

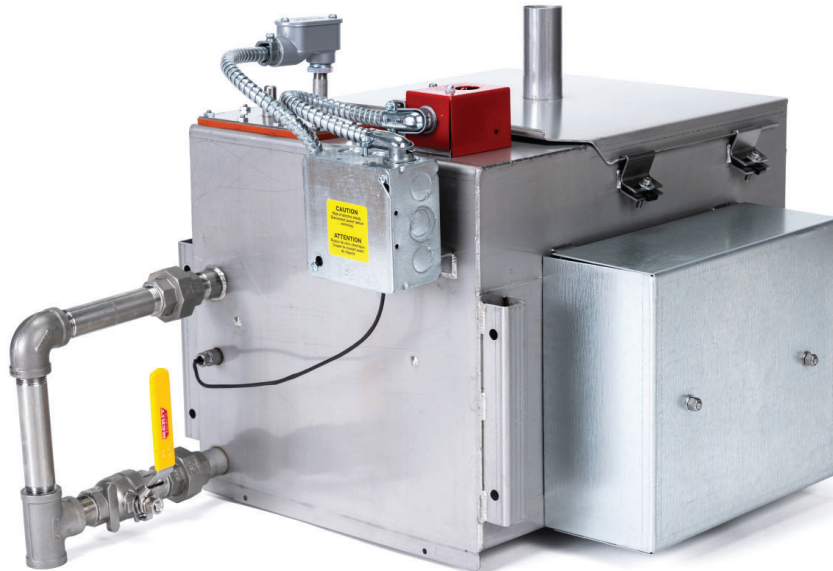


ESDDR Series

*Deionized, Demineralized, or Reverse Osmosis Water
Electric Humidifier*

SHEET NO.

ESDDR-1



The “ESDDR” Series Electric Humidifier from PURE Humidifier Co. is loaded with features and options. All you need is deionized, demineralized, or reverse osmosis water, electricity, and a sanitary drain. The humidifier does the rest.

These units are designed to operate with absolutely pure water, which is corrosive and will not conduct electricity. They feature stainless steel construction with special assembly techniques to assure corrosion-resistant joints.

Each humidifier is supplied with an INTAC® control system mounted in a NEMA-12 enclosure. The INTAC® microprocessor control system provides constant monitoring of the water level and safety systems. This will prevent operation, should any of the safety circuits open.

Since the water mineral buildup does not occur with pure water, there is no need for an automatic drain system or cleaning. These units are practically maintenance-free.

When it comes to installation, you have a choice with the “ESDDR” Series Electric Humidifier. You can also mount the unit on the wall with wall brackets, or floor-mounted with support legs (both optional).

Fast-Pac or Insty-Pac tube assemblies can be provided for short dissipation in any built-up or manufactured air handling system. The versatility of the “ESDDR” Series Electric Humidifier will allow you to design them into any system simply, efficiently, and reliably.

Our results are comforting



Capacities & Weights

ESDDR Series

SHEET NO.
ESDDR-2

Standard Water Unit Model No.	Steam Output Capacity †		KW	Humidifier Reservoir Weight*				Control Cabinet Weight Δ	
	lbs/hr	kg/hr		Empty		Full		lbs	kg
				lbs	kg	lbs	kg		
ESDDR-3	9.0	4.1	3	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-4.5	13.5	6.1	4.5	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-5.5	18.0	8.1	6	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-7.5	22.5	10.2	7.5	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-11	31.5	14.2	10.5	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-14	40.5	18.4	13.5	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-15	45.0	20.4	15	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-16.5	49.5	22.5	16.5	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-19.5	58.5	26.5	19.5	50.5	22.9	130.5	59.2	32.0	14.5
ESDDR-22	63.0	28.6	21	61.0	27.7	177.0	80.3	55.0	25.0
ESDDR-28	81.0	36.7	27	61.0	27.7	177.0	80.3	55.0	25.0
ESDDR-30	90.0	40.8	30	61.0	27.7	177.0	80.3	55.0	25.0
ESDDR-33	99.0	45.0	33	61.0	27.7	177.0	80.3	55.0	25.0
ESDDR-39	117.0	53.1	39	61.0	27.7	177.0	80.3	55.0	25.0
ESDDR-42	126.0	57.2	42	61.0	27.7	177.0	80.3	55.0	25.0
ESDDR-45	135.0	61.2	45	65.5	29.7	181.5	82.3	72.0	32.7
ESDDR-49.5	148.5	67.4	49.5	65.5	29.7	181.5	82.3	72.0	32.7
ESDDR-58.5	175.5	80.0	58.5	65.5	29.7	181.5	82.3	72.0	32.7
ESDDR-63	189.0	85.7	63	65.5	29.7	181.5	82.3	72.0	32.7
ESDDR-66	198.0	89.8	66	88.0	39.9	243.0	110.2	72.0	32.7
ESDDR-78	234.0	106.1	78	88.0	39.9	243.0	110.2	72.0	32.7
ESDDR-84	252.0	114.3	84	88.0	39.9	243.0	110.2	72.0	32.7
ESDDR-102	306.0	138.8	102	88.0	39.9	243.0	110.2	72.0	32.7

* When calculating the total dry weight of the humidifier, the control cabinet weight must be added to the reservoir weight.
 Δ The control cabinet is shipped loose unless optional factory mounting is specified. Reference the "Dimension Sheet" for control cabinet dimensions.

† 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.



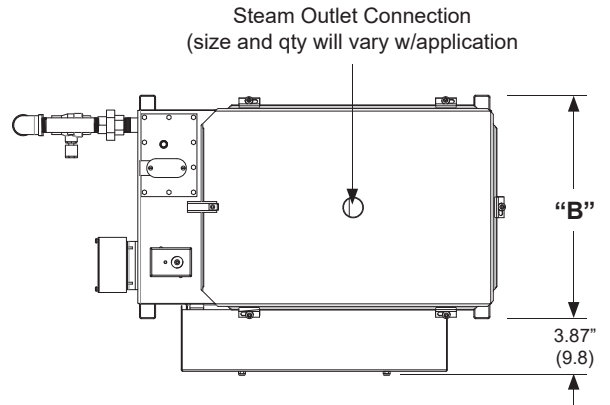
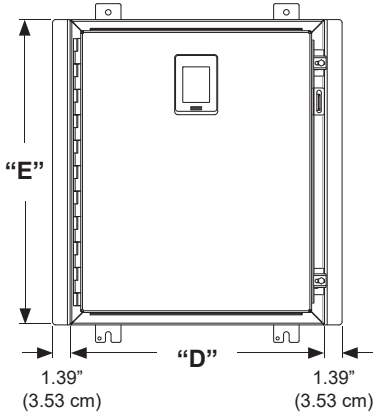
Dimensions

ESDDR Series

SHEET NO.
ESDDR-3

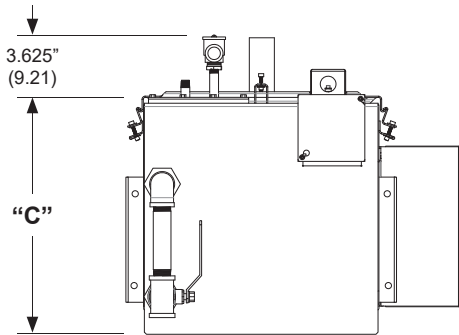
NEMA-12 Humidifier Control Cabinet

(reference control cabinet notes)

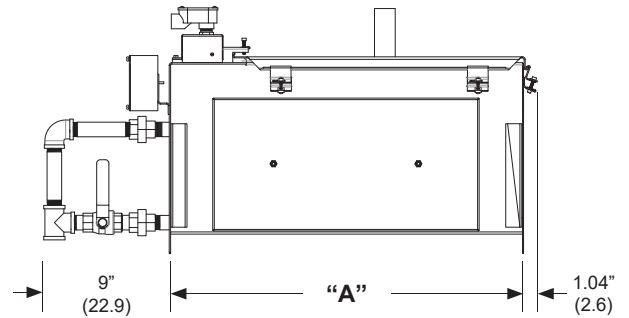


Top View

1. Door has been removed from the drawing for clarity.
2. Control cabinet is shipped loose for field mounting unless optional factory mounting is specified.
3. Dimension "F" = Control cabinet depth.
4. Heatsinks located on both sides of cabinet for all units except ESDDR-3 through ESDDR-19.5.



Front View



Right Side View

Unit Dimensions in inches (cm)

Model Number	Dim. "A"	Dim. "B"	Dim. "C"
ESDDR-3 thru ESDDR-19.5	17.68" (44.9)	16.21" (41.2)	13.84" (35.2)
ESDDR-22 thru ESDDR-63	25.68" (65.2)	16.21" (41.2)	13.84" (35.2)
ESDDR-66 thru ESDDR-102	34.18" (86.8)	20.46" (52.0)	13.84" (35.2)

Control Cabinet Dimensions in inches (cm)

Model Number	Dim. "D"	Dim. "E"	Dim. "F"
ESDDR-3 thru ESDDR-19.5	14.00" (35.6)	16.00" (40.6)	6.00" (15.2)
ESDDR-22 thru ESDDR-63	20.00" (50.8)	20.00" (50.8)	7.00" (17.8)
ESDDR-66 thru ESDDR-102	20.00" (50.8)	24.00" (61.0)	7.00" (17.8)
ESDDR-*	24.00" (61.0)	30.00" (76.2)	7.00" (17.8)

*Control panel for use with units having 123 amps or higher



Electrical Specifications

ESDDR Series

SHEET NO.
ESDDR-4

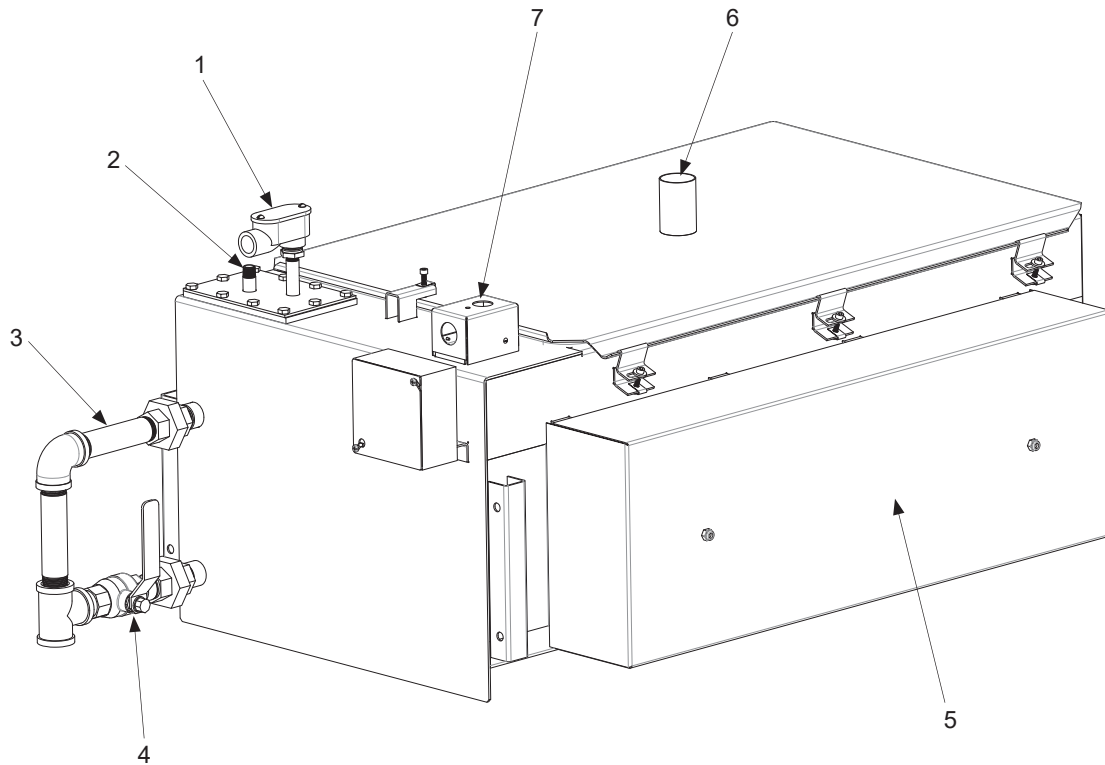
Single Phase Amperage†

Standard Water Unit Model No.	Unit KW	120V	208V	240V	480V	600V	No. of Heaters	Heater KW	Control Circuit Voltage
ESDDR-3	3	25	14.4	12.5	6.3	5	3	1	24 vac
ESDDR-4.5	4.5	37.5	21.6	18.8	9.4	7.5	3	1.5	24 vac
ESDDR-5.5	6		28.8	25	12.5	10	3	2	24 vac
ESDDR-7.5	7.5		36.1	31.3	15.6	12.5	3	2.5	24 vac
ESDDR-11	10.5				21.9	17.5	3	3.5	24 vac
ESDDR-14	13.5				28.1	22.5	3	1.5	24 vac
ESDDR-15	15				31.3	25	3	5	24 vac
ESDDR-16.5	16.5				34.4	27.5	3	5.5	24 vac
ESDDR-19.5	19.5				40.6	32.5	3	6	24 vac
ESDDR-22	21				43.8	35	6	3.5	24 vac
ESDDR-28	27				56.3	45	6	4.5	24 vac
ESDDR-30	30				62.5	50	6	5	24 vac
ESDDR-33	33				68.8	55	6	5.5	24 vac
ESDDR-39	39				81.3	65	6	6.5	24 vac
ESDDR-42	42				87.5	70	6	7	24 vac
ESDDR-45	45				93.8	75	9	5	24 vac
ESDDR-49.5	49.5				103.1	82.5	9	5.5	24 vac
ESDDR-58.5	58.5				121.9	97.5	9	6.5	24 vac
ESDDR-63	63				131.3	105	9	7	24 vac
ESDDR-66	66				137.5	110	12	5.5	24 vac
ESDDR-78	78				162.5	130	12	6.5	24 vac
ESDDR-84	84				175	140	12	7	24 vac
ESDDR-102	102					170	12	8.5	24 vac

Three Phase Amperage†

Standard Water Unit Model No.	Unit KW	208V	240V	480V	600V	No. of Heaters	Heater KW	Control Circuit Voltage
ESDDR-3	3	8.3	7.2	3.6	2.9	3	1	24 vac
ESDDR-4.5	4.5	12.5	10.8	5.4	4.3	3	1.5	24 vac
ESDDR-5.5	6	16.6	14.4	7.2	5.8	3	2	24 vac
ESDDR-7.5	7.5	20.8	18	9	7.2	3	2.5	24 vac
ESDDR-11	10.5	29.1	25.3	12.6	10.1	3	3.5	24 vac
ESDDR-14	13.5	37.5	32.4	16.2	13	3	1.5	24 vac
ESDDR-15	15	41.6	36.1	18	14.4	3	5	24 vac
ESDDR-16.5	16.5	45.8	39.7	19.8	15.9	3	5.5	24 vac
ESDDR-19.5	19.5			23.5	18.8	3	6	24 vac
ESDDR-22	21	58.3	50.5	25.3	20.2	6	3.5	24 vac
ESDDR-28	27	75	64.9	32.5	26	6	4.5	24 vac
ESDDR-30	30	83.3	72.2	36.1	28.9	6	5	24 vac
ESDDR-33	33	91.6	79.4	39.7	31.8	6	5.5	24 vac
ESDDR-39	39			46.9	37.5	6	6.5	24 vac
ESDDR-42	42			50.5	40.4	6	7	24 vac
ESDDR-45	45	124.9	108.3	54.1	43.3	9	5	24 vac
ESDDR-49.5	49.5	137.4	119.1	59.5	47.6	9	5.5	24 vac
ESDDR-58.5	58.5			70.4	56.3	9	6.5	24 vac
ESDDR-63	63			75.8	60.6	9	7	24 vac
ESDDR-66	66			79.4	63.5	12	5.5	24 vac
ESDDR-78	78			93.8	75.1	12	6.5	24 vac
ESDDR-84	84			101	80.8	12	7	24 vac
ESDDR-102	102			122.7	98.2	12	8.5	24 vac

† Other voltages available upon request. Please consult factory for specific availability.



Features

- | | |
|--|---------------------------------------|
| 1. Low Water Float Switch Junction Box | 5. Heater Assembly Access |
| 2. 1/4" NPT Fill Inlet Connection | 6. Humidifier Steam Outlet Connection |
| 3. Overflow Piping | 7. Over Temperature Cut-Out Switch |
| 4. 3/4" NPT Ball Valve | |



Specification Sample

ESDDR Series

SHEET NO.

ESDDR-6

1. The humidifier shall be an electrically heated immersion heater type manufactured by PURE Humidifier Co. of Chaska, Minnesota.
2. The humidifier shall be tested and approved by ETL/ ETL-C Testing Laboratories, Inc.
3. The humidifier shall have an evaporating reservoir with a gasket sealed cover which is capable of operating at pressures of at least 19"-48 cm (W.C.) without steam or water leaks. The reservoir shall be made of type 304L stainless steel with welded joints. Reservoir shall be mounted on slide rails for easy removal from the cabinet.
4. The humidifier shall be designed to facilitate easy removal of the heater assembly for inspection. The cover and heater assembly shall be secured to the unit by the use of quick release clamps. The heater assembly shall be removable from the side of the humidifier without disturbing the cover or injection tube system's steam supply piping.
5. The humidifier shall be suitable for use with pure water such as deionized, demineralized or reverse osmosis water with a maximum purity of 18 megohm-cm.
6. Humidifier shall be field convertible from an electric immersion heater style ESDDR humidifier to a steam heat exchanger style SXDDR humidifier with a simple change of the side entry assembly.
7. A stainless steel float operated low water cut-off switch shall be provided. The float switch shall provide positive low water cut-off of the humidifier immersion heaters.
8. A stainless steel float operated water fill valve mounted on the top of the humidifier shall be provided. The fill valve shall provide automatic refilling of the humidifier reservoir.
9. The humidifier shall have a 3/4" (1.9 cm) overflow pipe to prevent overfilling of the humidifier reservoir.
10. The immersion heater(s) shall be incoloy sheathed and designed for a maximum of 80 watts per sq. inch. They shall be attached to the reservoir cover and be easily removed for cleaning and inspection. Expansion and contraction of the heater(s) sheath allows mineral buildup to flake off.
11. The humidifier shall have a manual reset over-temperature switch factory installed on the humidifier reservoir. The temperature switch shall provide humidifier over-temperature protection.
12. The INTAC® Programmable Logic Controller (PLC) shall be factory-mounted within the control panel and shall electronically control the low water cut-off, and safety switch interlock functions. The INTAC® PLC performs self-diagnostics and controls all water level and safety circuit interlocks with fault indication.
13. The INTAC® PLC has an adjustable tank water temperature control to maintain a set temperature when the humidifier is not actively humidifying.
14. A 1/2" stainless steel ball valve shall allow for manual draining of the humidifier reservoir.
15. The INTAC® PLC has a local HMI display to indicate Safety Circuit Open, Over-temp Open, Water Level Status and Power Output.
16. The INTAC® PLC also employs an intuitive color touchscreen interface, comes with BACnet communications, contains a webserver, is capable of data logging, maintains a fault history and uses a real time clock.
17. SCR Modulation, 100% solid state power controller shall be provided in the control panel. The SCR power controller will modulate the humidifier between 0-100% of its rated capacity according to humidistat demand.
18. The humidifier shall be provided with a JIC NEMA 12 control cabinet, shipped loose (reference factory mounting option). The control cabinet shall be made of 14-gauge steel with ANSI 61 gray polyester powder coating, continuous hinge and oil-resistant gasket. The panel shall include a factory wired subpanel with a magnetic contactor, INTAC® PLC, fused control circuit transformer, numbered terminal blocks and heater fuses. The modulating control voltage shall be field adjustable to match the controlling input signal.

Reference the "Options" page for a description of the options which can be added to the base specification.



Options

ESDDR Series

SHEET NO.
ESDDR-7

Humidifier

Insulation. Unit shall be covered (except top cover) with $\frac{3}{4}$ " (1.9 cm) thick fiberglass duct insulation. Insulation material shall have aluminum foil facing.

Mounting

Support Legs. Provide support legs made of $1\frac{1}{4}$ " x $1\frac{1}{4}$ " x $\frac{1}{4}$ " (3.2 cm) angle iron and painted with enamel gray paint. Distance from humidifier bottom to floor shall be 24" (61 cm).

Wall Brackets. Provide two wall brackets made of $1\frac{1}{4}$ " x $1\frac{1}{4}$ " x $\frac{1}{4}$ " (3.2 cm) angle iron and painted with enamel gray paint.

Injection Tubes

Injection Tube(s) and Flexible Hose. Each unit shall include one or more 10-foot (305 cm) sections of $1\frac{1}{2}$ " (3.8 cm) I.D. flexible hose and a $1\frac{1}{2}$ " (3.8 cm) O.D. stainless steel injection tube long enough to extend across the duct. The reservoir cover shall have a matching connection so the flexible hose can be connected with two stainless steel hose clamps. A two-piece duct plate shall be provided to seal the duct opening.

Fast-Pac Tube Assembly. Tube assembly consists of a stainless steel supply/condensate header with a $\frac{3}{4}$ "-NPT drain connection and horizontal $1\frac{1}{2}$ "Ø stainless steel injection tubes.

Insty-Pac Tube Assembly. Tube assembly consists of a steam supply/seperator header constructed of stainless steel with steam inlet, condensate drain outlet, and steam jacketed injection tubes welded to header. Steam jacketed injection tubes constructed of stainless steel with punched steam ports of the proper size and spacing to deliver the maximum specified capacity.

High-Efficiency Insulated Tubes. Thermoplastic wrap reduces condensate loss and unwanted heat gain during cooling mode.

Blower Pack. Unit shall allow for direct space humidification without the use of ductwork. Unit shall be contained within a cabinet that is constructed of 18-gauge steel with a baked enamel paint finish. Unit shall have a two-speed field adjustable fan. The fan is controlled by a thermostat interlock mounted on the steam distributor, it shall activate the fan before steam is discharged and deactivate the fan after all residual steam has been discharged. One Blower Pack can be used per each 100 PPH.

Control Cabinet

Control Cabinet Factory Mounting. Humidifier control cabinet shall be factory-mounted and wired to the left side of the humidifier reservoir.

NEMA 4 Control Cabinet. A NEMA 4 weather-tight control cabinet shall be substituted for the standard NEMA 12 cabinet.

Control Panel Door Lock. Control cabinet shall be provided with a factory-installed key lock on the cabinet door.

Controls and Safety Devices

VAV Control. A supply duct humidity sensor shall be supplied to control critical variable air volume (VAV) air handling systems. The system shall automatically determine if the supply air or the room/return/control by others signal is dominant and slowly reduces the humidifier output capacity, thus preventing over-saturation of the supply air when the air volume changes.

Outdoor Air Temperature Setback. Provides automatic reduction of RH set point to prevent condensation on windows during extreme cold weather.

Airflow Proving Switch. A diaphragm operated air flow proving switch with adjustable control range of .05" W.C. to 12.0" W.C. shall be provided for field installation. Switch rating shall be at minimum 2.5 amps at 120V.

Duct High-Limit. A high-limit humidistat shall be provided for duct installation. The high-limit shall be field set to prevent over saturation within the supply duct.

Miscellaneous Accessories

DCT-927 Drain Tempering Kit. Provides cold water cooling of the 212°F drain water.

Condensate Pump. Used to lift condensate from the humidifier or tube assembly.

Outdoor Enclosure. Galvanized steel enclosure with tank freeze protection, control panel mounted, support legs, insulated tank, ventilation and hinged access doors. Enclosure is ready to be curb-mounted with the humidifier pre-installed. Ships as one piece. Roof curb is not included.

Reference the "Sample Specification" page for the humidifier base specification.