side of the humidifier evaporating chamber).
- \_\_\_\_\_ 5. Open the water supply on/off control valve (by others) and allow the humidifier evaporating chamber to fill to the proper level.
- \_\_\_\_\_ 6. Make sure all the optional safety switches are satisfied (airflow proving switch, high-limit humidistat, etc).
- \_\_\_\_\_ 7. After the humidifier is full of water the touch screen will read "Water Level FULL".
- \_\_\_\_\_ 8. Verify the low water safety circuit by closing the water supply and opening the manual drain lever on the drain valve. The humidifier should drain to a level where the touch screen will read "Water Level Low"; this indicates that the low water safety circuit is operational. Verify that the Pilot Relay and Contactor both de-energized.
- \_\_\_\_\_ 9. Close the drain valve and allow the humidifier to fill to the proper level.
- \_\_\_\_\_ 10. The RH Setpoint on the touchscreen should be set above the actual reading to get a call for humidity. If a Building Automation System is controlling the humidifier, set it to call for 100% demand. For Building Automation System verify 0% and 100% demands are displayed as 0% and 100% on the touchscreen or adjust the input high and low values to match accordingly.
- \_\_\_\_\_ 11. The heater(s) should energize.
- \_\_\_\_\_ 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 50 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.
- \_\_\_\_\_ 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.
- \_\_\_\_\_ 16. Adjust the RH setpoint back to the desired value.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_





## *Maintenance & Cleaning Instructions*

### **PURE Humidifier Co. ECDDR Maintenance Instructions**

The ECDDR Series Electric Humidifier is practically maintenance-free. 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 per year.** If excessive mineral buildup occurs, the maintenance schedule should be increased.

#### **Inspect/Maintenance Item**

#### **Procedure to Follow**

Water Makeup Float 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 trouble shooting instructions).

Low Water Float Switch

Check to make sure the switch will shut the humidifier off when the water level drops too low. Open the drain valve to allow water to drain out for checking purposes. Make sure to reset the drain valve after inspection is completed.

Safety Interlocks  
(air flow, high-limit)

Check to make sure the safety interlocks (air flow, 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 build-up is found, the cover may need to be removed to facilitate complete cleaning of the humidifier.

Flexible Hose

Inspect for cracks or leaks. It is normal for the hose to become hard and develop a "set".

### **Cleaning Instructions**

Humidifiers supplied with deionized makeup water with a conductivity less than 1 microsiemen (resistivity greater than 1 megohm) likely do not have any appreciable mineral scale buildup and should not need to be descaled. Humidifiers supplied with make-up water conductivities higher than 1 microsiemen (e.g. a single pass reverse osmosis water supply), may have a slight accumulation of minerals in the tank after one season of operation. If descaling is required, please refer to the PURE Clean O&M.



## 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  $\frac{1}{8}$ " 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  $\frac{1}{8}$ " 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.

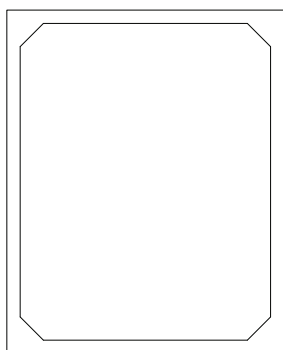


Fig. A  
Plan View of Humidifier

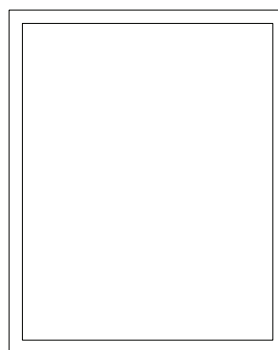
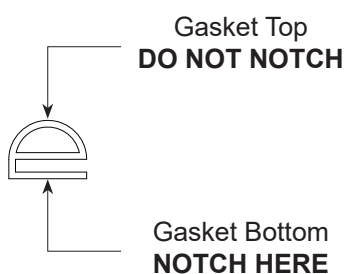
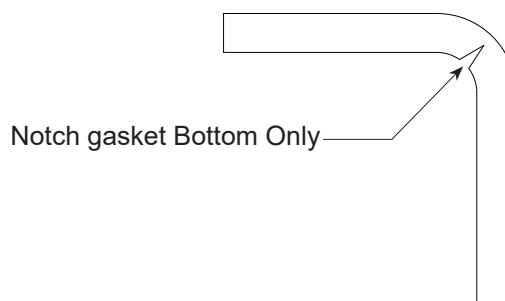


Fig. B  
Plan View of Humidifier



Section View of Gasket



Bottom View of Gasket



## *Troubleshooting*

<b><u>Problem</u></b>	<b><u>Possible Cause</u></b>	<b><u>Recommended Action</u></b>
<b>Humidifier will not heat</b>	Blown heater fuse(s)	Check and replace.
	Control transformer not producing 24 vac control voltage	Check transformer output. Verify voltage across terminals #9 (hot) and #10 (comm).
	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. The float switch ball may be upside down or hanging up on the tank wall. 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.
	Faulty immersion heater	Check and verify heater voltage and amperage. Compare to diagram or nameplate label ratings.
<b>Humidifier will not fill</b>	No water pressure	Check water supply.
	Drain valve open	Close drain ball valve.
	Float valve clogged	Check float valve for debris.
<b>Humidifier will not stop filling or is short cycling</b>	Fill valve stuck open	Adjust float valve shutoff height.
	Drain valve open	Close drain ball valve.

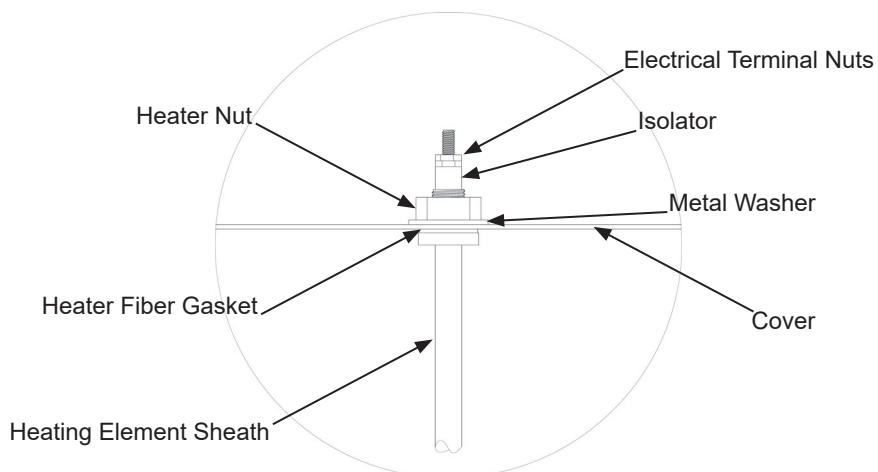


## Tool Requirements & Torque List

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 Screw Driver
Wire Stripper
Wire Crimper

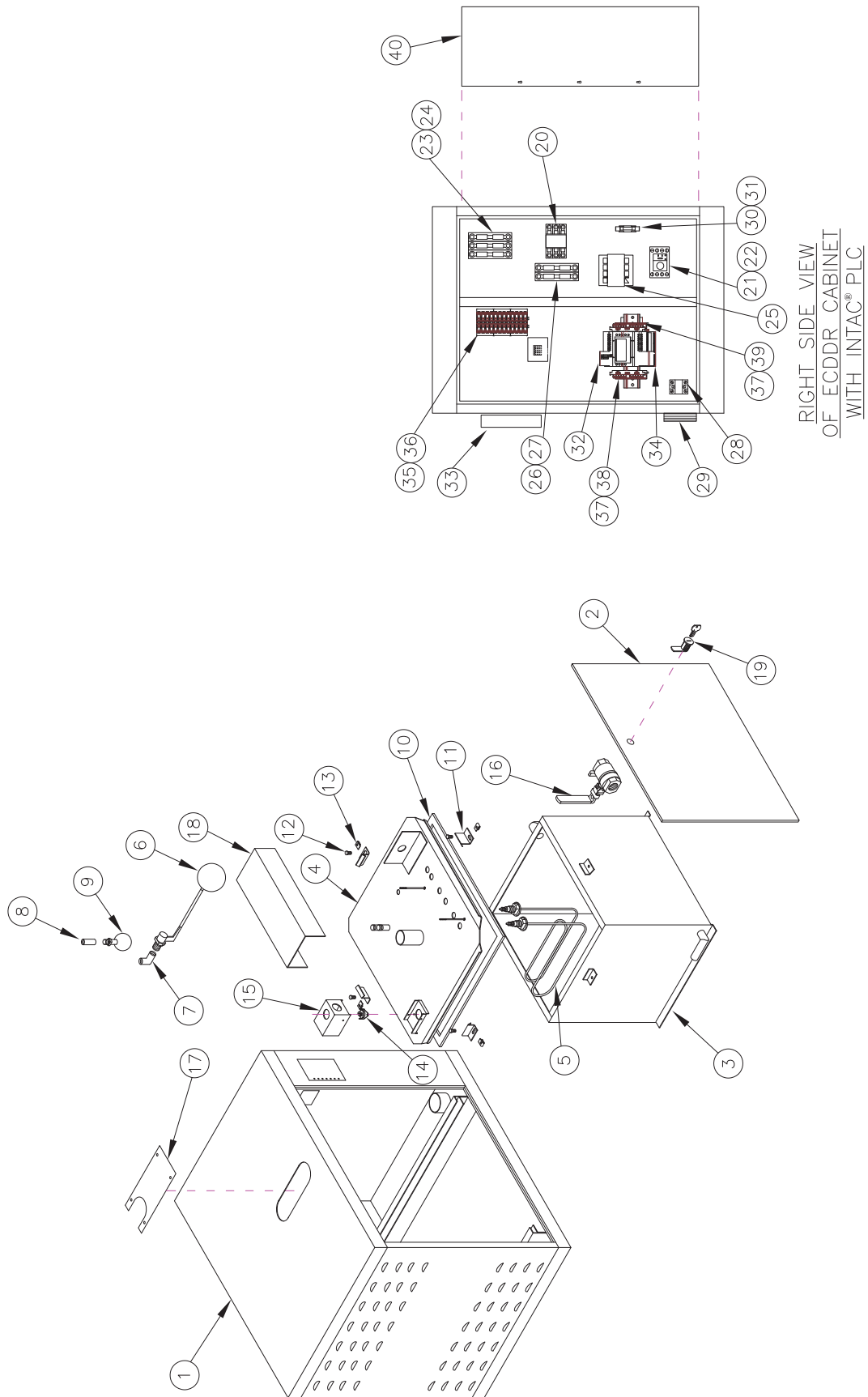
Torque List	
Cover Bolts	18 inch/pounds MAX
Hose Cuff Screws	35-40 inch/pounds MAX when hot
Heater Nut	18-20 <b>foot/pounds*</b>
Heater Electrical Terminal	35 inch/pounds
* Use a pliers to hold heater sheath from twisting.	

### Heater Assembly Sectional Detail





## Exploded Parts Drawing





## PURE Humidifier Co. ECDDR Series Parts List & Two Year Recommended Spare Parts

Item No.	Description	Part No.	Qty Per Unit
1	ECDDR Exterior Cabinet	18001	1
2	ECDDR Cabinet Door, No Lock (See #19)	18002	1
3	ECDDR Tank	10029	1
4	ECDDR Top Cover	96044	1
5	Immersion Heating Elements	A	A
6	Float Valve & Ball, 316 SST	09079	1
7	1/4" 304 SST 90 degree Elbow	07002	1
8	304 SST Half Coupling	07001	1
9	Low Water Float Switch	15048	1
10	Cover Gasket	15520	1
11	Cover Clamp	15930	4
12	Cover Clamp Screw (10-24 x 1" Hex Socket)	15522	4
13	Cover Clamp Nut (10-24 U-Nut)	15524	4
14	Overtemp Protection Switch	15047	1
15	Overtemp Switch Housing	15072	1
16	1/2" Ball Valve, 316 SST	09089	1
17	Cabinet Cover Plate	18005	1
18	Heater Cover	96038	1
19	Door Lock and Keys	12001	1
20	Heater Contactor	A	1
21	Pilot Relay	12018	A
22	Relay Socket	12020	A
23	Fuse Block	A	1
24	Heater Fuses	A	3
25	Step-Down Transformer	A	1
26	Primary Fuse Holder	A	A
27	Primary Fuses	A	2
28	SCR Relay	A	A
29	SCR Heat Sink	A	A
30	Secondary Fuse	A	A
31	Secondary Fuse Holder	12085	1
32	INTAC® PLC	16129	1
33	Touchscreen	16131	1
34	Pluggable Terminal Blocks	A	A
35	Wago 221-2504 Inline Carrier (4 Terminal)	12378	2
36	Wago 221-2401 Inline Lever Terminal	12377	6
37	Wago 221-500 Splice Terminal Carrier	12382	2
38	Wago 221-415 Lever Splice Terminal (5 Position)	12381	2
39	Wago 221-413 Lever Splice Terminal (3 Position)	12380	2
40	Power Supply Cover	18008	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.

Units with a UT Control Board or INTAC® Microprocessor: Contact factory for parts.

04/2023

## DISCLAIMER

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



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