

# XT SERIES

Electrode Steam Humidifiers



 Installation, Operation, and  
Maintenance Manual

Read and save these instructions



**⚠ WARNING****Electrical shock hazard**

If the humidifier starts up responding to a call for humidity during maintenance, severe personal injury or death from electrical shock could occur. To prevent such start-up, follow the shutdown procedure on Page 54.

**CAUTION****Follow steam piping recommendations**

Controlling condensate flow and collection in an XT Series humidifier system is critical to maximize performance. Failure to follow the steam piping recommendations in this manual can cause system pressure fluctuations and increase cylinder pressure, steam velocity, and condensate noise.

**Hot discharge water**

Discharge water can be as hot as 212 °F (100 °C) and can damage some drain plumbing materials not rated for hot drain water. To prevent such damage, make sure drain water tempering is selected, and supply water is not heated. Do not shut off supply water to the cylinder before it is drained.

**Excessive supply water pressure**

Supply water pressure greater than 80 psi (550 kPa) can cause the humidifier to overflow.

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**ATTENTION INSTALLER**

**Original Instructions**

Read this manual before installing.  
Leave manual with product owner.

DriSteem Technical Support  
800-328-4447

**Website:**

Documents can be viewed, printed or ordered from our website, [www.dristeem.com](http://www.dristeem.com).

**DriCalc sizing and selection software:**

DriCalc® is our humidification system sizing and selection software, which can be accessed from [dristeem.com](http://dristeem.com).



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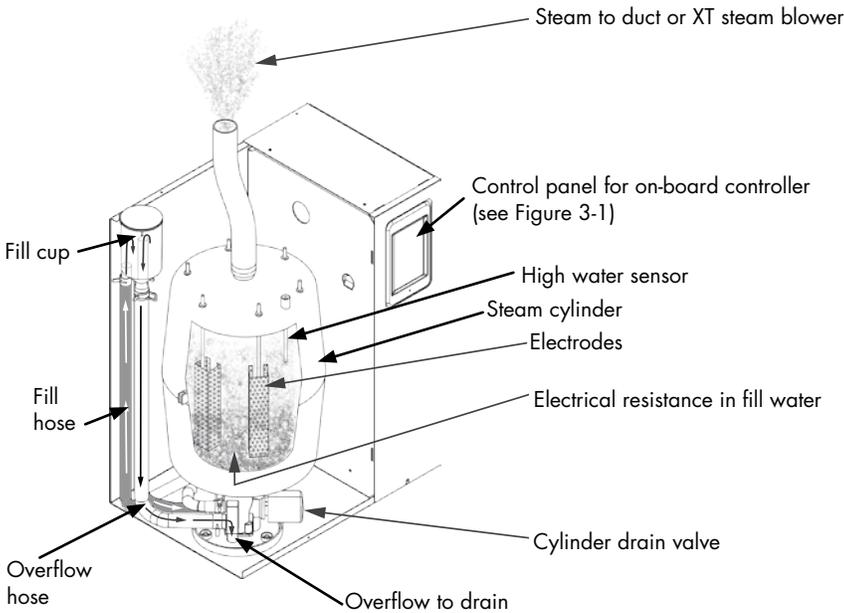
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# Components

DriSteem XT Series electrode steam humidifiers use heat caused by electrical resistance in their fill water to boil the fill water into humidification steam. Steam output and water conductivity are managed via automatic draining and filling. See Figure 2-1.

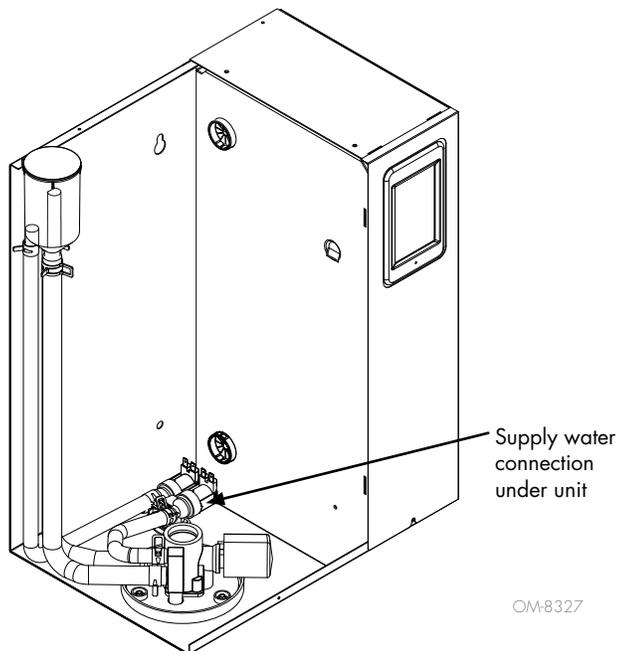
**FIGURE 2-1: XT SERIES HUMIDIFIER COMPONENTS**



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Note: See detailed installation drawing on Page 17 and principle of operation on Page 48.

**FIGURE 2-2: XT SERIES HUMIDIFIER COMPONENTS**



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## Download DriSteem literature

DriSteem product manuals can be downloaded, printed, and ordered from our website: [www.dristeem.com](http://www.dristeem.com)

The [Vapor-logic Installation and Operation Manual](#) ships with Model XTP humidifiers. It is a comprehensive manual. Refer to it for information about the keypad/display and Web interface, and for troubleshooting information.

# Components

**FIGURE 3-1: XT SERIES HUMIDIFIER CONTROL PANEL**



## VAPOR-LOGIC CONTROLLER

The Model XTP humidifier Vapor-logic® controller features menus for all humidifier functions, with a Web interface for access to all functions via Ethernet. See "Operations" beginning on [page 45](#) for details.

# Water requirements

## SUPPLY WATER

Recommended hardness for best operation is 6-8 grains. However, cylinder replacement could be more frequent with hard water, because hard water scale coats the electrodes. The harder the water, the more frequent the need for a new cylinder.

## CONDUCTIVITY OF THE WATER

All of DriSteem's isothermal humidifiers can use hard, softened, DI, or RO water except for XT Series electrode humidifiers. Electrode humidifiers require conductive water and, therefore, cannot use water with little or no total dissolved solids (TDS), such as DI, RO, or softened water. Recommended incoming water conductivity is 300-500  $\mu\text{S}/\text{cm}$ .

Electrical conductivity in water is proportional to the concentration of conductive ions in the water. The higher the concentration of conductive ions, the higher the conductivity of the water.

Resistivity is the inverse of conductivity. Ultra-pure water has so few conductive ions that it is, for all practical purposes, infinitely resistive. Conductivity is determined by the following:

- Charge on the ions
- Size of the ions
- Temperature of the water

Conductivity and resistivity are critical to the operation of an electrode humidifier. In electrode humidifiers, steam output is directly related to the resistance of the water in the steam cylinder and, therefore, to the conductivity of the water between the electrodes.

As the water in an electrode humidifier cylinder heats up, the conductivity increases. When it boils into steam, the concentration of the conductive ions increases until it reaches a threshold that triggers a drain-and fill cycle. This rids the cylinder of highly conductive water and replaces it with less conductive supply water.

The more conductive the supply water and the higher the demand, the more quickly the threshold is reached, and the more frequently the cylinder automatically drains and fills to stay within the parameters for the proper steam output. The frequency and duration of the drain-and-fill cycles is proportional to the conductivity of the supply water. Generally, less conductive supply water takes somewhat longer to reach full output at startup but requires less frequent drain-and-fill cycles. This results in more consistent steam output over time and more efficient use of energy and water.

To test your job site's water conductivity use conductivity tester kit or ask your local municipalities for a water report.

Table 4-1:

### DriSteem supply water guidelines for XT series electrode humidifiers

<b>Supply water conductivity</b>	125-350 mS Low conductivity cylinder* 350- 1250 mS Standard cylinder
<b>Chlorides</b>	Not limited
<b>pH</b>	6.5 to 8.5
<b>Silica</b>	0 - 10 ppm
<b>Demineralized, deionized, and reverse-osmosis</b> water cannot be used.	
Supply water outside of these guidelines may void your DriSteem warranty. Please contact your DriSteem Representative or DriSteem Technical Support if you need advice.	
The start-up time will vary based on supply water conductivity and operational conditions, the humidifier may not reach the full steam capacity during the first few hours of operation. NOTE: For very low conductivity supply water applications, when full capacity is required quickly, DriSteem's resistance style generators are recommended.	
Low conductivity cylinders are available for all models.	

# Water requirements

**Table 5-1:**  
Water quality impact on performance

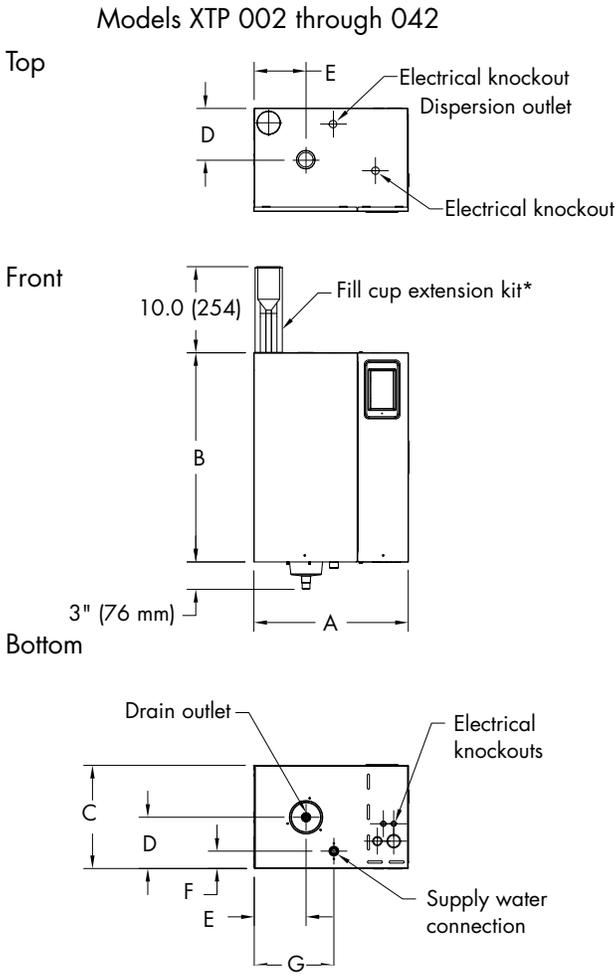
Water quality issue	Effect on system	Maintenance impact
High Conductivity	Low water level operation Increased arcing potential	Faster deterioration of electrodes
Low Conductivity	Slow to boil on start-up Unable to quickly adapt to demand	Minimal
High Hardness	Rapid scale build-up	Frequent cylinder changes
High TDS	Rapid scale build-up	Frequent cylinder changes
High Silica	Reduced capacity over time	Frequent cylinder changes
Softened Water	Increased arcing potential Unable to meet capacity	Faster deterioration of electrodes

## NOTES

- Supply water must not exceed 90°F (32°C) if drain water tempering is required.
- Supply water pressure greater than 80 psi (550 kPa) can cause the humidifier to overflow.
- Water with higher hardness levels generally produces more scale, resulting in more frequent cylinder replacement.

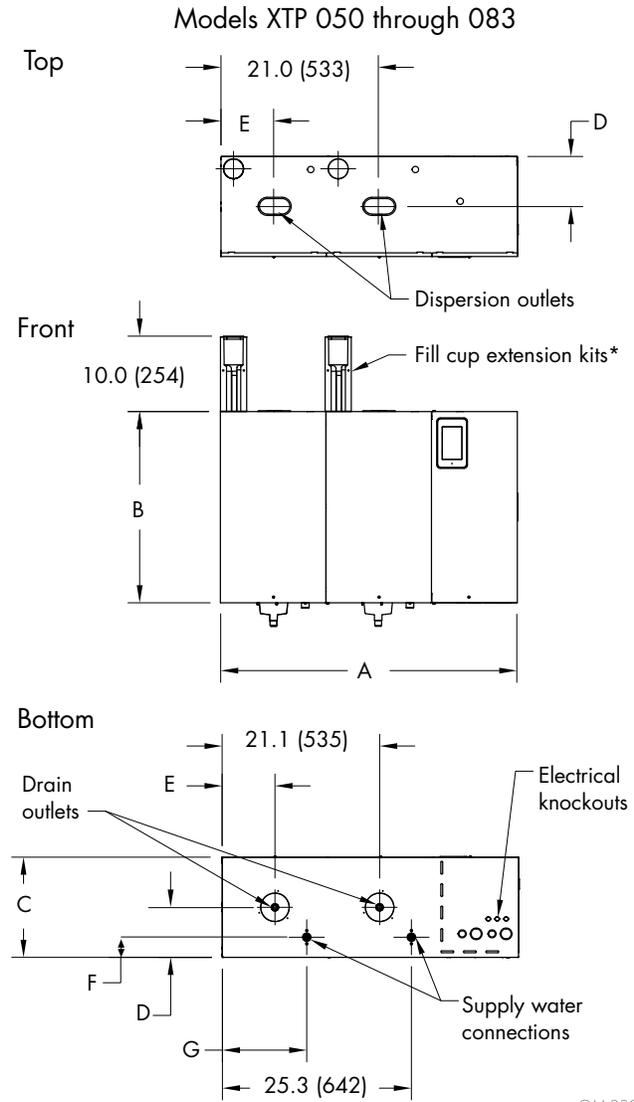
# Dimensional drawings

**FIGURE 6-1: XT SERIES HUMIDIFIER DIMENSIONAL DRAWINGS**



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- Notes:
- \* Fill cup extension (Figure 6-1) is required for the following:
    - All XT Series humidifiers using Ultra-sorb or Rapid-sorb
    - When developed length of steam tubing is more than 20' (6 m) and duct static pressure exceeds 2" wc (498 Pa)
  - Labeled dimensions: inches (millimeters).
  - See mounting dimensions in Figure 11-1.
  - See Figure 22-1 and Table 23-1 for units mounted in an outdoor enclosure.



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## Dimensions and weights

**Table 7-1:**  
**XT Series humidifier dimensions by model number**

Dimension	Description	Model XTP							
		002, 003, 006		010, 017		025, 033, 042		050, 067, 083	
		inches	mm	inches	mm	inches	mm	inches	mm
A	Cabinet width	14.6	371	17.8	452	19.9	505	39.7	1008
B	Cabinet height	20.6	523	24.1	612	25.6	650	25.6	650
C	Cabinet depth	8.7	221	11.9	302	13.4	340	13.4	340
D	Cabinet back edge to steam/drain outlet centers	4.5	114	5.9	150	6.7	170	6.7	170
E	Cabinet left edge to steam/drain outlet centers	4.5	114	6.0	152	7.1	180	7.1	180
F	Cabinet back edge to water fill connection center	1.5	38	2.0	51	2.7	69	2.7	69
G	Cabinet left edge to fill connection center	6.7	170	9.2	234	11.4	290	11.4	290

Refer to Figure 22-1 and Table 23-1 for units mounted in an outdoor enclosure.

**Table 7-2:**  
**XT Series humidifier weights by model number**

	Model XTP									
	002, 003		006		010, 017		025, 033, 042		050, 067, 083	
	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg
Shipping weight	37	17	37	17	50	23	64	29	139	63
Maximum operating weight	38	17	46	21	79	36	115	52	219	99

Refer to Table 21-1 for units mounted in an outdoor enclosure.

## Capacities, line currents, and fusing

Table 8-1:  
Line currents and recommended fusing for XT Series humidifiers<sup>(1)</sup>

Model	Nominal steam capacity		kW	Phase	Volts	Maximum line current (amps)	Recommended fusing (amps)
	lbs/hr	kg/h					
002	5	2	1.8	1	120	17.5	25
					208	10.1	15
					230	9.2	15
					240	8.8	15
003	10	5	3.5	1	208	20.2	25
					230	18.3	25
					240	17.5	25
					277	15.2	20
					380	11.1	15
					400	10.5	15
					480	8.8	15
				3	600	7.0	10
					208	11.7	15
					240	10.1	15
					380	6.4	10
					400	6.1	10
					480	5.1	10
					600	4.1	10
006	20	9	7.0	1	208	40.5	50
					230	36.6	45
					240	35.1	45
					277	30.4	40
					380	22.2	30
					400	21.1	30
					480	17.5	25
				3	600	14.0	20
					208	23.4	30
					240	20.3	25
					380	12.8	20
					400	12.2	15
					480	10.1	15
					600	8.1	15
010	30	14	10.5	3	208	35.1	45
					240	30.4	40
					380	19.2	25
					400	18.3	25
					480	15.2	20
					600	12.2	20

For units with an outdoor enclosure:

- Add 5 amps to "Maximum Line Current" to accommodate enclosure heater
- Adjust fusing size accordingly

# Capacities, line currents, and fusing

**Table 9-1:**  
Line currents and recommended fusing for XT Series humidifiers<sup>(1)</sup>

Model	Nominal steam capacity		kW	Phase	Volts	Maximum line current (amps)	Recommended fusing (amps)
	XTP	lbs/hr					
017	50	22	17.5	3	208	58.5	70
					240	50.7	65
					380	32.0	40
					400	30.4	40
					480	25.4	35
					600	20.3	25
025	75	34	26.3	3	380	48.0	60
					400	45.6	60
					480	38.0	50
					600	30.4	40
033	100	45	35.1	3	380	64.0	80
					400	60.8	75
					480	50.7	65
					600	40.6	50
042	125	57	43.9	3	380	80.1	100
					400	76.1	100
					480	63.4	80
					600	50.7	65
050*	150	68	52.6	3	380	96.0	125
					400	91.2	110
					480	76.0	100
					600	60.8	80
050**	150	68	52.6	3	380	2 x 48.0	2 x 60
					400	2 x 45.6	2 x 60
					480	2 x 38.0	2 x 50
					600	2 x 30.4	2 x 40
067*	200	91	70.2	3	380	128.1	150
					400	121.7	150
					480	101.4	125
					600	81.2	100
067**	200	91	70.2	3	380	2 x 64.0	2 x 80
					400	2 x 60.8	2 x 80
					480	2 x 50.7	2 x 70
					600	2 x 40.6	2 x 50
083*	250	113	87.7	3	380	160.1	200
					400	152.1	200
					480	126.7	150
					600	101.4	125
083**	250	113	87.7	3	380	2 x 80.1	2 x 100
					400	2 x 76.1	2 x 100
					480	2 x 63.4	2 x 80
					600	2 x 50.7	2 x 65

\* Dual canister unit with single-point power connection  
 \*\* Dual canister unit with dual-point power connection. kW listed is total for the unit.  
 For units with an outdoor enclosure:  
 - Add 5 amps to "Maximum Line Current" to accommodate enclosure heater  
 - Adjust fusing size accordingly

# Selecting a location

## HUMIDIFIER

When selecting a location for the humidifier, consider the following:

- **Proximity to the duct**

Install the humidifier near the air duct system where the dispersion assembly will be located. The maximum length for steam hose connecting a single humidifier to a dispersion assembly is 10' (3 m). The maximum recommended developed length for tubing connecting a single humidifier to a dispersion assembly is 20' (6 m). NOTE: Increasing steam tubing diameter may be required for longer steam runs.

For more information about installing dispersion assemblies, see "Dispersion" beginning on Page 30.

- **Elevation of the installed dispersion assembly**

The recommended installation location for the dispersion assembly is at an elevation higher than the humidifier. However, if the dispersion assembly must be installed at an elevation lower than the humidifier, install a drip tee and drain. See "Drip tee installation" on Page 40.

Before installing a dispersion assembly or interconnecting piping, review all pitch requirements in the "Dispersion" section of this manual.

- **Temperature and relative humidity (RH):**

Install humidifier only in locations that meet the following temperature and RH requirements:

- Maximum ambient temperature: 122 °F (50 °C).
- Minimum ambient temperature: 41 °F (5 °C)
- Maximum ambient humidity: 80% RH (non-condensing)
- Required clearances (see Figure 10-1)
- Electrical connections
- Electrical power supply connections are at the lower or upper right rear corner of the unit. See "Humidifier wiring" on Pages 18 and 19.
- Supply water and drain piping connections

Water supply piping and drain connections are at the bottom of the cabinet. See "Piping" on Page 15.

- **Exterior wall insulation**

Install the humidifier on an exterior wall only if the wall is properly insulated.

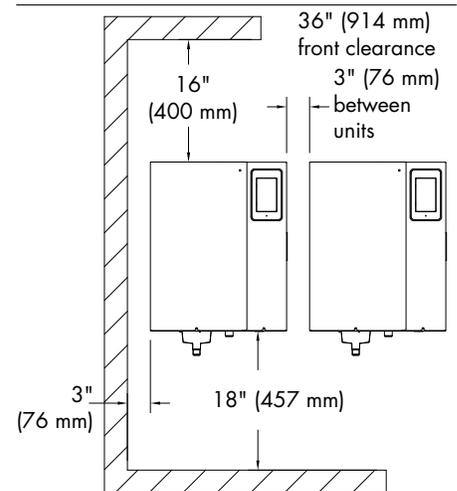
## DISPERSION CONTROL DEVICES

See page 30 for recommended installation locations for the dispersion assembly and associated control devices.

## Staging multiple humidifiers

Up to four Model XTP humidifiers can be staged to operate in sequence. In a sequenced application, one control input signal is divided into user-selectable control input signals for the connected humidifiers. See the [Vapor-logic Installation and Operation Manual](#) for instructions on staging multiple humidifiers.

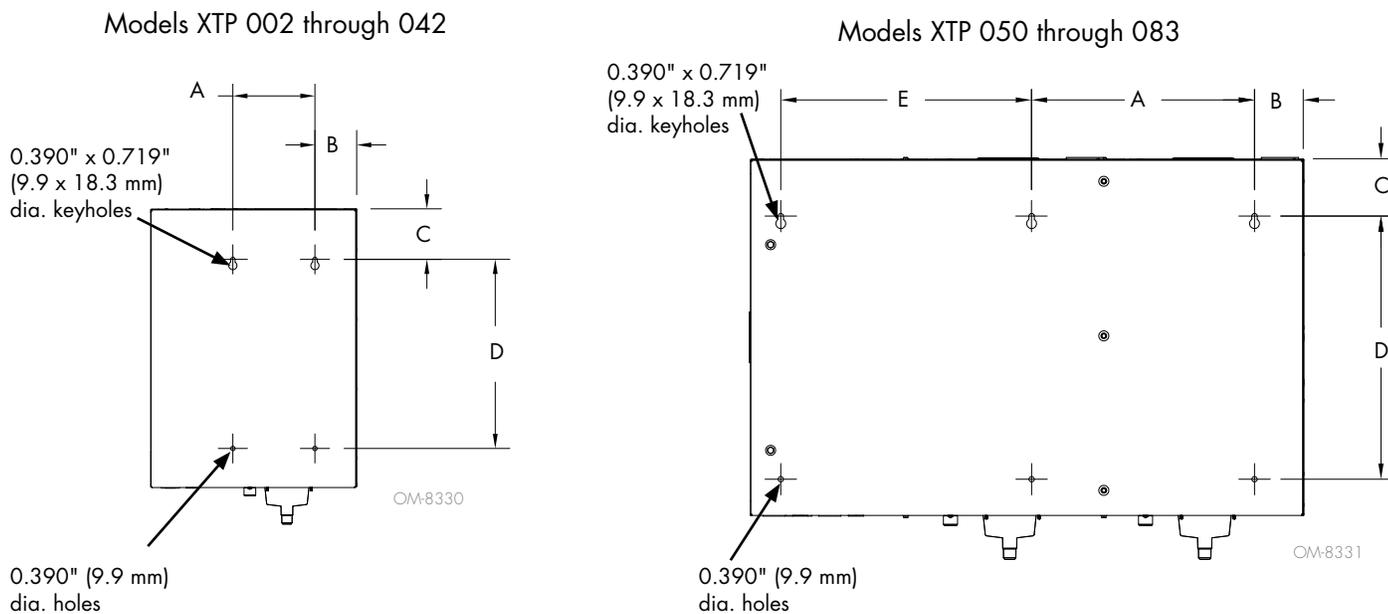
**FIGURE 10-1: XT SERIES INDOOR HUMIDIFIER RECOMMENDED MINIMUM CLEARANCES**



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# Mounting

**FIGURE 11-1: XT SERIES HUMIDIFIER MOUNTING KEYHOLE LOCATIONS**



**Table 11-1:**  
XT Series humidifier mounting keyhole dimensions

Dimension	Model XTP							
	002, 003, 006		010, 017		025, 033, 042		050, 067, 083	
	inches	mm	inches	mm	inches	mm	inches	mm
A	3.9	100	7.0	178	7.5	190	16.0	406
B	3.0	75	3.4	86	3.4	86	3.5	90
C	3.2	81	3.6	91	4.1	104	4.1	104
D	14.0	355	16.3	414	18.9	480	18.9	480
E	—	—	—	—	—	—	18.0	457

Refer to Figure 25-1 for units mounted in an outdoor enclosure.

# Mounting

Unpack the humidifier from the shipping carton, and remove the cabinet doors and steam cylinder (see removing steam cylinder instructions below).

Note: When first unpacking the humidifier, cut and remove the shipping strap that goes around the cylinder and through the cylinder guides. This strap does not need to be replaced, unless the unit is seismic rated.

## REMOVING STEAM CYLINDER

If sent to this page from the "Maintenance" section, and the humidifier has been operating, make sure the cylinder is empty and cooled before removing it. See the shutdown and cool-down procedures on Page 54.

1. Carefully pull the electrode connectors straight up off the cylinder to ensure no damage occurs. A twisting motion can be used to aid in removal. Do not pry/remove at an angle, as that could compromise the connection upon reinstallation.
2. Disconnect the high water sensor wire.
3. Place hands palms-down below cylinder on both sides of drain outlet.
4. Press up against bottom of cylinder with backs of hands while pressing down against cabinet floor with fingers. Remove clamp holding hose at the top of the cylinder
5. Raise cylinder until drain outlet clears drain valve body and the side tabs on the cylinder have cleared the cylinder guides. Remove cylinder from cabinet.

## WALL MOUNTING HUMIDIFIER

Mount the humidifier level and plumb using the lag bolts provided. Follow the instructions below for mounting on a wood stud wall.

1. Mount spanner boards on wall, spanning at least two studs. Position one board at top of cabinet (for the lag bolts), and other board at bottom of cabinet.
2. Predrill pilot holes in spanner boards, and secure humidifier to spanner boards with lag bolts.

Note: Use the appropriate mounting methods and mounting hardware for other wall types.

### WARNING

#### Mounting hazard

Mount humidifier per the instructions in this manual and to a structurally stable surface. Improper mounting of the humidifier can cause it to fall or tip, resulting in severe personal injury or death.

### WARNING

Replace electrode connectors if connection is loose or there are any signs of wear. Loose or damaged electrode connectors can cause high resistance and hot spots, leading to premature failure.

# Fill cup extension kit

A fill cup extension (Figure 13-1) is required for the following:

- All XT Series humidifiers using Ultra-sorb or Rapid-sorb
- When developed length of steam tubing is more than 20' (6 m) and duct static pressure exceeds 2" wc (498 Pa)
- Outdoor enclosure units include an integral fill cup extension kit.

### REMOVING EXISTING FILL CUP

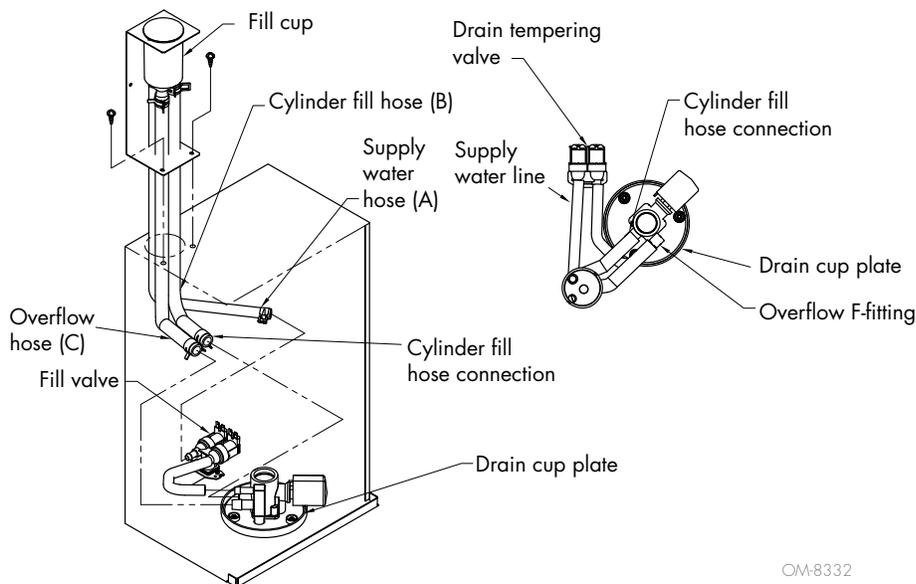
Remove the existing fill cup as follows:

1. Remove steam cylinder from XT cabinet (if not already out).
2. Expand spring clamps and slide them up cylinder fill hose and supply water hose, and disconnect hoses from cylinder fill hose connection and fill valve adapter.
3. Disconnect overflow hose from the F-fitting.
4. Remove fill cup and hoses. Rotate fill cup to align tabs with slots and push upward.

### INSTALLING FILL CUP EXTENSION KIT

1. Remove steam cylinder(s) from XT cabinet (if not already out).
2. Route fill cup extension kit hoses into cabinet through fill cup hole, and fasten extension bracket as shown with two screws provided.
3. Route hoses along back of cabinet interior to provide clearance for cylinder.
4. Expand spring clamp and slide it onto supply water hose (A) far enough so it will not interfere, then push hose onto fill valve adapter. Expand and slide spring clamp into place.
5. Expand spring clamp and slide it onto cylinder fill hose (B) far enough so it will not interfere, then push hose onto cylinder fill hose connection. Expand and slide spring clamp into place.
6. Expand spring clamp and slide it onto the overflow hose (C) far enough that it will not interfere, then push the hose onto the F-fitting. Expand and slide the spring clamp into place.

**FIGURE 13-1: FILL CUP EXTENSION KIT**



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# Steam cylinder

## INSTALLING STEAM CYLINDER

Note: Verify that drain valve body is clean before installing a new cylinder.

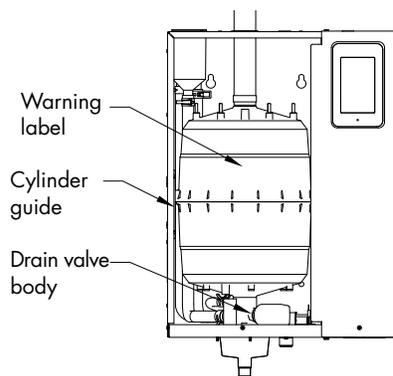
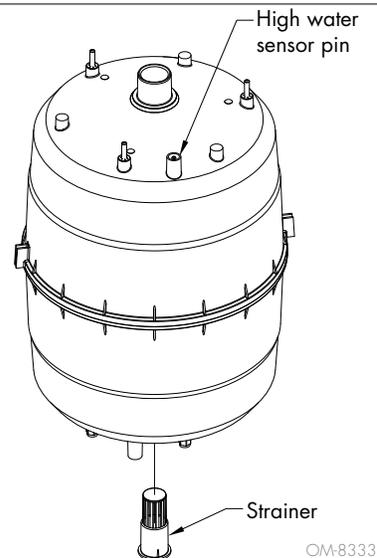
1. Make sure strainer is pressed into steam cylinder drain outlet and strainer flange is flush with bottom of cylinder outlet. See Figure 14-1.
2. Use water to lubricate drain outlet on bottom of cylinder and O-ring in drain valve body. See Figure 14-1.

Note: Because of tight clearances, perform Steps 3 through 4 only if servicing Models XTP 002 through 017 with top-mounted steam blower. For all other models, skip to Step 5.

3. Slide steam hose that connects to cylinder and steam blower up until it is engaged on steam inlet of steam blower and tight against bottom of steam blower.
4. Slide steam outlet of new cylinder all the way up into open end of steam hose from Step 3.
5. With Warning label on cylinder facing you, lower cylinder drain outlet into drain valve body, and rotate cylinder so side tabs line up with cylinder guides inside cabinet. Push down on cylinder until drain outlet is fully seated in drain valve body.
6. Slide steam hose down so it is fully engaged on cylinder steam outlet. Re-install hose clamp(s).
7. Connect high water sensor (yellow) wire to single pin surrounded by plastic shoulder on cylinder.
8. **Connect electrode wires to pins on top of cylinder. Make sure all connectors fit snugly and are fully engaged on pins.**

**Important:** Three phase cylinders have color-coded dots on the cylinder and color bands on the electrode lead wires. When installing the connectors, match the band colors on the wires with the dot colors on the cylinder. Refer to the wiring diagram shipped with the humidifier if necessary.

**FIGURE 14-1: STEAM CYLINDER INSTALLATION**



## CAUTION

If electrode connectors become loose, damage to the humidifier may occur. Obtain replacement connector assemblies from DriSteem. See "Replacement parts" on Pages 63 and 65 for part numbers.

## Piping: Supply water and drain

### SUPPLY WATER PIPING

Use only copper for supply water piping; do not use rubber or plastic. The supply water connection at the fill valve is a 3/4"-11.5 garden hose thread.

**Note:** European models are supplied with an adapter converting to 3/4" BSP (DN20).

In cases where water hammer may be a possibility, consider installing a shock arrestor. Water pressure must be 25 to 80 psi (175 to 550 kPa).

### DRAIN PIPING

Drain piping must be code approved and have a minimum rated temperature of 212°F (100°C). Minimum diameter of drain piping to be as follows:

- Models 002 - 006: 3/4" (DN20)
- Models 010 - 042: 1" (DN25)
- Models 050 - 083: 1" (DN25) for each drain outlet.  
Upsize to 1.5" (DN40) where drain pipes converge.

The drain cup has an integral grounding plate and requires a field-installed 1" (25 mm) air gap to a drain funnel to prevent conduction of electricity in the drain piping.

The XT Series humidifier features user-selectable drain water tempering. When drain water tempering is selected, the humidifier tempers drain water by opening the fill valve whenever the drain valve is energized to cool drain water before it enters the drain. Drain water tempering keeps water entering the drain piping less than 140 °F (60 °C). Manually energizing the drain valve when the supply water is shut off can allow 212 °F (100 °C) water to enter the drain piping.

Observe the following precautions when selecting and installing drain piping to ensure personal safety and material integrity:

- When using copper or other metallic drain piping, ground the drain piping to the earth ground lug in the XT Series humidifier.
- Chlorinated polyvinyl chloride (CPVC) piping is a non-metallic alternative for drain piping. It is rated up to 212 °F (100 °C) for intermittent-use, low-pressure applications.

**Important:** Thoroughly flush supply water piping to remove pipe residue and stagnant water before connecting piping to humidifier. Pipe residue and stagnant water in water supply piping can cause foaming, preventing humidifier from reaching required steam capacity.

### WARNING

#### Hot drain pipes

Drain piping surface may be hot. Touching or contact with hot pipe may cause severe personal injury.

# Piping: Supply water and drain

The connection size for the steam cylinder drain is 1" (DN25) hose. Do not reduce this connection size. If drainage by gravity is not possible, use a reservoir pump rated for 212 °F (100 °C) water.

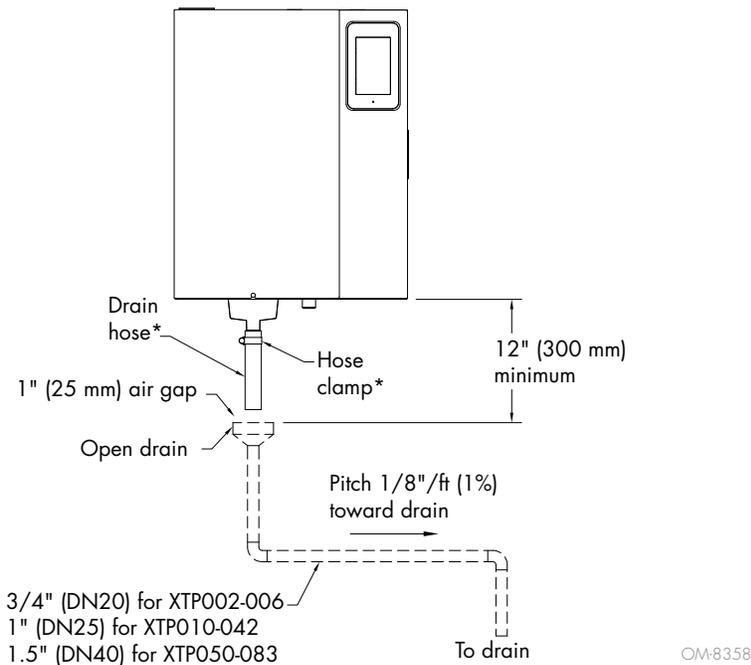
The open drain must be at least 12" (300 mm) below the bottom of the XT humidifier, to help prevent steam condensation on the humidifier. Use the 12" (300 mm) drain hose provided and position above field-installed open drain. Alternately, route drain piping away from beneath humidifier to open drain. See Figure 16-1.

When connecting drain piping from multiple units, minimum diameter must be 1.5" (DN40). Larger piping may be required based on number of units combined.

### AUTOMATIC DRAIN WATER TEMPERING

XT Series humidifiers are shipped with drain water tempering set to ON. To deactivate automatic drain water tempering see the [Vapor-logic Installation and Operation Manual](#).

**FIGURE 16-1: DRAIN PIPING DETAIL**

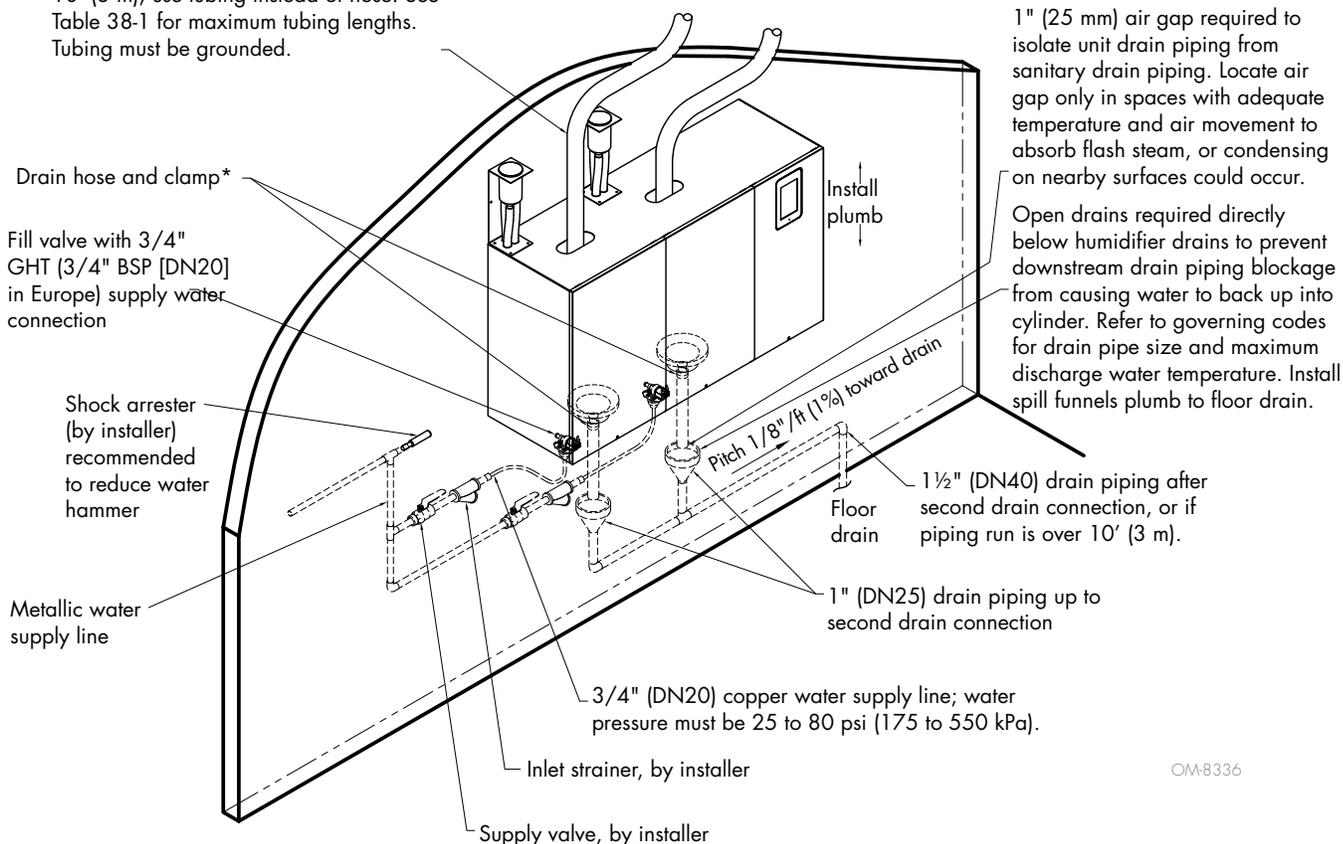


- \* Ships with humidifier
- Dashed lines indicate provided by installer
- The open drain must be at least 12" (300 mm) below the bottom of the XT humidifier, to help prevent steam condensation on the humidifier.
- Offset the open drain beyond edge of unit when installed in still air environment.

# Piping: Field piping overview

**FIGURE 17-1: XT SERIES HUMIDIFIER FIELD PIPING OVERVIEW**

Steam hose or tubing. For runs longer than 10' (3 m), use tubing instead of hose. See Table 38-1 for maximum tubing lengths. Tubing must be grounded.



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**Notes:**

- Dashed lines indicate provided by installer.
- Two-cylinder model shown.
- \* Ships with humidifier

# Humidifier wiring

All wiring must be in accordance with all governing codes and the unit wiring diagrams. DriSteem recommends using power supply cable rated to 105°C. Wiring diagrams are located inside the removable electrical subpanel cover (right side). See Figure 18-1 for the humidifier wiring diagram locations.

When selecting a location for installing the humidifier:

- Avoid areas close to sources of electromagnetic emissions such as power distribution transformers.
- Do not loop power wiring.
- Do not use aluminum wire.

### CONDUIT KNOCKOUTS

Conduit and control wiring knockouts are provided on the XT Series humidifier cabinet. See Figure 6-1.

### CONTROL COMPONENT PLACEMENT

Follow the guidelines in the [Vapor-logic Installation, Operation, and Maintenance Manual](#) for placing humidistats, transmitters, and airflow proving switches.

## WARNING

### Electric shock hazard

Only qualified electrical personnel should perform field wiring installation procedures. Improper wiring or contact with energized circuits may cause property damage, severe personal injury, or death as a result of electric shock and/or fire.

## CAUTION

### Adding conduit connections not recommended

Adding alternate conduit connections is not recommended. If you must make additional holes in the humidifier cabinet, protect all internal components from debris, and vacuum out the cabinet when finished. Failure to follow these precautions can damage sensitive electronic components and void the DriSteem warranty.

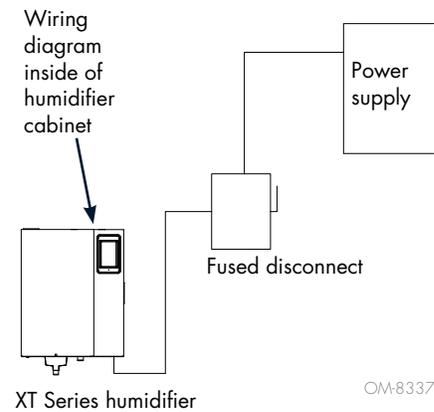
### GROUNDING REQUIREMENTS

The approved earth ground must be made with solid metal-to-metal connections and must be a good conductor of radio frequency interference (RFI) to earth (multistranded conductors).

### PROPER WIRING TO PREVENT ELECTRICAL NOISE

Electrical noise can produce undesirable effects on electronic control circuits, which affects controllability. Electrical noise is generated by electrical equipment such as inductive loads, electric motors, solenoid coils, welding machinery, or fluorescent light circuits. The electrical noise or interference generated from these sources (and the effect on controllers) is difficult to define, but the most common symptoms are erratic control or intermittent operational problems.

**FIGURE 18-1: FIELD WIRING REQUIREMENTS**



#### Notes:

- Control wiring and power wiring must be run in dedicated or separate earthed metal conduit, cable trays, or trunking.
- Separate the line voltage wiring from low voltage control circuit wiring when routing electrical wiring inside the humidifier cabinet.
- Do not use chassis or safety grounds as current-carrying commons. Never use a safety ground as a conductor or neutral to return circuit current.
- For circuit protection requirements, see recommended fusing in Table 8-1.

# Humidifier wiring

## CONNECTION INSTRUCTIONS

Before connecting power, refer to the wiring diagram or the data plate on the outside of the cabinet for wire sizing amperage.

For control signal wiring from a humidistat, transmitter, or signal by others, see the wiring diagrams shipped inside the humidifier.

See “Step 1 – Field wiring” in the [Vapor-logic Installation and Operation Manual](#) for detailed instructions on the following:

- Control input wiring:
- See the “Control input” section.
- Duct airflow proving switch and duct high limit humidistat wiring (recommended optional devices):
- See the following sections: “Airflow proving switch” and “Duct high limit switch or transmitter”
- Remote signal wiring:
- See the following sections: “Programmable triac” and “Programmable relay (dry contact)”

## EARTH GROUNDING REQUIREMENTS

A code-approved safety earth grounding system is required. The ground connection must be made with solid metal-to-metal connections. Ground wire should be the same size as power wiring.

## UNITS WITH STEAM BLOWER

Steam blowers (SDUs) receive power for operation from the XT series humidifier.

## SENSOR PLACEMENT

See the [Vapor-logic Installation and Operation Manual](#).

## WARNING

### Excessive moisture hazard

DriSteem strongly recommends installing a duct airflow proving switch and a duct high limit humidistat. These devices prevent a humidifier from making steam when there is low airflow in the duct or when the RH level in the duct is too high. Failure to install these devices can result in excessive moisture in the duct, which can cause bacteria and mold growth or dripping through the duct.

### Proper wiring prevents electrical noise.

Electrical noise can produce undesirable effects on electronic control circuits, which affects controllability. Electrical noise is generated by electrical equipment, such as: inductive loads, electric motors, solenoid coils, welding machinery, or fluorescent light circuits. The electrical noise or interference generated from these sources (and the effect on controllers) is difficult to define, but the most common symptoms are erratic control or intermittent operational problems.

### Important:

- For maximum EMC effectiveness, wire all humidity, high limit, and airflow controls using multicolored shielded/screened plenum-rated cable with a drain wire for the shield/screen. Connect the drain wire to the shield/screen ground terminal with wire less than 2" (50 mm) in length.
- Do not ground shield at the device end.

# Outdoor enclosure: Operation

## GENERAL DESCRIPTION

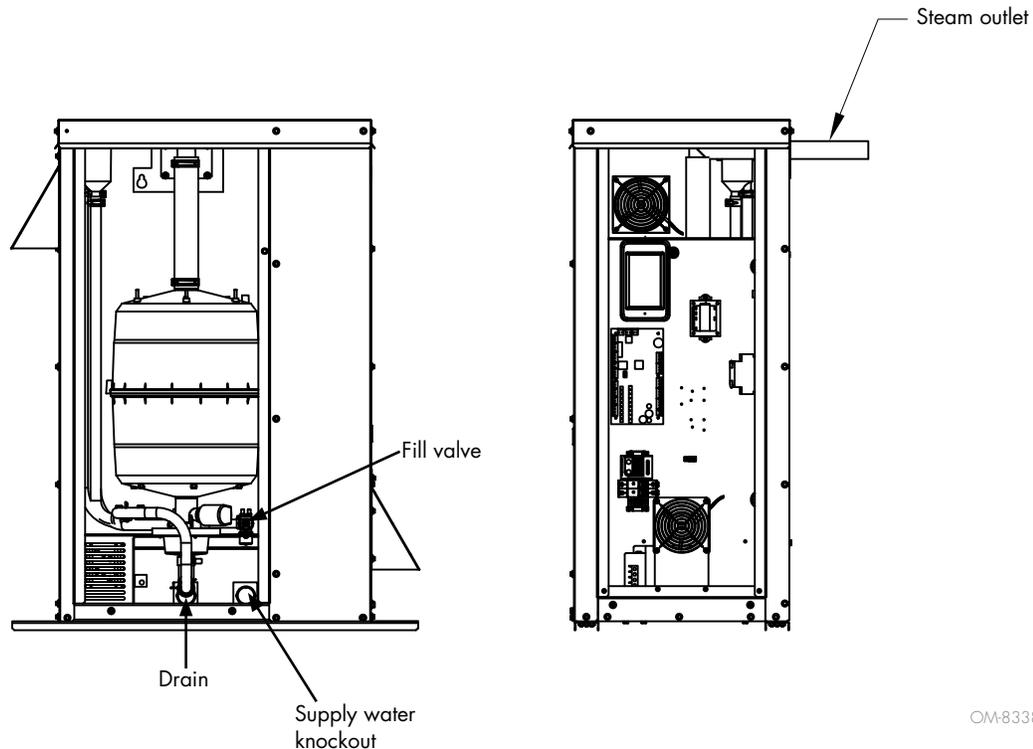
- The outdoor XT humidifier is CSA/ETL approved for installation outdoors. It uses an optional heater and fans to properly operate in temperatures of  $-40^{\circ}\text{F}$  to  $122^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ ). The unit is intended to be mounted to the side of an air handler unit (AHU) or exterior wall.
- Knockouts for electrical and plumbing connections are located on the back and bottom of the unit.
- If constant monitoring of the unit is desired, or if the unit is located in a severe climate, install a remotely mounted display. Additional cable lengths up to 500' (152 m) are available as an option.
- A single source of power can be supplied to operate the humidifier, and the heater and fans.

## OPERATION

If the ambient temperature in the enclosure is below  $50^{\circ}\text{F}$  ( $10^{\circ}\text{C}$ ), the heater is energized. The heater remains energized until the enclosure reaches  $60^{\circ}\text{F}$  ( $15.5^{\circ}\text{C}$ ).

When the temperature of the enclosure reaches  $85^{\circ}\text{F}$  ( $29^{\circ}\text{C}$ ), the ventilation fans energize to cool the electrical components. If the enclosure temperature reaches  $150^{\circ}\text{F}$  ( $66^{\circ}\text{C}$ ), the Vapor-logic controller will disable any heating elements and allow the ventilation fans to cool the enclosure. When the enclosure temperature falls below  $150^{\circ}\text{F}$  ( $66^{\circ}\text{C}$ ), the XT humidifier automatically resumes normal operation.

**FIGURE 20-1: OUTDOOR ENCLOSURE FILL AND DRAIN**



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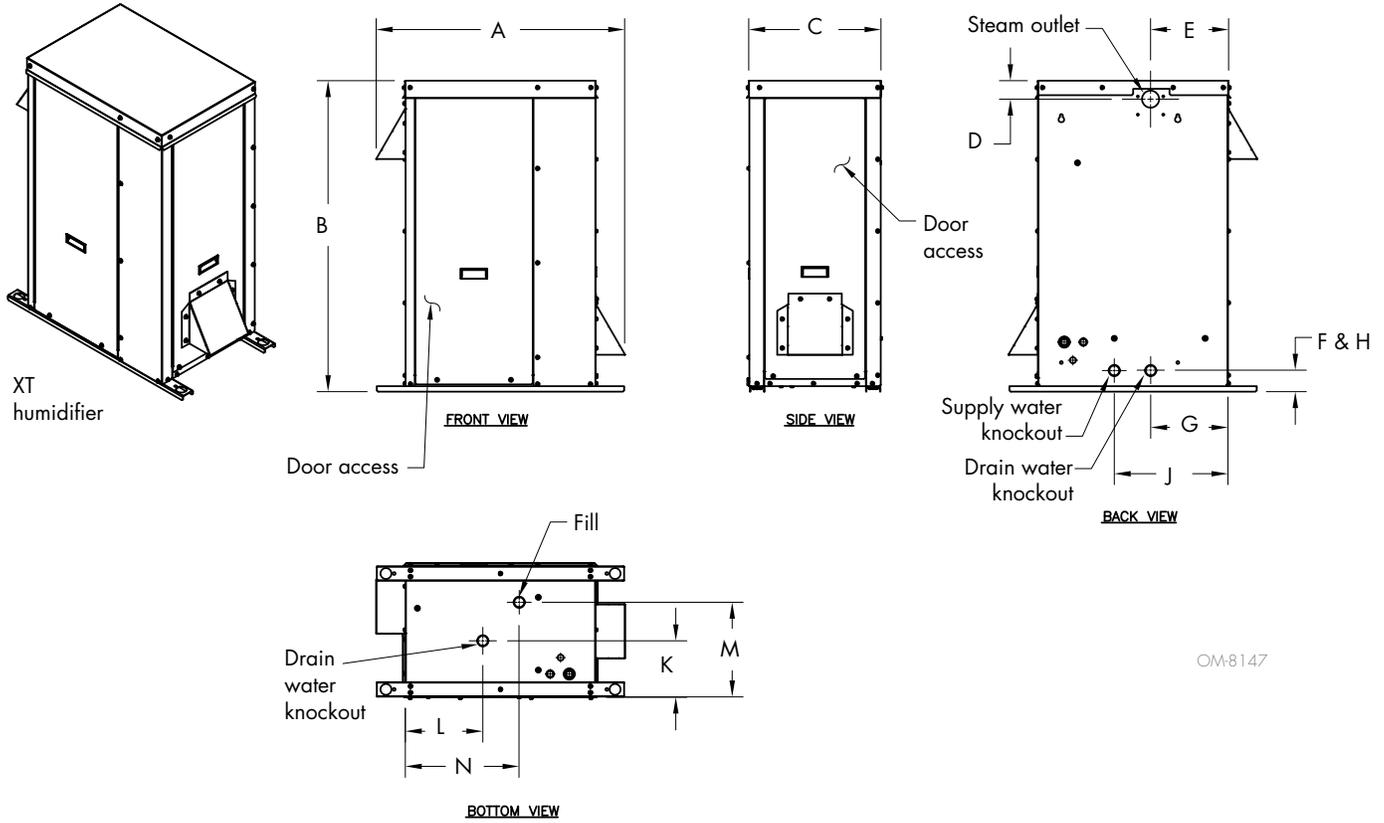
# Outdoor enclosure: XT outdoor enclosure voltage and weights

**Table 21-1: Voltages and Weights**

Model	Phase	Voltage	Weight Configuration					
			Dry		Shipping		Operating	
			(lbs)	(kg)	(lbs)	(kg)	(lbs)	(kg)
XTP002A1	1	120	145.0	65.9	209.0	95.0	150.4	68.4
XTP002B1	1	208	158.0	71.8	222.0	100.9	163.4	74.3
XTP002D1		230	145.0	65.9	209.0	95.0	150.4	68.4
XTP002E1		240	158.0	71.8	222.0	100.9	163.4	74.3
XTP003B1	1	208	158.0	71.8	222.0	100.9	163.4	74.3
XTP003D1		230	145.0	65.9	209.0	95.0	150.4	68.4
XTP003E1		240	158.0	71.8	222.0	100.9	163.4	74.3
XTP003F1		277	158.0	71.8	222.0	100.9	163.4	74.3
XTP003H1		400	145.0	65.9	209.0	95.0	150.4	68.4
XTP003L1		480	158.0	71.8	222.0	100.9	163.4	74.3
XTP003P1		600	157.6	71.6	221.6	100.7	163.0	74.1
XTP003B3	3	208	158.0	71.8	222.0	100.9	163.4	74.3
XTP003E3		240	158.0	71.8	222.0	100.9	163.4	74.3
XTP003H3		400	145.0	65.9	209.0	95.0	150.4	68.4
XTP003L3		480	158.0	71.8	222.0	100.9	163.4	74.3
XTP003P3		600	157.6	71.6	221.6	100.7	163.0	74.1
XTP006B1	1	208	158.7	72.1	222.7	101.2	171.2	77.8
XTP006D1		230	145.7	66.2	209.7	95.3	158.2	71.9
XTP006E1		240	158.7	72.1	222.7	101.2	171.2	77.8
XTP006F1		277	158.7	72.1	222.7	101.2	171.2	77.8
XTP006H1		400	145.7	66.2	209.7	95.3	158.2	71.9
XTP006L1		480	158.7	72.1	222.7	101.2	171.2	77.8
XTP006P1		600	158.3	72.0	222.3	101.0	170.8	77.6
XTP006B3	3	208	158.7	72.1	222.7	101.2	171.2	77.8
XTP006E3		240	158.7	72.1	222.7	101.2	171.2	77.8
XTP006H3		400	145.7	66.2	209.7	95.3	158.2	71.9
XTP006L3		480	158.7	72.1	222.7	101.2	171.2	77.8
XTP006P3		600	158.3	72.0	222.3	101.0	170.8	77.6
XTP010B3	3	208	160.0	72.7	224.0	101.8	187.5	85.2
XTP010E3		240	160.0	72.7	224.0	101.8	187.5	85.2
XTP010H3		400	147.0	66.8	211.0	95.9	174.5	79.3
XTP010L3		480	160.0	72.7	224.0	101.8	187.5	85.2
XTP010P3		600	159.6	72.5	223.6	101.6	187.1	85.1
XTP017B3	3	208	160.0	72.7	224.0	101.8	187.5	85.2
XTP017E3		240	160.0	72.7	224.0	101.8	187.5	85.2
XTP017H3		400	147.0	66.8	211.0	95.9	174.5	79.3
XTP017L3		480	160.0	72.7	224.0	101.8	187.5	85.2
XTP017P3		600	159.6	72.5	223.6	101.6	187.1	85.1
XTP025H3	3	400	149.8	68.1	213.8	97.2	197.8	89.9
XTP025L3		480	162.8	74.0	226.8	103.1	210.8	95.8
XTP025P3		600	162.4	73.8	226.4	102.9	210.4	95.6
XTP033H3	3	400	152.2	69.2	216.2	98.3	200.2	91.0
XTP033L3		480	165.2	75.1	229.2	104.2	213.2	96.9
XTP033P3		600	164.8	74.9	228.8	104.0	212.8	96.7
XTP042H3	3	400	152.2	69.2	216.2	98.3	200.2	91.0
XTP042L3		480	165.2	75.1	229.2	104.2	213.2	96.9
XTP042P3		600	164.8	74.9	228.8	104.0	212.8	96.7

# Outdoor enclosure: Dimensions

**FIGURE 22-1: OUTDOOR ENCLOSURE DIMENSIONS**



OM-8147

# Outdoor enclosure: Dimensions

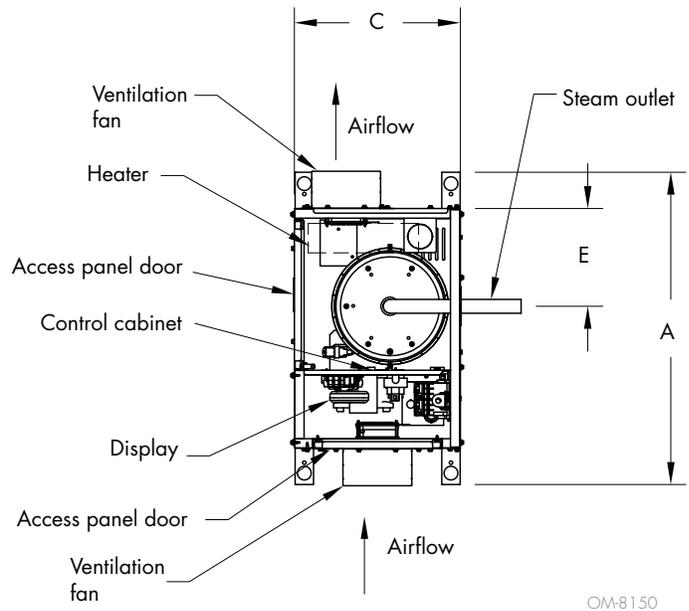
**Table 23-1:**  
**Outdoor enclosure dimensions**

	Description	002 through 042	
		inches	mm
A	Enclosure width (including lift brackets)	34.2	869
B	Enclosure height (including lift brackets)	42.8	1087
C	Enclosure depth	18.5	470
D	Enclosure top to steam outlet center	2.5	64
E	Enclosure left wall to steam outlet center	10.6	269
F	Enclosure bottom edge to drain water knockout center (back wall) (including lift brackets)	2.9	74
G	Enclosure left wall to drain water knockout center (back wall)	10.6	269
H	Enclosure bottom edge to supply water knockout center (back wall) (including lift brackets)	2.9	74
J	Enclosure left wall to supply water knockout center (back wall)	15.6	396
K	Enclosure back wall to drain water knockout center (bottom)	7.7	196
L	Enclosure left wall to drain water knockout center (bottom)	10.6	269
M	Enclosure back wall to supply water knockout center (bottom)	11.0	279
N	Enclosure left wall to supply water knockout center (bottom)	15.6	396

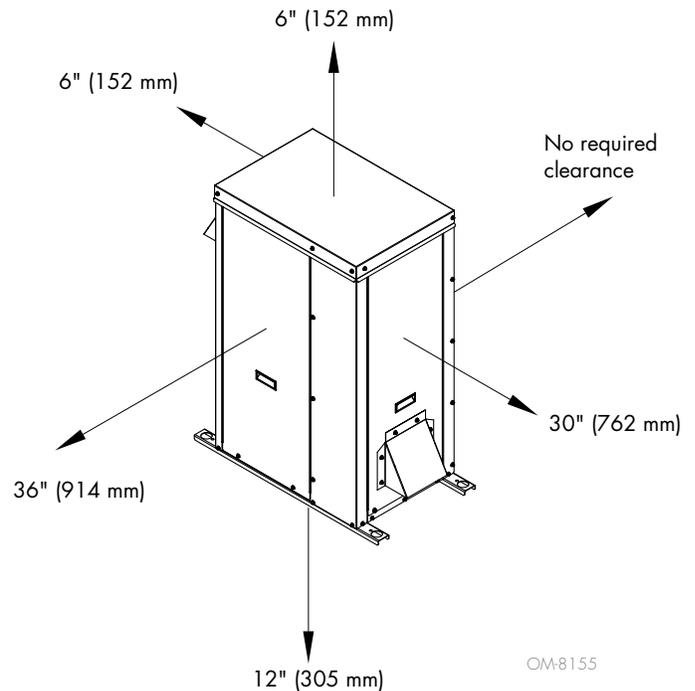
# Outdoor enclosure: Location

- The following information is not intended to supersede any requirements of federal, state, or governing codes having jurisdiction; prior to locating the unit, authorities having jurisdiction should be consulted.
- The XT humidifier must be level and located so there is enough clearance for opening the access panels (see Figure 24-2).
- The unit should be located so prevailing winds do not blow into the air intakes.
- When located on the roof, the air intakes must be a minimum of 14" (360mm) off the roof to prevent intake of snow or splashed rain.
- Locate unit so air intakes are not too close to other exhaust fan outlets, gasoline storage, or other contaminants that could potentially cause dangerous situations. Using and storing gasoline or other flammable vapors and liquids in open containers near this appliance is hazardous.

**FIGURE 24-1: OUTDOOR ENCLOSURE**



**FIGURE 24-2: OUTDOOR ENCLOSURE CLEARANCES**

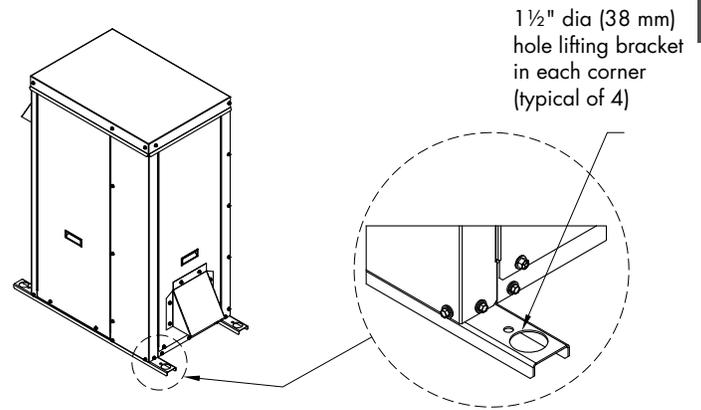


Note: The steam outlet exits rear of enclosure. When base mounting, consider rear clearance for steam piping.

# Outdoor enclosure: Mounting

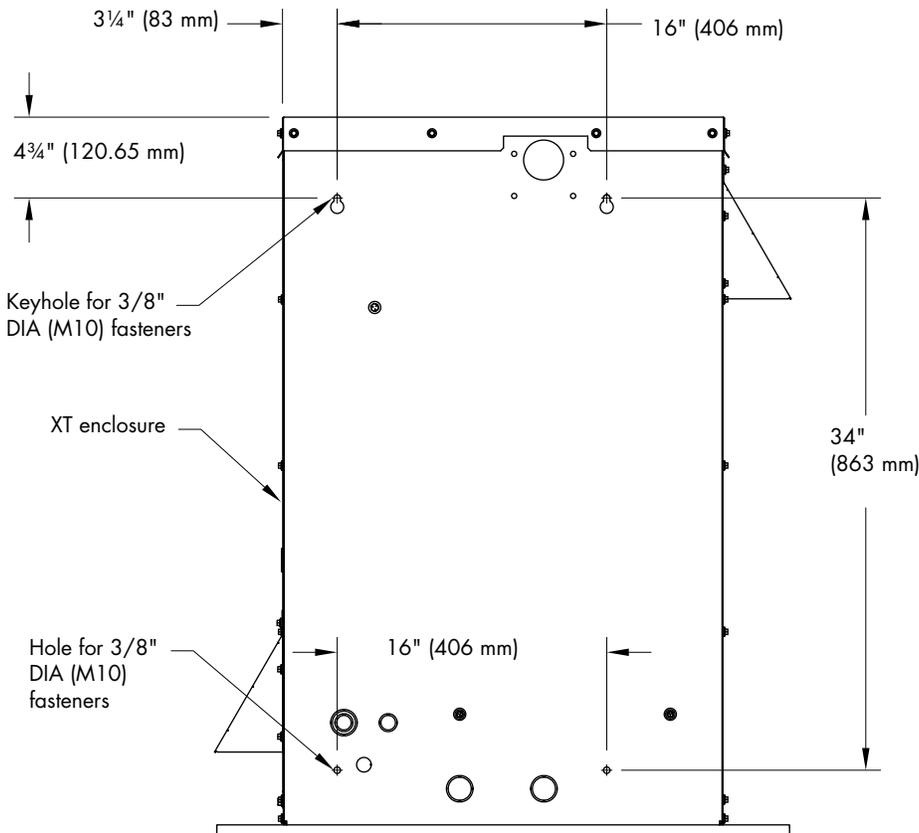
- Verify that the position and integrity of the wall properly supports the unit and that support structure dimensions coincide with unit dimensions.
- Prior to installation, remove all of the unit packaging.
- The XT outdoor enclosure must be lifted by the designated lift points as shown in Figure 25-2. It must be lifted in a fashion that holds it level and keeps it from tipping, falling, or twisting.
  - If the unit is severely twisted during handling, permanent damage can occur.
  - It is the installer's responsibility to verify the handling equipment's capability to safely handle the unit.
  - All lifting operations must be accomplished with a load spreader of sufficient width to ensure that the lifting cables clear the side of the unit.
- Once mounted, seal along the top and sides between enclosure and mating wall to prevent water from running down the backside of the enclosure.

**FIGURE 25-2: OUTDOOR ENCLOSURE MOUNTING WITH LIFT BRACKET**



OM-8149

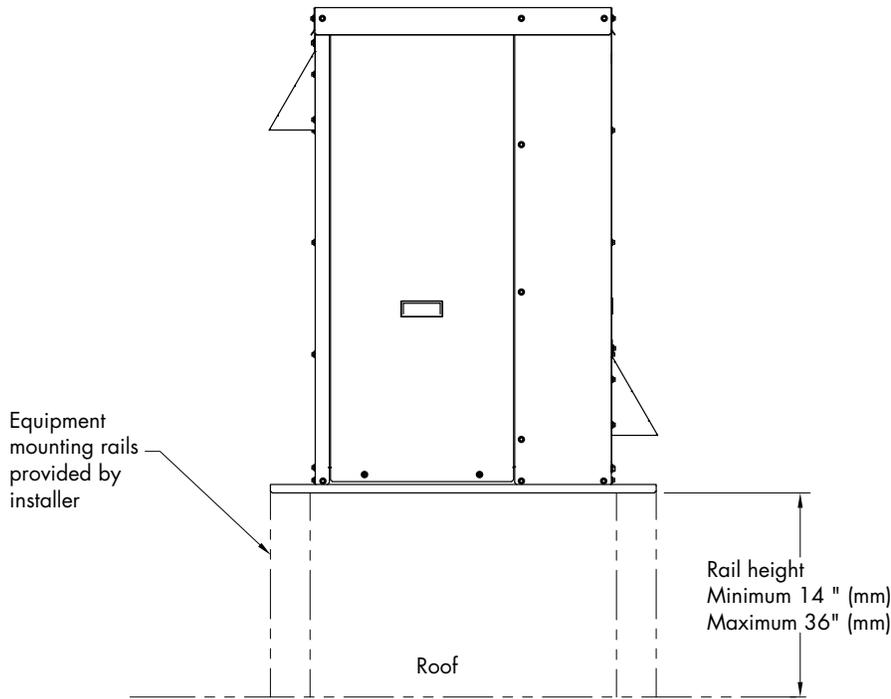
**FIGURE 25-1: OUTDOOR ENCLOSURE (WALL/AHU MOUNT)**



OM-8146

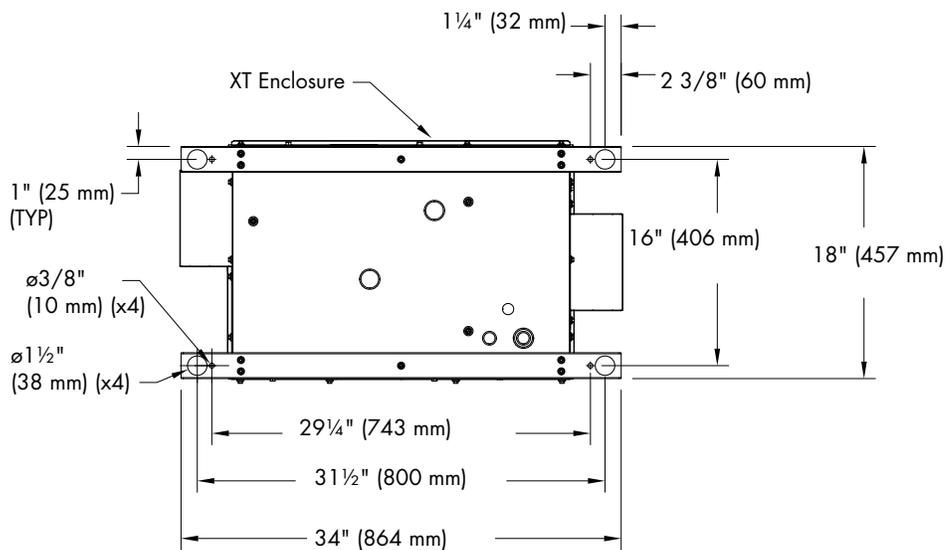
# Outdoor enclosure: Mounting

**FIGURE 26-1: OUTDOOR ENCLOSURE (BASE MOUNT)**



OM-8170

**FIGURE 26-2: OUTDOOR ENCLOSURE (BASE MOUNT)**



OM-8146-1

**NOTES:**

For all outdoor mounting methods:

- Mounting hardware to be four 3/8" diameter grade 8 bolts and washers.
- A rigid and structurally sound wall or equipment rails are required. Consult with the Structural Engineer on Record to determine acceptability of mounting structure.

## Outdoor enclosure: Piping and electrical

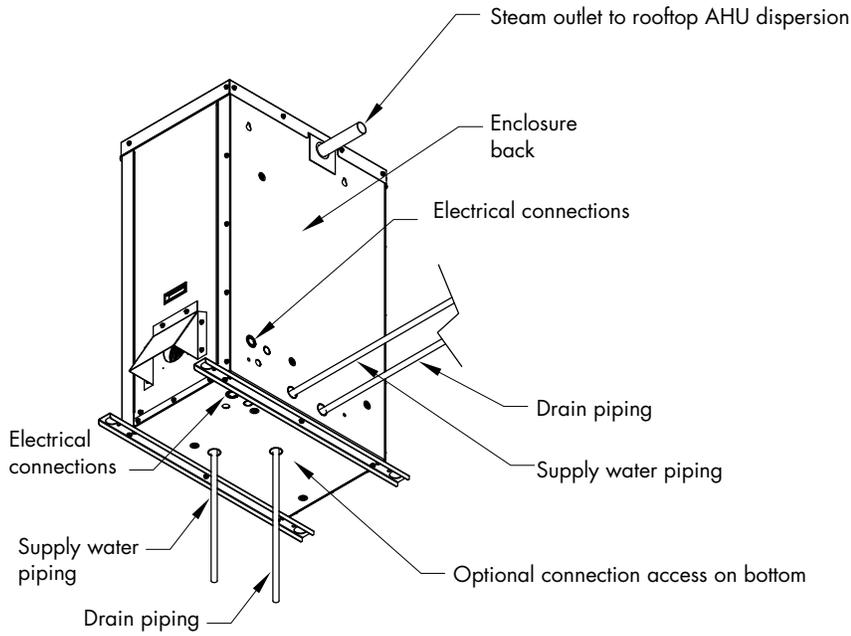
- Use the dedicated knockouts that best fit the specific installation.
  - Heat trace and insulate piping if freezing temperatures are a concern.
- Insulate supply water piping inside the unit to avoid dripping from condensation.
- If equipped with outdoor enclosure heater package, drain tee can be reoriented for drain water to exit through bottom of enclosure. (See Figure 20-1).
- Insulate exterior steam piping where applicable.
- See note in Table 8-1 regarding current draw and fuse sizing if equipped with outdoor enclosure heater package.
- Once mounted and plumbed, seal along the top and sides between enclosure and mating wall to prevent water from running down the backside of the enclosure.

### Piping Notes

1. To ensure that water does not remain in the supply water piping and freeze if there is a loss of power, use additional field installed valves upstream of the fill valve in a conditioned space. Power these valves on the same source as the XT humidifier; if the power goes off, water drains out of the supply water piping to prevent freezing. If these valves are used, a vacuum breaker needs to be installed on the supply water piping near the unit.
2. In extreme or critical applications, in which the unlikely event of a water leak could cause severe damage an additional safety measure is recommended. Use a thermostat with remote sensor or temperature switch on the supply water piping to cut power to XT humidifier and safety valves. This will stop fill water to the XT humidifier and drain the fill piping when the temperature is below freezing.
3. Locate a 1" air gap only in spaces with adequate temperature and air movement to absorb flash steam; otherwise, condensation may form on nearby surfaces. Refer to governing codes for drain pipe size and maximum discharge water temperature.
4. DriSteem is not responsible for any freeze related damage to the humidifier or lines leading to the humidifier.
5. A freeze protection valve is plumbed into the unit from the factory. This valve opens when water inside the unit approaches freezing temperatures, draining the fill cup and cylinder. (See Figure 20-1).

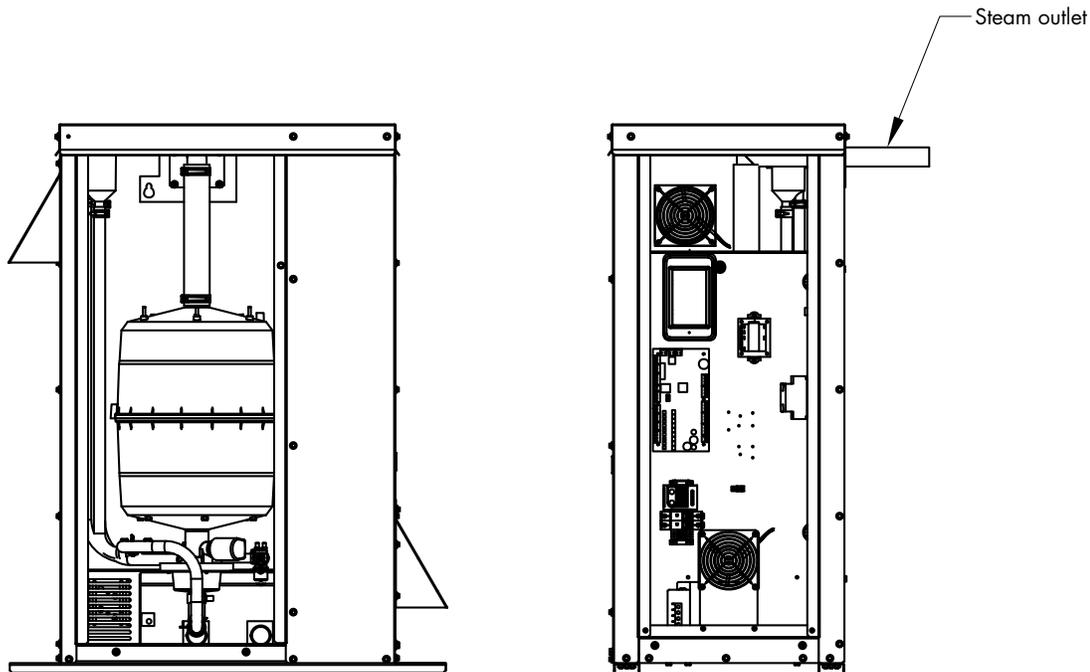
# Outdoor enclosure: Piping and electrical

**FIGURE 28-1: UTILITY CONNECTIONS**



OM-8148

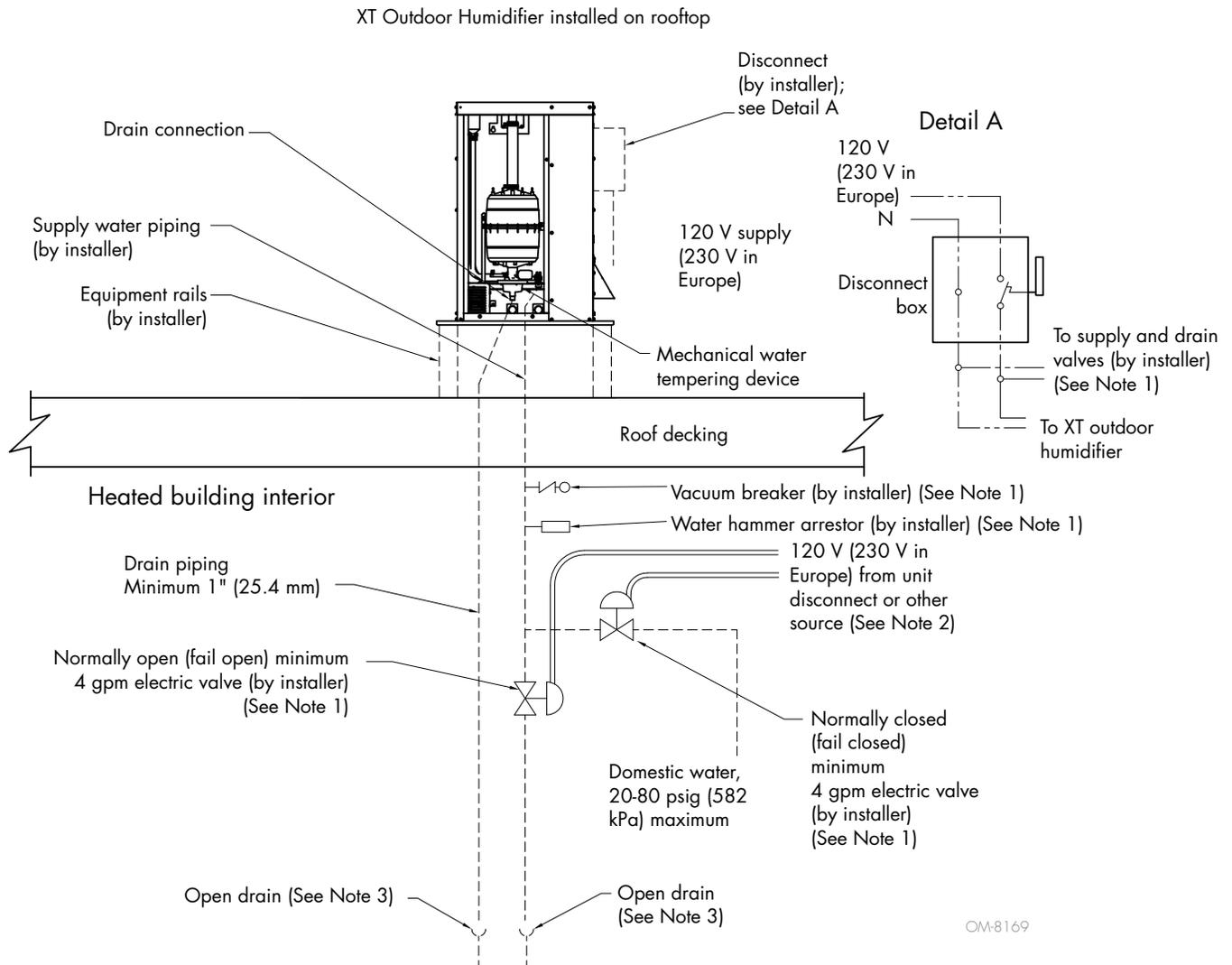
**FIGURE 28-2: OUTDOOR ENCLOSURE WITH DOORS REMOVED**



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# Outdoor enclosure: Freeze Protection Piping

**FIGURE 29-1: OUTDOOR ENCLOSURE FREEZE PROTECTION PIPING**



**Piping notes:**

1. Insulate supply water piping to avoid dripping from condensation.
2. To ensure that water does not remain in the supply water piping and freeze if there is a loss of power, use field installed additional valves upstream of the fill valve in a conditioned space. Power these valves on the same circuit as the XT humidifier; if the power goes off, water drains out of the supply water piping to prevent freezing (see above). If these valves are used, a vacuum breaker needs to be installed on the supply water piping near the unit.
3. In extreme or critical applications in which the unlikely event of a water leak could cause severe damage, use a thermostat with a remote sensor on the supply water piping to cut power to the Model XT outdoor humidifier and safety valves to stop fill water to the Model XT outdoor humidifier and drain the fill piping when the temperature is below freezing.
4. Locate 1" air gap only in spaces with adequate temperature and air movement to absorb flash steam; otherwise, condensation may form on nearby surfaces. Refer to governing codes for drain pipe size and maximum discharge water temperature.
5. If the valves are installed as per note 2 and drain water tempering is required during a power outage, a DriSteem Drane-kooler needs to be installed inside the building. Piping between the unit and the Drane-kooler must be rated for 212°F water.
6. DriSteem is not responsible for any freeze related damage to the humidifier or lines leading to the humidifier.

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## Dispersion: Selecting the dispersion assembly location

DriSteem humidifiers operate with several types of dispersion assemblies for open spaces and for ducts and air handling units.

Dispersion assemblies in ducts and air handling units must be positioned where the water vapor being discharged is carried off with the airstream and is absorbed before it can cause condensation or dripping.

- In general, the dispersion assembly is best placed where the air can absorb the moisture being added without causing condensation at or after the unit. This normally will be after the heating coil or where the air temperature is highest.
- Place the dispersion assembly such that absorption will occur:
  - before the intake of a high efficiency filter, because the filter can remove the visible moisture and become waterlogged;
  - before coming in contact with any metal surface;
  - before fire or smoke detection devices;
  - before a split in the duct; otherwise, the dispersion assembly can direct more moisture into one duct than the other.
- When draining dispersion condensate to an open drain, provide a 1" (25 mm) air gap between the condensate drain piping and the drain. Locate the gap only in spaces with adequate temperature and air movement to absorb flash steam; otherwise, condensation may form on nearby surfaces.

### **WARNING**

#### **Hot surface and steam hazard**

Dispersion assembly and steam hose or tubing can contain steam, and surfaces can be hot. Discharged steam is not visible. Contact with hot surfaces or air into which steam has been discharged can cause severe personal injury.

## Dispersion: Returning condensate to steam cylinder

### CONDENSATE RETURN GUIDELINES

To prevent overflowing the steam cylinder, follow the condensate guidelines below:

- If humidifier capacity is 20 lb/hr (9.1 kg/hr) or less
  - Interconnecting piping can be pitched to the humidifier
    - Developed length of steam tubing is less than 20' (6 m)
    - Length of steam hose is less than 10' (3 m)
- If humidifier capacity is more than 20 lb/hr (9.1 kg/hr)
  - Interconnecting piping must be pitched toward dispersion

Note: Refer to [Interconnecting Piping IOM](#) for additional guidelines.

### XT Series humidifier steam outlet

The steam outlet on the humidifier is sized to the output of the humidifier. DO NOT use interconnecting steam hose or tubing with an inside diameter smaller than the humidifier steam outlet. Reducing the inside diameter will result in the internal humidifier system pressure exceeding the parameters for acceptable performance.

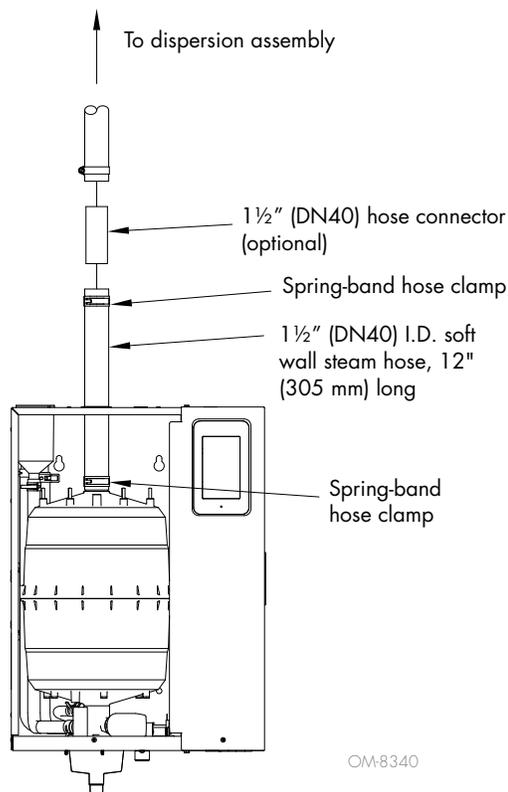
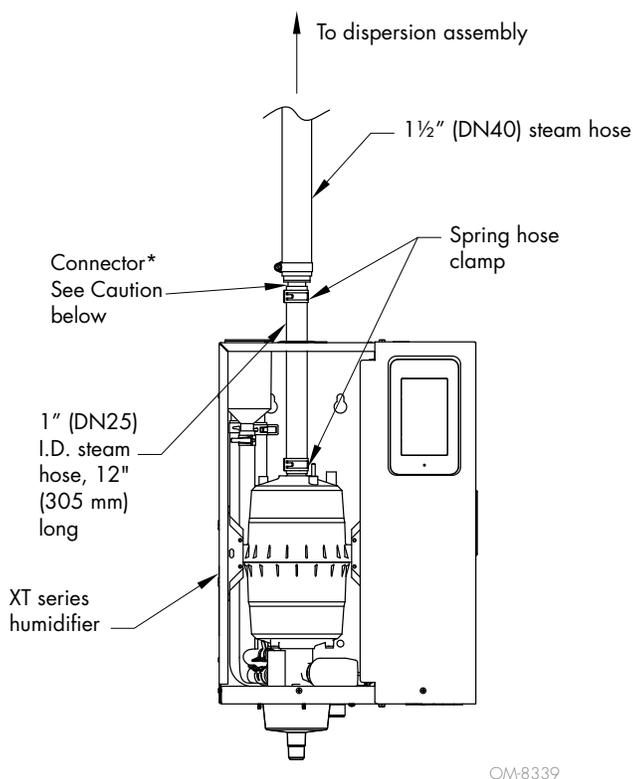
- See maximum steam carrying capacities in Table 38-1 and 39-1.
- If the humidifier must be located higher than the dispersion assembly, use the recommended installation shown in Figure 40-1.

# Dispersion: Steam outlet connections

**FIGURE 32-1: STEAM OUTLET CONNECTIONS, MODELS XTP 002 THROUGH 025 INDOOR UNITS**

Models XTP 002 through 006

Models XTP 010 through 025



\* Standard connector kit Part No. 191070-100 (see Table 71-1)

## CAUTION

### Connector kit location

Install the connector for increasing from 1" to 1 1/2" (DN25 to DN40) hose or tube immediately above the XT Series humidifier as shown above.

Failure to install the connector kit immediately above the humidifier will cause system pressure fluctuations and increase cylinder pressure, steam velocity, and condensate noise.

# Dispersion: Steam outlet connections with hose

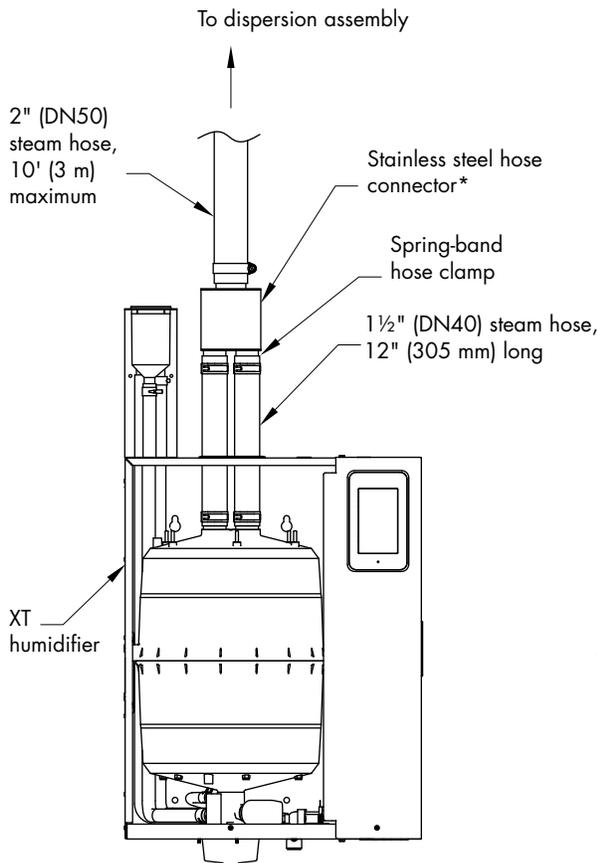
**FIGURE 33-1: STEAM OUTLET CONNECTIONS WITH HOSE, MODELS XTP 033 THROUGH XTP 083 WITHIN 10' (3 M) OF DISPERSION ASSEMBLY FOR INDOOR UNITS**

**⚠ WARNING**

**Preventing back pressure/abnormal operation in dual cylinder humidifiers and installations where two individual units are connected to a single dispersion panel.**

Read and follow all steam hose installation instructions. Failure to follow these instructions could result in excessive back pressure or abnormal operation of the unit. Severe personal injury or damage to the unit may result.

**Models XTP 033 and 042**

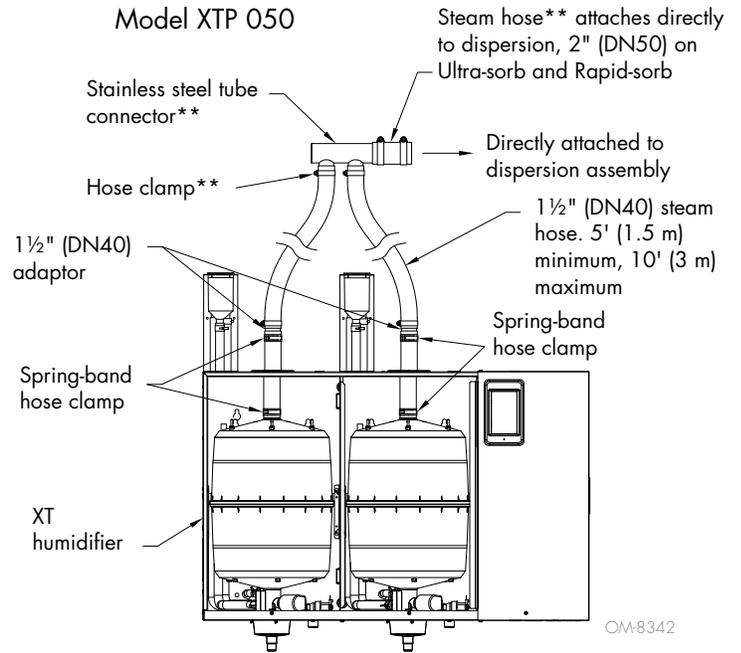


OM-8341

**Notes:**

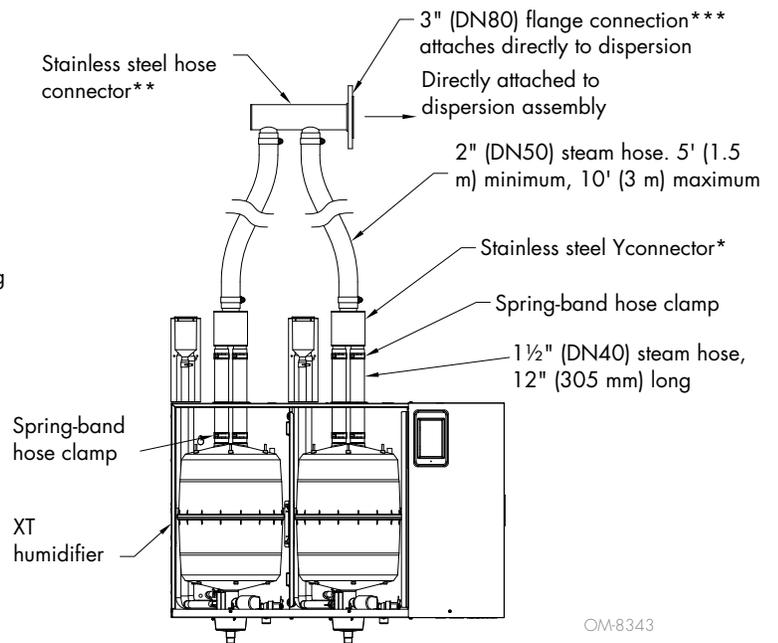
- For horizontal runs longer than 5' (1.5 m) or vertical runs longer than 10' (3m), tubing is required. Do not use steam hose.
- See Table 71-1 for optional kits listed below.
- \* Provided in connector kit Part No. 162715-005
- \*\* Provided in optional connector kit Part No. 191070-002
- \*\*\* Provided in optional connector kit Part No. 162825-202F

**Model XTP 050**



OM-8342

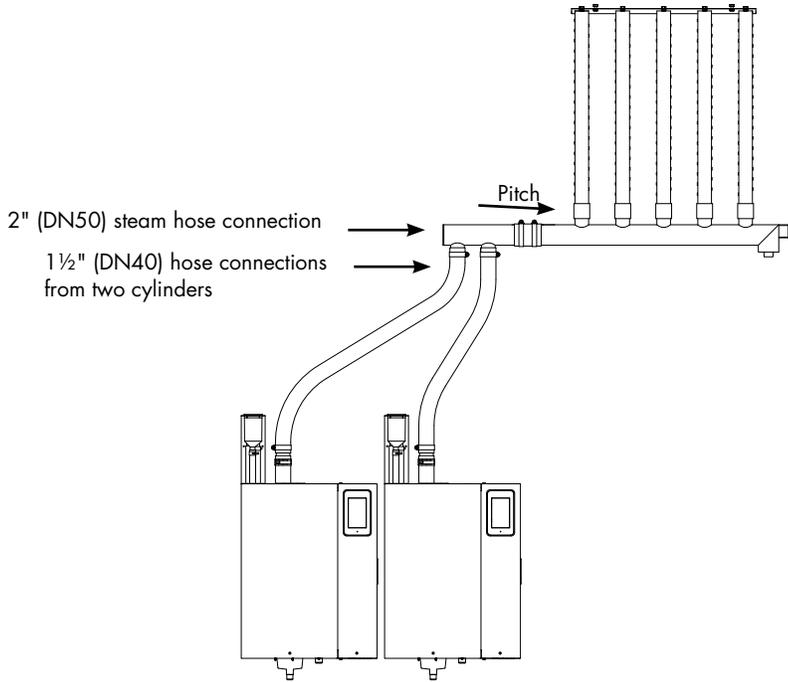
**Models XTP 067 through 083**



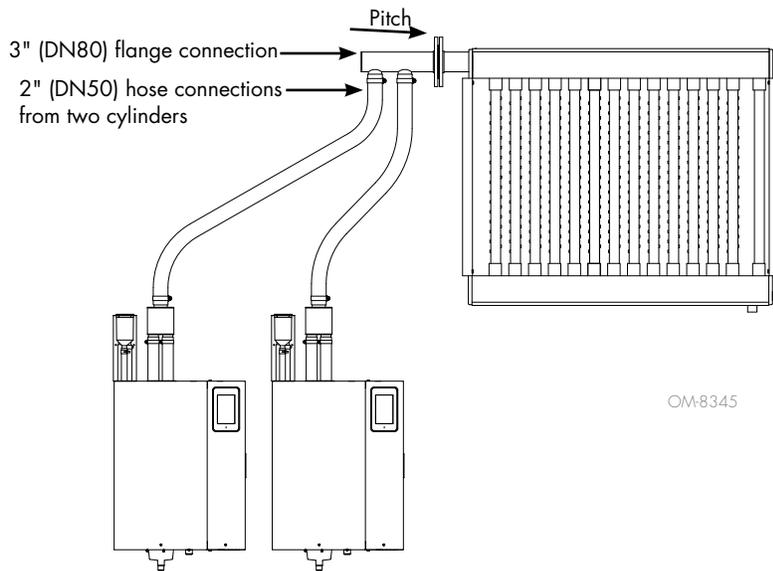
OM-8343

# Dispersion: Steam outlet connections with hose

**FIGURE 34-1: CONNECTING TWO CYLINDERS TO A DISPERSION ASSEMBLY**



OM-8344



OM-8345

**⚠ WARNING**

**Preventing back pressure/abnormal operation in dual cylinder humidifiers and installations where two individual units are connected to a single dispersion panel.**

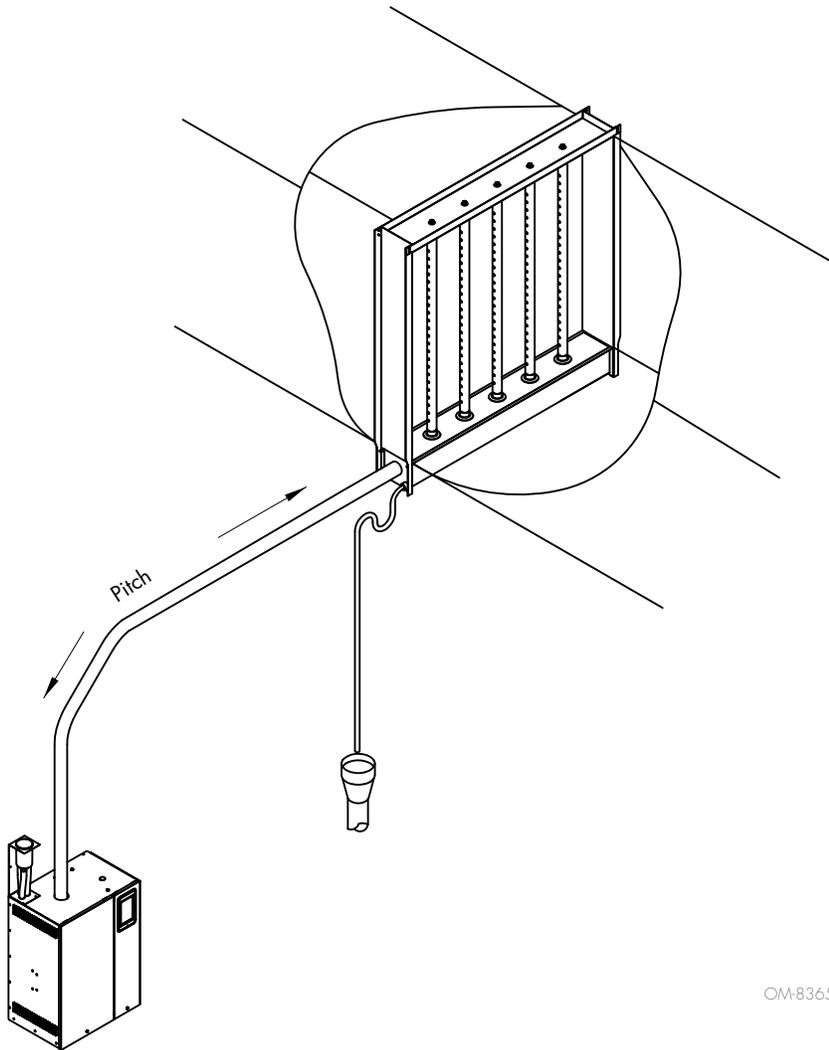
Read and follow all steam hose installation instructions. Failure to follow these instructions could result in excessive back pressure or abnormal operation of the unit. Severe personal injury or damage to the unit may result.

**Notes:**

- For two cylinders, connect the stainless steel tube connector directly to the dispersion inlet as shown. The diameter and pitch of the tube connector must match the inlet diameter and pitch of the dispersion unit.
- **Always run separate steam hose/tubing from each cylinder to the connection of the dispersion device.**
- **Only connect a maximum of two cylinders to any single dispersion unit.**
- **Hose length not to exceed 10 ft (3m).**

# Dispersion: Steam outlet connections with tubing

**FIGURE 35-1: CONNECTING TO A DISPERSION ASSEMBLY**



OM-8365

## Dispersion: Connecting to humidifier with tubing

See the [Interconnecting Piping Instructions](#) for interconnecting tubing pitch requirements for single dispersion tube applications. See the interconnecting tubing pitch requirements for Rapid-sorb applications in the [Rapid-sorb Installation manual](#).

- Support tubing between the humidifier steam outlet and the dispersion system with pipe hangers. Failure to properly support the entire tubing weight may cause damage to the humidifier tank and void the warranty.
- Ground metal steam tubing. See “Grounding steam tubing” at right.
- 90° elbows are not recommended. DriSteem recommends 90° long sweeps. Two 45° elbows, 1' (0.3 m) apart may also be used.
- Insulating tubing reduces the loss in output caused by condensation.
- If flux or any other surface preparation material is used when connecting steam tubing and fittings, drain and fill the steam cylinder two times after the first half hour of steam production:
  - See step 5 on page 53 of the Model XTP section.
  - This will minimize the possibility of foaming in the steam cylinder.

### **Important:**

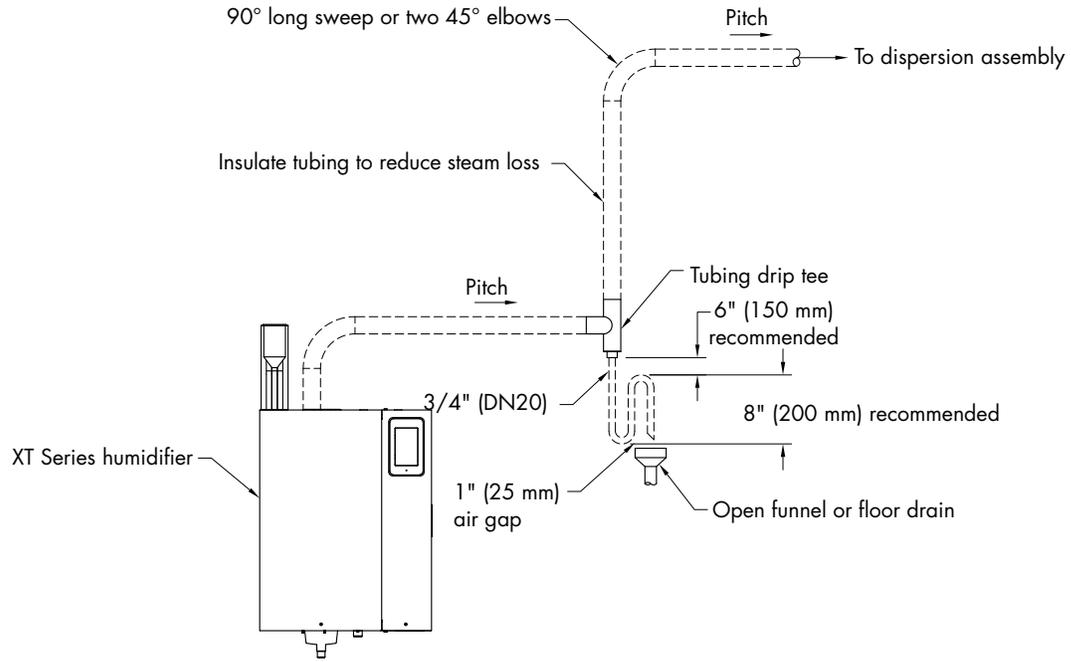
Failure to follow the recommendations in this section can result in excessive back pressure on the humidifier. This will result in unacceptable humidification system performance such as leaking gaskets, blown water seals, erratic water level control, and spitting condensate from dispersion tubes.

### **Grounding steam tubing**

The XT Series humidifier has built-in functionality for detecting and eliminating foaming in the steam cylinder. However, because brief periods of foaming are possible, grounding metal steam tubing back to the humidifier earth ground lug is necessary. This earth ground will prevent foam from creating an electrically conductive path from the electrically charged cylinder water to the metal steam tubing.

# Dispersion: Connecting to humidifier with tubing

**FIGURE 37-1: DETAIL OF VERTICAL RISER DRIPS**



OM-8346

# Dispersion: Interconnecting piping requirements

## Condensate control and collection

Controlling condensate flow and collection in an XT Series humidifier system is critical to performance. To maximize humidifier performance:

- See Table 38-1.
- Follow all installation recommendations for your specific humidifier and dispersion assembly from here through Page 47.

**Table 38-1:**  
Maximum steam carrying capacity and length of interconnecting steam hose and tubing for Models XTP 002 through XTP083

Model	DriSteem steam hose*						Copper or stainless steel tubing (Insulate tubing to minimize loss of capacity and efficiency.)					
	Hose I.D.		Maximum capacity per cylinder <sup>†</sup>		Maximum length <sup>††</sup>		Tube size		Maximum capacity per cylinder <sup>†</sup>		Maximum developed length <sup>†††</sup>	
XTP	inches	DN	lbs/hr	kg/h	ft	m	inches	DN	lbs/hr	kg/h	ft	m
002	1½	40	5	2	10	3	1½	40	5	2	13	4.0
003	1½	40	10	5	10	3	1½	40	10	5	25	7.6
006	1½	40	20	9	10	3	1½	40	20	9	50	15.2
010	1½	40	30	14	10	3	1½	40	30	14	50	15.2
017	1½	40	50	22	10	3	1½	40	50	22	50	15.2
025, 050**	1½	40	75	34.0	10	3	1½	40	75	34.0	100	30
033, 067**	2	50	100	45.4	10	3	2	50	100	45.4	100	30
042, 083**	2	50	125	56.7	10	3	2	50	125	56.7	100	30

**Notes:**

- Values in this table are based on XT Series humidifiers, and condensate flowing in direction of steam (steam hose or tubing pitched toward dispersion device).
- \* Use DriSteem steam hose for best results. Field-supplied hose may have shorter life and may cause foaming in cylinder, resulting in condensate discharge at dispersion assembly. Do not use steam hose for outdoor applications.
- \*\* These models have two steam cylinders. Capacities based on use with fill cup extensions. Hose and tubing information stated above is for each steam cylinder.
- † For Models XTP 050 through XTP 083, capacities listed are maximum steam carrying capacity per tube attached to each cylinder, with separate steam tubing from each cylinder to connection on dispersion device. See Figure 33-1.
- †† DriSteem recommends 10' (3 m) maximum steam hose length pitched at 2"/ft (15%). Steam hose can sag if not supported for its full length. Sagging leads to collecting condensate and system pressure issues. Metallic tubing is less prone to sagging and can allow for 1/8"/ft (1%) pitch minimum and longer distances.
- ††† Developed length of tubing equals measured length plus 50% of measured length, to account for fittings.

# Dispersion: Interconnecting piping requirements

## CONNECTING TO HUMIDIFIER WITH STEAM HOSE

- Support steam hose for its full length to prevent sags, or low spots:
  - For single dispersion tube without condensate drain, maintain a minimum pitch of 2"/ft (15%) toward the steam cylinder.
  - For dispersion devices with condensate drain, maintain a minimum pitch of 2"/ft (15%) toward the dispersion device.
- Use DriSteem steam hose. Other manufacturers of steam hose may use unacceptable release agents or material mixes that can affect humidifier system performance adversely. Using hose from alternative manufacturers increases the possibility of foaming in the cylinder and accelerated steam hose aging. Foaming causes condensate discharge at the dispersion assembly.
- Do not use steam hose in outdoor applications.
- Do not insulate steam hose. Insulation causes accelerated heat aging, causing the steam hose to become hard and susceptible to failure due to cracks.
- For single dispersion tube applications, see hose kit sizes in the [Interconnecting Piping Instructions](#).

For tubing connections, see "Connecting to humidifier with tubing" on page 36.

### Important:

Steam hose must be supported for its full length to prevent sagging or low spots.

**Table 39-1:**  
Steam loss of interconnecting steam hose and tubing

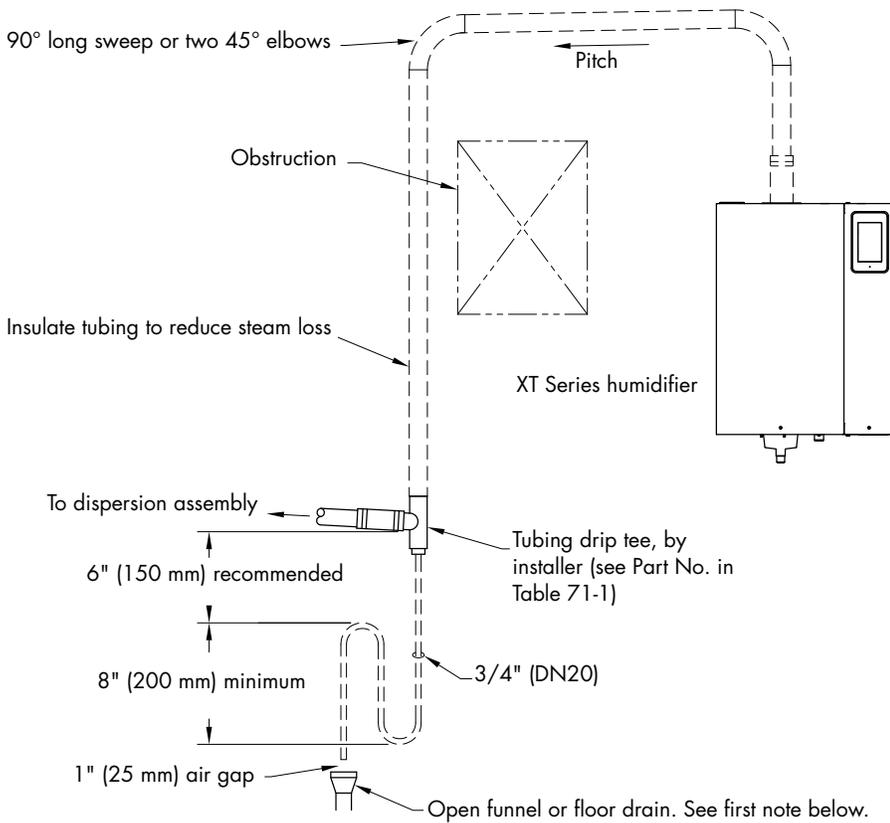
Description	Nominal hose or tubing size		Steam loss				Insulation thickness	
			Noninsulated		Insulated			
	inches	DN	lbs/hr/ft	kg/h/m	lbs/hr/ft	kg/h/m	inches	mm
Steam hose	1½	40	0.15	0.22	N/A	N/A	N/A	N/A
	2	50	0.20	0.30	N/A	N/A	N/A	N/A
Tubing	1½	40	0.11	0.164	0.02	0.03	2	50
	2	50	0.14	0.21	0.025	0.037	2	50

Note: These data are based on an ambient air temperature of 80 °F (27 °C), fiberglass insulation, and copper tubing.

# Dispersion: Drip tee installation

Install a drip tee as shown below when the humidifier is mounted higher than the dispersion assembly, when interconnecting hose or tubing needs to go over an obstruction, or when interconnecting piping runs are long.

**FIGURE 40-1: DRIP TEE INSTALLATION**



OM-8347

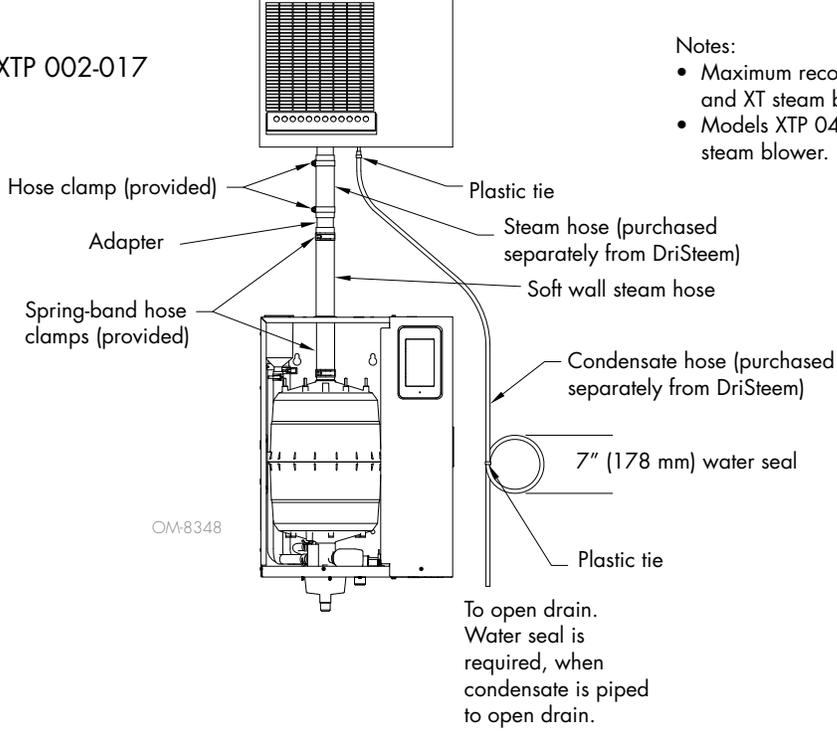
**Notes:**

- Locate air gap only in spaces with adequate temperature and air movement to absorb flash steam; otherwise, condensation may form on nearby surfaces. Refer to governing codes for drain pipe size and maximum discharge water temperature.
- Support steam hose for its full length so there are no sags or low spots.
- Dashed lines indicate provided by installer.

# Dispersion: XT steam blowers

**FIGURE 41-1: PIPING FROM XT SERIES HUMIDIFIER TO REMOTE XT STEAM BLOWER**

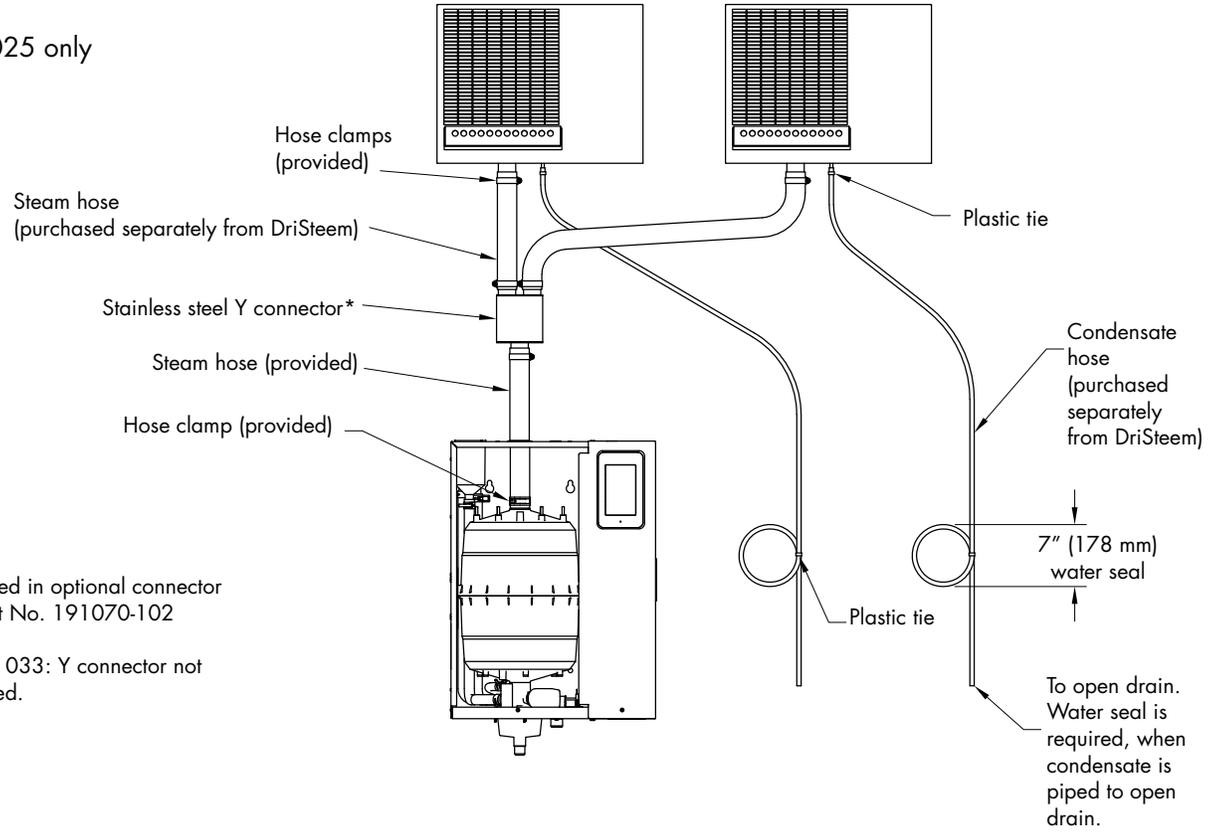
Model XTP 002-017



**Notes:**

- Maximum recommended distance between humidifier and XT steam blower is 10' (3 m).
- Models XTP 042 through 083 cannot be used with a steam blower.

Model XTP 025 only



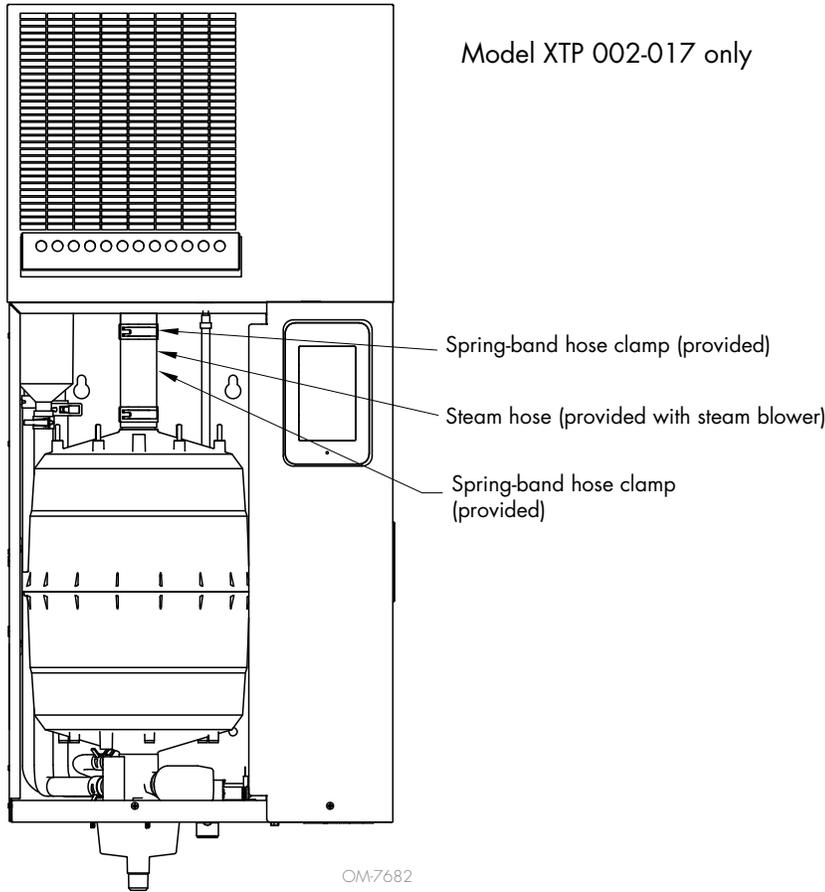
\* Provided in optional connector kit Part No. 191070-102

Model 033: Y connector not required.

OM-8349

# Dispersion: XT steam blowers

**FIGURE 42-1: PIPING FROM XT SERIES HUMIDIFIER TO TOP-MOUNTED XT STEAM BLOWER**



- Notes:
- Maximum recommended distance between humidifier and XT steam blower is 10' (3 m).
  - Models XTP 025 and 033 cannot be used with a direct-mounted steam blower.
  - Models XTP 042 through 083 cannot be used with a steam blower.

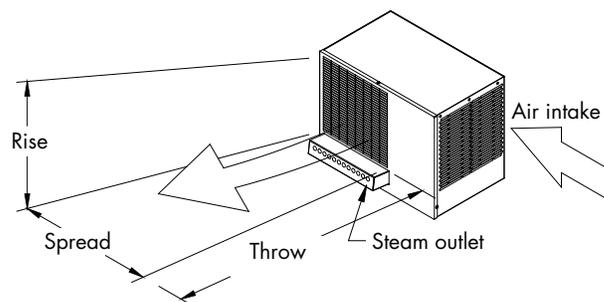
## Dispersion: XT steam blowers

Fuses provided with the steam blowers must first be installed in the associated XT series humidifiers.

On a call for humidity, the controller closes the contactors to energize the humidifier electrodes and the XT steam blower. When the call for humidity is satisfied, the controller opens the humidifier contactor, which stops the steam blower.

As steam is discharged from the XT steam blower, it quickly cools and turns to a visible fog that is lighter than air. As this fog is carried away from the XT steam blower by the airstream, it tends to rise toward the ceiling. If the fog contacts solid surfaces (columns, beams, ceiling, pipes, etc.) before it disappears, it can condense and drip. The greater the space relative humidity, the further the fog will rise, spread, and throw.

### XT STEAM BLOWER RISE, SPREAD, AND THROW



OM-7686

Table 43-1 lists the maximum rise, spread, and throw non-wetting distances for XT Series humidifiers with XT steam blowers. Surfaces cooler than ambient temperature, or objects located within this minimum dimension, can cause condensation and dripping. To avoid steam impingement on surrounding areas, observe the minimum non-wetting distances in the table.

XT steam blowers are field wired to the XT Series humidifier blower terminals. A wiring diagram is included with the XT steam blower.

**Table 43-1:**  
XT steam blower minimum non-wetting distances

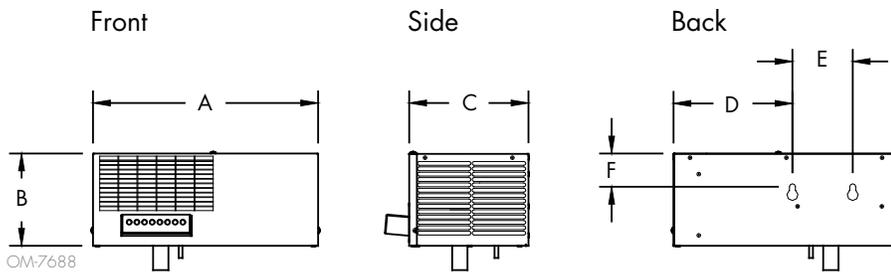
Model	Nominal steam capacity		30% RH @ 70 °F (21 °C)						40% RH @ 70 °F (21 °C)						50% RH @ 70 °F (21 °C)						60% RH @ 70 °F (21 °C)					
			Rise		Spread		Throw		Rise		Spread		Throw		Rise		Spread		Throw		Rise		Spread		Throw	
XTP	lbs/hr	kg/h	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m
002	5	2	0.7	0.2	0.9	0.3	1.9	0.6	0.8	0.2	1.2	0.4	2.1	0.6	1.1	0.3	1.5	0.5	2.5	0.8	1.5	0.5	1.5	0.5	3.2	1.0
003	10	5	1.4	0.4	1.9	0.6	3.8	1.2	1.7	0.5	2.4	0.7	4.3	1.3	2.3	0.7	3.0	0.9	5.0	1.5	3.0	0.9	3.0	0.9	6.5	2.0
006	20	9	2.5	0.8	2.8	0.9	6.5	2.0	3.0	0.9	3.3	1.0	7.4	2.3	3.8	1.2	4.0	1.2	8.5	2.6	4.0	1.2	4.0	1.2	10.0	3.0
010	30	14	3.1	0.9	3.0	0.9	7.5	2.3	3.6	1.1	3.4	1.0	8.7	2.7	4.3	1.3	4.0	1.2	9.5	2.9	4.2	1.3	3.5	1.1	11.0	3.4
017	50	22	3.3	1.0	3.1	0.9	9.6	2.9	3.8	1.2	3.5	1.1	10.7	3.3	4.4	1.3	4.0	1.2	12.0	3.7	4.8	1.5	4.7	1.4	14.0	4.3
025*	75	34	3.3	1.0	3.1	0.9	9.6	2.9	3.8	1.2	3.5	1.1	10.7	3.3	4.4	1.3	4.0	1.2	12.0	3.7	4.8	1.5	4.7	1.4	14.0	4.3
033*	100	45	3.3	1.0	3.1	0.9	9.6	2.9	3.8	1.2	3.5	1.1	10.7	3.3	4.4	1.3	4.0	1.2	12.0	3.7	4.8	1.5	4.7	1.4	14.0	4.3

Rise: Minimum non-wetting height above the steam outlet of the XT steam blower  
 Spread: Minimum non-wetting width from the steam outlet of the XT steam blower  
 Throw: Minimum non-wetting horizontal distance from the steam outlet of the XT steam blower  
 \* These models use two XT steam blowers.

# Dispersion: XT steam blowers

**FIGURE 44-1: XT STEAM BLOWER DIMENSIONS**

SDU-006E shown



The XT steam blower can be mounted on top of an XT Series humidifier cabinet, or wall-mounted remotely from the humidifier. See Figure 44-1.

SDU-006E, for capacities up to 20 lbs/hr (9.1 kg/h), can be directly mounted on Models XTP 002 through 006.

SDU-017E, for capacities up to 50 lbs/hr (22.7 kg/h), can be directly mounted on Models XTP 010 and 017.

XT Series humidifiers can be configured to operate with one or two steam blowers. Multiple SDU-017 are used remotely with Model XTP 025 or 033. See Table 44-2.

Note: XT steam blower installation must comply with governing codes.

**Table 44-1:**  
XT steam blower dimensions

Dimension	SDU-006E		SDU-017E	
	inches	mm	inches	mm
A	14.7	373	17.9	455
B	6.0	152	13.8	350
C	7.8	198	11.0	279
D	3.0	76	3.6	91
E	3.9	99	7.1	180
F	2.7	69	4.2	107

**Table 44-2:**  
Single or multiple XT steam blowers for XT Series humidifiers\*

Model	SDU-006 per kit	SDU-017 per kit
XTP		
002	1	—
003	1	—
006	1	—
010	—	1
017	—	1
025	—	2
033	—	2
042 through 083	n/a	n/a

\* XT steam blowers are sold as kits to match the associated XT Series humidifier. The number of XT steam blowers per kit are shown in this table.

**Table 44-3:**  
XT steam blower specifications

Model	Maximum capacity		Shipping weight		Operating weight		Volume airflow		Current draw at 115V (50/60 Hz)	Input power	Noise
	lbs/hr	kg/h	lbs	kg	lbs	kg	cfm	m <sup>3</sup> /min			
SDU-006E	20	9.1	14.0	6.4	11.0	5.0	106	3.0	0.16 A	17 W	49 dBA
SDU-017E	50	22.7	29.0	13.2	24.0	10.9	665	18.8	0.23 A	23 W	53 dBA

Notes:

- XT steam blowers ship separately from XT Series humidifiers.
- Noise measurements taken 6.5' (2 m) in front of XT steam blower cabinet.

# Dispersion: XT steam blowers

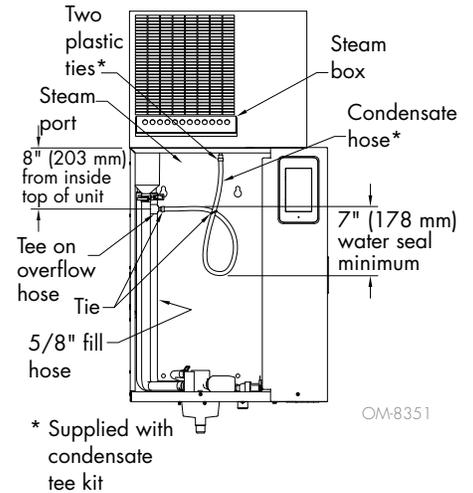
## MOUNTING XT STEAM BLOWER ON TOP OF HUMIDIFIER

The condensate tee kit shipped with the XT steam blower returns condensate from a top-mounted XT steam blower to the humidifier's overflow hose. See Figure 45-1. Install the kit as follows:

1. If humidifier is not already mounted to wall, see "Wall mounting humidifier" on Page 12.
2. Remove steam cylinder (see "Removing steam cylinder" on Page 12).
3. Assemble condensate hose from kit to condensate outlet at base of steam box, and install both plastic ties (included) on hose to ensure secure connection to steam box condensate outlet.
4. Assemble hose cuff and clamp to steam port on steam box.
5. Remove middle-rear knockout on top of humidifier cabinet, and mount XT steam blower to wall as noted on Page 46.
6. Feed condensate hose into humidifier cabinet through knockout hole created in Step 5, place XT humidifier below XT steam blower on wall, and secure humidifier to wall.
7. Push small burr of tee into loose end of condensate hose that was fed into cabinet in Step 6.
8. Cut the 5/8" overflow hose that connects the off-center port on fill cup to overflow connection on floor of humidifier cabinet at 8" below the inside top of the unit. Avoid kinks by leaving slack in overflow hose for cylinder installation.
9. Create a seal loop with the condensate hose and install tee in 5/8" overflow hose that was cut in Step 8.
10. Install steam cylinder (see "Installing steam cylinder" on Page 14).

For remote-mounting the XT steam blower, see Page 46.

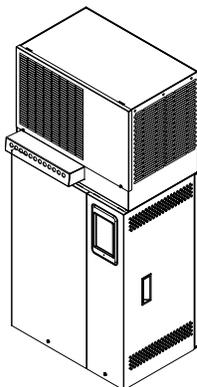
**FIGURE 45-1: CONDENSATE TEE KIT FOR TOP-MOUNTED XT STEAM BLOWER**



**FIGURE 45-2: TOP- AND REMOTE-MOUNTED XT STEAM BLOWER**

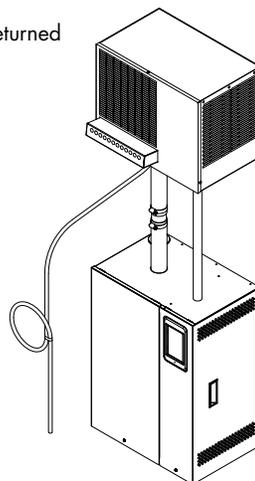
Mounted on top of humidifier

Condensate returned to steam humidifier's overflow hose

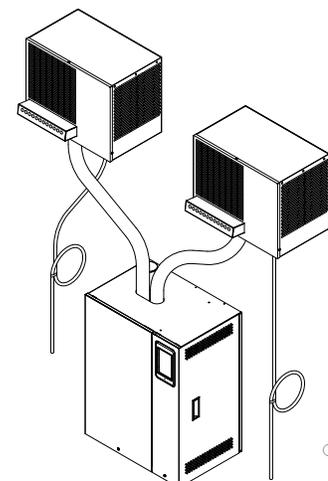


Mounted remotely from humidifier

Condensate returned to open drain



One XT Series humidifier with two XT steam blowers



# Dispersion: XT steam blowers

## REMOTE MOUNTING XT STEAM BLOWER

The XT steam blower is constructed with a pitch toward the drain; however, it must be installed level and plumb for proper drainage. See the Warning.

### WARNING

#### Standing water in XT steam blower

Make sure the XT steam blower is installed plumb. If it is not installed plumb, standing water can accumulate, which can:

- cause bacteria and mold growth, which can cause illness;
- affect XT steam blower performance;
- cause 212 °F (100 °C) water to discharge from the XT steam blower, which can cause severe personal injury.

Follow the instructions below for your wall type:

Mount the XT steam blower using the lag bolts provided. Follow the instructions below for mounting on a wood stud wall.

1. Mount spanner board on wall, spanning at least two studs, at top of XT steam blower cabinet (for the lag bolts).
2. Predrill pilot holes in spanner board, and secure XT steam blower to spanner board with lag bolts.
  - Note: Use the appropriate mounting methods and mounting hardware for other wall types.

See Table 43-1 to determine clearance requirements for your application.

Make sure walls, ceilings, and other obstructions are not within the non-wetting dimension, or condensation and dripping could occur (read Page 43).

Provide at least 3" (76 mm) of clearance on each side of the XT steam blower for air intake.

## INSTALLING BASE PLATE

The steam blower has a base plate for remote-mounted steam blower applications. The base plate isolates the hot steam box from contact. After the electrical connections are made, assemble the base plate onto the bottom of the steam blower with the screws provided.

## Dispersion: XT steam blowers

### WIRING XT STEAM BLOWERS

Make the following wiring connections between the humidifier and the XT steam blower, and tighten all terminals securely:

Fuses provided. See page "XT steam blowers" on page 43.

Connect XT steam blower fan wires to humidifier terminals 32, 33, and GRD.

Refer to the external connections diagram shipped with the XT steam blower.

### PIPING CONDENSATE TO DRAIN

The XT steam blower condensate hose must be routed as shown in Figure 47-2. The water seal is required to ensure condensate drainage from the XT steam blower and to keep steam from blowing out of the condensate hose.

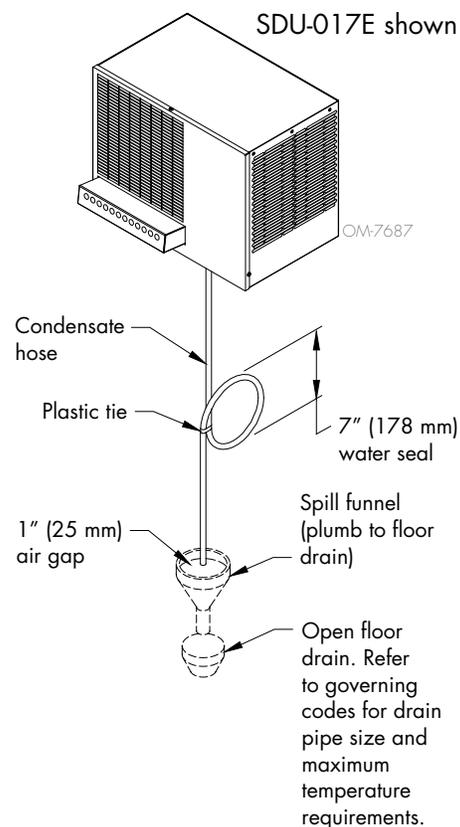
After the water seal, run the condensate hose to an open drain. Cut the hose at a 45 degree angle on the end above the drain to permit a direct stream of water into the drain while maintaining an air gap.

The condensate hose must be installed and sized according to governing codes.

### ADDITIONAL INSTRUCTIONS

See instructions for piping from XT Series humidifier to XT steam blower on pages 41 and 42.

**FIGURE 47-1: PIPING CONDENSATE TO DRAIN**



## Principle of operation

### 1. CONTROLLER RECEIVES A CALL FOR HUMIDITY (SEE FIGURE 49-1)

When the RH level in the humidified space drops below set point, the humidifier controller receives a call for humidity and calculates a corresponding electrical current. The controller closes the contactor, which energizes the electrodes. If there is not enough water in the steam cylinder, the fill valve opens and water enters the steam cylinder.

### 2. ENERGIZED ELECTRODES BOIL WATER INTO STEAM (SEE FIGURE 49-1)

When the water level in the steam cylinder rises to touch the electrodes, electrical current flows through the water between the electrodes. Electrical resistance in the water causes the water to heat up and boil into steam. The steam flows through the steam outlet and through steam hose or tubing to the XT steam blower or dispersion assembly, where it is discharged into the airstream.

### 3. ELECTRICAL CURRENT INCREASES TO MEET DEMAND (SEE FIGURE 49-1)

As the amount of water covering the electrodes increases, current flow increases. The fill valve remains open until the amperage increases to 10 percent above the current corresponding to the demand signal. Then the fill valve closes, and the water boils into steam.

### 4. WATER CONTINUES TO BOIL INTO STEAM (SEE FIGURE 49-1)

As the water boils into steam, the amount of water covering the electrodes decreases, and current flow decreases. When current flow decreases to 10 percent below the current corresponding to the demand signal, the fill valve opens to increase the water level in the steam cylinder, which increases current flow and steam production.

### 5. CONTROLLER INITIATES DRAIN/FILL CYCLES TO FLUSH CONDUCTIVE IONS (SEE FIGURES 49-1 & -2)

As steam production continues, the concentration of conductive ions in the water increases, eventually leading to increased electrical current through the water. An algorithm monitors water conductivity and auto tunes drain and fill cycles to keep electrical current within demand parameters. This optimizes humidifier performance based on water conditions and steam production.

The humidifier has user-selectable drain water tempering. When drain water tempering is selected, drain water is automatically cooled before entering the drain.

## WATER CONDUCTIVITY

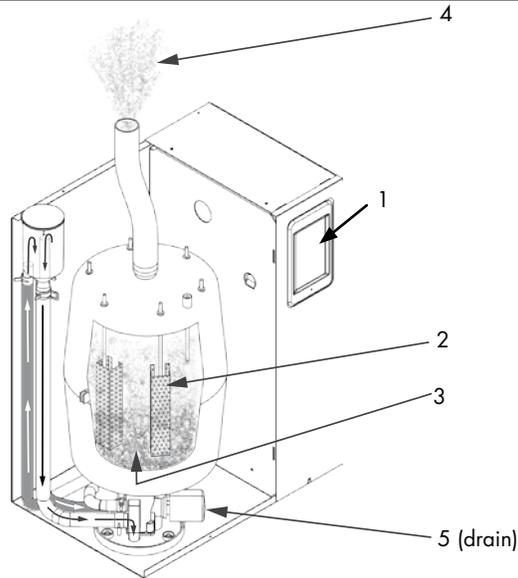
In electrode humidifiers, steam output is directly related to the resistance of the water in the steam cylinder and, therefore, the conductivity of the water between the electrodes. Higher water levels cover more electrode surface and result in more steam; lower water levels cover less electrode surface and result in less steam. Since water conductivity and water level both correlate to steam output, DriSteem's algorithm monitors conductivity and manages drain and fill cycles to optimize humidifier performance and provide proper steam output.

## DRAIN AND FILL CYCLES

As the water in the cylinder boils into steam, the concentration of conductive ions increases until it reaches a threshold that triggers a drain and fill cycle. This rids the cylinder of highly conductive water and replaces it with less conductive fill water. The more conductive the fill water and the higher the demand, the more quickly the threshold is reached, and the more frequently the cylinder automatically drains and fills to stay within the parameters for proper steam output.

# Principle of operation

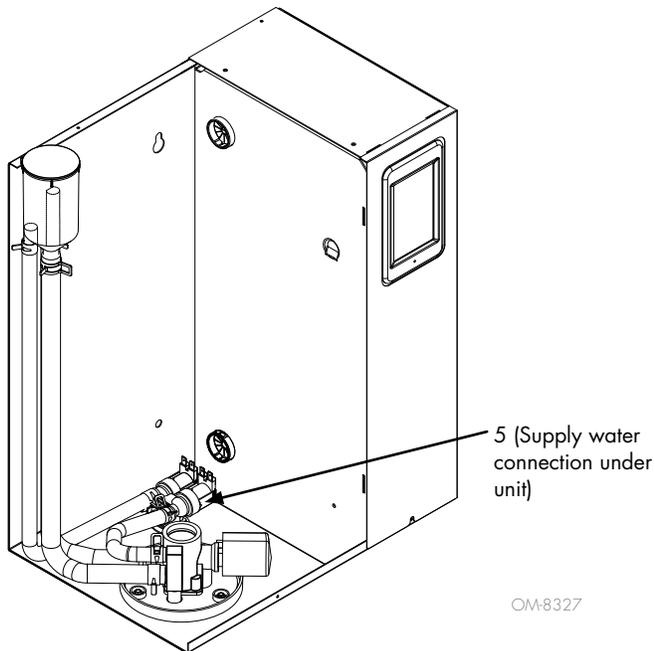
**FIGURE 49-1: XT SERIES HUMIDIFIER PRINCIPLE OF OPERATION**



See page 48 for descriptions

OM-8326\_aa

**FIGURE 49-2: XT SERIES HUMIDIFIER COMPONENTS**



See page 48 for description

OM-8327

## SAFETY FUNCTIONS

XT Series humidifiers are protected against running dry — current does not flow if the electrodes in the steam cylinder are not submerged in water.

If the current rating exceeds 120% of nominal current, the drain valve opens automatically. As the water level drops, the current rating drops back to the nominal value.

If the current rating exceeds 120% of the nominal current after several drainage operations, the humidifier shuts down automatically.

## LEAK DETECTION SENSOR

Indoor XTP models can be equipped with a sealed drip pan and an optional leak detection sensor. When installed, the sensor will activate if water is detected in the drip pan beneath the cylinder. The sensor is factory wired to disable operation of the humidifier and display a warning message whenever water is present. The drip pan seams are sealed, and gaskets are installed beneath the fill valve and drain cup assembly to help prevent leakage.

If the sensor is triggered by residual water following service, dry the drip pan thoroughly to restore normal operation.

## Startup Time

XTP electrode humidifiers generate steam by passing electrical current through the fill water. Water conductivity directly affects how quickly the humidifier can reach operating conditions.

High conductivity water contains more ions, allowing electrical current to flow more easily and resulting in faster startup times. Low conductivity water—such as reverse osmosis (RO) blended or naturally low mineral water—requires time for minerals to concentrate inside the cylinder before sufficient current can flow. This increases startup time.

During initial startup or after a cylinder drain/refill, the humidifier may perform multiple fill and drain cycles to achieve the target operating current. This behavior is normal.

Startup time is influenced by the following factors:

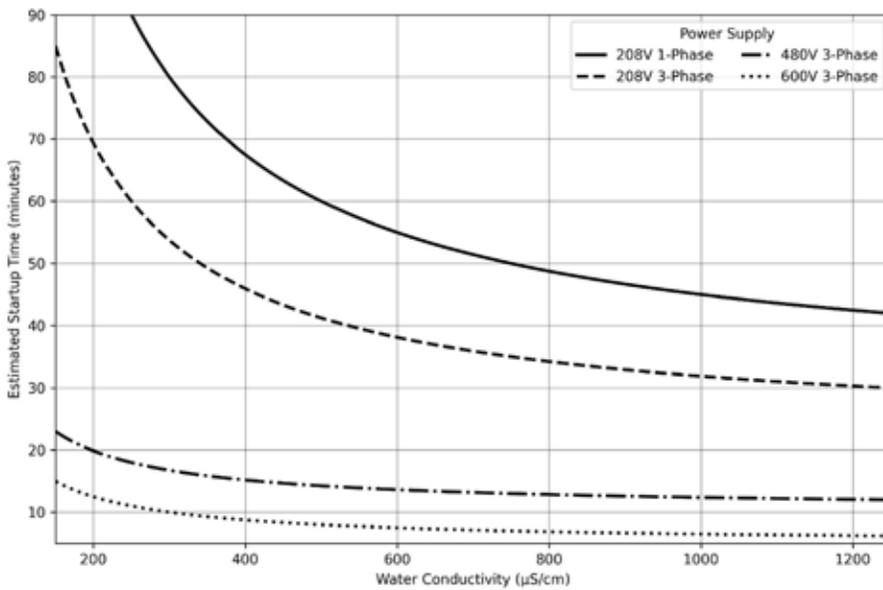
- Incoming Water Conductivity
  - Higher conductivity allows current to flow more readily, reducing startup time.
  - Low conductivity water takes longer to reach the required mineral concentration, increasing startup time.
- Supply Voltage and Phase
  - Higher supply voltage increases electrical potential, shortening startup time and producing a more vigorous boil.
  - Three phase power provides a more efficient electrical waveform, further reducing startup time.
- Humidifier Power (kW)
  - The unit's capacity affects startup time because it determines how much electrical current can flow.
  - XTP models use different electrode sizes across models to optimize performance.
- Water Temperature
  - Although a minor factor, warmer water has higher electrical conductivity, which can slightly reduce startup time.

# Startup Time

Because water quality varies significantly geographically, actual startup time can differ widely and is difficult to predict with accuracy. The graph below presents estimated startup time as a function of water conductivity and should be used as a general guideline only. Actual startup times may vary.

Use of an optional XTP Low-Conductivity Cylinder will improve startup time and overall functionality of the humidifier when water conductivity ranges between 150-350  $\mu\text{S}/\text{cm}$ .

**FIGURE 51-1: ESTIMATED STARTUP TIME**



XT-ESTIMATED-STARTUP-TIME

# Start-up checklist

Your humidification system may not have all of the options listed below. If an item does not apply to your system, skip to the next item.

- Verify that humidifier, controls, piping, electrical connections, steam supply, and dispersion units(s) are installed according to installation instructions in this manual and:
  - Ladder style wiring diagram and external connections wiring diagram (inside humidifier cabinet)
  - Governing codes
  - Vapor-logic Installation and Operation Manual
    - Installation section
    - Pre-installation checklist
- Verify that field wiring is done per instructions in this manual and per unit wiring diagram.
- Confirm that proper grounding and an approved earth ground are provided.
- Confirm that instructions in the Electric shock hazard warning have been followed.
- Confirm that the supply water piping was thoroughly flushed before it was connected to the humidifier.
- Verify that humidifier is mounted level and securely supported before filling with water. See operating weights in Table 7-1.
- Make sure cylinder is fully seated into drain valve, and verify that all electrical connections are secure.
- Turn water supply on (do not use demineralized, deionized, softened, or reverse-osmosis water) and confirm that drain valve is closed.

If the force of air exiting water supply lines blows fill cup cap off during first fill cycle, this is not a sign of defect or a cause for concern; simply replace fill cup cap after all air has exited water line.

- Verify that humidifier is level and plumb when filled with water.
- Turn power on and confirm that Model XTP display illuminates.
- Confirm that airflow switch is closed.
- If you choose not to use airflow switch: Jumper AFsw and 24vac terminals
- If you choose not to use on-off duct high limit: Jumper 21vdc and DHL terminals
- Confirm that high limit humidistat input is closed or that variable air volume (VAV) control system high limit transmitter is connected.
- With sufficient water in steam cylinder, airflow switch closed, high limit humidistat closed, and a call for humidity, verify that current flows in lead wires.
- If you experience difficulties, see "Troubleshooting" on Page 59.

## WARNING

### Electric shock hazard

Contact with energized circuits can cause property damage, severe personal injury or death as a result of electrical shock or fire.

Make sure cabinet doors are installed before turning on electrical power.

For proper operation of safety interlock switch, install electrical-side door first, then install cylinder-side door.

# Model XTP

## START-UP PROCEDURE

After the Model XTP humidifier is installed and connected properly:

1. Perform all applicable “Start-up checklist” items on Page 52.
2. Read and follow the instructions in the “Operation” section of the [Vapor-logic Installation and Operation Manual](#).
3. Note: During start-up, do not leave the humidifier unattended.
4. Monitor humidifier operation through multiple drain and fill cycles.
5. Perform the cleaning procedure as follows:
  - A. Operate humidifier long enough for steam to be produced.
  - B. Using the display:
    - At the Main menu, select Mode, select Drain, and press OK.
    - Let steam cylinder drain for 5 to 10 minutes until empty.
  - C. Restart the humidifier, and repeat Steps A and B.

## CAPACITY LIMITATION

Model XTP humidifier capacity can be limited to a user-specified maximum using the Vapor-logic touchscreen or Web interface. From the Main menu, select **Tank Setup**, then select **Capacity Adjustment** for menu options.

## WARNING

### Electric shock hazard

Only qualified electrical personnel should perform start-up procedure.

Contact with energized circuits can cause property damage, severe personal injury or death as a result of electrical shock or fire.

Make sure cabinet doors are installed before turning on electrical power.

For proper operation of safety interlock switch, install electrical-side door first, then install cylinder-side door.

The [Vapor-logic Installation and Operation Manual](#) is a comprehensive operation manual. Refer to it for information regarding the following features:

- Vapor-logic touchscreen and Web interface setup and menu information
- Control input signals and functions
- Safety features
- Alarm screens and fault messages

This manual ships with Model XTP humidifiers and is available at our website: [www.drivestem.com](http://www.drivestem.com)

# Shutdown and cool-down procedures

## SCHEDULED MAINTENANCE

At 1000-hour intervals or when “Service interval reached” appears in the Messages Log, inspect the steam cylinder, fill and drain valves, steam hose, condensate piping, water supply piping, drain piping, drain, and all other parts for proper operation and cleaning requirements. Verify proper operation of the high limit humidistat, relays, and airflow proving switch.

## STEAM CYLINDER SERVICE LIFE

Steam cylinder service life depends on operating hours and water hardness. If “Check cylinder” appears in the Messages Log during and shortly after start-up, the message can be cleared and will stop repeating after a few drain and fill cycles.

When “Check cylinder” appears in the Messages Log after extended operation, the humidifier will continue to run, but the cylinder must be replaced to ensure optimum output. Sure signs that a cylinder needs to be replaced are when it is approximately one-third full of minerals, or minerals have bridged between electrodes.

To replace the steam cylinder, first follow the cool-down procedure below.

## COOL-DOWN PROCEDURE

1. On the Vapor-logic display, select Mode, Drain, and OK.
2. Let steam cylinder drain for 5 to 10 minutes (drain water is automatically tempered when drain water tempering is selected).
3. Close field-installed manual supply water shut-off valve, and allow cylinder to continue draining.

## WARNING

### Shutdown procedure

To prevent severe personal injury or death from electrical shock, follow this shutdown procedure before performing service or maintenance procedures on this humidifier (after cylinder is drained and cooled):

1. Use Vapor-logic keypad/display to drain cylinder.
2. Use Vapor-logic controller keypad/display to change control mode to Standby.
3. Shut off all electrical power to humidifier using field-installed fused disconnect, and lock all power disconnect switches in OFF position.

**Note:** Two-cylinder XT Series humidifiers have two power supply connections.

4. Close field-installed manual water supply shut-off valve.

## WARNING

### Hot water system

Cylinder and any undrained water may be hot. To avoid injury from hot water, follow the cool-down procedure before proceeding with maintenance.

## Replacing steam cylinder

1. When steam cylinder is completely empty, turn humidifier off. Place all power disconnects in OFF position, and lock in OFF position.
  2. Remove cabinet doors, and make sure cylinder and humidifier components have cooled.
  3. Carefully pull the electrode connectors straight up off the cylinder to ensure no damage to the connector boot occurs.
  4. Inspect cylinder connectors. Obtain replacement connectors from DriSteem if deterioration, corrosion or loose fit occur.
  5. Disconnect the high water sensor wire.  
 Note: Because of tight clearances, perform Steps 6 through 7 only if servicing Model XTP 002 through 017 with top-mounted steam blower. For all other models, skip to Step 8.
    6. Remove both clamps on steam hose that connects to cylinder and steam blower.
    7. Slide steam hose from Step 6 all the way up until it is tight against bottom of steam blower. Skip to Step 9.
  8. Loosen steam hose clamp, and disconnect steam hose from cylinder.
  9. Place hands palms-down below cylinder on both sides of drain outlet.
  10. Press up against bottom of cylinder with backs of hands while pressing down against cabinet floor with fingers.
  11. Raise cylinder until drain outlet clears drain valve body and the side tabs on the cylinder have cleared the cylinder guides. Remove cylinder from cabinet.
  12. Vacuum scale and debris out of drain valve port.  
 Note: For more thorough cleaning, see drain valve maintenance instructions on Page 57.
  13. Replace O-ring in drain valve body (new cylinder ships with new O-ring). Make sure O-ring is correctly placed.
  14. Dampen O-ring seals **with water** before replacing cylinder. **Do not use lubricant or other substance.**
  15. Install new steam cylinder. See "Installing steam cylinder" on Page 14.
  16. Connect steam hose to cylinder, and re-install hose clamp.
  17. Connect high water sensor (yellow) wire to single pin surrounded by plastic shoulder on cylinder.
  18. **Connect electrode connectors to pins on top of cylinder. Make sure all connectors fit snugly and are fully engaged on pins.**  
**Important:** Three phase cylinders have color-coded dots on the cylinder and color bands on the electrode lead wires. When installing the connectors, match the band colors on the wires with the dot colors on the cylinder. Refer to the wiring diagram shipped with the humidifier if necessary.
- If returning humidifier to operation, see the start-up procedure on page 53.

### Note:

DriSteem recommends keeping a spare steam cylinder in stock during the humidification season. See "Replacement parts" on Pages 63 and 65.

### CAUTION

If cylinder connectors become loose, damage to the humidifier may occur. Obtain replacement connectors from DriSteem. See "Replacement parts" on Pages 63 and 65 for part numbers.

## Replacing electrode leads

1. Follow the cool-down procedure noted on page 54.
2. When steam cylinder is completely empty, select Mode, Standby, and OK.
3. Place all power disconnects in OFF position and lock in OFF position.
4. Remove both cabinet panels to gain access to both compartments.  
Allow components to cool before servicing.
5. Carefully pull the electrode connectors straight up off the cylinder.
6. In the electrical cabinet, take a picture of the wire connections at the top of the contactor(s) and the number of loops run through the current sensor(s). This can be referenced for installation of the new electrode leads.
7. Loosen the upper terminal connections of the contactor(s).
8. From the cylinder side, gently pull the electrode leads from the cabinet. Be sure to carefully unwind the lead(s) running through the current sensor(s). Damage can occur if neglected.
9. Feed the new electrode leads from the cylinder side, through the bushing in the subpanel. Supply enough slack to connect the leads to the contactor(s).
10. Loop the appropriate lead(s) through the current sensor(s) as required and terminate all leads at the contactor(s). Reference the picture taken upon uninstallation and the wiring diagram. Miswiring can cause catastrophic failure.
11. Torque contactor terminals to 30 in-lb (3.4 Nm). Check to ensure all conductors are secured properly.
12. Install the electrode connectors to the cylinder. Ensure all connector fit snugly and are fully engaged on the pins.
13. See "Start-up procedure" on Page 53 if returning humidifier to operation.

**Important:**

Three phase cylinders have color-coded dots on the cylinder and color bands on the electrode wires. When installing the connectors, match the band colors on the wires with the dot colors on the cylinder. Refer to the wiring diagram shipped with the humidifier if necessary.

# Drain valve

## DRAIN VALVE

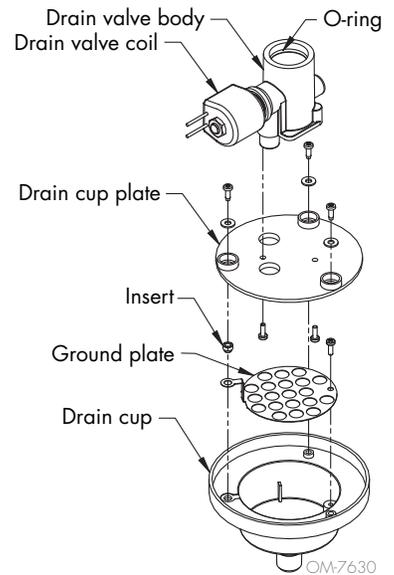
If either of the following issues occur after several months of runtime, follow the drain valve maintenance procedures below.

- Drain valve is closed, but draining and filling continue.
- End of cylinder life prompt appears prematurely.

## DRAIN VALVE BODY MAINTENANCE

1. When steam cylinder is empty, turn humidifier off. Place all power disconnects in OFF position, and lock in OFF position. See Figure 57-1.
2. Remove cabinet doors and steam cylinder (see Page 12).
3. Vacuum loose scale and debris out of the drain valve port.
4. Disconnect 2-pin Molex connector from 24 VAC drain valve coil.
5. Slide cap (A) off of drain valve coil (C).
6. Turn hex nut (B) counter-clockwise. Loctite on nut will cause drain valve coil assembly to turn out of drain valve body (G). Remove coil/actuator assembly from drain valve body. Make sure spring (E) and plunger (F) do not fall out of actuator (D).
7. Clean plunger (F), spring (E), actuator (D), and plastic drain valve body (G) with clean water.
8. Reassemble drain valve. When threading actuator (D) into drain valve body (G), make sure it is not cross threaded. Torque actuator into drain valve body to 18 in-lb (2.0 N·m).
9. Plug Molex connector into its mating wire harness connector, and slide cap (A) onto drain valve coil (C).
10. See "Start-up procedure" on Page 53 if returning humidifier to operation.
  - Note: If the procedure above did not resolve drain valve issues, perform the drain valve assembly maintenance procedure on Page 58.

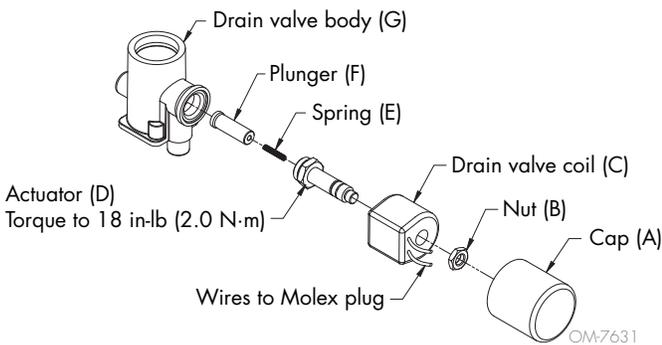
**FIGURE 57-1: DRAIN VALVE ASSEMBLY**



**Notes:**

- Pay close attention to all parts shown above. Verify that ground plate is in groove of drain cup, and insert is in place through ground plate loop.
- Failure to get ground plate and insert solidly connected to frame will compromise ground safety circuit.

**FIGURE 57-2: DRAIN VALVE BODY**



# Drain valve

## **DRAIN VALVE ASSEMBLY MAINTENANCE**

Perform the following procedure **only** if the procedure on Page 57 does not resolve drain valve issues. See Figure 57-2.

1. Perform Steps 1 through 4 on Page 57.
2. Remove the three screws and washers securing drain cup plate to drain cup.
3. Lift drain valve body/plate assembly off of drain cup.
4. Vacuum loose scale and debris out of drain cup.
5. Remove ground plate, and clean scale and debris from ground plate and outlet of drain valve body.
6. Reassemble drain valve assembly: Fit mounting screws with washers, insert them through drain cup plate, and tighten them into drain cup. See notes in Figure 57-2.
7. Clean end of hose, and reconnect it to drain valve body with hose clamp. Plug Molex plug into its mating wire harness plug.
8. See "Start-up procedure" on Page 53 if returning humidifier to operation.

# Troubleshooting

## MODEL XTP TROUBLESHOOTING

Follow the procedure below to resolve issues with Model XTP humidifiers:

1. Review possible causes and recommended actions in Table 60-1.
2. Go to Settings on the Vapor-logic controller to access test functions.

The Test mode setting is intended to check the general function of Model XTP humidifiers and components, and to help diagnose and resolve general operational problems.

See the [Vapor-logic controller manual](#) for more information.

3. If Table 60-1 and the Vapor-logic controller Test mode procedure does not help you solve the issue, call DriSteem with the following information available:
  - Humidifier model number and serial number (see nameplate on side of the humidifier and steam blower)
  - Issue description  
Example: water leaking, low humidity, high humidity, etc.
  - When issue began  
Example: After maintenance, cylinder replacement, etc.
  - System changes  
Example: Pressure, new service, new controller, relocation, change in maintenance, etc.

# Troubleshooting

**Table 60-1:**  
**Model XTP humidifier troubleshooting guide**

Problem	Possible cause	Action
Humidifier will not turn on	Field-wired terminal connections	Check L1, N/L2 and Ground connections.
		Check wiring connections and settings on accessory items such as high limit switch and airflow proving switch.
	Internal connections	Follow the shutdown procedure on Page 50, then make sure electrode and high water probe connections on top of cylinder are securely connected.
		Make sure ribbon cable from membrane switch is securely plugged into control circuit board.
		Check that terminals from internal components are securely attached to proper tabs on circuit boards.
	No power to humidifier	Make sure one of the electrode wires extends through toroid ring on current sensing circuit board.
		Check main power supply and switch.
	Humidifier not turned on	Check for proper voltage across L1 and N/L2 terminals.
Make sure front cover is attached to engage safety interlock switch. Press On-off button.		
No power to 24V control circuit	Make sure ribbon cable from membrane switch is securely plugged into control circuit board.	
	Check reset switch on transformer.	
Water constantly runs down drain.	Check that the transformer line fuses (2) are in place and conductive.	
	Malfunctioning drain valve.	Check valve function using Test Mode.
	Debris in drain valve preventing it from closing	Remove cylinder, and clean debris from drain valve.
	O-ring in drain valve not properly seated in groove	Remove cylinder, and reposition O-ring.
Water flowing from fill cup overflow port	Check internal hoses, and remove kinks or blockage.	
Water is leaking from humidifier.	Loose plumbing connections	Check supply water connection at fill valve inlet. Tighten as needed.
		Check internal hose clamp connections. Reposition clamps and tighten as needed.
		Check steam hose connection on top of cylinder. Tighten clamp as needed.
Humidifier makes gurgling sound.	Excess condensate in steam hose	Make sure steam hose has constant downward slope to humidifier or to tees and traps in low spots of hose.
Fill valve makes banging sound.	Water hammer from line pressure	Make sure water supply line does not contact ductwork.
		Install shock arrestor.
		Install section of 1/4" braided supply water piping. Conform to governing codes.
Humidifier will not fill.	Field-installed supply water shut-off valve not open	Open valve.
	Malfunctioning fill valve	Check valve function using Test mode.
Humidifier will not drain.	Debris in drain valve blocking outlet port	Remove cylinder and clean debris from drain valve.
	Malfunctioning drain valve	Check valve function using Test mode.

*Continued*

# Troubleshooting

Table 60-1:  
Model XTP humidifier troubleshooting guide (continued)

Problem	Possible cause	Action
Water in duct from dispersion tube.	Dispersion tube installed incorrectly	Install dispersion tube with tubelets facing straight up.
	Impurities in steam hose or tubing causing foaming	Rinse cylinder and hose in clean water.
Humidifier is not satisfying demand.	Control setting too low	Adjust control to higher setting.
	Control mounted in wrong location	See installation instructions with control for correct mounting location.
Excess humidity.	Control setting too high	Adjust control to lower setting.
	Control mounted in wrong location	See installation instructions with control for correct mounting location.

## MODEL XTP TROUBLESHOOTING

Follow the procedure below to resolve issues with Model XTP humidifiers:

- Review possible causes and recommended actions in the Troubleshooting guide in the [Vapor-logic Installation and Operation Manual](#).
- If the Troubleshooting guide does not help you solve the issue, call DriSteem with the following information available:
  - Humidifier model number, serial number, and firmware version (see nameplate on side of the humidifier and steam blower)
  - To access firmware version:
    - Display: Select **Diagnostics** in the Main menu, select **Humidifier info**, scroll down to **Firmware version**.
    - Web interface: Click **Diagnostics** in the toolbar, click **Humidifier info**, see Firmware version below.
  - When issue began
    - Example: Always, after remodel, after a change in weather, etc.
  - Issue description
    - Example: water leaking, low humidity, high humidity, etc.
  - System changes
    - Example: Pressure, new service, new controller, relocation, change in maintenance, etc.

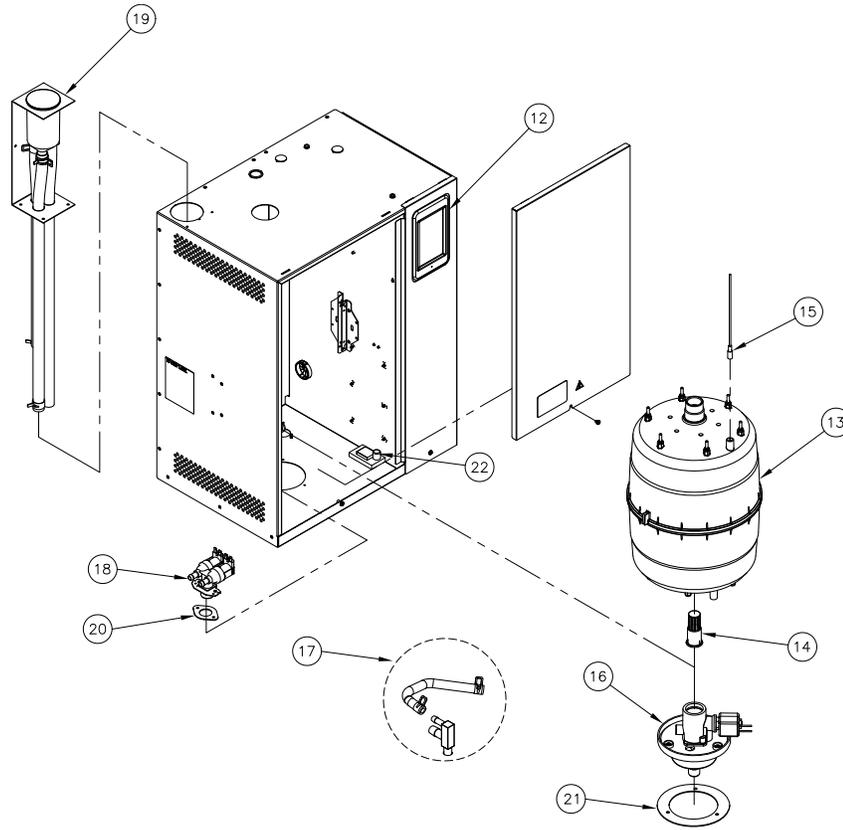
## DriSteem Technical Support

Have the following information ready when calling Technical Support. See phone number inside front cover of this manual.

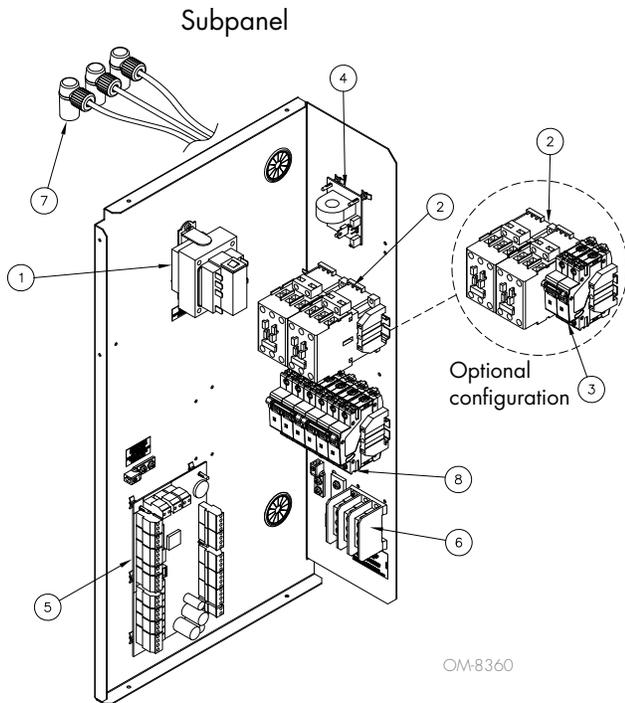
Humidifier model number
Humidifier serial number
Firmware version
When issue began
Issue description

# Replacement parts

**FIGURE 62-1: MODELS XTP 002 THROUGH 042 REPLACEMENT PARTS**



OM-8355



OM-8360

# Replacement parts

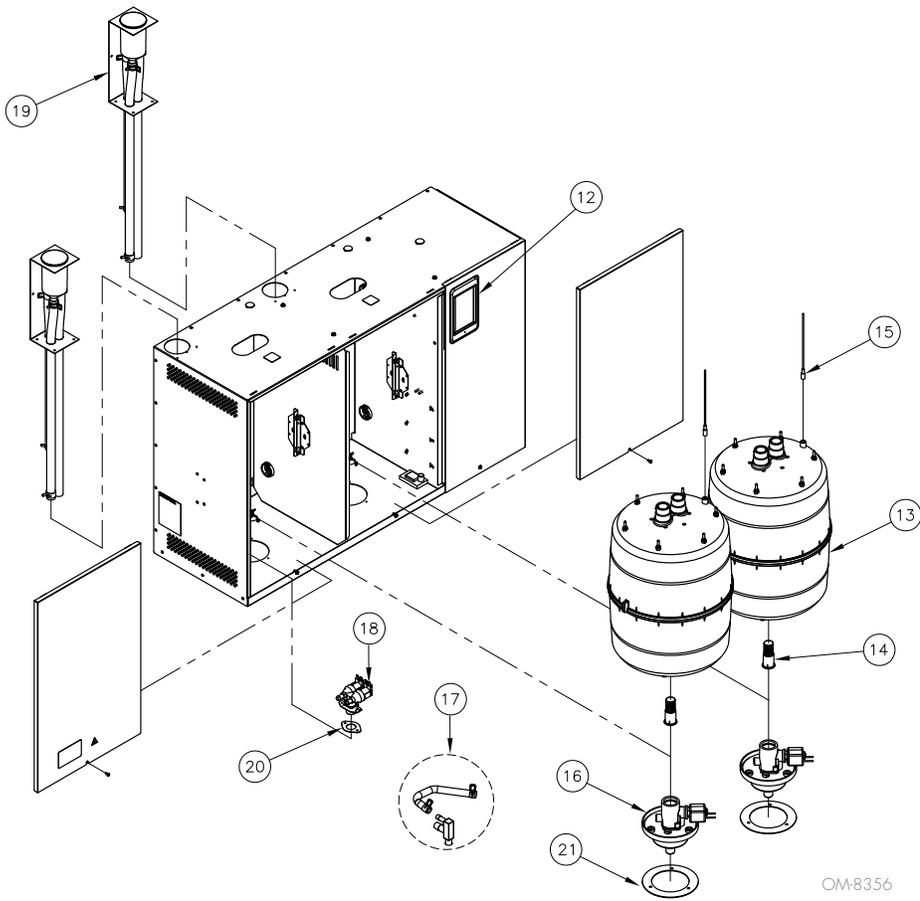
**Table 63-1:**  
Models XTP 002 through 042 replacement parts

Item	Description	Part No.
1	TRANSFORMER 120/277/600V - 24V 50/60HZ	408980-001
	TRANSFORMER 208/240/480V - 24V 50/60HZ	408980-002
	TRANSFORMER 230/380/400V - 24V 50/60HZ	408980-003
2	CONTACTOR 65A ALLEN-BRADLEY 100-C30KJ1x	407010-303
3	BREAKER CIRCUIT 2A 480V 2POLE CG D-CURVE	406775-210
4	BOARD PC CURRENT 120/208/240V 20A	530013-001
	BOARD PC CURRENT 208/230/240/277/400V40A	530013-004
	BOARD PC CURRENT 400-600V, 45A	530013-005
5	MAIN CONTROLLER VAPOR LOGIC 6	183504-014
6	TERMINAL BLOCK 3 POLE PRESSURE CONTACT	408300-002
	BLOCK POWER 115A 600V MARATHON 3 POLE	407603
	TERMINAL ASSY XT 3 PH STD UNIT	194626-002
	TERMINAL ASSY XT 3 PH STD UNIT HIGH CAP	194626-003
	TERMINAL ASSY XT HI CAP W/SDU	194626-005
7	ELECTRODE LEADS KIT, XT, B/R/W	194625-101
	ELECTRODE LEADS KIT, XT, B/R	194625-103
	ELECTRODE LEADS KIT, XT, B/R/W X 2	194625-104
8	BREAKER CIRCUIT 40A 480V 3POLE C-CRVE (QTY 2)	406776-240
	BREAKER CIRCUIT 50A 480V 3POLE C-CRVE (QTY 2)	406776-250
12	KIT TOUCHSCREEN DISPLAY	183508-001
13	KIT, CYLINDER REPLACEMENT	194811-*
14	STRAINER, CYLINDER	531006
15	PLUG SENSOR MAX WATER LEVEL	530010-105
16	DRAIN VALVE ASSEMBLY, XTP	189003
17	PLUMBING, TEMPERING, 002-006 XTP	199100-001
	PLUMBING, TEMPERING, 010-017 XTP	199100-002
	PLUMBING, TEMPERING, 025-083 XTP	199100-003
18	VALVE DUAL 2.0 IN .26/.53 OUT (GRY-BLU), 002-006 XTP	600568-201
	VALVE DUAL 2.0 IN .53/.80 OUT (BLU-GRN), 010-017 XTP	600568-202
	VALVE DUAL 2.0 IN .80/.80 OUT (GRN-GRN), 025-042 XTP	600568-203
19	FILL CUP ASSEMBLY, STANDARD, 002-006 XTP	194605-401
	FILL CUP ASSEMBLY, STANDARD, 010-017 XTP	194605-402
	FILL CUP ASSEMBLY, STANDARD, 025-042 XTP	194605-403
	FILL CUP ASSEMBLY, EXTENDED, 002-006 XTP	194605-451
	FILL CUP ASSEMBLY, EXTENDED, 010-017 XTP	194605-452
	FILL CUP ASSEMBLY, EXTENDED, 025-042 XTP	194605-453
20	GASKET, EPDM, FILL VALVE	308500-001
21	GASKET, EPDM, DRAIN CUP, XTP	308500-002
22	SENSOR, LEAK DETECTION, 24VAC	405820

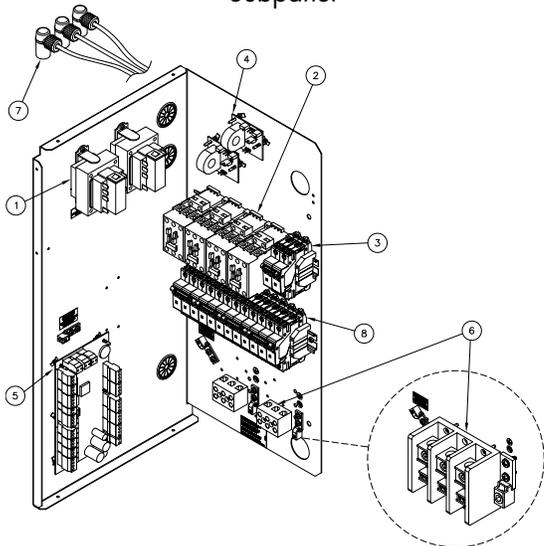
\* See cylinder Part No. on your XT Series humidifier.

# Replacement parts

**FIGURE 64-1: MODELS XTP 050 THROUGH 083 REPLACEMENT PARTS**



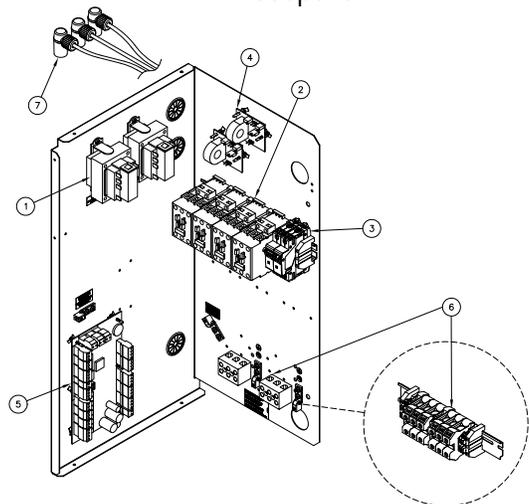
Subpanel



Single point power option

OM-8361

Subpanel



Euro dual point power option

OM-8362

# Replacement parts

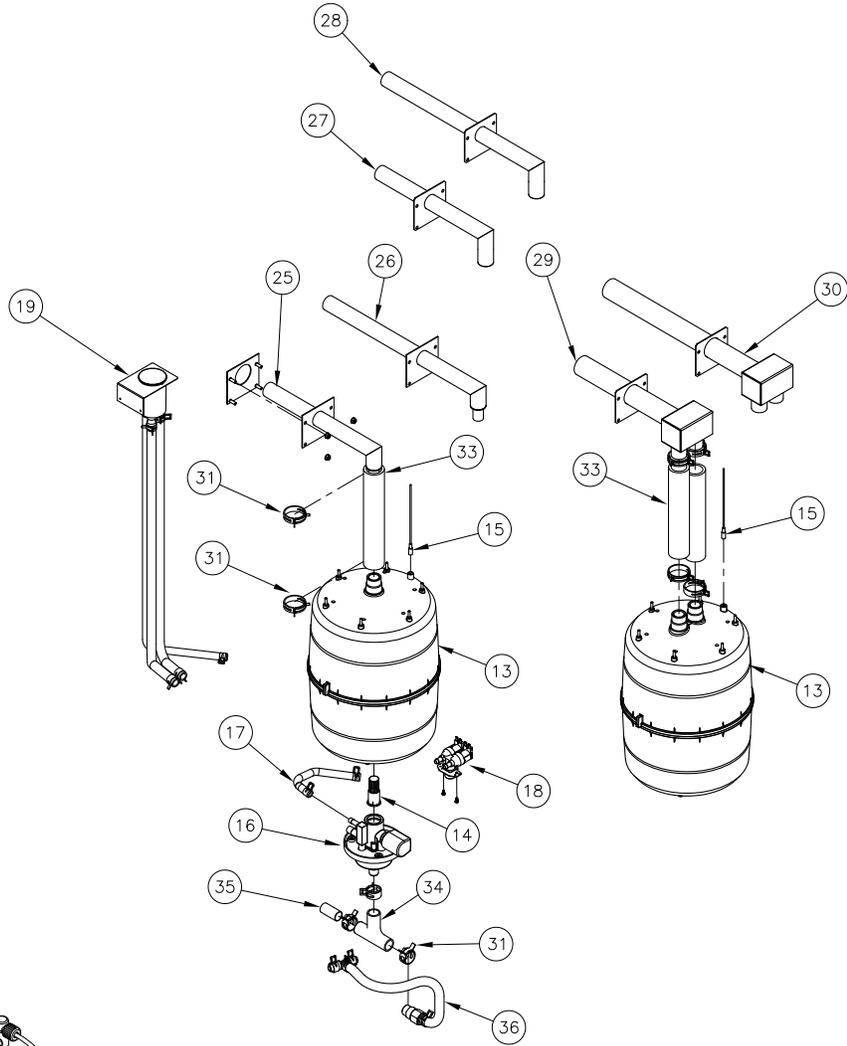
**Table 65-1:**  
Models XTP 050 through 083 replacement parts

Item	Description	Part No.
1	TRANSFORMER 120/277/600V - 24V 50/60HZ	408980-001
	TRANSFORMER 208/240/480V - 24V 50/60HZ	408980-002
	TRANSFORMER 230/380/400V - 24V 50/60HZ	408980-003
2	CONTACTOR 65A ALLEN-BRADLEY 100-C30K1x	407010-303
3	BREAKER CIRCUIT 2A 480V 2POLE CG D-CURVE	406775-210
4	BOARD PC CURRENT 208/230/240/277/400V40A	530013-004
	BOARD PC CURRENT 400-600V, 45A	530013-005
5	MAIN CONTROLLER VAPOR LOGIC 6	183504-014
6	TERMINAL BLOCK 3 POLE PRESSURE CONTACT	408300-002
	BLOCK POWER 115A 600V MARATHON 3 POLE	407603
	BLOCK POWER 175A 600V MARATHON 3 POLE	407600
	BLOCK POWER 335A 600V MARATHON 3 POLE	407920
	TERMINAL ASSY XT 3 PH DUAL UNIT	194626-004
7	ELECTRODE LEADS KIT, XT DUAL, B/R/W	194625-102
8	BREAKER CIRCUIT 40A 480V 3POLE C-CRVE (QTY 4)	406776-240
	BREAKER CIRCUIT 50A 480V 3POLE C-CRVE (QTY 4)	406776-250
12	KIT TOUCHSCREEN DISPLAY	183508-001
13	KIT, CYLINDER REPLACEMENT	194811-*
14	STRAINER, CYLINDER	531006
15	PLUG SENSOR MAX WATER LEVEL	530010-105
16	DRAIN VALVE ASSEMBLY, XTP	189003
17	PLUMBING, TEMPERING, 025-083 XTP	199100-003
18	VALVE DUAL 2.0 IN .80/.80 OUT (GRN-GRN)	600568-203
19	FILL CUP ASSEMBLY, STANDARD, 050-083 XTP	194605-404
	FILL CUP ASSEMBLY, EXTENDED, 050-083 XTP	194605-454
20	GASKET, EPDM, FILL VALVE	308500-001
21	GASKET, EPDM, DRAIN CUP, XTP	308500-002
22	SENSOR, LEAK DETECTION, 24VAC	405820

\* See cylinder part number on your XT Series Humidifier

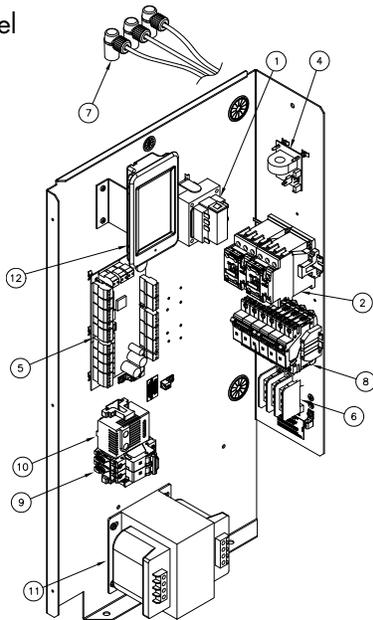
# Replacement parts

**FIGURE 66-1: MODELS XTP 002 THROUGH 042 WITH OUTDOOR ENCLOSURE**



OM-8364

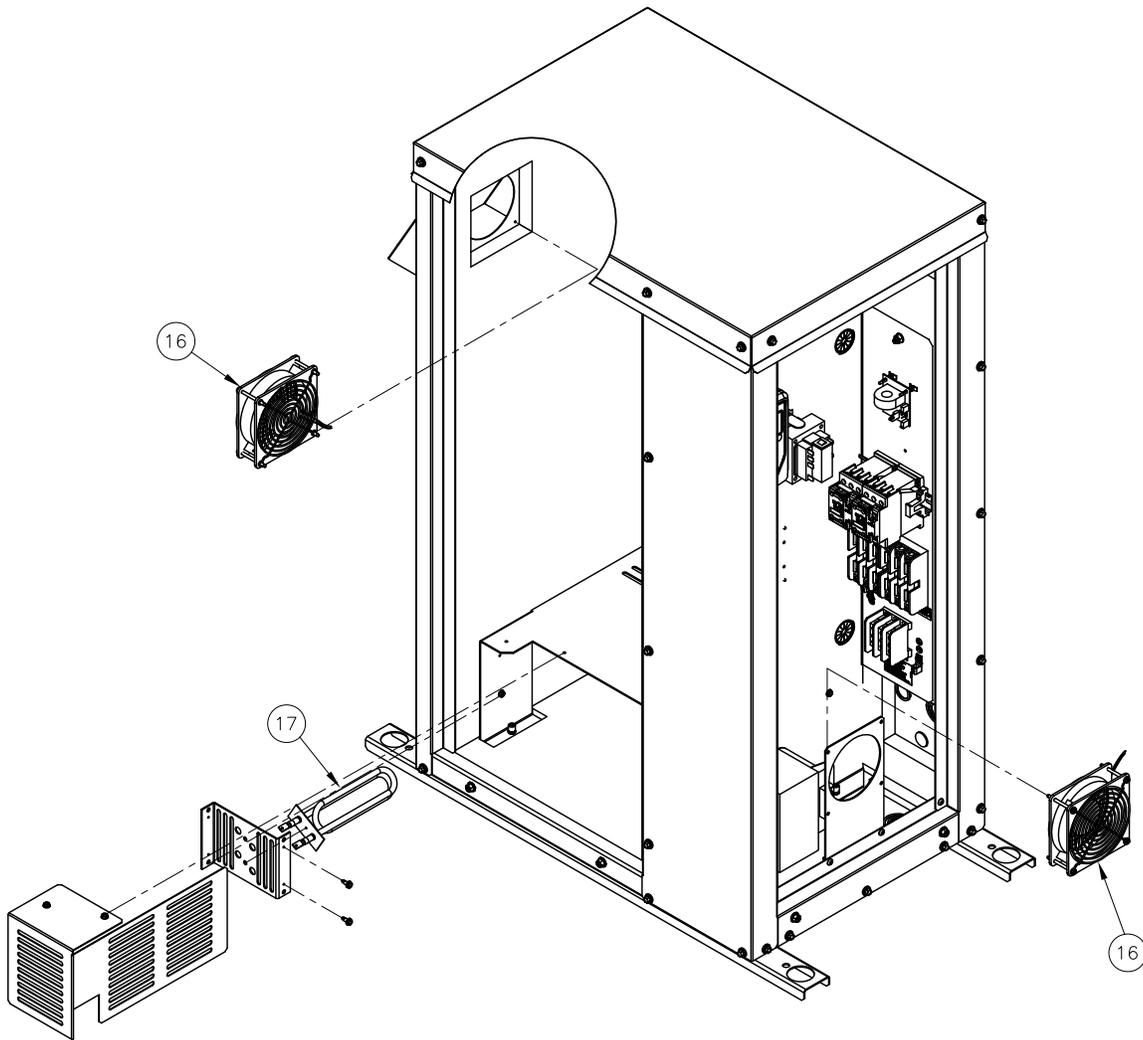
## Subpanel



OM-8363

# Replacement parts

**FIGURE 67-1: MODELS XTP 002 THROUGH 042 WITH OUTDOOR ENCLOSURE**



OM-8158

## Replacement parts

**Table 68-1:**  
**Models XTP 002 through 042 with outdoor enclosure replacement parts**

Item	Description	Part No.
1	TRANSFORMER 120/277/600V - 24V 50/60HZ	408980-001
	TRANSFORMER 208/240/480V - 24V 50/60HZ	408980-002
	TRANSFORMER 230/380/400V - 24V 50/60HZ	408980-003
2	CONTACTOR 65A ALLEN-BRADLEY 100-C30K1x	407010-303
3	BREAKER CIRCUIT 2A 480V 2POLE CG D-CURVE	406775-210
4	BOARD PC CURRENT 120/208/240V 20A	530013-001
	BOARD PC CURRENT 208/230/240/277/400V40A	530013-004
	BOARD PC CURRENT 400-600V, 45A	530013-005
5	MAIN CONTROLLER VAPOR LOGIC 6	183504-014
6	TERMINAL BLOCK 3 POLE PRESSURE CONTACT	408300-002
	BLOCK POWER 115A 600V MARATHON 3 POLE	407603
	BLOCK POWER 175A 600V MARATHON 3 POLE	407600
	BLOCK POWER 335A 600V MARATHON 3 POLE	407920
	TERMINAL ASSY XT 3 PH W/N OE STD CAP	194626-009
	TERMINAL ASSY XT 3 PH W/N OE HIGH CAP	194626-010
7	ELECTRODE LEADS KIT, XT, B/R/W	194625-101
	ELECTRODE LEADS KIT, XT, B/R	194625-103
	ELECTRODE LEADS KIT, XT, B/R/W X 2	194625-104
8	BREAKER CIRCUIT 40A 480V 3POLE C-CRVE (QTY 2)	406776-240
	BREAKER CIRCUIT 50A 480V 3POLE C-CRVE (QTY 2)	406776-250
9	BREAKER CIRCUIT 2A 480V 2POLE CG D-CURVE	406775-210
	BREAKER CIRCUIT 6A 480V 1POLE C-CURVE	406775-212
10	DUAL THERMOSTAT, DEGREE FAHRENHEIT	600293
	DUAL THERMOSTAT, DEGREE CELSIUS	600293-001
11	TRANSFORMER 208/277/380VTO 115V 500VA	408996-012
	TRANSFORMER 240V/480V TO 120V 500VA	408996-008
	TRANSFORMER 600V TO 120V 500VA	408996-009
12	KIT TOUCHSCREEN DISPLAY	183508-001
13	KIT, CYLINDER REPLACEMENT	194811-*
14	STRAINER, CYLINDER	531006

\* See cylinder Part No. on your XT Series humidifier.

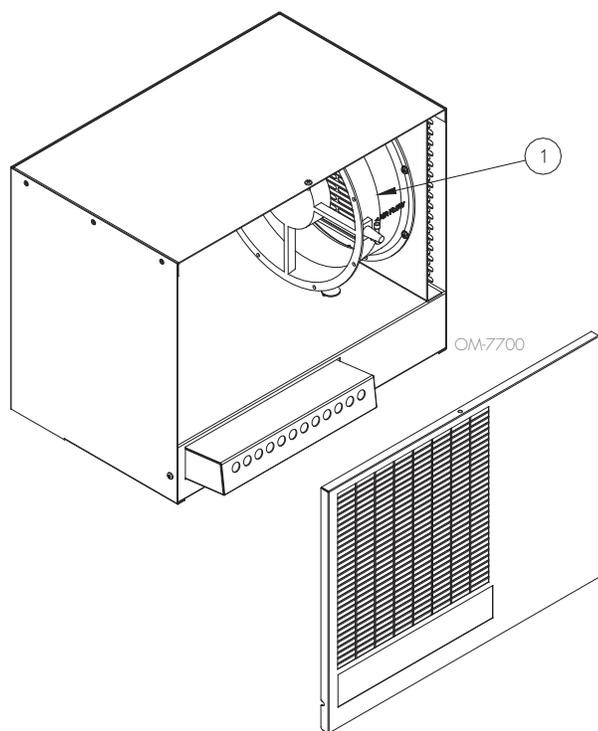
# Replacement parts

**Table 69-1:**  
Models XTP 002 through 042 with outdoor enclosure replacement parts

Item	Description	Part No.
15	PLUG SENSOR MAX WATER LEVEL	530010-105
16	DRAIN VALVE ASSEMBLY, XTP	189003
17	PLUMBING, TEMPERING, OE XTP	199100-010
18	VALVE DUAL 2.0 IN .26/.53 OUT (GRY-BLU), 002-006 XTP	600568-201
	VALVE DUAL 2.0 IN .53/.80 OUT (BLU-GRN), 010-017 XTP	600568-202
	VALVE DUAL 2.0 IN .80/.80 OUT (GRN-GRN), 025-046 XTP	600568-203
19	FILL CUP ASSEMBLY, 002-042 OE XTP	194605-410
23	FAN ASSY O.E. CABINET 120V	185110-003
	FAN ASSY EURO O.E. CABINET 230V	185110-004
24	HEATER O.E. 120V 400W	600390
	HEATER O.E. 230V 400W	600390-001
25	SINGLE STEAM OUTLET 1.5" X 6" XT O.E.	162831-002
26	SINGLE STEAM OUTLET 1.5" X 12" XT O.E.	162831-012
27	SINGLE STEAM OUTLET 1.5" X 6" XT O.E.	162831-003
28	SINGLE STEAM OUTLET 1.5" X 12" XT O.E.	162831-013
29	DUAL STEAM OUTLET 2" X 6" XT O.E.	162831-001
30	DUAL STEAM OUTLET 2" X 12" XT O.E.	162831-011
31	HOSE CLAMP 35 MM SPRING BAND	700560-035
	HOSE CLAMP, 49 MM SPRING BAND	700560-049
32	HOSE HEATER 1" ID BULK	307020-003
33	HOSE 1-1/2" ID BLUE SILICONE BULK	305490
34	TEE HOSE COUPLING 1" ID SILICONE BLK	601105
35	TUBE, 1.00" DIA X 2.00" (304SST)	122415-002
36	VALVE ASSY FREEZE PROTECTION	601104

\* See cylinder Part No. on your XT Series humidifier.

# Replacement parts

**FIGURE 70-1: SDU-006E AND SDU-017E STEAM BLOWERS**

**Table 70-1:**  
**SDU-006E and SDU-017E steam blowers**

Item	Description	Part No.
1	FAN, SDU-006E, 120V	407109-002
	FAN TUBE AXIAL 230V 460 CFM 10"	306377-001
	FAN, SDU-006E, 230V	407109-102
	FAN TUBE AXIAL 120V 547 CFM 10"	306376-001

# Accessories

Table 71-1: Accessories	
Description	Part No.
STEAM HOSE, 1" (DN25) x 10' (3 M), FOR REMOTE XT STEAM BLOWER	305400-100
STEAM HOSE, 1½" (DN40) x 10' (3 M), WIRE-REINFORCED	305400-010
STEAM HOSE, 2" (DN50) x 10' (3 M), WIRE-REINFORCED	305560-0010
CONDENSATE HOSE, 1/4" (DN8) x 13' (4 M), FOR REMOTE XT STEAM BLOWER	305400-150
DRAIN HOSE CUFF, 1" (DN25) I.D. x 12" (305 MM) LONG	305389-012
HOSE CLAMP, 49 MM, SPRING BAND	700560-049
HOSE CLAMP, 35 MM, SPRING BAND	700560-035
HOSE CLAMP, 38 MM, SPRING BAND	601133
HOSE CLAMP, 23 MM, SPRING BAND	700560-023
HOSE CLAMP, 19 MM, SPRING BAND	700560-019
HOSE CLAMP, 1½" (DN40) I.D.	700560-150
HOSE CLAMP, 2" (DN50) I.D.	700560-200
KIT, DRIP TEE, 304 STAINLESS STEEL, 1½" (DN40)	191071-001
HUMIDISTAT ON/OFF DUCT HL SIEMENS	601059
HUMIDISTAT, ROOM, HC-101	405870
TRANSMITTER RH DUCT/HI LIMIT 4-20mA	405884-109
TRANSMITTER RH ROOM 2% 4-20mA	405883-108
SWITCH, AIRFLOW, AFS-112-150, ELECTRIC	406190
KIT, Y CONNECTOR; MODELS XTP 033, AND 042 (SEE FIGURE 33-1)	
• 1 Y CONNECTOR, STAINLESS STEEL, 1½" x 2" (DN40 x DN50)	191070-101
• 2 STEAM HOSES, 1½"(DN40), 12" (305 MM) LONG	
• 4 HOSE CLAMPS	
KIT, Y/TUBE CONNECTORS; MODELS XTP067 THROUGH 083 (SEE FIGURE 33-1)	
• 2 Y CONNECTOR KITS	191070-101
• 1 FLANGED TUBE CONNECTOR, STAINLESS STEEL, 3" (DN80)	162825-202F
KIT, TUBE CONNECTOR; Model XTP050 (SEE FIGURE 33-1)	
• 1 TUBE CONNECTOR, STAINLESS STEEL, 1½" x 2" (DN40 x DN50)	191070-002
• 1 HOSE CUFF, 2" (DN50), 6" (152 MM) LONG	
• 2 HOSE CLAMPS	
KIT, TUBE REDUCER; MODELS XTP 002 THROUGH 006 (SEE FIGURE 32-1)	
• 1 TUBE REDUCER, STAINLESS STEEL, 1" x 1½" (DN25 x DN40)	191070-100
• 1 STEAM HOSE, 1" (DN25), 12" (305 MM) LONG	
• 2 HOSE CLAMPS	
KIT, TUBE Y CONNECTOR; MODEL XTP 025 (SEE FIGURE 32-1)	
• 1 Y CONNECTOR, 1.5" x 1.5" x 1.5"(DN40 x DN40 x DN40)	191070-102
• 1 STEAM HOSE, 1.5" (DN40), 12" (305 MM) LONG	
• 2 HOSE CLAMPS	

### Expect quality from the industry leader

Since 1965, DriSteem has been leading the industry with creative and reliable humidification solutions. Our focus on quality is evident in the construction of the XT Series humidifier. DriSteem also leads the industry with a Two-year Limited Warranty and optional extended warranty.

### For more information

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Form No. XT-TOUCHSCREEN-IOM-EN-REVA-0426  
Part No. 890000-250 Rev A

## DRISTEEM

### Two-year Limited Warranty

DriSteem Corporation ("DriSteem") warrants to the original user that its products will be free from defects in materials and workmanship for a period of two (2) years after installation or twenty-seven (27) months from the date DriSteem ships such product, whichever date is the earlier.

If any DriSteem product is found to be defective in material or workmanship during the applicable warranty period, DriSteem's entire liability, and the purchaser's sole and exclusive remedy, shall be the repair or replacement of the defective product, or the refund of the purchase price, at DriSteem's election. DriSteem shall not be liable for any costs or expenses, whether direct or indirect, associated with the installation, removal or reinstallation of any defective product. The Limited Warranty does not include consumables, including but not limited to: cylinders, filters, membranes, nozzles, and piezoelectric transducer replacement.

DriSteem's Limited Warranty shall not be effective or actionable unless there is compliance with all installation and operating instructions furnished by DriSteem, or if the products have been modified or altered without the written consent of DriSteem, or if such products have been subject to accident, misuse, mishandling, tampering, negligence or improper maintenance. Any warranty claim must be submitted to DriSteem in writing within the stated warranty period. Defective parts may be required to be returned to DriSteem.

DriSteem's Limited Warranty is made in lieu of, and DriSteem disclaims all other warranties, whether express or implied, including but not limited to any IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, any implied warranty arising out of a course of dealing or of performance, custom or usage of trade.

DRI-STEEM SHALL NOT, UNDER ANY CIRCUMSTANCES BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, REVENUE OR BUSINESS) OR DAMAGE OR INJURY TO PERSONS OR PROPERTY IN ANY WAY RELATED TO THE MANUFACTURE OR THE USE OF ITS PRODUCTS. The exclusion applies regardless of whether such damages are sought based on breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory, even if DriSteem has notice of the possibility of such damages.

By purchasing DriSteem's products, the purchaser agrees to the terms and conditions of this Limited Warranty.

### Extended warranty

The original user may extend the term of the DriSteem Limited Warranty for a limited number of months past the initial applicable warranty period and term provided in the first paragraph of this Limited Warranty. All the terms and conditions of the Limited Warranty during the initial applicable warranty period and term shall apply during any extended term. An extended warranty term of an additional twelve (12) months, twenty four (24) months, or thirty-six (36) months<sup>(1)</sup> of coverage may be purchased. The extended warranty term may be purchased until eighteen (18) months after the product is shipped, after which time no extended warranties are available.

Any extension of the Limited Warranty under this program must be in writing, signed by DriSteem, and paid for in full by the purchaser.

<sup>(1)</sup> 36 month extended warranty automatically included for all DriSteem Dehumidifiers.