



## RESISTIVE-TO-STEAM HUMIDIFIER

- *Sustained quality and dependability*
- *Integrated drain water tempering*
- *Universal water control for use with any water type*
- *Easy installation and maintenance*
- *Outdoor and indoor models for application flexibility*
- *Comprehensive control with Vapor-logic® touchscreen controller*

# Sustained quality and dependability



## RTS HUMIDIFIER

*RTS humidifiers use heat caused by electrical resistance in submerged heating elements to boil fill water into steam. The RTS humidifier is compatible with all water types and numerous dispersion options, including matching Space Distribution Units.*



The RTS® humidifier is a compact, elegant, cabinet-style unit compatible with all water types (tap, softened, deionized, reverse osmosis) and numerous dispersion options. Installation is a snap — just attach the frame to a supporting structure and connect electrical and water services.

Available matching Space Distribution Units disperse steam with no visible vapor trail (SDU-I-RX), making the RTS humidifier ideal for use in finished spaces.

## FLEXIBLE

- DriSteem's RTS humidifier incorporates universal water control for use with any water type - tap, softened, or RO/DI
- Capacity from 6 to 324 lbs/hr (2.7 to 147 kg/h), link up to 8 units for capacity up to 2592 lbs/hr (1176 kg/h)
- Integrated drain water tempering automatically cools discharged hot water to 140°F (60 °C)
- Disperses steam through ductwork with dispersion tubes or panels, or directly into a room with a Space Distribution Unit (SDU).
- Enclosures for virtually any environment. Outdoor or indoor, or factory-HVAC installed.

## ACCURATE

- Standard solid-state relay (SSR) operation on every unit
- Control to  $\pm 1\%$  RH
- Optional mini-drain operation mode allows for 24/7 continuous steam output

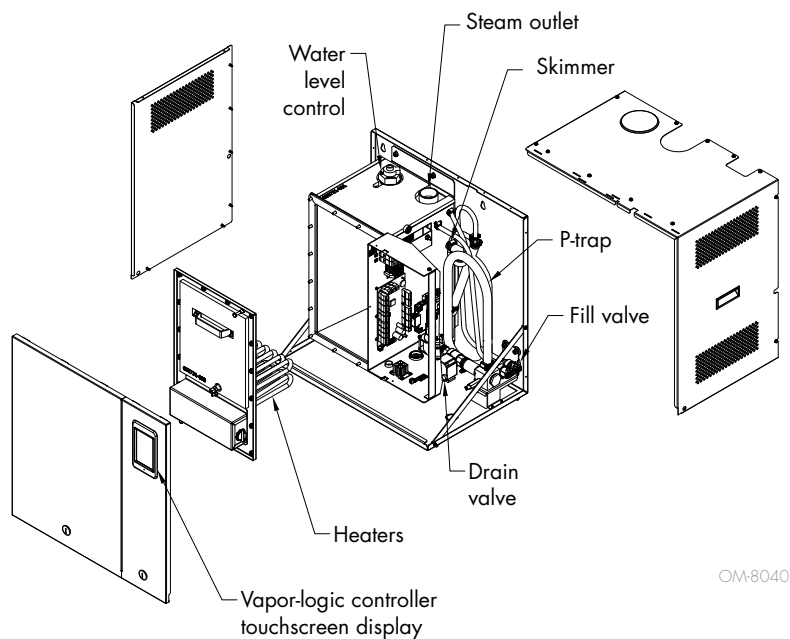
Learn More



## EASY TO MAINTAIN

- Removable front covers with quarter-turn latches allow easy one-sided access to the tank and electrical connections
- Large clean-out and heater plate allows for easy access when cleaning the tank
- DriSteem's smart drain technology adjusts drain intervals automatically based on water quality. Draining removes precipitated minerals from the tank.
- User-adjustable water skimmer skims off floating minerals
- End-of-season auto-drain minimizes microbial growth
- Tank bottom is dual sloped with a side exit drain port located at the bottom of the slopes to ensure complete draining of tank

**FIGURE 3-1: RTS HUMIDIFIER**



# Vapor-logic controller

**FIGURE 4-1: USING THE VAPOR-LOGIC DISPLAY**

## Typical Home screen



## ACCURATE, RESPONSIVE CONTROL

The Vapor-logic controller provides accurate, responsive RH control. PID control tunes the system for maximum performance.

**Modbus, BACnet, or LonTalk** allow interoperability with multiple building automation systems. Modbus is standard, and BACnet or LonTalk are available options.

**Web interface** provides the capability to set up, view, and adjust humidifier functions via Ethernet, either directly or remotely through a network.

**Contactor wear leveling** distributes cycles among multiple contactors for equal wear and longer contactor life.

**Cycle counter** triggers a message when it's time to replace the contactor.

**USB port** allows easy firmware updates, and data backup and restore capability.

**Real-time clock** allows time-stamped alarm and message tracking, and accurate drain and flush scheduling.

**Auxiliary temperature sensor/transmitter** allows air temperature monitoring, such as in a duct, and enables temperature compensation to prevent window condensation.

**Programmable outputs** allow remote signaling and device activation.

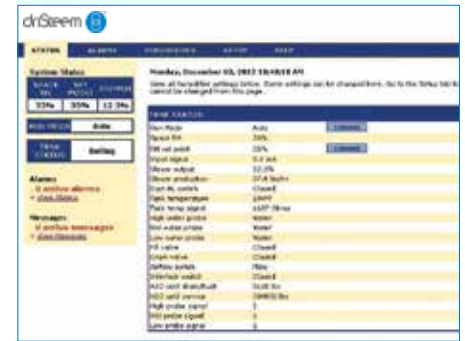
**Multiple-humidifier control** allows staged control of up to 8 humidifiers with one controller.

**Controller data**, such as RH, air temperature, water use, energy use, alarms, and messages, can be downloaded to a PC for viewing and analysis. RH, alarms, and service messages can also be displayed via the keypad or Web interface.

**Enhanced diagnostics** include:

- **Test outputs** function using keypad/display or Web interface to verify component operation
- **Test humidifier** function using simulated demand to validate performance

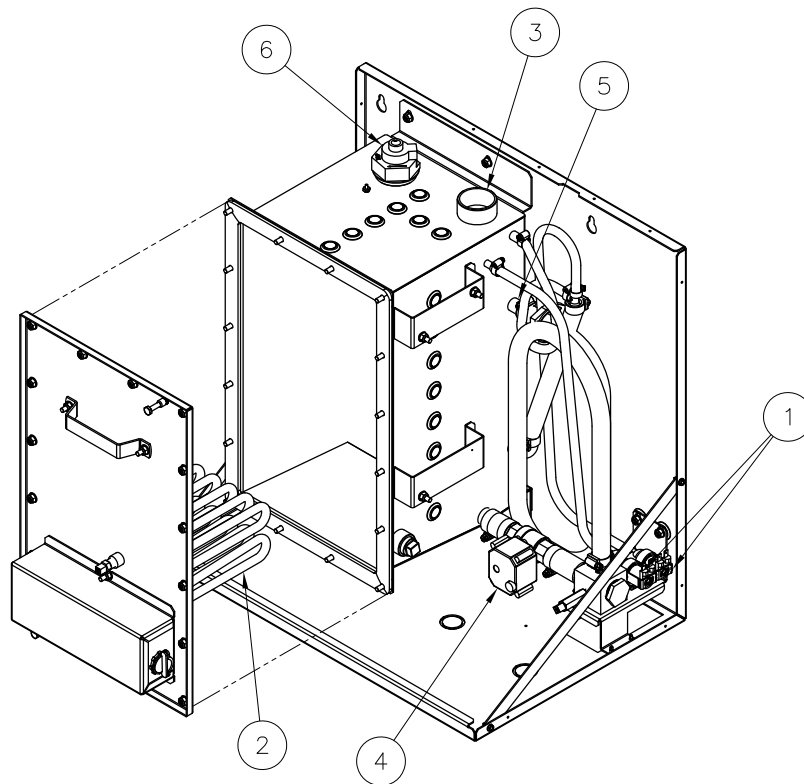
## WEB INTERFACE



*Insert a USB flash drive into the Vapor-logic board's USB port to perform software updates, download data logs, and back up and restore data.*



**FIGURE 6-1: RTS HUMIDIFIER PRINCIPLE OF OPERATION**



OM-8050

1. When the system is first activated, the fast fill valve opens, the precision fill valve opens, and the tank fills with water to the operating level.
2. On a call for humidity, the heating elements are energized, causing the water to boil. The precision fill valve opens and closes as needed to maintain the operating water level between the middle and bottom probes.
3. Steam created in the evaporating chamber flows through vapor hose or piping to the dispersion assembly, where it is discharged into the airstream.
4. Over time, the tank will drain. Steam humidifiers drain to remove chlorides and minerals from the tank.
  - As the humidifier drains, the water will be tempered down to 140°F (60°C). Drain water tempering can be turned off in Settings. See page 28 for more information on drain water tempering.
  - There are a few options when it comes to draining. The Smart Drain setting (default) will detect the cleanliness of the water and drain accordingly. In User Drain the user is able to set how often the humidifier drains. Both Smart Drains and User Drains can be scheduled to happen at a specific time in the day (default is 12:00am). The user can also specify Full Drain or Mini-drain. A Full Drain will drain the tank completely. A Mini-drain will partially drain the tank. If full tank drains are not permitted, Mini-drain shuts the electronic drain water tempering off. An external mechanical tempering device would need to be installed to maintain drain water tempering.
5. After the tank drains and refills, a portion of the surface water is skimmed off, carrying away precipitated minerals.
6. If foam is sensed in the tank, the unit will drain and start over with fresh water – regardless of scheduled drain times.

**Table 7-1:**  
RTS humidifier capacities, electrical specifications

RTS model	Maximum steam capacity		Power	Stages	Total max current draw (amps)										
					Single-phase						Three-phase				
	lbs/hr	kg/h	kW	Contactors	120V	208V	240V	277V	480V	600V	208V	240V	380V	480V	600V
RX-6-1	6	2.7	2	1	16.7	9.6	8.3	21.7	4.2	3.3	—	—	—	—	—
RX-12-1	12	5.4	4	1	33.3	19.2	16.7	21.7	8.3	6.7	16.7	14.4	9.10	7.2	5.8
RX-18-1	18	8.2	6	1	—	28.9	25	21.7	12.5	10	16.7	14.4	9.10	7.2	5.8
RX-24-1	24	10.9	8	1	—	38.5	33.3	43.3	16.7	13.3	25	21.7	13.70	10.8	8.7
RX-30-1	30	13.6	10	1	—	—	41.7	43.3	20.8	16.7	33.3	28.9	18.20	14.4	11.6
RX-36-1	36	16.3	12	1	—	—	—	43.3	25	20	33.3	28.9	18.20	14.4	11.6
RX-42-1	42	19.0	14	1	—	—	—	—	29.2	23.3	41.6	36.1	22.80	18	14.4
RX-48-1	48	21.8	16	1	—	—	—	—	33.3	26.7	—	43.3	27.40	21.7	17.3
RX-63-1	63	28.6	21	1	—	—	—	—	43.8	35	—	—	34.2	27.1	21.7
RX-75-1	75	34.0	25	1	—	—	—	—	—	45	—	—	41	32.5	26
RX-30-2	30	13.6	10	2	—	57.7	—	—	—	—	—	—	—	—	—
RX-36-2	36	16.3	12	2	—	57.7	50	—	—	—	—	—	—	—	—
RX-48-2	48	21.8	16	2	—	76.9	66.7	86.6	—	—	50	—	—	—	—
RX-63-2	63	28.6	21	2	—	—	91.7	86.6	—	—	66.6	57.7	—	—	—
RX-75-2	75	34.0	25	2	—	—	—	—	54.2	—	83.2	72.2	—	—	—
RX-90-2	90	40.8	30	2	—	—	—	—	62.5	50	—	86.6	54.7	43.3	34.6
RX-102-2	102	46.3	34	2	—	—	—	—	70.8	56.7	—	86.6	54.7	43.3	34.6
RX-126-2	126	57.1	42	2	—	—	—	—	87.5	70	—	—	68.4	54.1	43.3
RX-144-2	144	65.3	48	2	—	—	—	—	—	80	—	—	82	65	52
RX-162-2	162	73.5	54	2	—	—	—	—	—	90	—	—	82	65	52

- All RTS humidifier models operate at 50/60 Hz.
- For wire sizing, the highest leg draw is shown due to current imbalance.
- See Table 70-1 for heaters.
- Maximum amps is determined based on the heaters used by each model. Some voltage/kW combinations show higher amperage values than what the unit capacity will allow.
- Short Circuit Current Rating (SCCR): 5kA



# Models, capacities, and electrical specifications

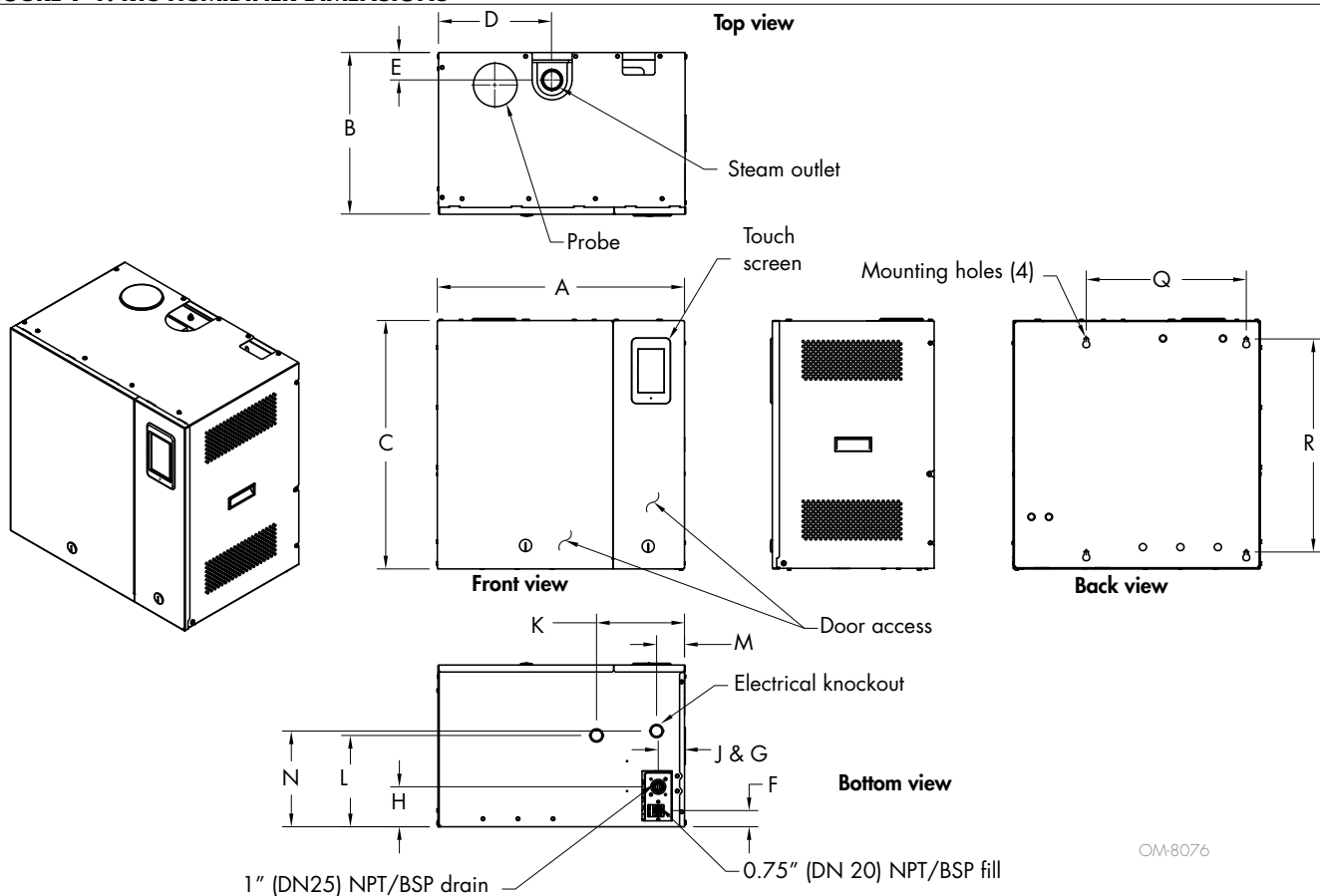
Table 8-1:  
RTS humidifier capacities, electrical specifications (continued)

RTS model	Maximum steam capacity		Power	Stages	Total max current draw (amps)										
					Single-phase						Three-phase				
	lbs/hr	kg/h	kW	Contactors	120V	208V	240V	277V	480V	600V	208V	240V	380V	480V	600V
RX-63-3	63	28.6	21	3	—	115.4	—	—	—	—	—	—	—	—	—
RX-75-3	75	34.0	25	3	—	129.8	112.5	130	—	—	—	—	—	—	—
RX-90-3	90	40.8	30	3	—	—	125	130	—	—	99.9	—	—	—	—
RX-102-3	102	46.3	34	3	—	—	—	130	—	—	99.9	—	—	—	—
RX-126-3	126	57.1	42	3	—	—	—	—	—	—	124.9	108.3	—	—	—
RX-144-3	144	65.3	48	3	—	—	—	—	100	—	—	129.9	—	—	—
RX-162-3	162	73.5	54	3	—	—	—	—	112.5	—	—	129.9	—	—	—
RX-189-3	189	85.7	63	3	—	—	—	—	137.5	110	—	—	102.6	81.2	65
RX-216-3	216	98.0	72	3	—	—	—	—	—	120	—	—	123.1	97.4	77.9
RX-243-3	243	110.2	81	3	—	—	—	—	—	135	—	—	123.1	97.4	77.9
RX-102-4	102	46.3	34	4	—	173.1	150	—	—	—	—	—	—	—	—
RX-126-4	126	57.1	42	4	—	—	183.3	173.3	—	—	—	—	—	—	—
RX-144-4	144	65.3	48	4	—	—	—	173.3	—	—	133.2	—	—	—	—
RX-162-4	162	73.5	54	4	—	—	—	—	—	—	166.5	—	—	—	—
RX-216-4	216	98.0	72	4	—	—	—	—	150	—	—	173.2	—	—	—
RX-264-4	264	119.7	88	4	—	—	—	—	183.3	146.7	—	—	164.1	129.9	103.9
RX-288-4	288	130.6	96	4	—	—	—	—	—	160	—	—	164.1	129.9	103.9
RX-324-4	324	146.9	108	4	—	—	—	—	—	180	—	—	164.1	129.9	103.9

- All RTS humidifier models operate at 50/60 Hz.
- For wire sizing, the highest leg draw is shown due to current imbalance.
- See Table 70-1 for heaters.
- Maximum amps is determined based on the heaters used by each model. Some voltage/kW combinations show higher amperage values than what the unit capacity will allow.
- Short Circuit Current Rating (SCCR): 5kA



**FIGURE 9-1: RTS HUMIDIFIER DIMENSIONS**

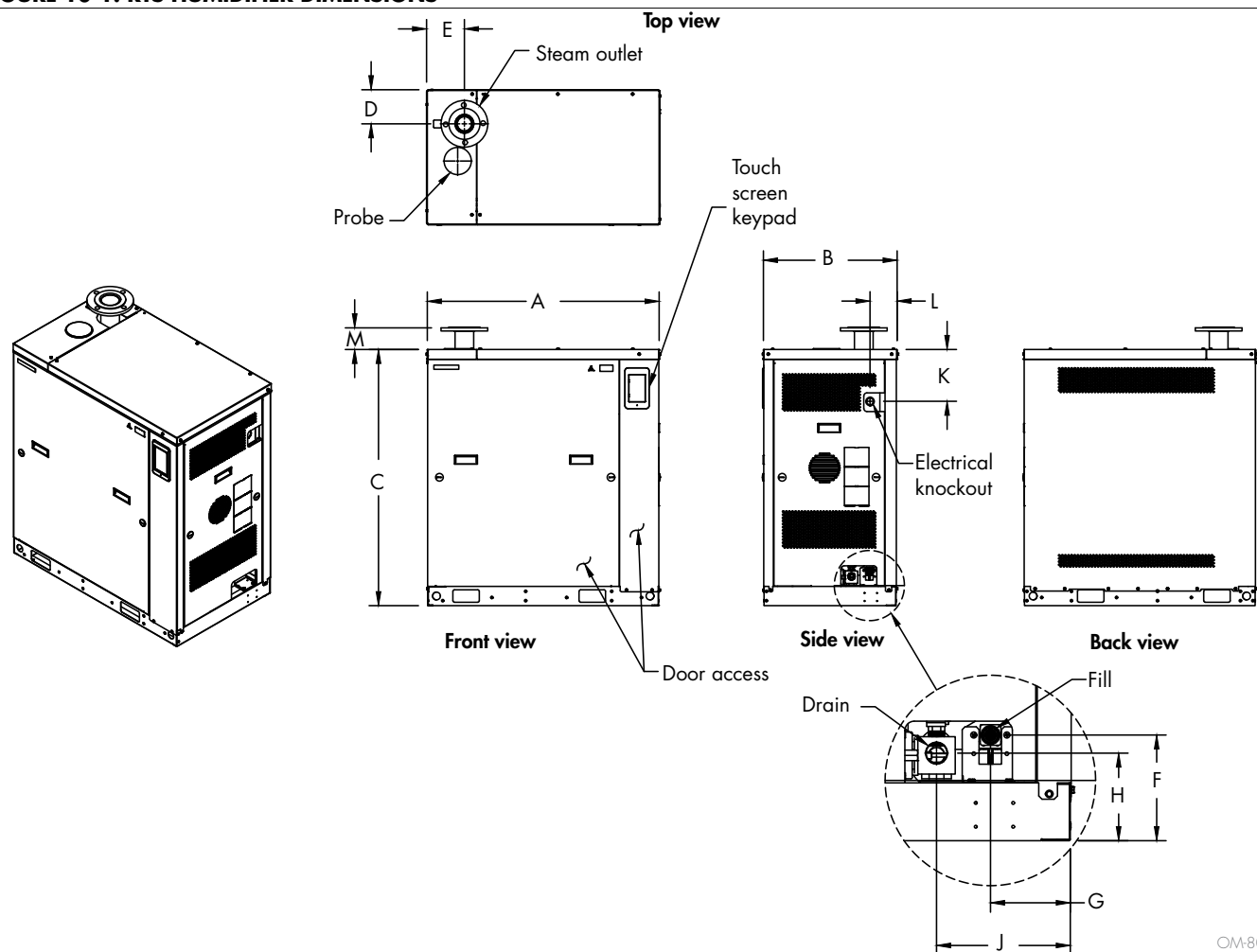


**Table 9-1:**  
Indoor unit dimensions

	Description	RX-XX-1		RX-XX-2	
		inches	mm	inches	mm
A	Overall length	24.8	629	26.1	663
B	Overall width	16.4	416	21.0	533
C	Overall height	24.9	632	31.4	798
D	Steam outlet	11.3	286	11.9	301
E		2.8	70	3.3	83
F	Supply water	1.6	41	3.0	76
G		2.6	66	1.6	41
H	Drain water	4.0	102	3.0	76
J		2.6	66	4.0	102
K	Electrical knockout (Control)	8.8	224	2.8	71
L		9.1	231	10.1	256
M	Electrical knockout (Power)	2.8	71	8.8	224
N		9.6	244	9.4	239
Q	Mounting holes	16.0	406	16.0	406
R		21.3	541	28.0	711

# Indoor and no enclosure dimensions (RX-XX-3 and RX-XX-4)

**FIGURE 10-1: RTS HUMIDIFIER DIMENSIONS**



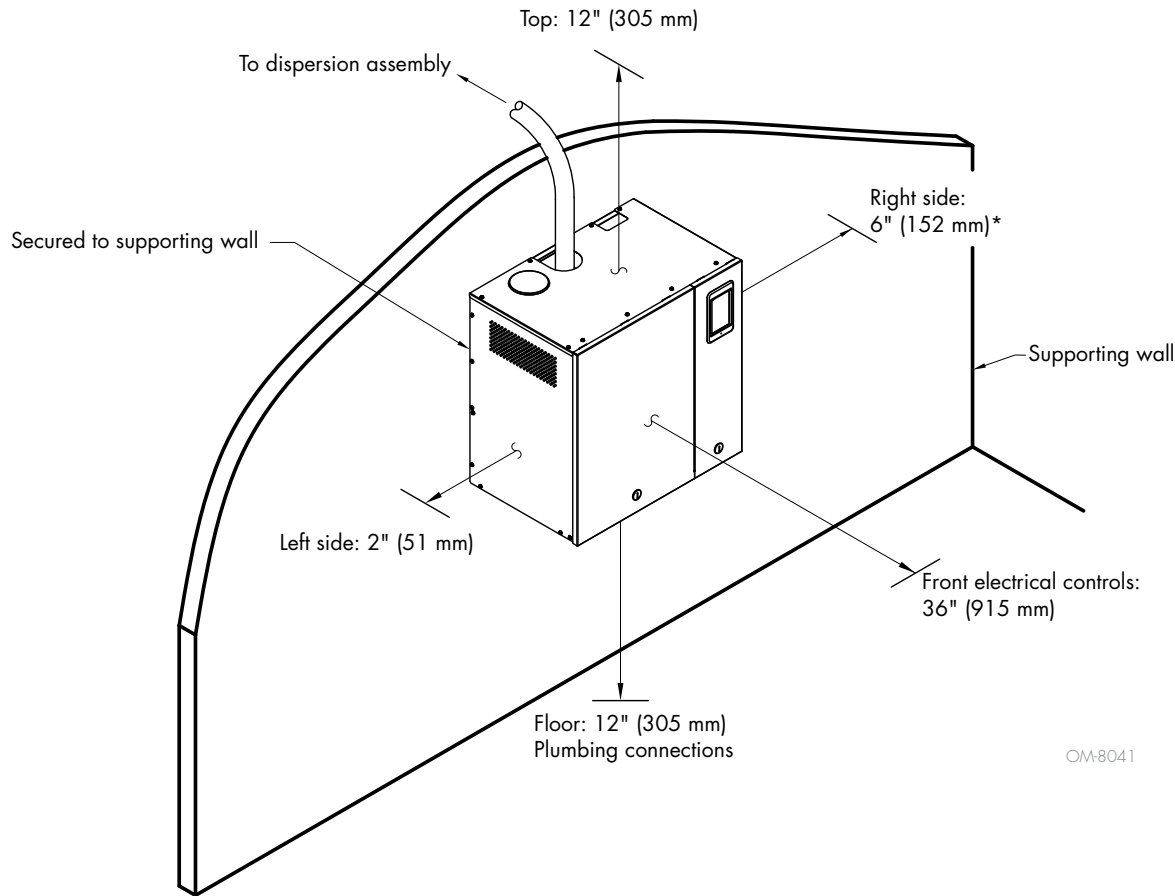
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**Table 10-1:**  
Indoor unit dimensions

	Description	RX-XX-3 & RX-XX-4	
		inches	mm
A	Overall length	37.4	950
B	Overall width	21.6	549
C	Overall height	41.3	1049
D	Steam outlet	5.3	135
E		5.9	150
F	Supply water	5.7	145
G		4.3	109
H	Drain water	4.7	119
J		7.2	183
K	Electrical knockout	8.3	211
L		4.2	107
M	Steam outlet (flange connection only)	3.5	89

**FIGURE 11-1: RX SERIES CLEARANCE RECOMMENDATIONS FOR -1 AND -2 MODELS (INDOOR AND NO ENCLOSURE UNITS)**

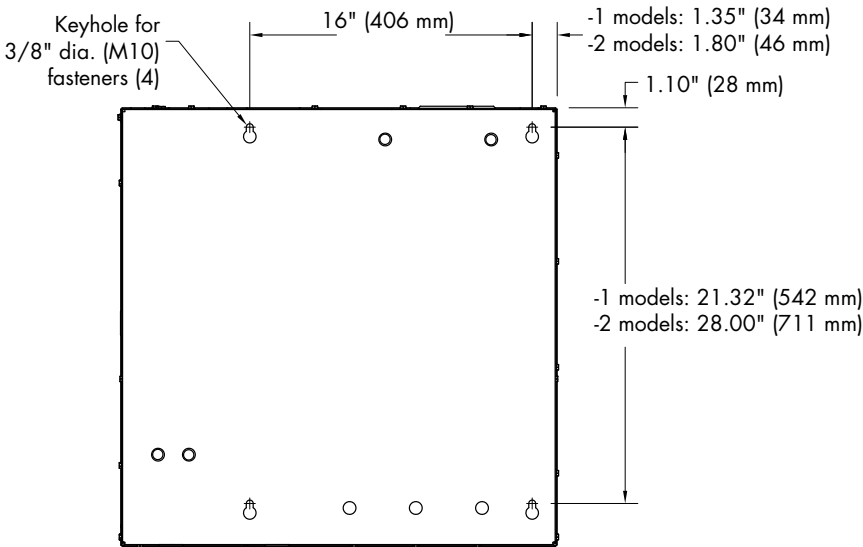
Maintain these clearances for service and maintenance.



OM-8041

\* If there is more space available, increase the clearance on this side of the unit. Infrequent access may be required to the hoses behind the electrical cabinet.

**FIGURE 11-2: RTS HUMIDIFIER MOUNTING KEYHOLE LOCATIONS AND DIMENSIONS**

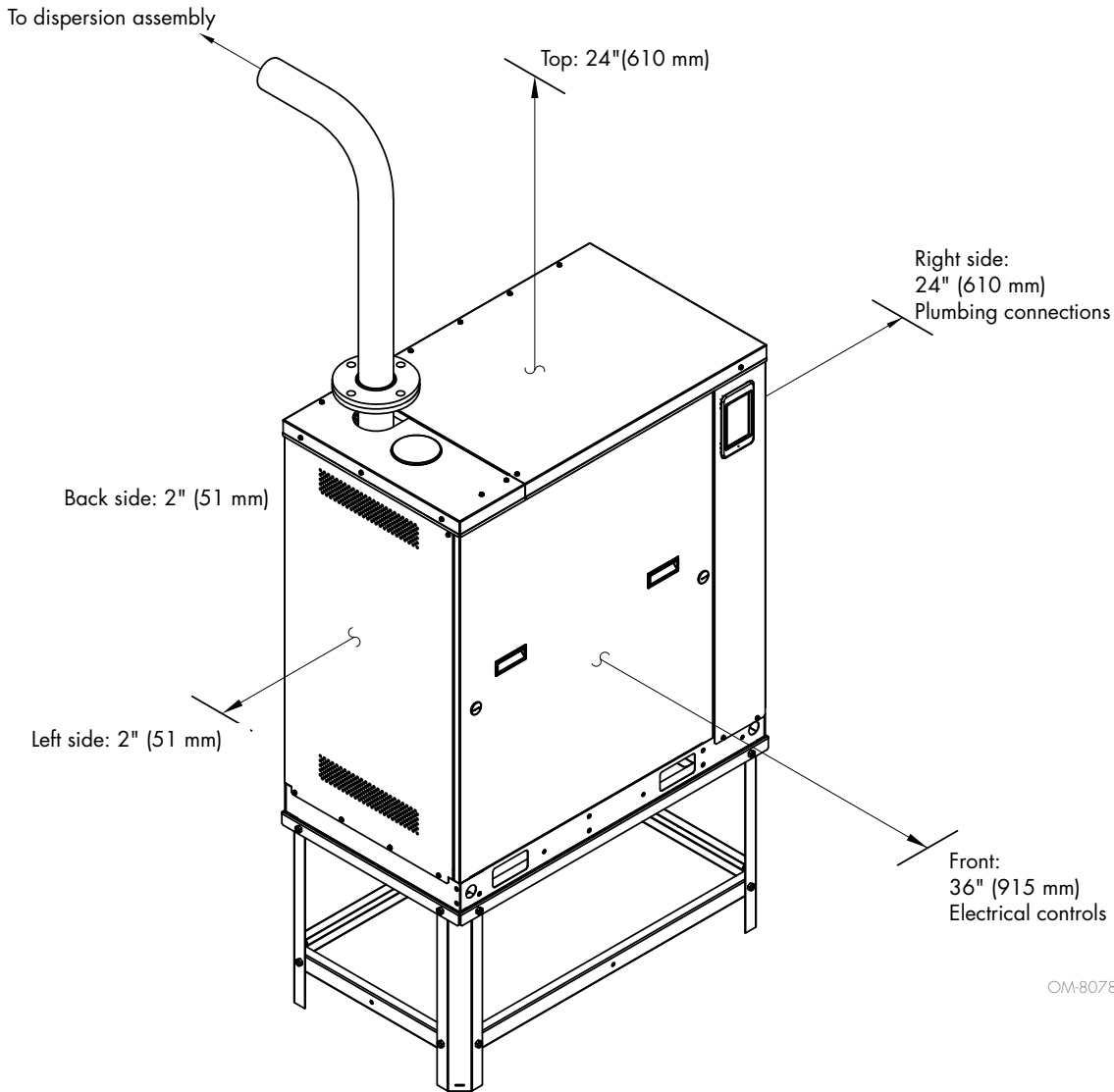


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# Location and clearance recommendations (Indoor and no enclosure)

**FIGURE 12-1: RX SERIES CLEARANCE RECOMMENDATIONS FOR -3 AND -4 MODELS (INDOOR AND NO ENCLOSURE UNITS)**

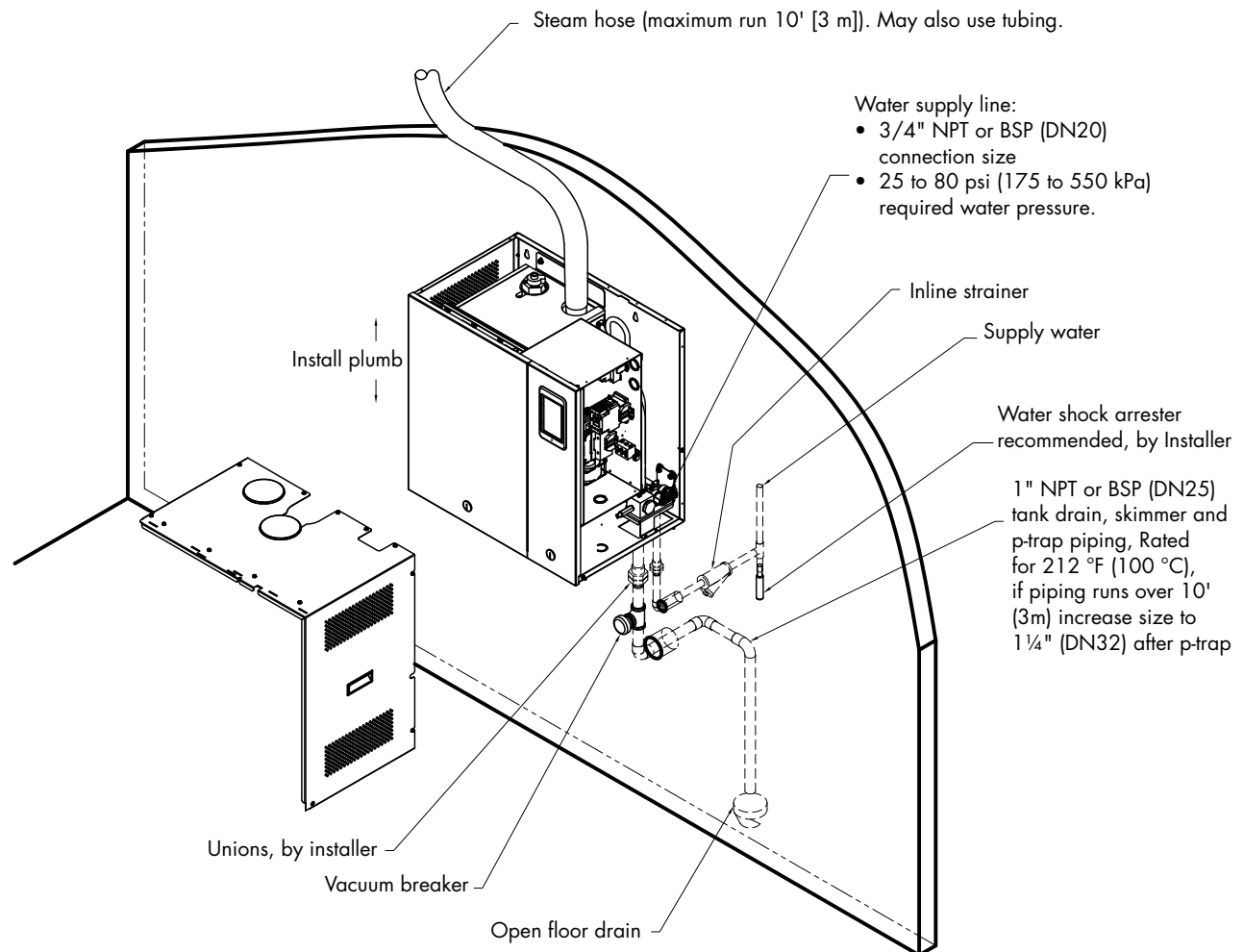
Maintain these clearances for service and maintenance.



**Table 12-1:**  
Floor stand weights and height (for indoor enclosures)

Part number	Unit size	Weight configuration				Height	
		Assembled		Shipping		inches	mm
		lbs	kg	lbs	kg		
600935	-2 stage	26.8	12.2	30.8	14.0	19.25	489
600670	-3 & -4 stage	35.1	16.0	41.1	18.7		

**FIGURE 13-1: RTS HUMIDIFIER FIELD PIPING OVERVIEW FOR -1 AND -2 UNITS**

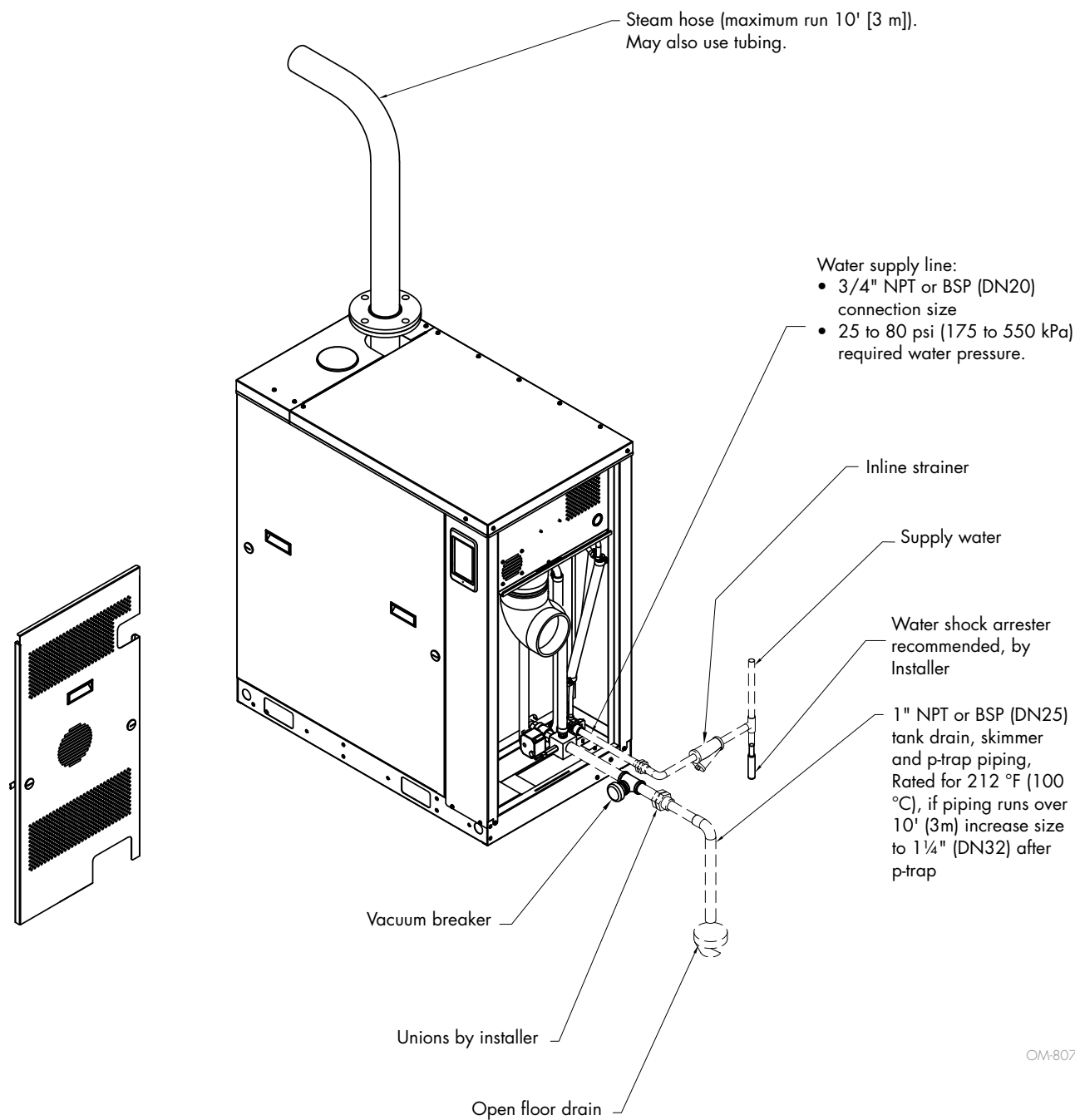


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**Notes:**

- 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.
- Offset humidifier from spill funnel or floor drain to prevent flash steam from rising into the cabinet.
- Dashed lines indicate provided by installer.
- The water supply inlet is more than 1" (25 mm) above the overflow port, eliminating the possibility of backflow or siphoning from the tank. No additional backflow prevention is required; however, governing codes prevail.
- Install a union in the water supply and drain lines as shown to allow tank removal.

**FIGURE 14-1: RTS HUMIDIFIER FIELD PIPING OVERVIEW FOR -3 AND -4 UNITS**



## 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.
- Offset humidifier from spill funnel or floor drain to prevent flash steam from rising into the cabinet.
- Dashed lines indicate provided by installer.
- The water supply inlet is more than 1" (25 mm) above the overflow port, eliminating the possibility of backflow or siphoning from the tank. No additional backflow prevention is required; however, governing codes prevail.
- Install a union in the water supply and drain lines as shown to allow tank removal.

## OUTDOOR ENCLOSURE



*Install a RTS humidifier virtually anywhere. This pre-packaged, factory-installed unit ships complete to the job site, ready for easy-to-connect water and electrical connections.*

Outdoor humidifier operation in any climate is possible with the DriSteem outdoor enclosure. The prepiped, factory-assembled unit ships complete to the job site. Installation is a snap with various mounting options — curb or flush.

**Factory constructed and assembled.** The outdoor enclosure is shipped complete with the humidifier preinstalled and tested. The humidifier is prepiped within the enclosure with an integral water seal, ready for quick connection to water, steam and electricity.

**Install on the ground or on the roof.** Outdoor enclosures are ideal for facilities that have limited interior space.

**Certified, tested and proven.** In-house testing and numerous successful installations have proven that the outdoor enclosure provides reliable operation under extreme conditions.

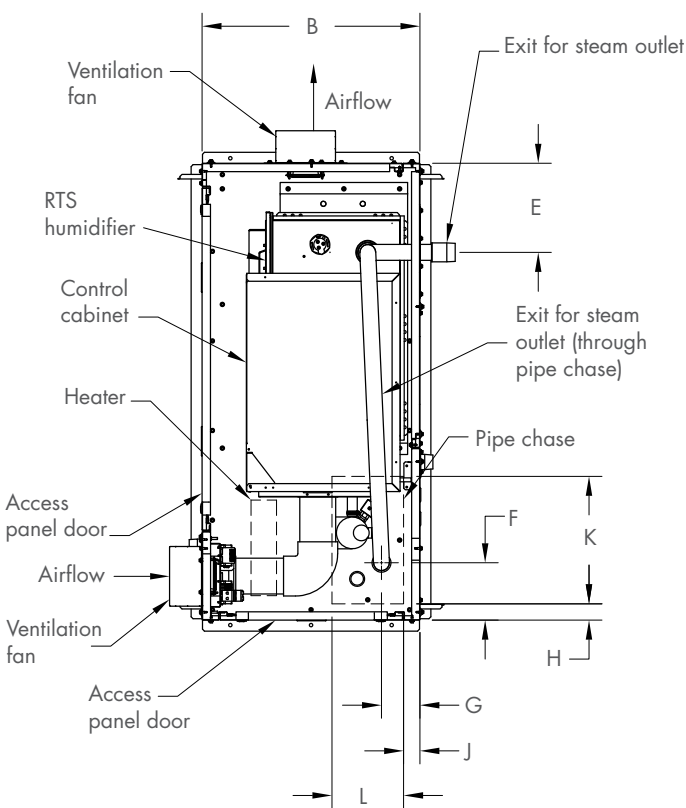
**Easy access for service.** Steel enclosure doors provide full access to internal components. The doors feature quarter turn latches and handles for easy removal.

**Protects in cold and hot climates.** To ensure complete safety and operation in all climates, the outdoor enclosure has supplemental heating and ventilating systems that automatically maintain required operation conditions. DriSteem humidifiers housed in outdoor enclosures operate properly when outdoor temperatures range from  $-40^{\circ}\text{F}$  to  $122^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ ).

**Robust design.** The outdoor enclosure is ruggedly built to completely protect internal components. The enclosure is constructed of heavy-duty galvanized steel and is fully insulated. Gaskets on doors ensure a tight seal.



FIGURE 16-1: OUTDOOR ENCLOSURE DIMENSIONS



OM-8093

Table 16-1:  
Outdoor enclosure dimensions

	Description	RX-XX-1		RX-XX-2		RX-XX-3 and RX-XX-4	
		inches	mm	inches	mm	inches	mm
A	Overall length	53.6	1361	53.6	1361	62.8	1595
B	Overall width	32.8	833	32.8	833	32.8	833
C	Overall height	62.0	1575	62.0	1575	62.0	1575
D	Steam outlet (external)	55.0	1397	55.0	1397	55.0	1397
E		19.5	495	18.9	480	11.1	282
F		5.6	142	6.1	155	8.6	218
G	Steam outlet (internal)	6.7	170	6.7	170	6.2	157
H		4.4	112	4.4	112	4.4	112
J		4.4	112	4.4	112	4.4	112
K	Pipe chase dimensions	14.0	356	14.0	356	14.0	356
L		7.0	178	7.0	178	7.0	178

**FIGURE 17-1: RTS SERIES CLEARANCE RECOMMENDATIONS FOR -1 AND -2 MODELS**

Maintain these clearances for service and maintenance.

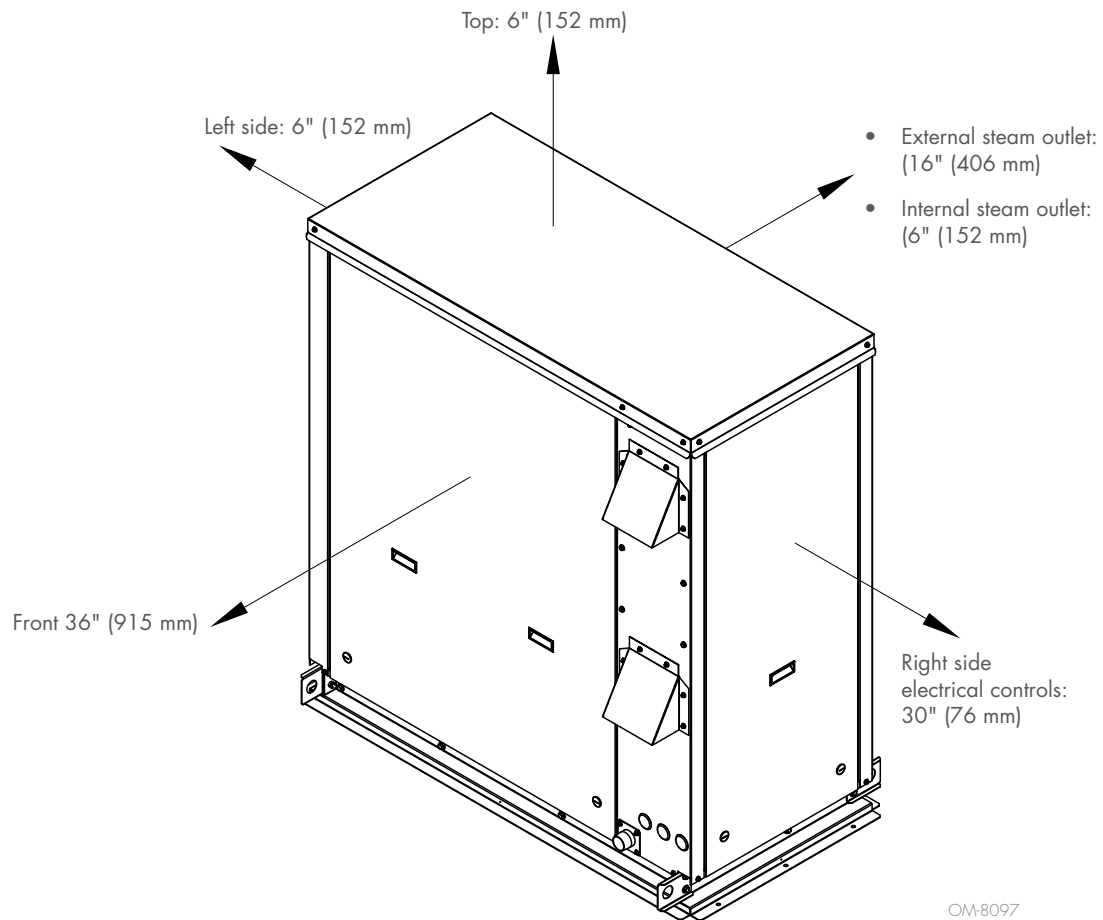


FIGURE 18-1: OUTDOOR ENCLOSURE MOUNTED FLUSH

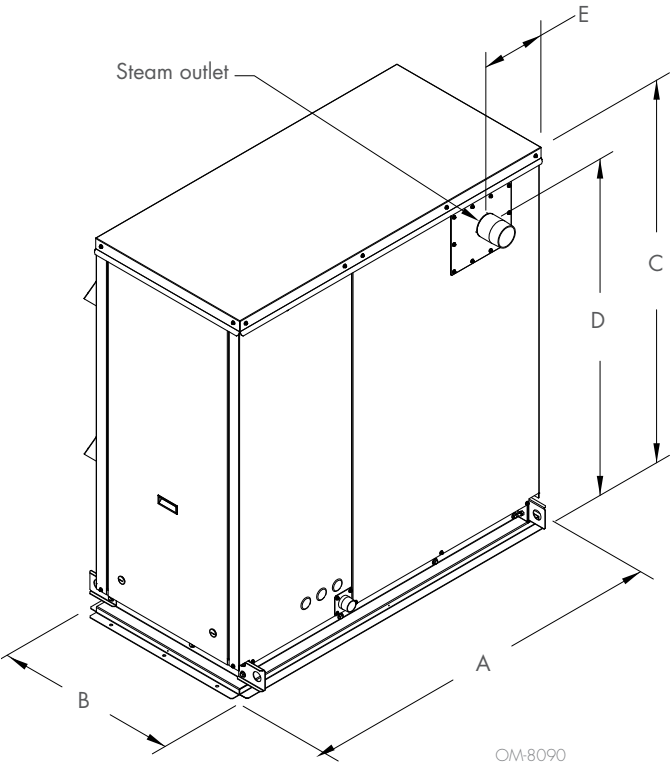
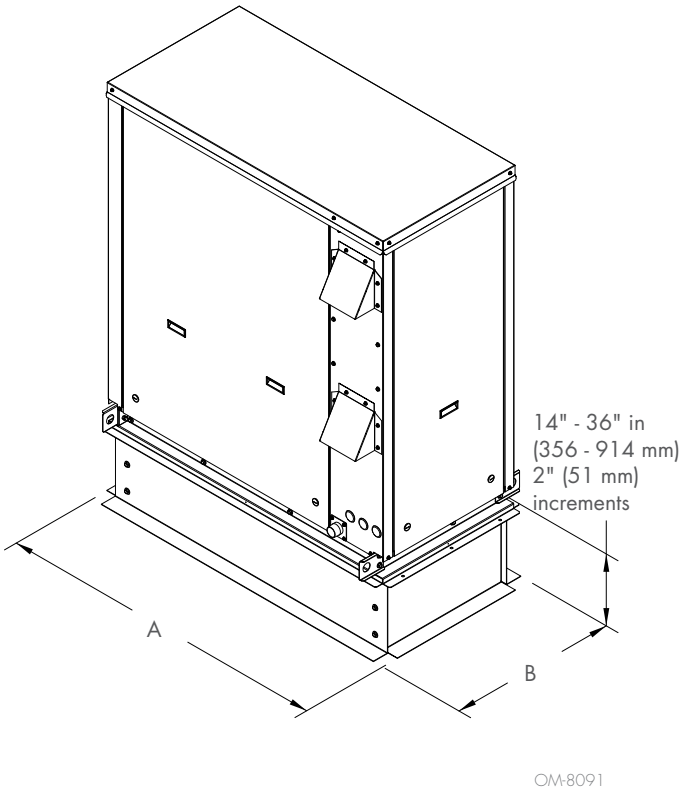


FIGURE 18-2: OUTDOOR ENCLOSURE MOUNTED ON A CURB

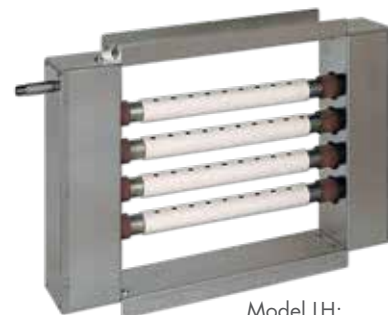


## Models LV and LH: *Most versatile*

- **Disperse pressurized or nonpressurized steam**  
Models LV and LH disperse steam generated by pressurized steam boilers or by nonpressurized steam generators such as DriSteem's GTS, STS, RTS, Vapormist, and XT Series humidifiers.
- **Capacity**  
Pressurized steam: Up to 4000 lbs/hr (1815 kg/h)  
Nonpressurized steam: Up to 1850 lbs/hr (840 kg/h)
- **Options**  
High-Efficiency Insulated Tubes  
316 stainless steel construction  
Seismic certification



Model LV:  
Vertical tubes



Model LH:  
Horizontal tubes

## Model MP: *Lowest total installed cost*

- **Disperse pressurized or nonpressurized steam**  
Model MP disperses steam generated by pressurized steam boilers or by nonpressurized steam generators such as DriSteem's GTS, STS, RTS, Vapormist, and XT Series humidifiers.
- **Same side steam inlet and drain** for reduced piping
- **In-frame drain piping** maximizes available face dimensions and minimizes blank-off requirements.
- **Integral steam header** allows clear space on exterior wall of AHUs or ducts
- **Capacity**  
Pressurized steam: Up to 2720 lbs/hr (1235 kg/h)  
Nonpressurized steam: Up to 700 lbs/hr (318 kg/h)
- **Options**  
High-Efficiency Insulated Tubes  
304 or 316 stainless steel frame



Ultra-sorb Model MP  
Lowest total installed cost



Ultra-sorb Model LV  
with High-Efficiency Tubes

Rapid-sorb  
with High-Efficiency Tubes



## HIGH-EFFICIENCY DISPERSION TUBES OPTION

For new and existing Ultra-sorb, Rapid-sorb, single dispersion tube

- Highest efficiency
- Increases tube capacity up to 6 lbs/hr (2.7 kg/h)
- Up to 85% reduction in wasted energy, airstream heat gain, and condensate production
- Plenum approved for in-duct installation



# RTS steam dispersion options

## RAPID-SORB® DISPERSION TUBE SYSTEM

*Multiple tubes, short non-wetting distance*

- Short non-wetting distance, compared to single dispersion tube
- Horizontal or vertical airflows
- Install Rapid-sorb header inside or outside duct
- Available with High-Efficiency Dispersion Tubes

**Capacity:** Up to 2100 lbs/hr (955 kg/h) per system



Rapid-sorb dispersion tube system

## SINGLE DISPERSION TUBE

*Installation flexibility*

- Low-capacity dispersion for horizontal or vertical airflows.
- Available as a High-Efficiency Dispersion Tube

**Capacity:** Up to 97 lbs/hr (38 kg/h)



Single dispersion tube

## SPACE DISTRIBUTION UNITS

*Quiet, fan-based steam dispersion*

- SDUs mount remotely and are designed for finished spaces

**SDU capacity:** Up to 126 lbs/hr (57 kg/h)



Space distribution unit



DriSteem Corporation  
A subsidiary of Research Products Corporation  
DriSteem U.S. operations are ISO 9001:2015  
certified

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features and specifications are subject to  
change without notice.

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Form No. RTS-CAT-EN-2023-1023

## **EXPECT QUALITY FROM THE INDUSTRY LEADER**

For more than 45 years, DriSteem has been leading the industry with  
creative and reliable humidification solutions. Our focus on quality  
is evident in the construction of DriSteem products, which features  
cleanable, stainless steel construction. DriSteem leads the industry with a  
Two-year Limited Warranty and optional extended warranty.

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