



**READ AND SAVE THESE INSTRUCTIONS**

*Deionized, Demineralized, or Reverse Osmosis Water*

# ***“ECDDR” 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: ECDOM-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 "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

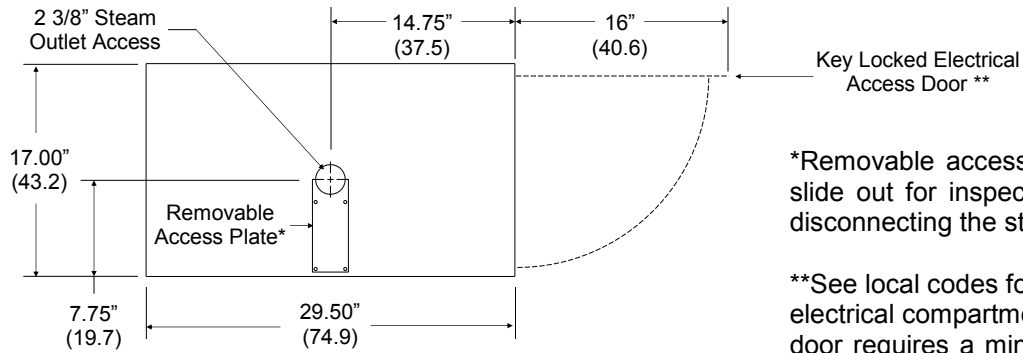
Deionized Water Unit Model No.	Steam Output Capacity †		Humidifier Weight			
	lbs/hr	kg/hr	Empty		Full	
			lbs	kg	lbs	kg
ECDDR-5	15.0	6.8	139.0	63.1	223.0	101.2
ECDDR-10	30.0	13.6	140.0	63.5	224.0	101.6
ECDDR-15	45.0	20.4	141.0	64.0	225.0	102.1
ECDDR-20	60.0	27.2	142.0	64.4	226.0	102.5
ECDDR-25	75.0	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

Deionized Water Unit Model No.		Single Phase Amperage						Three Phase Amperage				Control Circuit Voltage	
	KW	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.

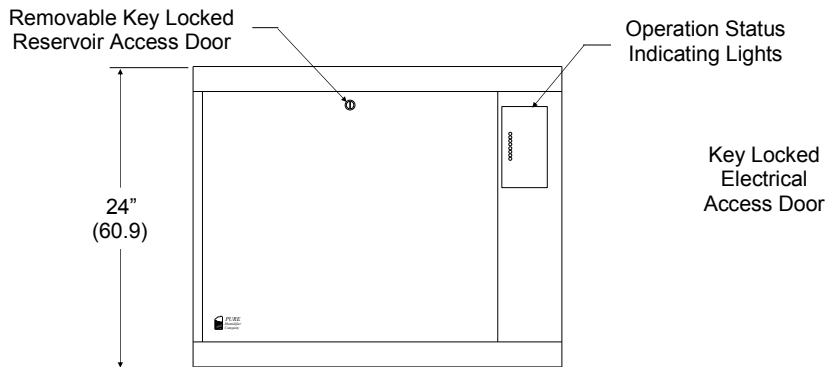
† The above capacities are based on 100% efficiency. Actual humidifier capacity may vary due to the heat loss from the humidifier reservoir. The ambient air temperature, air velocity, and injection tube system will affect the rate of heat loss from the humidifier reservoir.



**TOP VIEW**

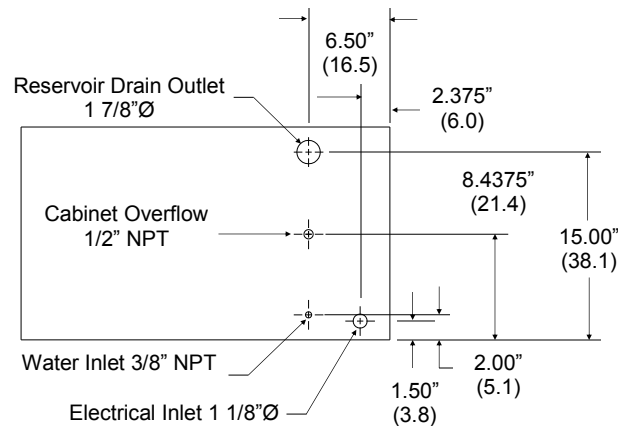
\*Removable access plate allows reservoir to slide out for inspection and cleaning without disconnecting the steam supply piping.

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



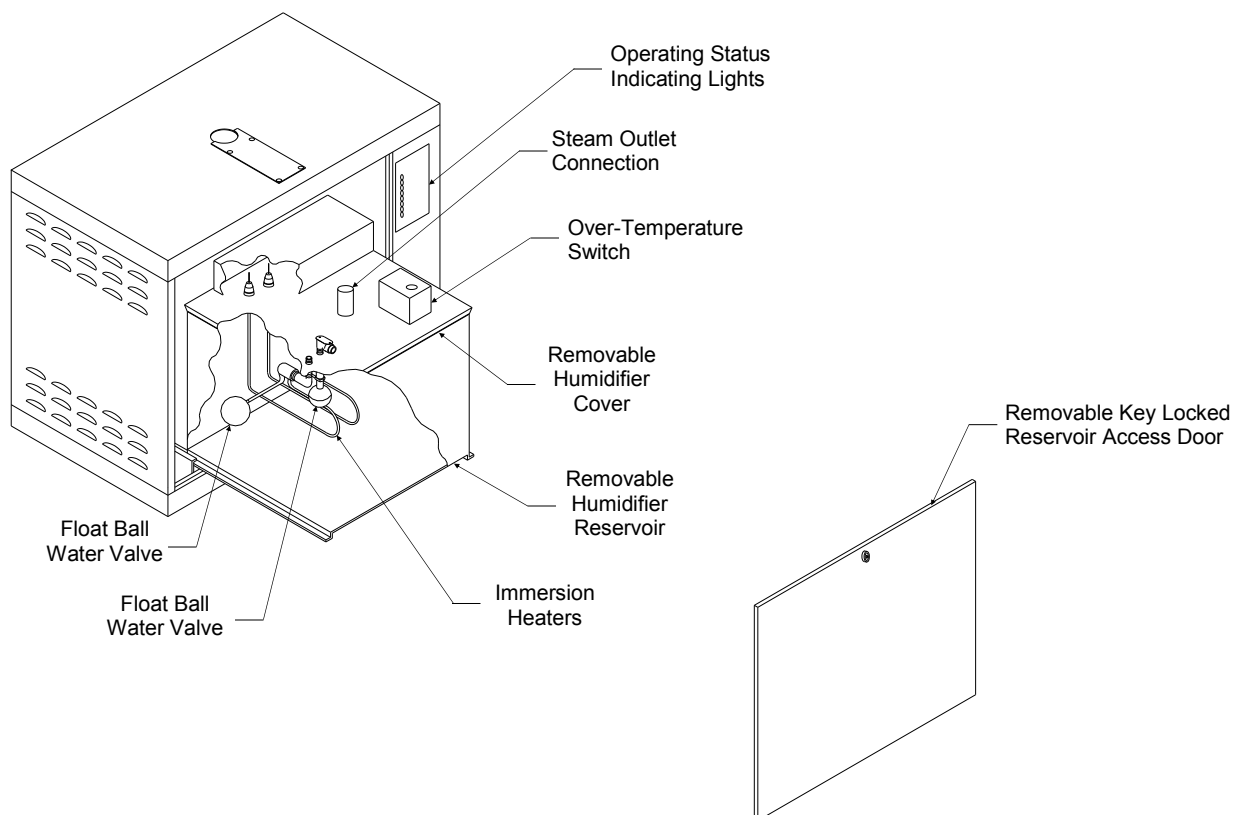
**FRONT VIEW**

**RIGHT SIDE VIEW**



**BOTTOM VIEW**

Note: Dimensions are typical for all ECDDR models.



### Humidifier Features

- SCR modulating control
- Visible status and diagnostic LED indicator lights
- Stainless steel float type water makeup valve
- Low water cut-off float switch
- 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 from 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. ECDDR 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 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.

### **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.

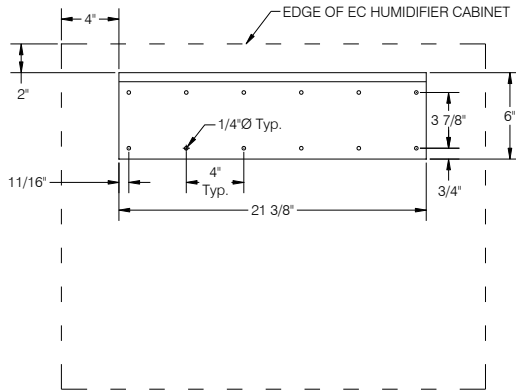
### **Multiple Injection Tube Assemblies**

See page 9 for details.

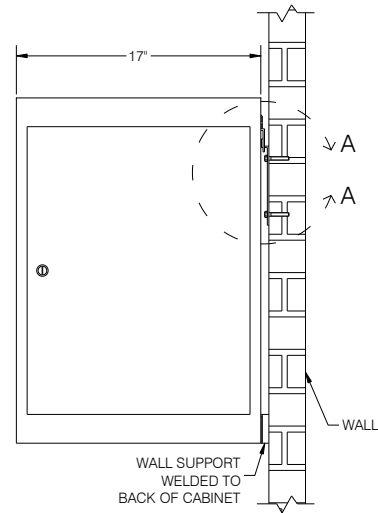


**PURE**  
Humidifier

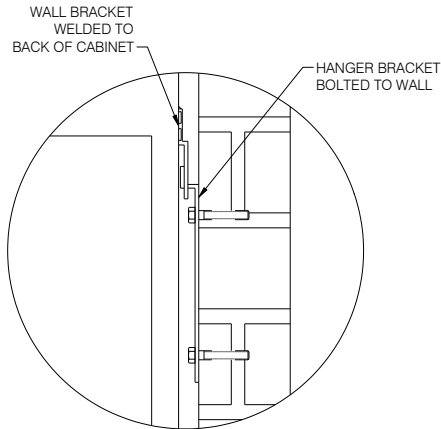
## Wall Mounting Detail



HANGER BRACKET HOLE DETAIL  
FRONT VIEW



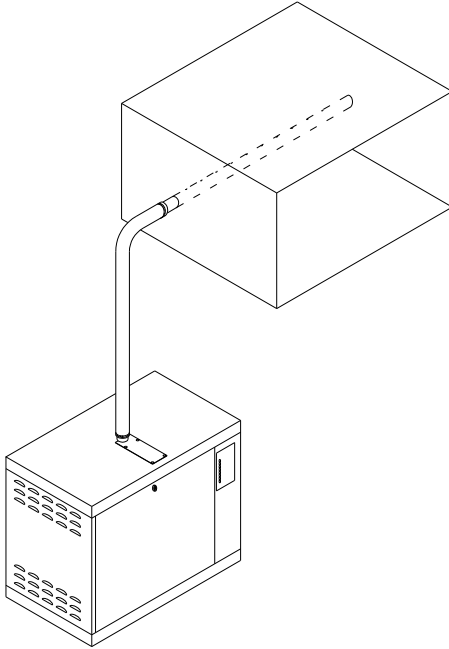
RIGHT SIDE VIEW



DETAIL  
A - A

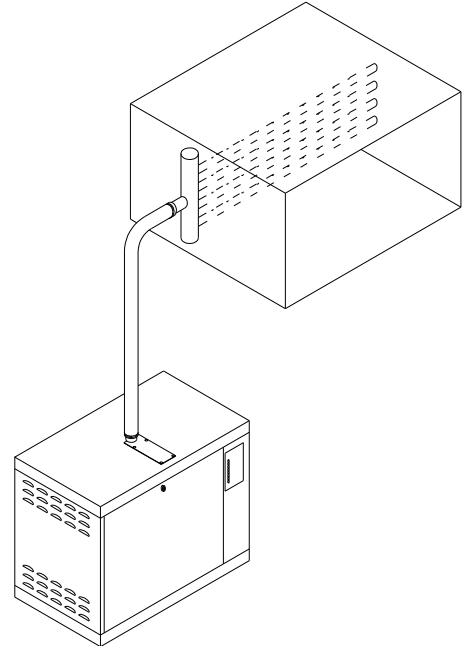
## Mounting

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 the slip-fit bracket.



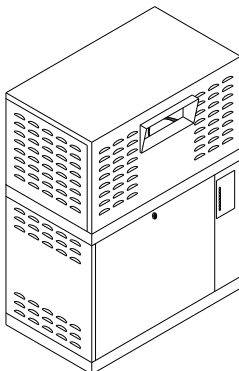
### Injection Tube and Flexible Hose

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.



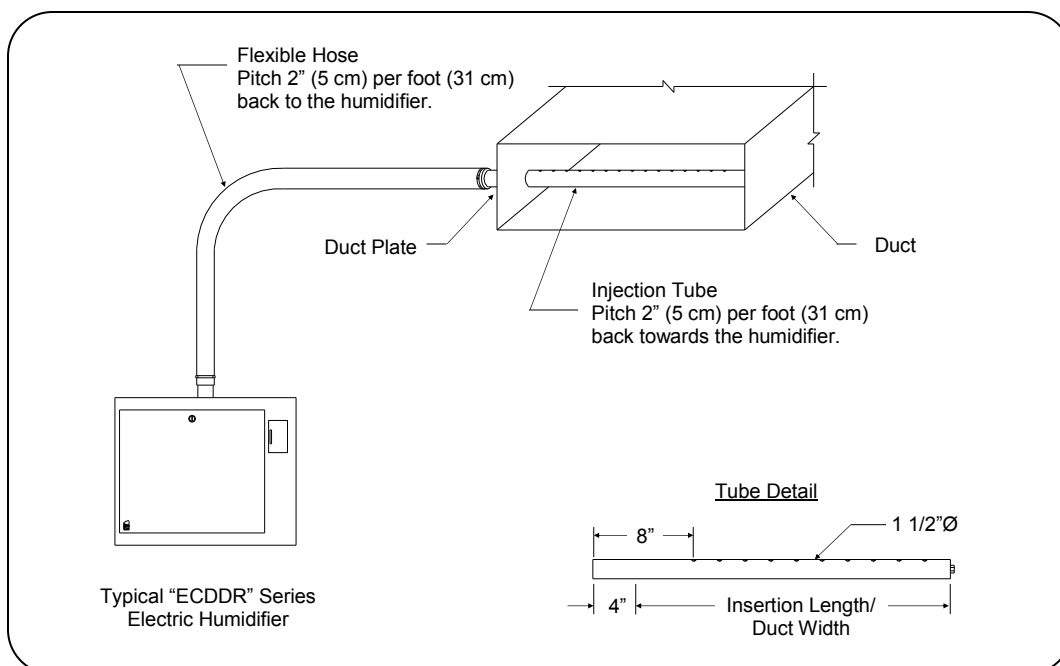
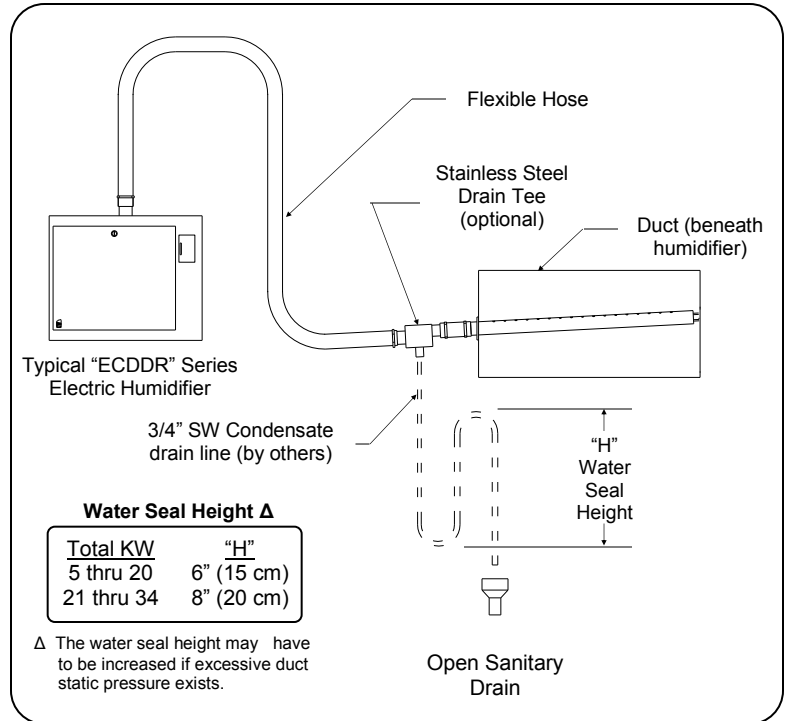
## Installation

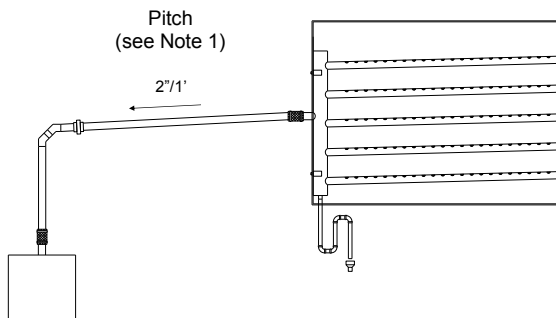
Injection tube shall be installed in the center of the duct. Hose and injection tube should be pitched back to the humidifier two inches (5 cm) per foot (31 cm). If proper pitch cannot be maintained, or the injection tube is mounted lower than the humidifier, a drain "tee" will be required (reference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

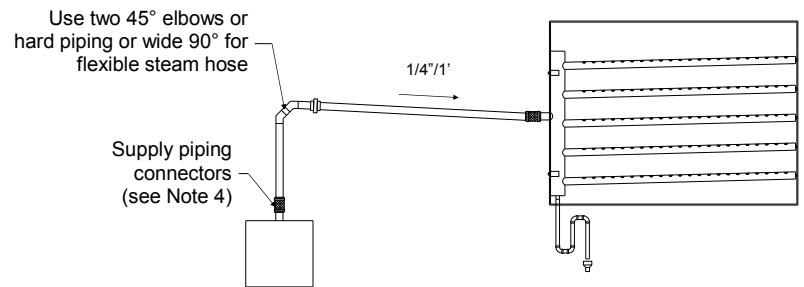
The hose connects to the injection tube and humidifier with stainless steel hose clamps (by PURE Humidifier Co.).

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

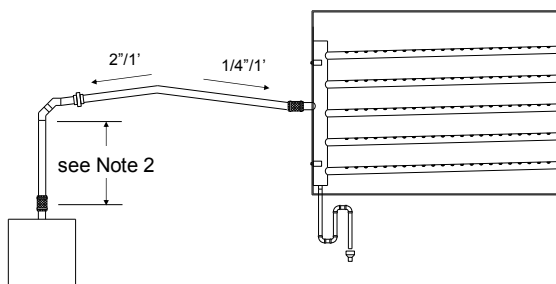




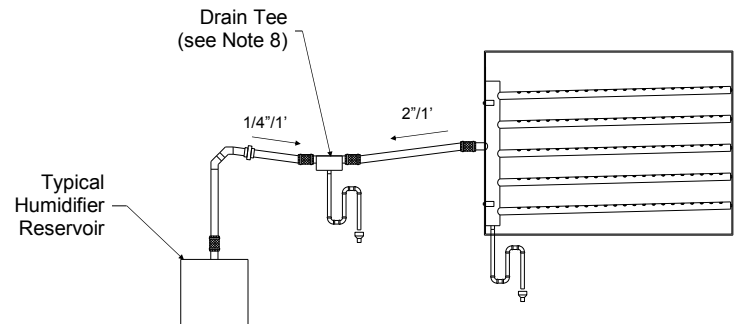
**Pitched Towards Steam Generator**



**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 carry over.
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: 35-50 psi

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 50 psi (3.5 Bar). If the water pressure is above 50 psi (3.5 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.

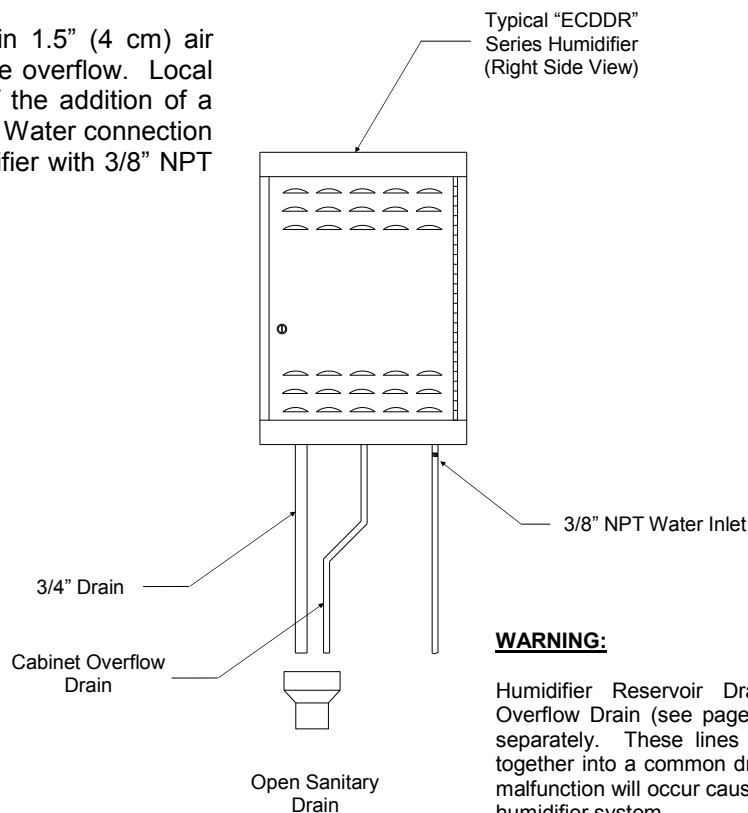
### Drain Piping

The "ECDDR" style humidifier requires one 3/4" and one 1/2" stainless steel drain piping connections run to an open drain.

The drain piping should be 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. Prime water seal prior to operation by removing the overflow hose and pouring water into it. Re-attach the overflow hose and tighten hose clamp.

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.

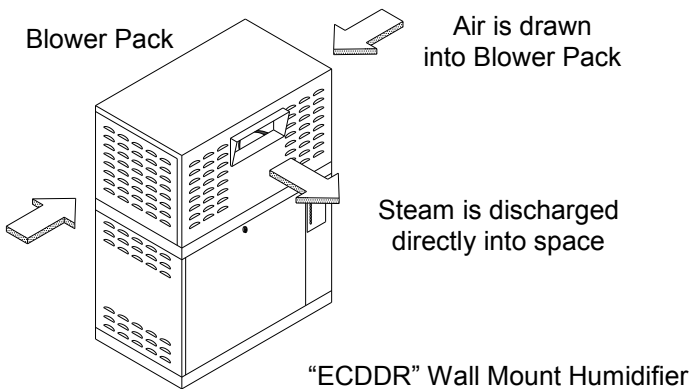


## Optional Blower Pack

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).

## Locating Blower Pack

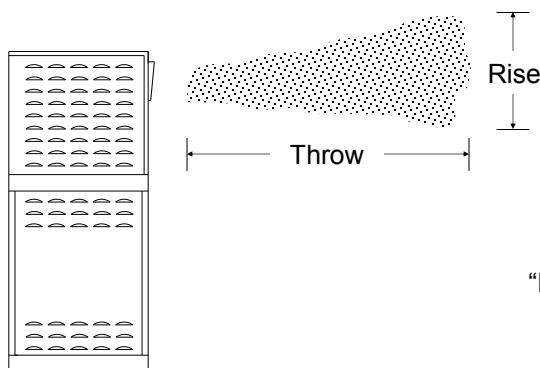
The distance that visible steam will travel after leaving the Blower Pack is dependent upon the relative humidity in the room and the capacity of the humidifier. If this visible steam comes in contact with any solid object (walls, beams, machinery, etc.), it may form condensate and drip. Refer to Fig. 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.



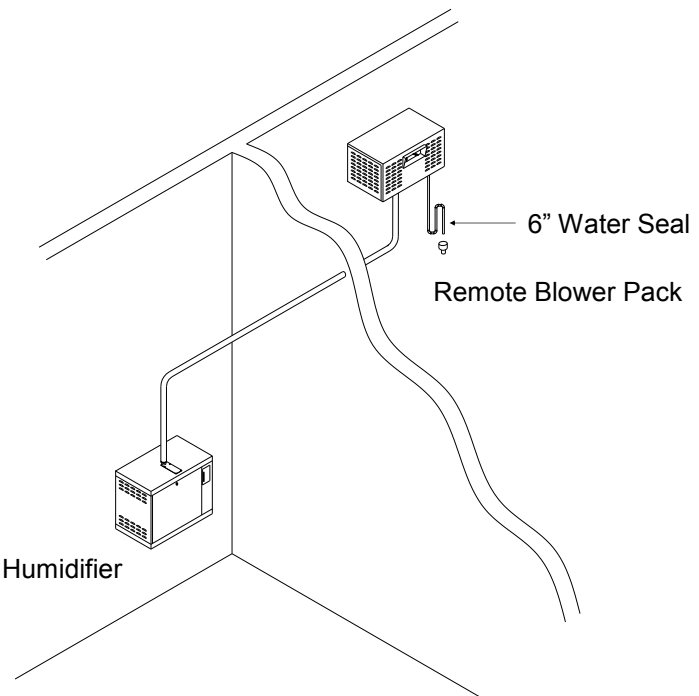
## Remote Mounting

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

**"ECDDR" 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					
		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.

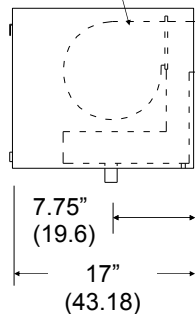
**Rise** is the vertical distance the visible steam travels from the steam discharge.

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

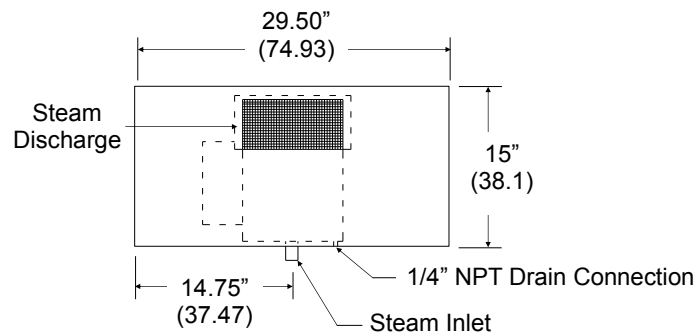
**Note:** Data above based on 70°F room temperature.

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)



## Pre-Startup Checklist

### 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.
- \_\_\_\_\_ 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 35-50 psi. There should be at least 5 feet of metal pipe and check valve between the tank and any plastic pipe.
- \_\_\_\_\_ 6. RESERVOIR: Remove internal packaging around the float ball assembly before starting unit. Failure to do so can result in the over-heating of the humidifier and potential fire.
- \_\_\_\_\_ 7. 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 feet long may require upsizing of the steam pipe.

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



## *Non-INTAC® 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 “Standby” 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 valve (by others) and allow the humidifier evaporating chamber to fill to the proper level.
- \_\_\_\_\_ 8. Make sure all the optional safety switches are satisfied (airflow proving switch, high-limit humidistat, etc.).
- \_\_\_\_\_ 9. After the humidifier is full of water, the “Water Level Full” LED will illuminate. Turn humidistat up to call for humidifier demand.
- \_\_\_\_\_ 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 valve. As the humidifier tank is draining, the “Water Level Full” light 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 open the water supply, 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. 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 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 two clamps on the fill line, two on the drain line and two on the steam connections. There may be more located on the steam tube assembly (if used).

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



## INTAC® Startup Procedure

### Startup Procedure

- \_\_\_\_\_ 1. Prime water seal by removing overflow hose and adding water. Replace and tighten hose clamp.
- \_\_\_\_\_ 2. Make sure the electric power to the humidifier is shut off.
- \_\_\_\_\_ 3. Close the humidifier manual drain ball valve (located on the right side of the humidifier evaporating chamber).
- \_\_\_\_\_ 4. Open the water supply on/off isolation valve provided by others and allow the humidifier evaporating chamber to fill to the proper level.
- \_\_\_\_\_ 5. Turn the electric power “on” to the humidifier. The display on the INTAC® controller should illuminate “Normal Operation”.
- \_\_\_\_\_ 6. 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.
- \_\_\_\_\_ 7. After the humidifier is full of water, menu 004 will read “FULL”.
- \_\_\_\_\_ 8. Verify the low water safety switch 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 would shut down the heating element contactor when the contactor is energized.
- \_\_\_\_\_ 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 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 and adjust the input high and low values to match accordingly.
- \_\_\_\_\_ 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 contactor when 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 and reseal the gasket. 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 two clamps on the fill line, two on the drain line, and two on the steam connections. There may be more located on the steam tube assembly (if used).

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 a 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 adjustment or valve seat and seal (see Troubleshooting 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 (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 heater assembly and remove mineral deposits from 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.

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 moxex 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 buildup 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.

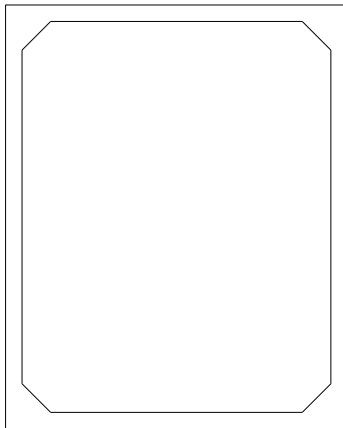


Fig. A  
Plan View of Humidifier

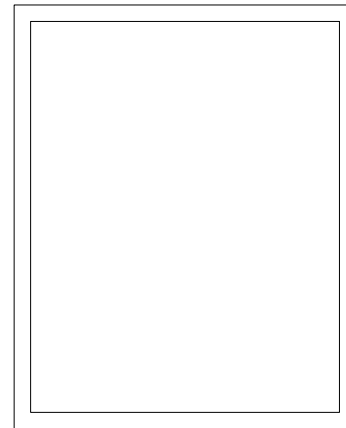
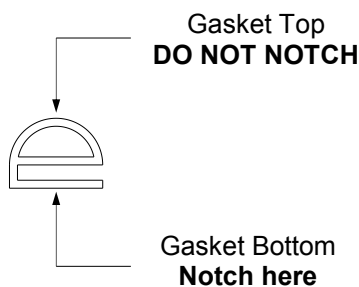
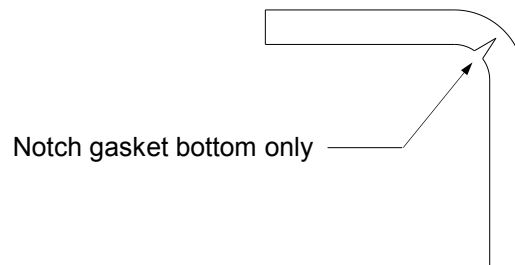


Fig. B  
Plan View of Humidifier



Section View of Gasket



Bottom View of Gasket

Fig. C



## Troubleshooting

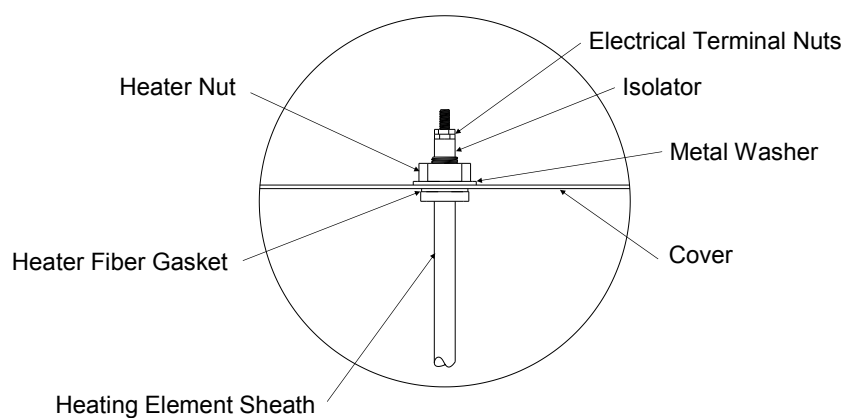
<b><u>Problem</u></b>	<b><u>Possible Cause</u></b>	<b><u>Recommended Action</u></b>
<b>Humidifier will not heat</b>	Blown heater fuse(s)	Check and replace.
	Control transformer not producing 24 vac control voltage	Check transformer output and verify voltage.
	Safety controls open (air flow switch, high-limit, etc.)	Verify that all safety controls are completing the safety circuit.
	Over-temp switch	The level control circuit has interference or is damaged. Mineral on low water float switch may be preventing the switch from opening on low water condition. Consult factory if you are unsure of the source of the problem.
	Faulty humidity sensor	Verify voltage to and from humidity sensor.
<b>Humidifier will not fill</b>	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	Close drain ball valve.
	Fill valve stuck closed	Check float valve seat for dirt.
<b>Humidifier will not stop filling or is short cycling</b>	Fill valve stuck open	Check float valve seat for dirt. Adjust float ball arm.
	Drain valve open	Close drain ball valve.

## Tool Requirements & Torque List

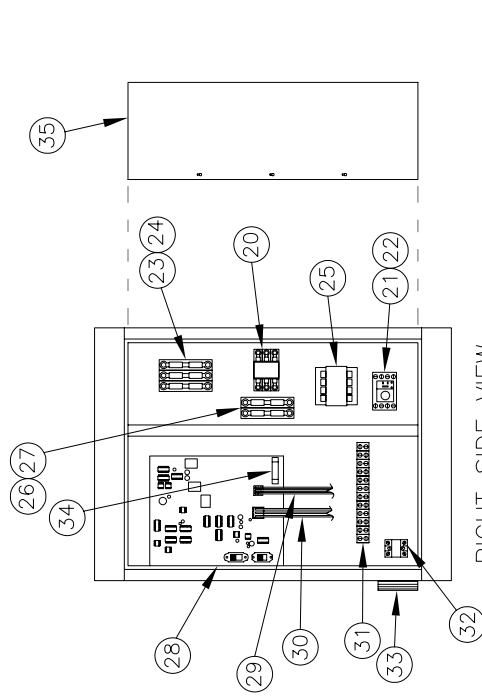
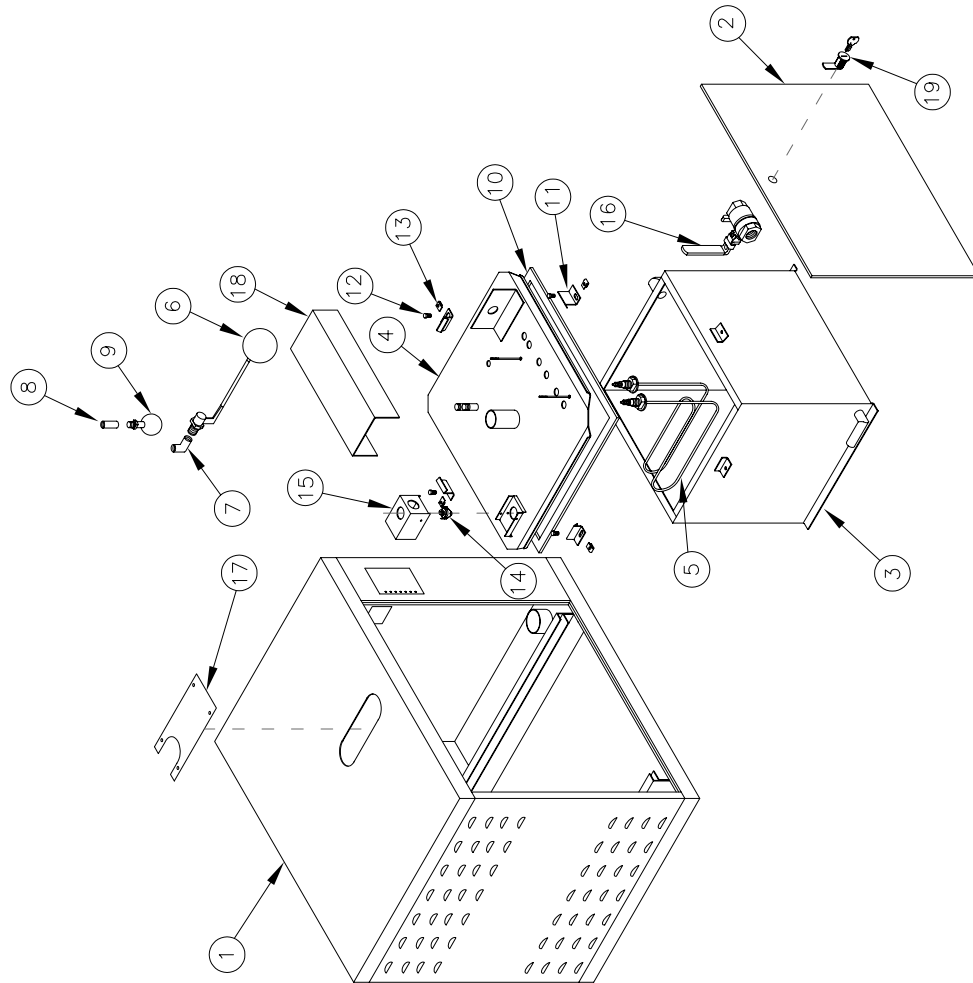
Recommended Maintenance Tool List
7/16" Wrench or Socket
5/8" Wrench
5/32" Nut Driver or Socket
5/16" Nut Driver or Socket
11/32" Nut Driver or Socket
3/8" Nut Driver or Socket
5/32" Allen head
Flat head screwdriver
Wire stripper
Wire crimper
Pipe Wrench

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.	

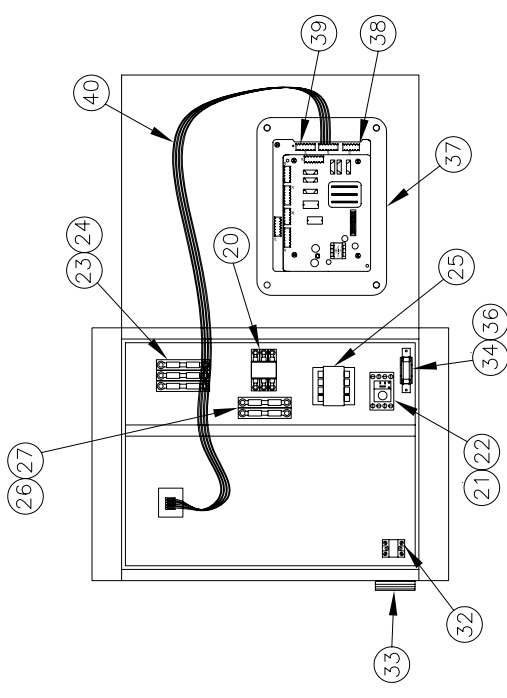
### Heater Assembly Sectional Detail







RIGHT SIDE VIEW  
OF ECDDR CABINET  
WITH STANDARD  
CONTROLS



RIGHT SIDE VIEW  
INSIDE  
OF ECDDR CABINET  
WITH INTAC®  
MICROPROCESSOR

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

Title:

ECDDR ASSEMBLY

Scale:

Date:

Drwn:

Dwg No:

No Scale

March 25, 2010

P.R.G.

1588



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

Item No.	Description	Part No.	Qty Per Unit.	Rec. SpareQty.
1	ECDDR Exterior Cabinet	18001	1	
2	ECDDR Cabinet Door, no lock, see item 19	18002	1	
3	ECDDR Reservoir Assembly	A	1	
4	ECDDR Reservoir Cover Assembly	A	1	
5	Immersion Heating Elements	A	A	
6	Float Valve & Ball, 316 SST	09079	1	
7	1/4" 90 Degree Elbow, 316 SST	07019	1	
8	304 SST Half Coupling	07018	1	
9	Low Water Float Switch	15048	1	
10	Cover Gasket	A	A	
11	Cover Clamp	15930	A	
12	Cover Clamp Screws	15522	A	
13	10-24 U-Nut	15524	A	
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	Power Supply Cover	18008	1	
19	Door Lock and Keys	12001	1	
20	Heater Contactor	A	1	
21	Pilot Relay	12022	A	
22	Relay Socket	12020	A	
23	Fuse Block	A	1	
24	Heater Fuses	A	3	
25	Step-Down Transformer	A	1	
26	Fuse Holder	A	1	
27	Fuses	A	2	
28	Control Board	A	1	
29	Wiring Harness	A	A	
30	Wiring Harness	18027	1	
31	14 Point Terminal Strip	12044	1	
32	SCR Relay	A	A	
33	SCR Heat Sink	A	A	
34	Secondary Fuse	A	A	
35	Power Supply Cover	18008	1	
Optional INTAC® Microprocessor Equipped Units				
36	Secondary Fuse Holder	12085	1	
37	INTAC® Microprocessor	A	1	
38	6 Pin Terminal Strip	12309	A	
39	7 Pin Terminal Strip	12310	A	
40	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, modulating control, insulation etc.)

Some parts shown may not be required for your unit.

#### **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](http://www.purehumidifier.com)