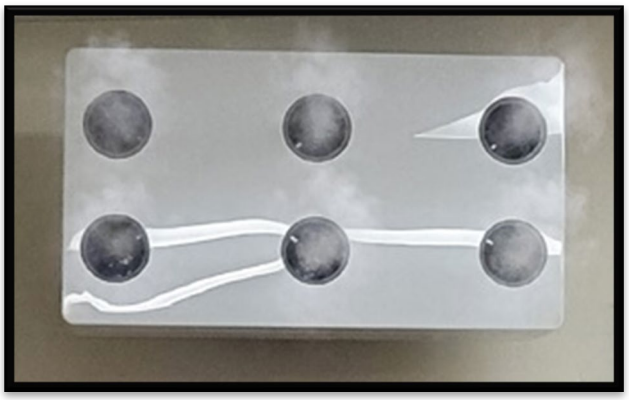
Testing Equipment For Construction Materials

HUMBOLDT

Installation, Operation
And Maintenance Manual

Hydrafog DRH

Direct Room Humidifier



IMPORTANT: Read and save these instructions. This manual is to be left with the equipment owner.

Feb 2024

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Important Safety Instructions

WARNING – When using electric appliances, basic precautions should always be followed, including the following:

- Read all the instructions before using the appliance.
- Do not contact moving parts.
- Do not use outdoors.
- To disconnect, turn all controls to the “OFF” position, then remove plug from outlet.
- Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
- Unplug from outlet when not in use and before servicing or cleaning.
- Do not operate any appliance with a damaged cord or plug, or after the appliance malfunctions or is dropped or damaged in any manner. Return appliance to the nearest authorized service facility for examination, repair, or electrical or mechanical adjustment.
- Connect to a properly grounded outlet only. See Grounding Instructions.

WARNING - Installation of all Corrigan misting, humidity and water treatment systems must be installed within accordance of all applicable state and local codes, laws, and regulations. Please determine all applicable codes, laws, and regulations in your area before installing equipment.

All Corrigan misting, humidity and water treatment systems may only be fed by cold water supplies that meet all applicable federal, state, and local water quality health standards. Please determine that the water supply for any system meets all applicable federal, state, and local water quality standards.

Grounding Instructions

This appliance must be grounded. In the event of malfunction or breakdown, grounding provides a part of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with local codes and ordinances.

DANGER – Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the appliance is properly grounded. Do not modify the plug provided with the appliance – if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

This appliance is for use on a nominal 120 V circuit and has a grounding plug that looks like the plug illustrated in Figure 1. A temporary adaptor, which looks like the adaptor illustrated in Figures 2 & 3, may be used to connect this plug to a 2-pole receptacle as shown in Figure 3 if a properly grounded outlet is not available. The temporary adaptor should be used only until a properly grounded outlet can be installed by a qualified electrician. The green colored rigid ear, lug, and the like, extending from the adaptor must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adaptor is used, in must be held in place by the metal screw.

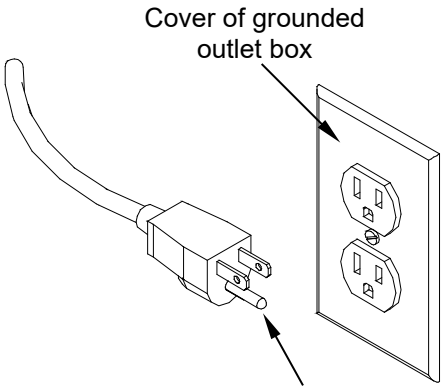


Fig 1

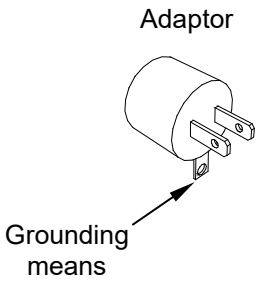


Fig 2

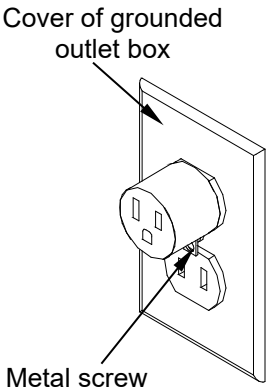


Fig 3

A qualified electrician should be consulted if there is any doubt as to whether an outlet box is properly grounded.

Receiving and Unpacking Equipment

1. Check packing slip to ensure ALL material has been delivered.

2. Please report all material shortages to Corrigan immediately.

3. Inspect shipping box for damage and note if any on shipping receipt.

4. Inspect equipment for damage. If any is found, please notify Corrigan immediately.

System Requirements

Electrical:

Rating: 120VAC 60Hz 25A

Requirements: 120V 60Hz 15A single gang outlet.
The outlet must be located within 5 feet of control enclosure.

Plumbing:

1/2NPTF potable cold-water supply with ¼ in OD tube connector
Nearby drain or condensate pump.

System Specifications

Humidifier Enclosure – 2lbs.:

Height – 8” Width – 14” Depth – 6”

PLC Controller Box – 2lbs.:

Height – 12” Width 11” Depth – 7”

Humidistat - <1 lbs.:

Height – 3.5” Width – 4.5” Depth – 1.5”

Reverse Osmosis System – 12 lbs.:

Height - 16.5” Width – 13.25” Depth – 5.375”

Reverse Osmosis Water Tank – 3lbs.:

Height – 14.5” Diameter – 10.75”

System Overview

Corrigan's Hydrafog DRH system is a humidistat controlled dry fog humidification system that comes with a 4-stage reverse osmosis filtration system included. The system is designed to maintain a steady relative humidity for any small to medium size indoor spaces.

The system has a "closed" designed so there are no reservoirs to be cleaned.

The system's small footprint easily integrates with all applications.

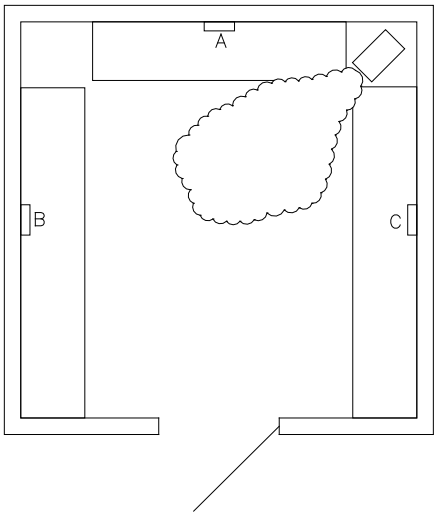
Installation

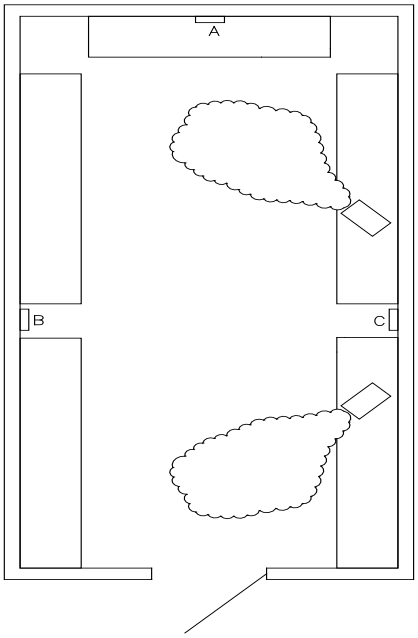
Mounting Humidistat:

Determine humidity sensor location. Wall mount in room at eye level approximately 5 to 6 feet above finished floor and away from Humidifier enclosure. The sensor cable must be able to reach the plc control panel location.

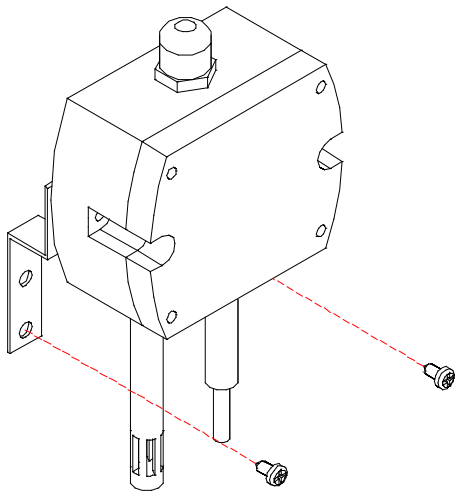
Do not mount the sensor over air vents or over holes in the wall as this will cause incorrect readings.

Locations A, B or C are acceptable:



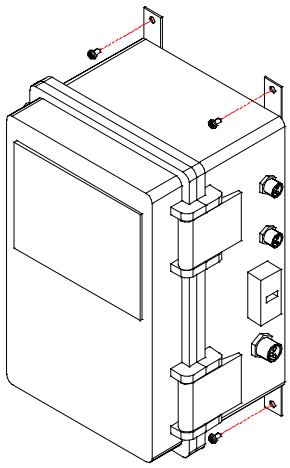


Mount the humidity sensor on the wall. Make sure the unit is level. Attach the humidistat to the wall using appropriate fasteners for wall material.



Mounting the PLC Controller Box:

The PLC Controller Box can be wall mounted or mounted on a flat surface.



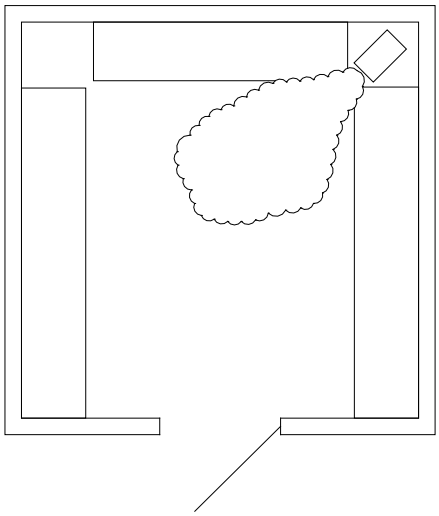
If the wall material is other than wood, use the appropriate anchor/fastener for that material (not provided).

The Controller Box should be mounted as close as possible to the humidity sensor and Humidifier. The Controller Box receives the %RH signal from the sensor through a wired connection. The Controller Box sends a signal to the Humidifier through a M8 electrical signal cable.

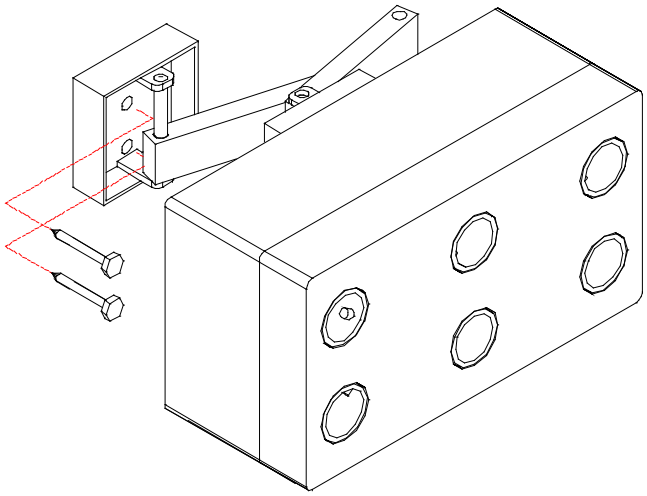
Mounting Humidifier Enclosure:

Determine the best location in the room to be humidified. Use the guidelines below to help determine the best location:

- Mount the Humidifier so the plume of dry fog can disperse into the room without hitting any surface. Directing the dry fog directly at any surface may cause condensation.
- Locate Humidifier Enclosure at least 1 foot below finished ceiling.
- Locate close to floor drain to minimize drain tube length. If a floor drain is not available, a condensation pump can be used. Corrigan condensate pump, Part # D800, is sold separately.
- Do not locate the Humidifier Enclosure near the humidistat. The dry fog plume should be allowed to disperse in the room so an accurate %RH is obtained.



- To mount the Humidifier, fasten the adjustable wall-mount base with the appropriate wall anchor/fastener for the wall material.



Mount Reverse Osmosis System:

Refer to the enclosed reverse osmosis manual for installation.

Determine location near the water inlet. The reverse osmosis system can be wall mounted using the mounting bracket.

Connect the water supply to the inlet of the reverse osmosis system.

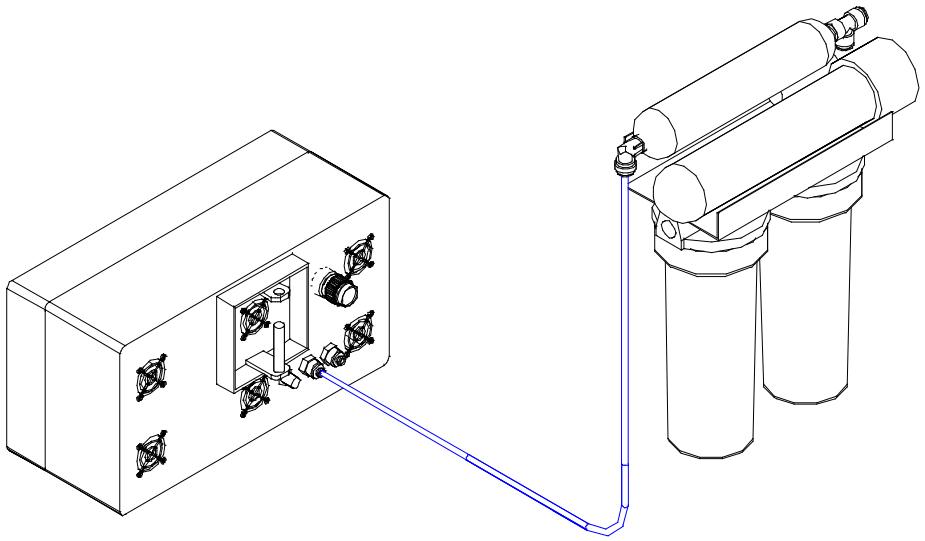
The water storage tank should be placed close to the reverse osmosis system. This tank can be vertical or horizontal. Connect the water tank to the outlet or the reverse osmosis system.

Run tube from outlet of the polishing filter to the inlet water connection on the Humidifier.

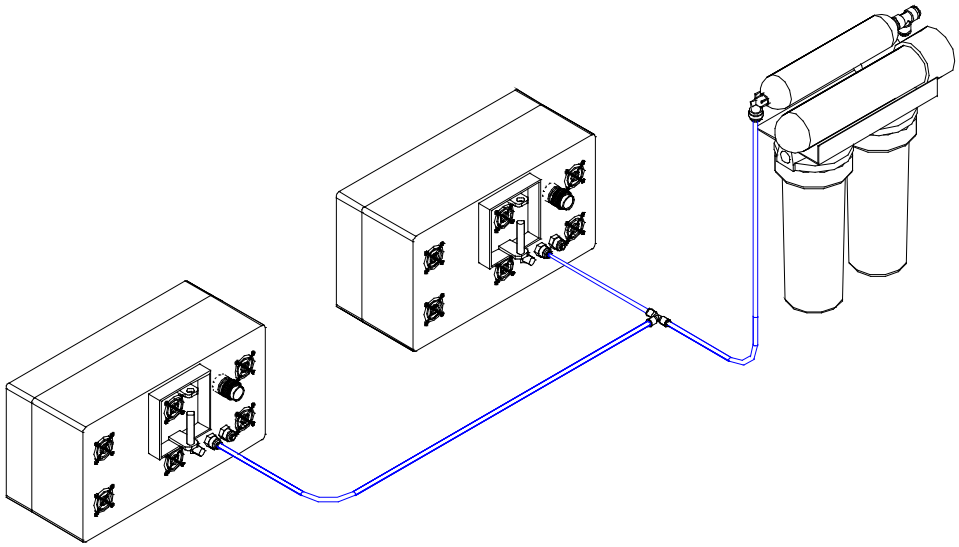
Run the drain line for the reverse osmosis system to a floor drain. If a floor drain is not available, a condensation pump can be used. Corrigan condensate pump, Part # D800, is sold separately.

Install Water Line to Humidifier:

Connect the ¼” OD poly tubing from the reverse osmosis water-out to the water-in on the Humidifier.

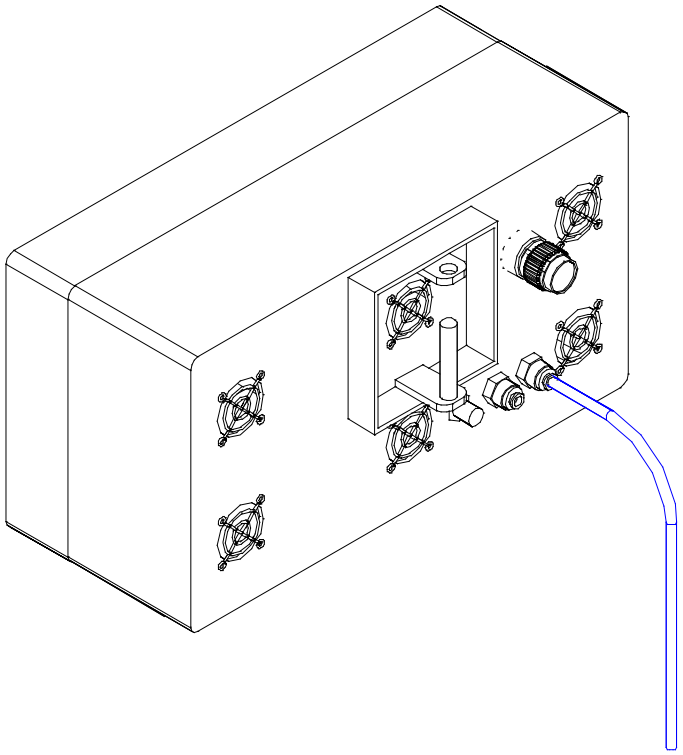


If there is more than one Humidifier connect the water feed line to the first line using provided tee.



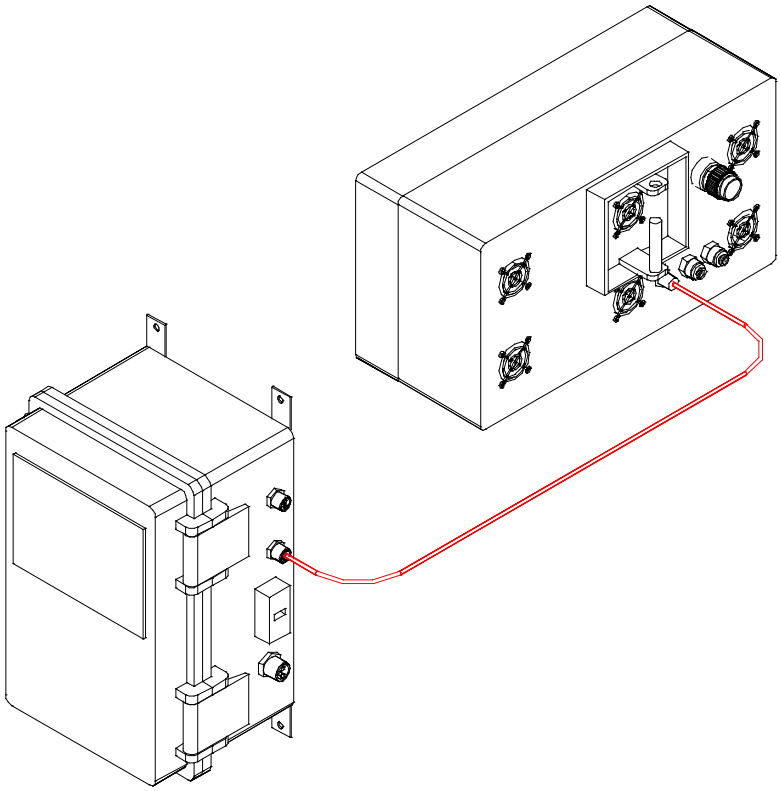
Install Water Drain Line from Humidifier:

Run drain line from Humidifier to nearby drain using 1/4in OD tubing. If a floor drain is not available, a condensation pump can be used. Corrigan condensate pump, Part # D800, is sold separately.

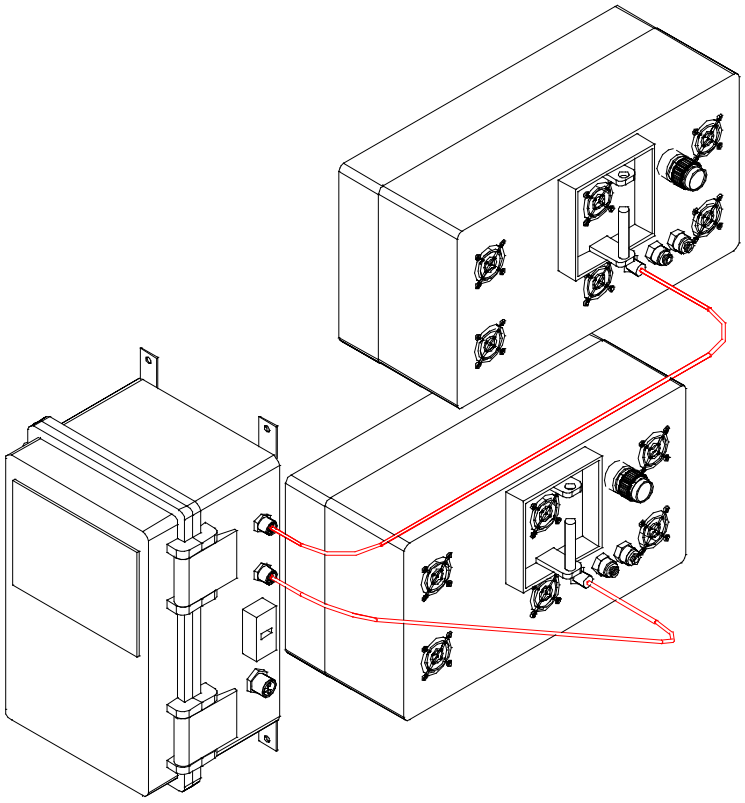


Make Electrical Connections:

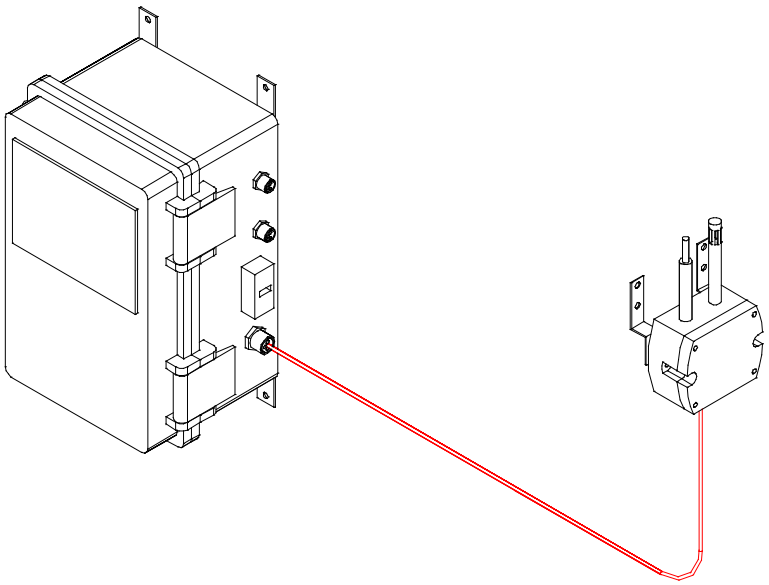
Run the control cable from the Controller Box to the Humidifier. Plug the cable in and turn the threaded outer ring to obtain a secure connection:



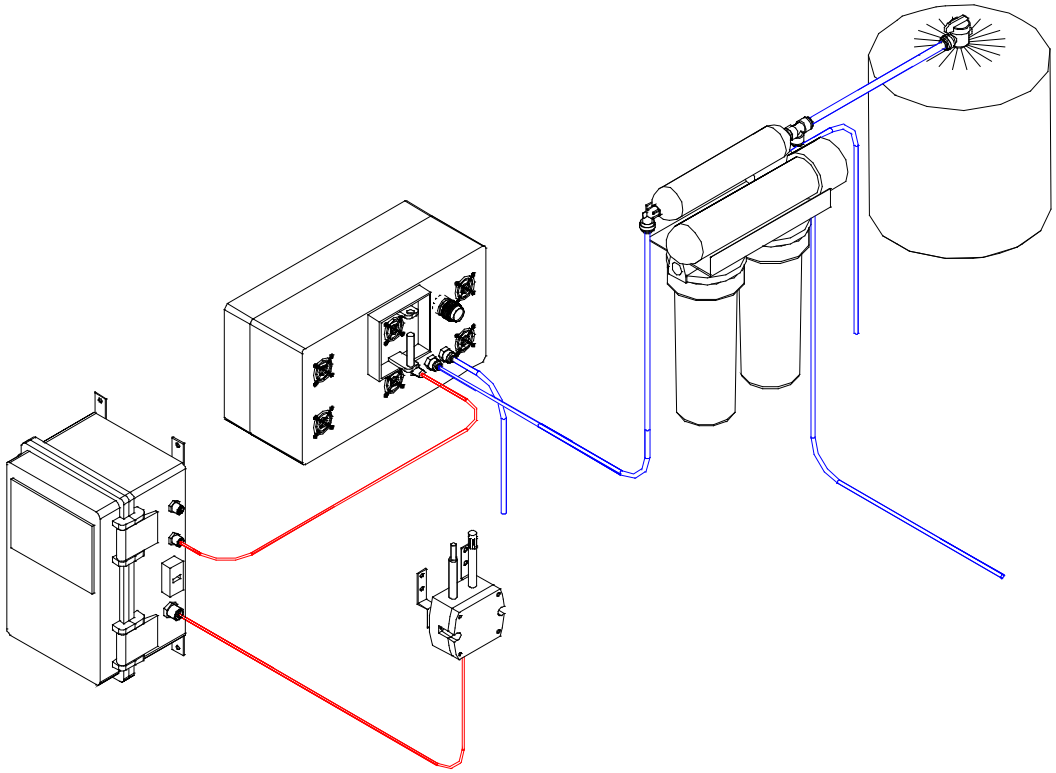
If there are two humidifiers, connect the control cables as shown below to second Humidifier



Connect the sensor cable to the PLC as shown below.



The following diagram represents how the system should look when the water and electrical connections are completed:



Installation is complete. Please inspect all connections before startup.

Startup

Controller Operation

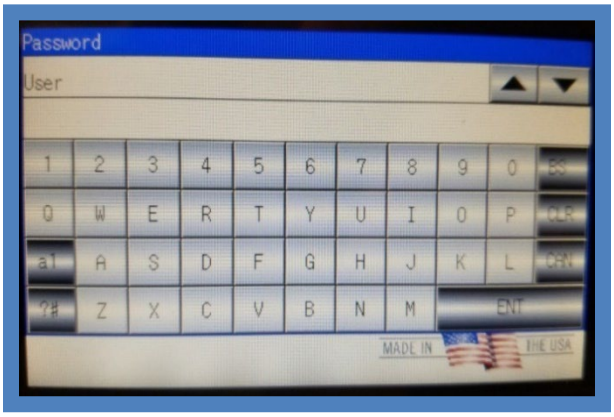
The temperature and %RH readings from the sensor are received and input into the PLC. The PLC is controlled through the 4.3” LCD high-definition touchscreen HMI. The startup screen is shown at the right. Your startup screen may have a company logo or picture in addition to what is shown.

When the HydraFog DRH logo is touched in the startup screen, the home screen appears. This screen gives information about the room temperature, relative humidity and if the system is turned on.

To turn on the HydraFog DRH system tap the “System On” icon. The green indicator light will indicate the system is ready to control the room’s humidity.

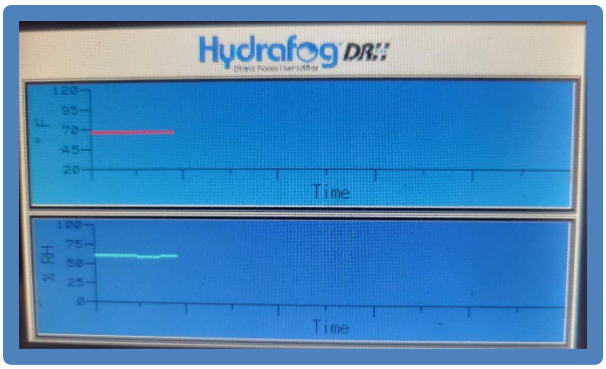
To change the current setpoint humidity level, tap the up/down arrow icons.

Tapping the arrow icons will bring up a protective passcode screen. The default programmed passcode for all HydraFog DRH systems is 1234. Pressing 1234 and then ENT will allow you to change the relative humidity setpoint with the arrows.



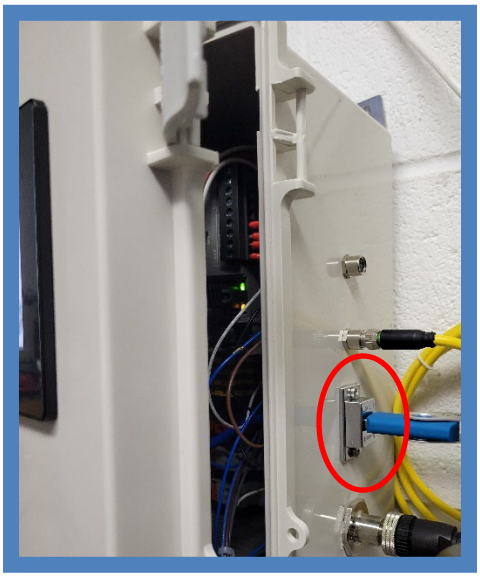
Your PLC/HMI is also capable of logging your temperature and %RH data. Pressing “Log Trend Charts” will bring up a current trending graph.

The current trending graph shows your data at 1 second intervals. The temperature in °F is shown on the top chart. The %RH is shown on the bottom chart.

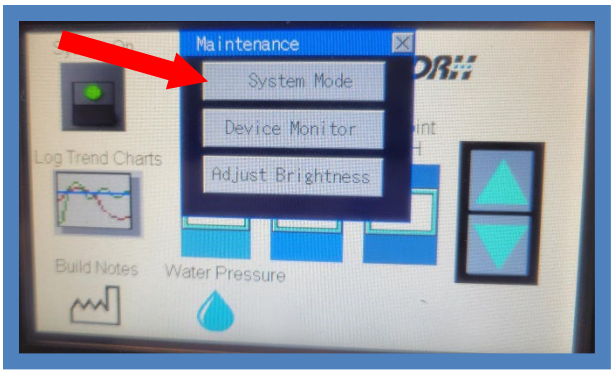


If you want to store your temperature and % relative humidity data into .csv spreadsheet files, insert a USB drive into the port located on the bottom of the HMI. Your data will be logged on 5-minute intervals. The USB directory is HGDATA01\DATALOG. The data is stored in daily files with the filenames:

RH and Temp Log_YYMMDD.CSV

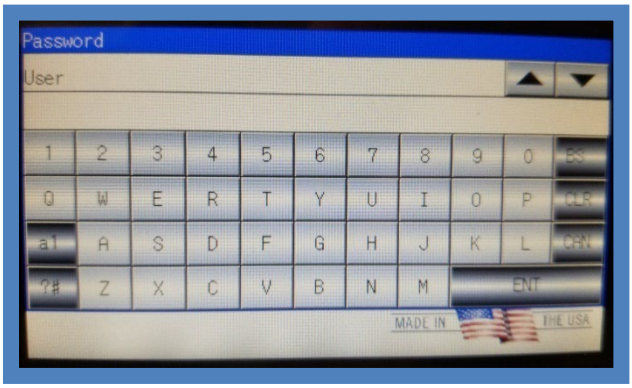


To safely remove the USB drive from the HMI, press the upper left corner of the HMI screen for greater than 5 seconds to put the HMI into Maintenance mode. Then tap the “System Mode” button.



The HMI will then ask for the password which is 1234.

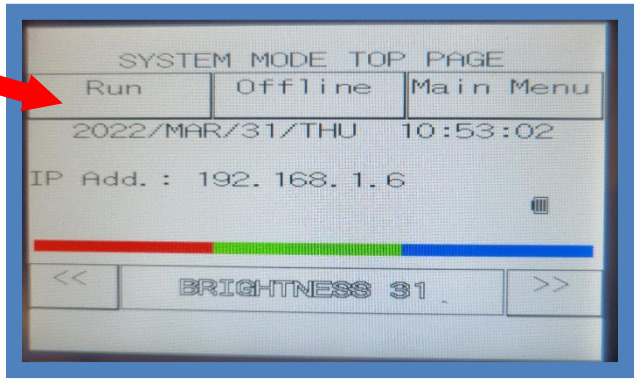
After the password is confirmed, a message will flash stating the external memory is stopped. You then can remove the USB safely.



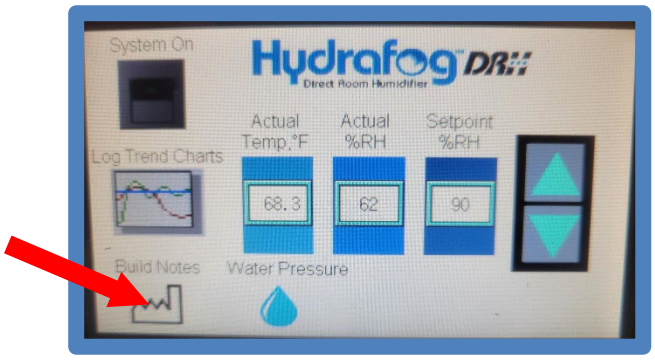
Hit “Run” to restart the HMI program.

Once you are done analyzing your data, you can re-insert the USB drive into the HMI port. Your data will automatically be appended to that day’s record.

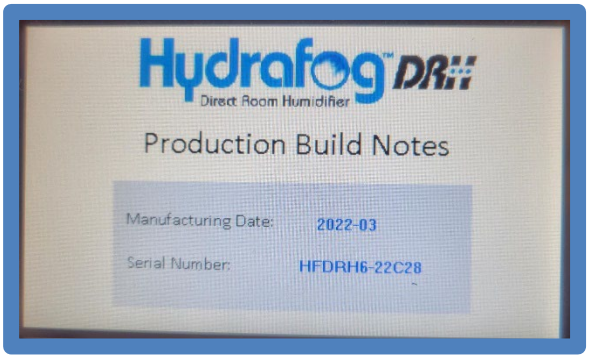
If you do not return the USB into the HMI port for several days, the HMI program will begin to log the data under the appropriate current date.



Clicking on the “Build Notes” icon to get to the Production Build Notes:



The Production Build Notes show the Manufacturing Date and Serial Number for your system.



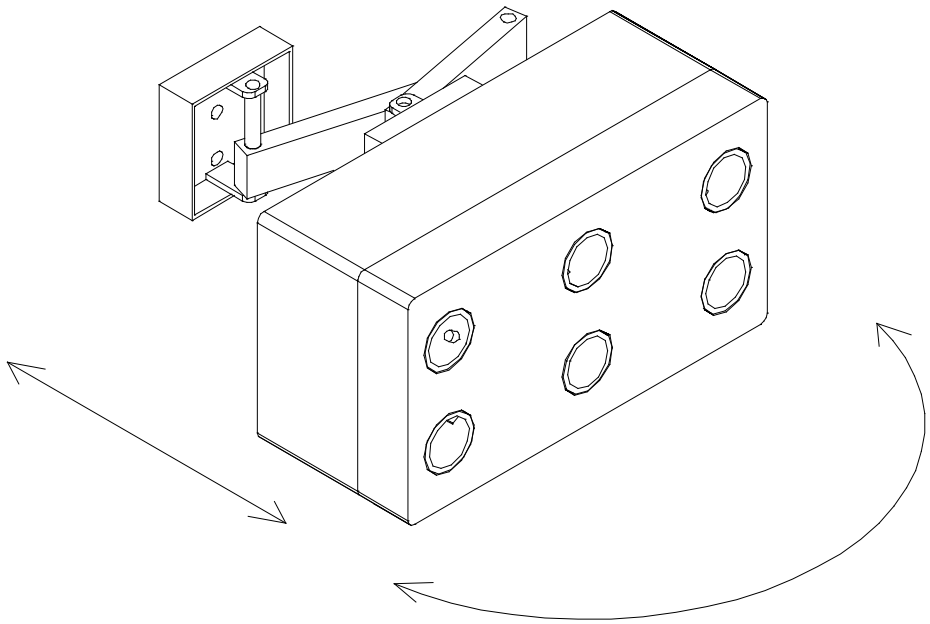
Turn the water inlet valve to the reverse osmosis system to the on position.

Plug in the PLC Control Box.

Upon initial start-up, it will take 5 to 10 minutes to purge air from the water lines. After air is purged, the nozzle vapor will be steady and uninterrupted.

Adjust nozzle enclosure after vapor has become steady and consistent. Direct enclosure to disperse vapor into room without contacting product, fixtures, smoke detectors, etc.

Nozzle enclosure can be moved in any position from right to left with the flexible mount.



If necessary, adjust the water pressure regulator so there is a very low flow of drain water out of the Humidifier. If the water pressure is too high and there is excessive drain water, the nozzles may have difficulty nebulizing the water into a dry fog.

Adjust the regulator by first pulling the adjustment knob slightly up to unlock. The figure on the left shows the knob in the locked position. The figure on the right shows the unlocked position:

(The nozzle must be operating to perform this task). If drain flow is too much, turn the adjustment knob slightly counterclockwise to reduce flow to a steady drip. If needed, temporarily adjust the RH setpoint higher; this will turn the system on. Adjust back to desired RH when finished.

If drain line is not dripping water steadily, turn the adjustment knob slightly clockwise to increase flow to a steady drip.

When adjusting either way, make small incremental adjustments of a 1/8 to 1/4 turns and wait a few minutes in between to observe desired drip consistency. When complete, lock adjustment knob back down by pressing on top of knob.

Upon initial start-up, it will take 5 to 10 minutes to purge air from the water lines. After all the air is purged, the nozzle vapor will be steady and uninterrupted.

Operation

Water from reverse osmosis supply is filtered by included reverse osmosis system to remove dissolved hardness from water. If not filtered, hardness dust from evaporated vapor may collect on surfaces or product.

Filtered water then runs to water pressure regulator, solenoid valve and flow restrictor on Humidifier. When the system is calling for humidity, the water solenoid valve opens and sends water to the nebulizers. The water pressure to nozzle enclosure is regulated down to around 1.5psi.

When the water reaches the nozzle enclosure, it passes through the nebulizers and out the drain line at a very slow flow rate. As water is passing through the nebulizers, it becomes atomized into droplets around 12 or 20 microns (depending on specified unit) in size and discharges into air tubs. The air tube pushes the atomized droplets out into the humidor.

The droplets evaporate into the air and raise the relative humidity inside the humidor. When the relative humidity inside the reaches set point, the system shuts off by signal from the PLC controller.

When the relative humidity drops 2 points below set point, the system will automatically turn on and raise the level back to set point, then shut off.

Preventative Maintenance

Water Filters:

Replace the 5-micron sediment (Part# FCRB110) and carbon block filter (Part# FCCB10) every 3 to 6 months.

If the sediment and carbon block filters are changed every 3 to 6 months, the membrane (Part# FMRO1812) can last 2 to 4 years.

The carbon polishing filter (Part# FCMER) should be changed every 3 to 6 months.

General Cleaning:

The exterior Humidifier and Controller Box can be gently wiped with a moist cloth. Please be careful not to damage the distal end of the nozzle nebulizer. The nebulizer tip can be cleaned every 6 months with a Q-tip dipped in CLR scale remover. GENTLY rub the surface of each nebulizer with Q-tip for a few seconds. No further cleaning is required.

Trouble shooting

System won't run when turned on:

- Check the power supply and make sure the Controller Box is plugged in.
- Receptacle voltage may be incorrect.
- Water may be turned off.
- Check wire connections.

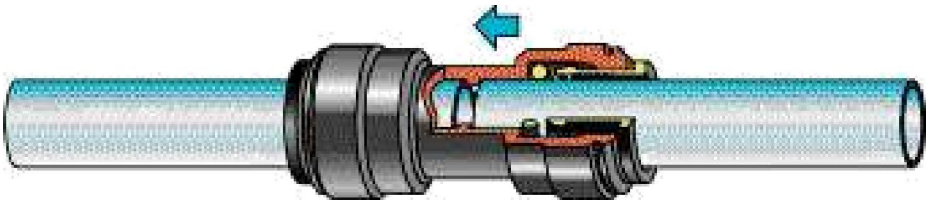
System is running but not humidifying:

- Make sure the water supply is on.
- Check water pressure adjustment.
- Check for debris in the water line to nozzle.

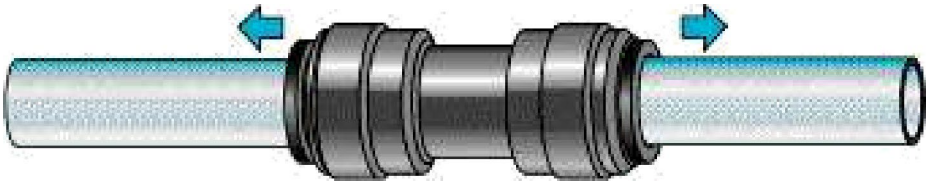
System is not humidifying well:

- Check water pressure.
- Check water filters.

Assembling Tube Into Push-fit Fittings



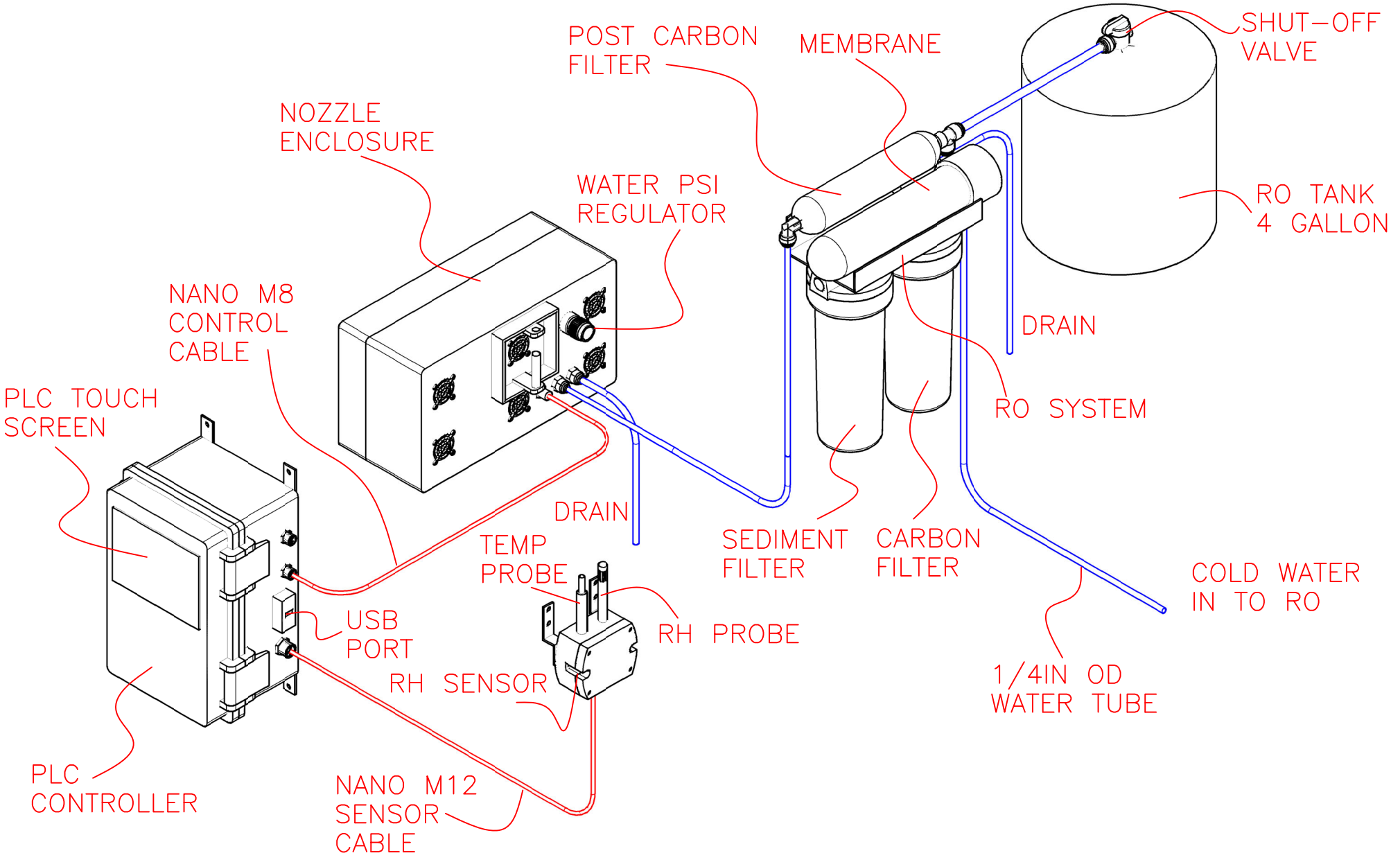
Push the pipe into the fitting, to the pipe stop. The collet (gripper) has stainless steel teeth which hold the pipe firmly in position whilst the 'O' Ring provides a permanent leak proof seal.



Pull on the pipe to check it is secure. It is good practice to test the system prior to leaving site and/or before use.

Disconnecting Tube from Push-fit Fittings

Ensure system is depressurized before removing fittings. Push in the collet against the face of the fitting. With the collet held in this position the pipe can be removed. The fitting can then be re-used.



DR BY: PCJ		QTY	PART NO	DESCRIPTION
CORRIGAN CORP. OF AMERICA 104 AMBROGIO DRIVE GURNEE, IL 60031 800-462-MIST	HYDRAFOG DRH INSTALLATION SCHEMATIC	CCA P/N:		DATE: 2-19-2024
		SCALE: NTS		DWG NO: A1571

Corrigan Corporation of America warrants each system, manufactured, and sold by them to be free from defects in material and workmanship for a period of two years from the time of shipment (first year covers part and labor, second year covers parts only). Produce misting solenoids is warranted for three years. Produce misting timers are warranted for ten years. UltraMist™ mist bar and nozzle shut off are covered for case life, not to break, crack or leak at connectors. Reverse osmosis membranes are warranted for one year provided proper filter and preventative maintenance service has been executed and proper feed-water pre-treatment has been in place from time of installation. Nebulizing nozzles have a warranty of one year.

Coverage is limited to properly installed and maintained equipment. In addition, these guarantees are dependent upon installation of appropriate Corrigan pre-filtration and factory authorized replacement filter cartridges. The warranty does not cover service items such as filters and damage due to misuse. This warranty does not obligate Corrigan Corporation of America to bear the cost of labor after initial twelve-month period or freight charges in connection with the replacement of defective parts, nor shall it apply to any product upon which repairs or alterations have been made, unless authorized by the manufacturer or his authorized agent. Corrigan Corporation shall in no event be liable for consequential damages or contingent liabilities arising out of the failure of any product, its power unit or their accessories to operate properly. No express, implied or statutory warranty other than the herein set forth is made or authorized to be made by the manufacturer. Failure to notify manufacturer prior to any repair work performed within the warranty period may void warranty.

For higher technology humidification and misting systems (VaporDry, VaporDryHP, VaporDryDRH and Préserve) installation and start-up by Corrigan or a Corrigan certified installer is strongly recommended. If installation or start-up of these systems is performed by anyone else, the warranty period on the system is reduced to 12 months.

All warranty inquiries should be directed to the manufacturer at:

Corrigan Corporation of America, 104 Ambrogio Drive, Gurnee, IL 60031, 800.462.6478

HydraFog DRH Humidity System

Applications: Small to medium space humidity control

Electrical rating: 120VAC 60Hz 2A

Electrical Requirements: 120VAC 15A receptacle

Plumbing Requirements: 1/2in potable cold water supply with 1/4in OD tube connector.
Nearby drain or condensate pump to nearest drain.

Nozzle Water flow: HF7012 3.6lbs/hr HF7020 6.8lbs/hr

Pressure range: 1 - 1.5 psi

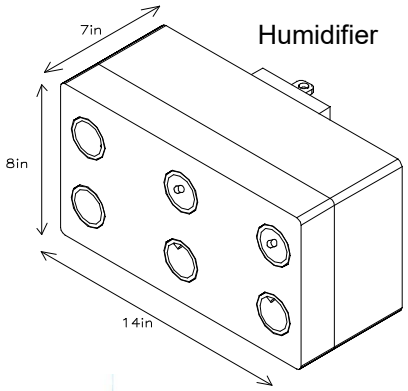
Mounting options:

Reverse Osmosis System: Wall mount
Controller: Wall mount
Humidifier: Flexible wall mount
Humidity Sensor: Wall mount

Weights:

Reverse Osmosis System: 15lbs
Controller: 2lbs
Humidifier: 7lbs
Humidity Sensor: 0.25lbs

Humidifier



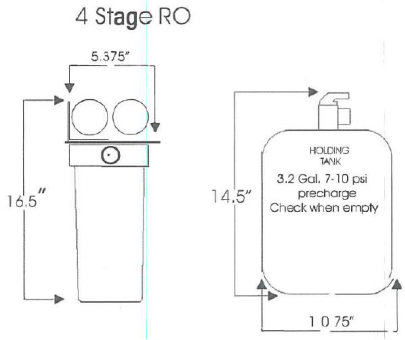
NSF 58 & 372 Reverse Osmosis

Filters used

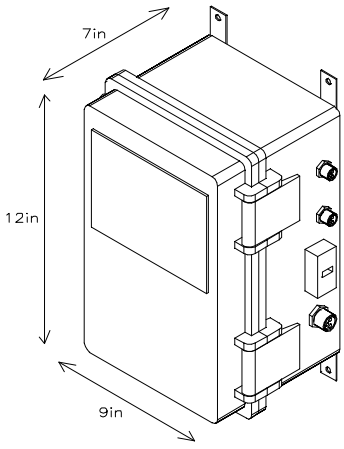
1-5 micron meltblown sediment
1-10 micron carbon block

Membrane
Rated 50 GPD

Holding tank capacity
3.2 gals @ 60 psi



Controller



Humidity Sensor