



VAPORSTREAM®

Electric-to-Steam Humidifier

With Vapor-logic® controller

- *Web-enabled access*
- *Interoperability via Modbus® or optional BACnet® or LonTalk®*

High-performance humidification



VAPORSTREAM HUMIDIFIER

Vaporstream humidifiers use heat caused by electrical resistance in submerged heating elements to boil fill water into steam. Vaporstream is compatible with all water types and numerous dispersion options.

APPLICATION VERSATILITY

From providing comfort humidity to meeting the strictest clean-room requirements, the Vaporstream electric humidifier is an industrial-grade unit designed to meet the humidification demands of any building environment. Vaporstream models and options include multiple control capabilities, a broad capacity range, and compatibility with all water types.

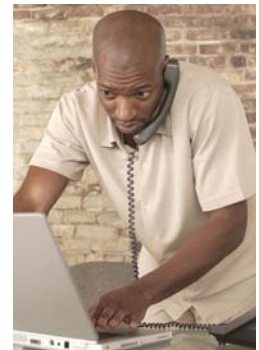
PRECISE CONTROL WITH VAPOR-LOGIC

Vaporstream with Vapor-logic sets new standards for control in electric steam humidification:

Interoperability allows communication with building automation systems via Modbus or with optional BACnet or LonTalk protocols.

Safety presets initiate fill and drain cycles and keep the humidifier cool and safe if sensed conditions, though unlikely, could be hazardous.

Web-enabled control allows you to set up, view, and adjust humidifier functions via Ethernet, either directly or remotely through a network.



drSteam

STATUS
ALARMS
DIAGNOSTICS
SETUP
HELP

System Status

| SPACE RH | SET POINT | OUTPUT |
|----------|-----------|--------|
| 33% | 35% | 12.3% |

RUN MODE Auto

TANK STATUS Boiling

Alarms
0 active alarms
[View Alarms](#)

Messages
0 active messages
[View Messages](#)

Monday, December 03, 2012 10:40:18 AM

Data stream is LIVE

View all humidifier settings below. Some settings can be changed here. Go to the Setup tab to change settings that cannot be changed from this page.

| TANK STATUS: | | |
|-----------------------|-------------|------------------------|
| Run Mode | Auto | CHANGE |
| Space RH | 33% | |
| RH set point | 35% | CHANGE |
| Input signal | 9.3 mA | |
| Steam output | 12.3% | |
| Steam production | 37.4 lbs/hr | |
| Duct HL switch | Closed | |
| Tank temperature | 194°F | |
| Tank temp signal | 1637 Ohms | |
| High water probe | Water | |
| Mid water probe | Water | |
| Low water probe | Water | |
| Fill valve | Closed | |
| Drain valve | Closed | |
| Airflow switch | Flow | |
| Interlock switch | Closed | |
| H2O until drain/flush | 9120 lbs | |
| H2O until service | 304000 lbs | |
| High probe signal | 1 | |
| Mid probe signal | 1 | |
| Low probe signal | 1 | |

PROVEN PERFORMANCE

- Consistent and reliable RH control to $\pm 1\%$
- On-off or time-proportioned (TP) control for application control in most environments; solid-state relay (SSR) option for tighter control
- Electronically monitored water level ensures safe and reliable operation

APPLICATION FLEXIBILITY

- Uses tap, softened, or RO/DI water
- Broad capacity range from 5.7 to 285 lbs/hr (2.6 to 129 kg/h), link up to 16 units for capacity up to 4560 lbs/hr (2068 kg/h)
- Dispersion options from an Area-type fan in open space to dispersion panels in ducts and air handlers meet a wide range of absorption requirements
- Designed to work with any voltage with a wide range of heater sizes, staging options, and model configurations
- Weather cover and climate-controlled outdoor enclosure options

EASY MAINTENANCE

- Cleanout plate and removable cover provide inspection and service access
- Softened water significantly reduces maintenance requirements
- End-of-season autodrain minimizes microbial growth
- User-adjustable water skimmer skims off floating minerals
- Controller-operated drain and flush removes precipitated minerals from evaporating chamber
- Constant thermal expansion and contraction of heating elements continuously sheds mineral buildup
- Easy access to water level control — no components to remove

ADDITIONAL OPTIONS

- 316 stainless steel construction
- Evaporating chamber insulation
- NEMA-4 control cabinet

Vapor-logic controller

KEYPAD/DISPLAY



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.

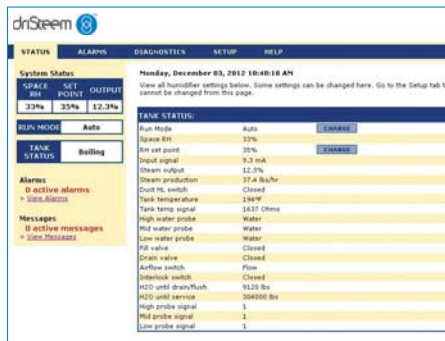
Multiple-humidifier control allows staged control of up to 16 humidifiers with one controller.

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

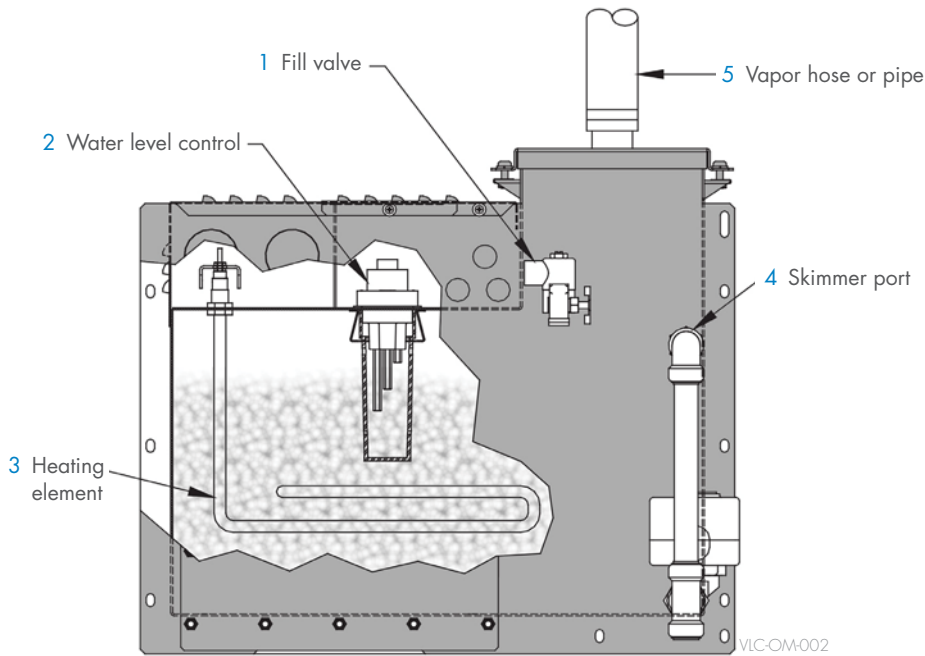
WEB INTERFACE



mc_042710_1500-VLC

VAPORSTREAM PRINCIPLE OF OPERATION

Tap/softened water shown



1. When the system is first activated, the fill valve opens and the evaporating chamber fills with water to the operating level.
2. The operating level is maintained by the water level control.
3. On a call for humidity, the heating elements are energized, causing the water to boil. The fill valve opens and closes as needed to maintain the operating water level.
4. During refill in tap/softened water systems, a portion of the surface water is skimmed off, carrying away precipitated minerals.

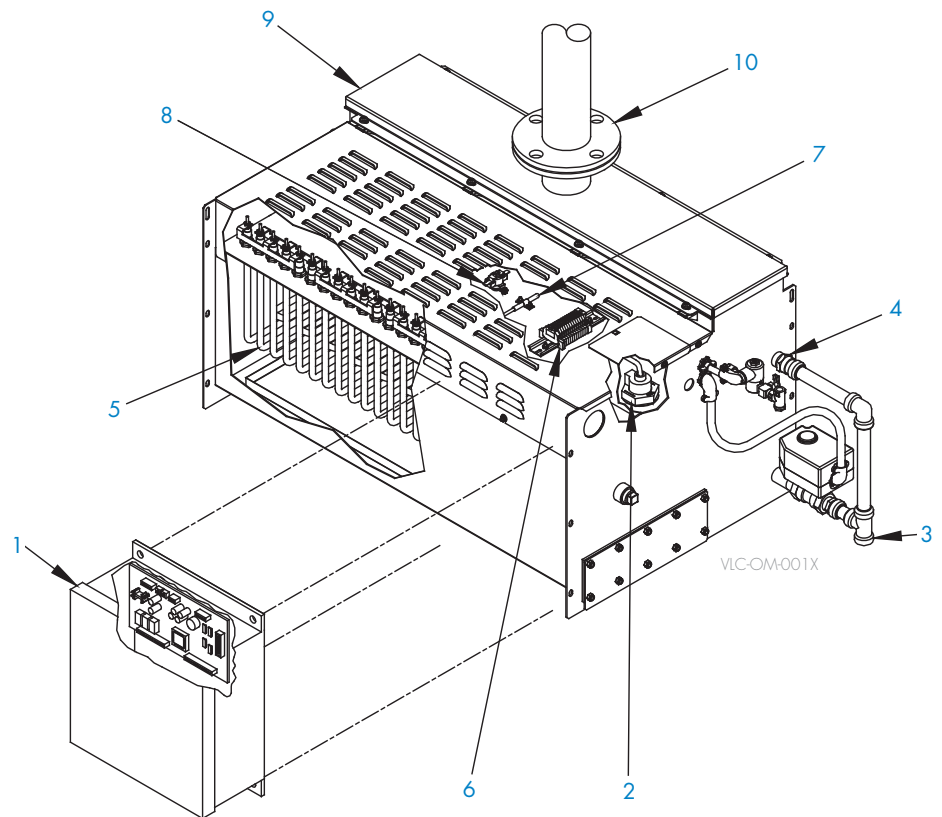
RO/DI water systems (systems using deionized water or water that has been treated using reverse osmosis) do not require skimming.

5. Steam created in the evaporating chamber flows through vapor hose or piping to the dispersion assembly, where it is discharged into the airstream.

VAPOR-LOGIC KEYPAD/DISPLAY



VAPORSTREAM COMPONENTS



1. Vapor-logic controller

Vapor-logic controls all humidifier functions and can connect to a building automation system via Modbus or optional BACnet or LonTalk. See Page 4 for more information.

2. Water level control

Tap/softened water systems control water levels electronically using a three-rod probe, see figure at right.

Systems with the RO/DI water option control water levels using a float valve (see figure at right) and low-water cutoff switch.

3. Drain

Duration and frequency of draining are user adjustable. To avoid possible stagnant water and microbial growth, the humidifier automatically drains if there is no call for humidity after a user-defined time period (72-hour default).

4. Water skimmer/overflow port

In tap/softened water systems, the water skimmer reduces surface minerals in the evaporating chamber. Skimming occurs each time the humidifier fills. The skim time duration is user-adjustable.

In systems with the RO/DI water option, skimming is not required; the skimmer port functions as an overflow port.

5. Heating elements

Low-watt-density Incoloy-sheathed heating elements ensure operation for many seasons. Constant expansion and contraction of heating elements sheds mineral scale. In the unlikely event of heater failure, heating elements can be removed easily.

6. Terminal strip

All control wiring connections at the humidifier can be made in this single location.

7. Temperature sensor

Mounted on the evaporating chamber, this sensor enables:

- Over-temperature protection
- Freeze protection
- Preheating, allowing rapid response to a call for humidity

8. Over-temperature thermostat

This safety device shuts down the humidifier if it becomes too hot. This is one of three levels of safety protection that also includes the temperature sensor and the water level control system.

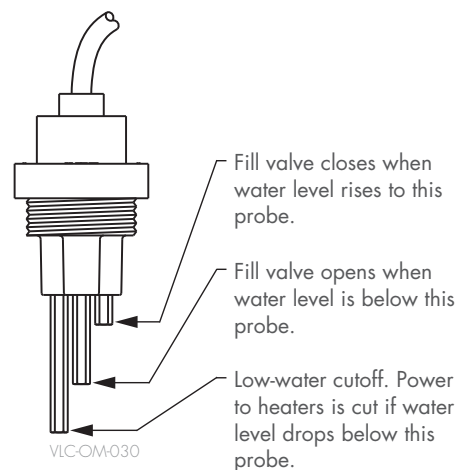
9. Service access

Access cover allows periodic inspection and servicing of the evaporating chamber.

10. Steam outlet

Steam generated in the humidifier rises through the steam outlet and travels to the dispersion assembly through vapor hose or piping.

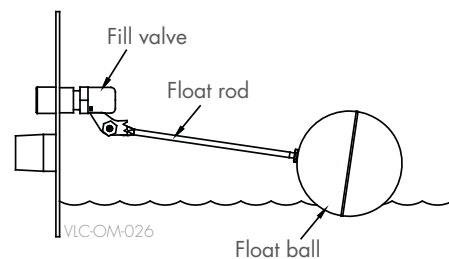
WATER LEVEL CONTROL FOR TAP/ SOFTENED WATER HUMIDIFIER



Humidifiers using tap or softened water control water levels electronically using a three-rod probe. The controller responds with the above actions when the water level reaches each rod.

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WATER LEVEL CONTROL FOR RO/DI WATER OPTION HUMIDIFIER



Humidifiers using RO/DI water control water levels using a float valve and low-water cutoff switch.

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Vaporstream capacities and electrical specifications

Table 8-1:
Vaporstream VLC capacities and electrical specifications, tap/softened water and RO/DI water

| Model (kW- stages) | Maximum steam capacity † | | Heaters | | Current draw (amps) | | | | | | | | | | | kW |
|--------------------------|--------------------------------|-------|----------|---|---------------------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|------|
| | | | | | Single-phase | | | | | | Three-phase*** | | | | | |
| | | | | | 120V | 208V* | 240V* | 277V* | 480V* | 600V* | 208V* | 240V* | 277V* | 480V* | 600V* | |
| lbs/hr | kg/h | Qty. | Stages** | | | | | | | | | | | | | |
| 2-1 | 5.7 | 2.6 | 1 | 1 | 16.7 | 9.6 | 8.3 | 7.2 | 4.2 | 3.3 | — | — | — | — | — | 2 |
| 3-1 | 8.6 | 3.9 | 1 | 1 | 25.0 | 14.4 | 12.5 | 10.8 | 6.3 | 5.0 | — | — | — | — | — | 3 |
| 4-1 | 11.4 | 5.2 | 1 | 1 | 33.3 | 19.2 | 16.7 | 14.4 | 8.3 | 6.7 | — | — | — | — | — | 4 |
| 5-1 | 15.2 | 6.9 | 1 | 1 | 44.4 | 25.6 | 22.2 | 19.2 | 11.1 | 8.9 | — | — | — | — | — | 5.33 |
| 6-1 | 17.1 | 7.8 | 3 | 1 | — | 28.8 | 25.0 | 21.7 | 12.5 | 10.0 | 16.7 | 14.4 | 12.5 | 7.2 | 5.8 | 6 |
| 9-1 | 25.7 | 11.7 | 3 | 1 | — | 43.3 | 37.5 | 32.5 | 18.8 | 15.0 | 25.0 | 21.7 | 18.8 | 10.8 | 8.7 | 9 |
| 12-1 | 34.2 | 15.5 | 3 | 1 | — | — | — | 43.3 | 25.0 | 20.0 | 33.3 | 28.9 | 25.0 | 14.4 | 11.5 | 12 |
| 16-1 | 45.6 | 20.7 | 3 | 1 | — | — | — | — | 33.3 | 26.7 | 44.4 | 38.5 | 33.3 | 19.2 | 15.4 | 16 |
| 21-1 | 59.9 | 27.2 | 3 | 1 | — | — | — | — | 43.8 | 35.0 | — | — | 43.8 | 25.3 | 20.2 | 21 |
| 25-1 | 71.3 | 32.3 | 3 | 1 | — | — | — | — | — | 41.7 | — | — | — | 30.1 | 24.1 | 25 |
| 12-2 | 34.2 | 15.5 | 6 | 2 | — | 57.7 | 50.0 | 43.3 | 25.0 | 20.0 | 33.3 | 28.9 | 25.0 | 14.4 | 11.5 | 12 |
| 18-2 | 51.3 | 23.3 | 6 | 2 | — | 86.5 | 75.0 | 65.0 | 37.5 | 30.0 | 50.0 | 43.3 | 37.5 | 21.7 | 17.3 | 18 |
| 24-2 | 68.4 | 31.0 | 6 | 2 | — | — | — | 86.6 | 50.0 | 40.0 | 66.6 | 57.7 | 50.0 | 28.9 | 23.1 | 24 |
| 32-2 | 91.2 | 41.4 | 6 | 2 | — | — | — | — | 66.7 | 53.3 | 88.8 | 77.0 | 66.7 | 38.5 | 30.8 | 32 |
| 42-2 | 119.7 | 54.3 | 6 | 2 | — | — | — | — | 87.5 | 70.0 | — | — | 87.5 | 50.5 | 40.4 | 42 |
| 50-2 | 142.5 | 64.6 | 6 | 2 | — | — | — | — | — | 83.3 | — | — | — | 60.1 | 48.1 | 50 |
| 18-3 | 51.3 | 23.3 | 9 | 3 | — | 86.5 | 75.0 | 65.0 | 37.5 | 30.0 | 50.0 | 43.3 | 37.5 | 21.7 | 17.3 | 18 |
| 27-3 | 77.0 | 34.9 | 9 | 3 | — | 129.8 | 112.5 | 97.5 | 56.3 | 45.0 | 74.9 | 65.0 | 56.3 | 32.5 | 26.0 | 27 |
| 36-3 | 102.6 | 46.5 | 9 | 3 | — | — | — | 130.0 | 75.0 | 60.0 | 99.9 | 86.6 | 75.0 | 43.3 | 34.6 | 36 |
| 48-3 | 136.8 | 62.1 | 9 | 3 | — | — | — | — | 100.0 | 80.0 | 133.2 | 115.5 | 100.0 | 57.7 | 46.2 | 48 |
| 63-3 | 179.6 | 81.5 | 9 | 3 | — | — | — | — | 131.3 | 105.0 | — | — | 131.3 | 75.8 | 60.6 | 63 |
| 75-3 | 213.8 | 97.0 | 9 | 3 | — | — | — | — | — | 125.0 | — | — | — | 90.2 | 72.2 | 75 |
| 24-4 | 68.4 | 31.0 | 12 | 4 | — | 115.4 | 100.0 | 86.6 | 50.0 | 40.0 | 66.6 | 57.7 | 50.0 | 28.9 | 23.1 | 24 |
| 36-4 | 102.6 | 46.5 | 12 | 4 | — | 173.1 | 150.0 | 130.0 | 75.0 | 60.0 | 99.9 | 86.6 | 75.0 | 43.3 | 34.6 | 36 |
| 48-4 | 136.8 | 62.1 | 12 | 4 | — | — | — | 173.3 | 100.0 | 80.0 | 133.2 | 115.5 | 100.0 | 57.7 | 46.2 | 48 |
| 64-4 | 182.4 | 82.7 | 12 | 4 | — | — | — | — | 133.3 | 106.7 | 177.6 | 154.0 | 133.4 | 77.0 | 61.6 | 64 |
| 84-4 | 239.4 | 108.6 | 12 | 4 | — | — | — | — | 175.0 | 140.0 | — | — | 175.1 | 101.0 | 80.8 | 84 |
| 100-4 | 285.0 | 129.3 | 12 | 4 | — | — | — | — | — | 166.7 | — | — | — | 120.3 | 96.2 | 100 |

* If using an optional SDU or Area-type fan unit for dispersion, run a neutral line with 208V/240V/single-phase and 208V/three-phase power supply lines to provide a 120V circuit for the fan. With all other power supply voltages (other than 120V), provide a separate 120V circuit for the fan, or order from DriSteem a transformer installed in the control cabinet.

** Heater stage identifies the number of contactors.

*** Three-phase power supply connection. All heater loads are wired Delta.

† Total humidifier load = load to meet design conditions + load to compensate for steam loss from the dispersion assembly and interconnecting piping. If total humidifier load is more than the humidifier's maximum capacity, design conditions will not be met. For steam loss data see the *DriSteem Design Guide* available for downloading and printing at www.drirsteem.com

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Table 9-1:

Vaporstream VLC weights and control cabinet sizes, tap/softened water and RO/DI water

| Model (kW-stages) | Shipping weight | | Operating weight † | | Control cabinet size* (M, L, XL, XXL) | | | | | | | | | | |
|----------------------|-----------------|----|--------------------|-----|--|------|------|------|------|------|-------------------|------|------|------|------|
| | lbs | kg | lbs | kg | Single-phase power | | | | | | Three-phase power | | | | |
| | | | | | 120V | 208V | 240V | 277V | 480V | 600V | 208V | 240V | 277V | 480V | 600V |
| 2-1 | 35 | 16 | 79 | 36 | M | M | M | M | M | M | — | — | — | — | — |
| 3-1 | 35 | 16 | 79 | 36 | M | M | M | M | M | M | — | — | — | — | — |
| 4-1 | 35 | 16 | 79 | 36 | M | M | M | M | M | M | — | — | — | — | — |
| 5-1 | 35 | 16 | 79 | 36 | M | M | M | M | M | M | — | — | — | — | — |
| 6-1 | 57 | 26 | 157 | 71 | — | M | M | M | M | M | M | M | M | M | M |
| 9-1 | 57 | 26 | 157 | 71 | — | M | M | M | M | M | M | M | M | M | M |
| 12-1 | 57 | 26 | 157 | 71 | — | — | — | M | M | M | M | M | M | M | M |
| 16-1 | 57 | 26 | 157 | 71 | — | — | — | — | M | M | M | M | M | M | M |
| 21-1 | 57 | 26 | 157 | 71 | — | — | — | — | M | M | — | — | M | M | M |
| 25-1 | 57 | 26 | 157 | 71 | — | — | — | — | — | M | — | — | — | M | M |
| 12-2 | 79 | 36 | 237 | 108 | — | L | L | L | L | L | L | L | L | L | L |
| 18-2 | 79 | 36 | 237 | 108 | — | L | L | L | L | L | L | L | L | L | L |
| 24-2 | 79 | 36 | 237 | 108 | — | — | — | L | L | L | L | L | L | L | L |
| 32-2 | 79 | 36 | 237 | 108 | — | — | — | — | L | L | L | L | L | L | L |
| 42-2 | 79 | 36 | 237 | 108 | — | — | — | — | L | L | — | — | L | L | L |
| 50-2 | 79 | 36 | 237 | 108 | — | — | — | — | — | L | — | — | — | L | L |
| 18-3 | 110 | 50 | 326 | 148 | — | L | L | L | L | L | L | L | L | L | L |
| 27-3 | 110 | 50 | 326 | 148 | — | XL | L | L | L | L | L | L | L | L | L |
| 36-3 | 110 | 50 | 326 | 148 | — | — | — | XL | L | L | L | L | L | L | L |
| 48-3 | 110 | 50 | 326 | 148 | — | — | — | — | L | XXL | XL | L | L | L | L |
| 63-3 | 110 | 50 | 326 | 148 | — | — | — | — | XL | XXL | — | — | L | L | L |
| 75-3 | 110 | 50 | 326 | 148 | — | — | — | — | — | XXL | — | — | — | L | XXL |
| 24-4 | 153 | 70 | 427 | 194 | — | L | L | L | L | L | L | L | L | L | L |
| 36-4 | 153 | 70 | 427 | 194 | — | XL | XL | XL | L | L | L | L | L | L | L |
| 48-4 | 153 | 70 | 427 | 194 | — | — | — | XL | L | L | XL | L | L | L | L |
| 64-4 | 153 | 70 | 427 | 194 | — | — | — | — | XL | XXL | XL | XL | XL | L | L |
| 84-4 | 153 | 70 | 427 | 194 | — | — | — | — | XL | XXL | — | — | XL | L | L |
| 100-4 | 153 | 70 | 427 | 194 | — | — | — | — | — | XXL | — | — | — | L | XXL |

* Control cabinet sizes in this table are for the largest required cabinet for each model. Depending on Vaporstream options chosen you may receive a smaller cabinet than the one shown in this table. Contact DriSteem if you need more detailed information about control cabinet sizes. See control cabinet dimensions in the next section.

† Operating weight does not include control cabinet. See control cabinet weights in the next section.

Vaporstream dimensions

Table 10-1:
Vaporstream VLC dimensions, tap/softened water and RO/DI water

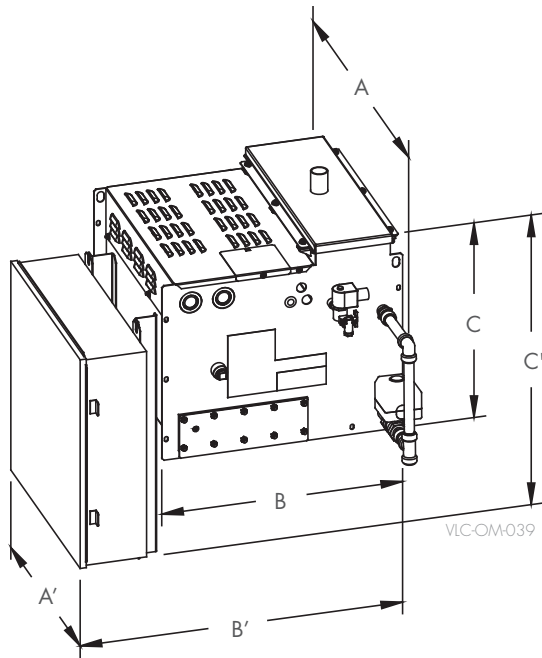
| Model (kW - stages) | Without mounted control cabinet | | | | | | |
|-------------------------------------|---------------------------------|-------------------------------------|-----------|--------------|------------|---------------|------|
| | A (length) | | B (width) | | C (height) | | |
| | inches | mm | inches | mm | inches | mm | |
| 2-1, 3-1, 4-1, 5-1 | 16.52 | 420 | 26.00 | 660 | 18.88 | 480 | |
| 6-1, 9-1, 12-1, 16-1, 21-1, 25-1 | 22.25 | 565 | 22.00 | 559 | 18.88 | 480 | |
| 12-2, 18-2, 24-2, 32-2, 42-2, 50-2 | 29.72 | 755 | 22.00 | 559 | 18.88 | 480 | |
| 18-3, 27-3, 36-3, 48-3, 63-3, 75-3 | 37.22 | 945 | 22.00 | 559 | 18.88 | 480 | |
| 24-4, 36-4, 48-4, 64-4, 84-4, 100-4 | 44.72 | 1136 | 22.00 | 559 | 18.88 | 480 | |
| Model (kW - stages) | Max. control cabinet size | With mounted control cabinet option | | | | | |
| | | A' (length 2) | | B' (width 2) | | C' (height 2) | |
| | | inches | mm | inches | mm | inches | mm |
| 2-1, 3-1, 4-1, 5-1 | M | 21.22 | 539 | 34.00 | 864 | 30.31 | 770 |
| 6-1, 9-1, 12-1, 16-1, 21-1, 25-1 | M | 26.90 | 683 | 30.00 | 762 | 30.31 | 770 |
| 12-2, 18-2, 24-2, 32-2, 42-2, 50-2 | L | 30.90 | 785 | 30.00 | 762 | 34.11 | 866 |
| 18-3, 27-3, 36-3, 48-3, 63-3, 75-3 | XXL | 37.22 | 945 | 32.00 | 813 | 46.11 | 1171 |
| 24-4, 36-4, 48-4, 64-4, 84-4, 100-4 | XXL | 44.72 | 1136 | 32.00 | 813 | 46.11 | 1171 |

Notes:

- For all Vaporstream models with optional insulation, add 1" (25 mm) to dimensions A, C, and C'.
- Dimensions are largest possible for these models. Actual dimensions may be smaller.

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VAPORSTREAM VLC DIMENSIONS, TAP/SOFTENED WATER AND RO/DI WATER



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CONTROL CABINET FEATURES

The standard Vaporstream control cabinet is an ETL- and C-ETL-listed NEMA-12 cabinet and is shipped loose. Control cabinet options include:

- Factory mounting on humidifier
- NEMA-4 cabinet
- Cabinet door interlock switch
- Cabinet door lock

The control cabinet's size is based on capacity and system options. See Table 11-1 below and Table 9-1 for cabinet sizing by model.

The control cabinet can be mounted up to 50' (15 m) from the Vaporstream. The keypad can be mounted up to 500' (152 m) from the control cabinet. (Distances are based on wire/cable lengths.)

VAPORSTREAM MODEL 6-1 WITH MOUNTED CONTROL CABINET



Table 11-1:
Standard control cabinet dimensions and weights

| Cabinet size | Cabinet dimensions | | Shipping weight* | |
|--------------|--------------------|-----------------------|------------------|----|
| | inches | mm | lbs | kg |
| S | 16 h x 14 w x 6 d | 406 h x 356 w x 152 d | 32 | 15 |
| M | 20 h x 20 w x 7 d | 508 h x 508 w x 178 d | 55 | 25 |
| L | 24 h x 24 d x 7 d | 610 h x 610 w x 178 d | 73 | 33 |
| XL | 30 h x 24 w x 9 d | 762 h x 610 w x 229 d | 91 | 41 |
| XXL | 36 h x 30 w x 9 d | 914 h x 762 w x 229 d | 136 | 62 |

* Weight does not include humidifier.

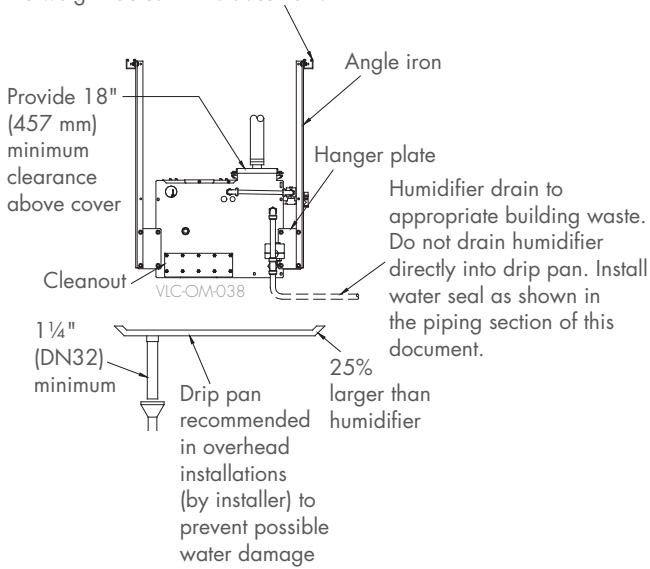
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Vaporstream mounting

TRAPEZE HANGER

Vaporstream Models 2-1 through 5-1

Secure channel to an overhead structure that is strong enough to support the Vaporstream's operating weight. See the weight tables in this document.



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Vaporstream Models 6-1 through 100-4

Secure rods to an overhead structure that is strong enough to support the Vaporstream's operating weight. See the weight tables in this document.

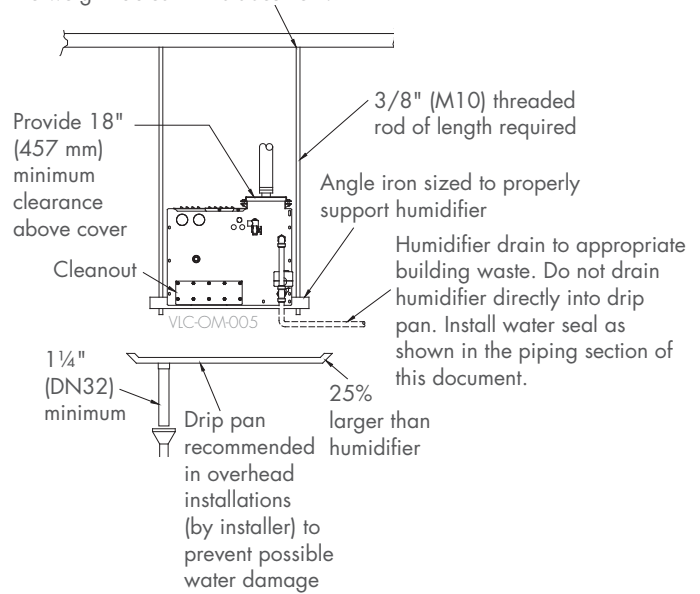
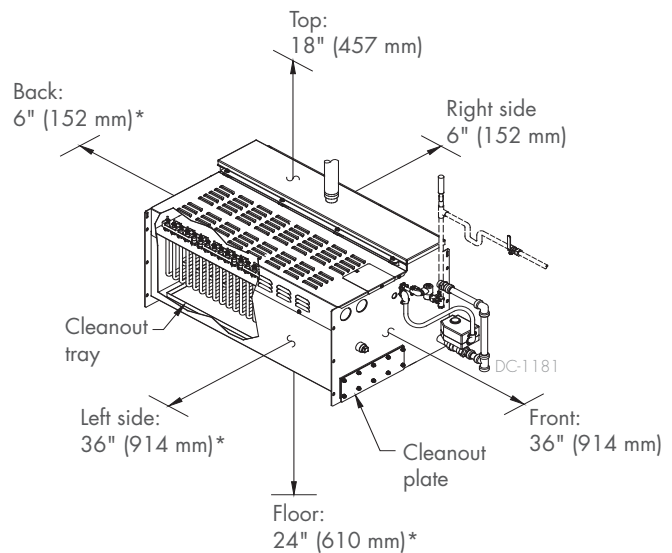


Table 12-1:
Mounting options by model

| Mounting method | Models | | | |
|-------------------|--------------------|----------|------------------|----------|
| | 2-1, 3-1, 4-1, 5-1 | | All other models | |
| | Standard | Optional | Standard | Optional |
| Trapeze | X | | X | |
| Support legs | | | | X |
| Wall brackets | X | | | X |
| Weather cover | | X | | X |
| Outdoor enclosure | | X | | X |

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VAPORSTREAM CLEARANCE RECOMMENDATIONS



* When the control cabinet is mounted on the Vaporstream, provide 36" (914 mm) clearance from the front of the control cabinet and 6" (152 mm) from the bottom of the cabinet to the floor.

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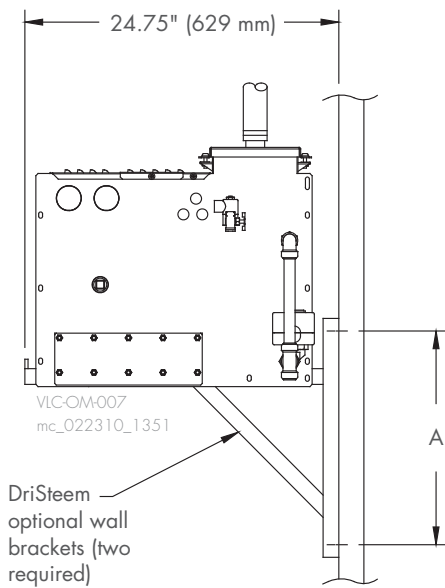
Table 13-1:
Wall brackets Dimension A (center to center of mounting holes)

| Vaporstream model | inches | mm |
|---|--------|-----|
| One-heater models: 2-1, 3-1, 4-1, 5-1 | 17 | 432 |
| Three-heater models: 6-1, 9-1, 12-1, 16-1, 21-1, 25-1 | 17 | 432 |
| Six-heater models: 12-2, 18-2, 24-2, 32-2, 42-2, 50-2 | 17 | 432 |
| Nine-heater models*: 18-3, 27-3, 36-3, 48-3, 63-3, 75-3 | 28 | 711 |
| Twelve-heater models*: 24-4, 36-4, 48-4, 64-4, 84-4, 100-4 | 34 | 864 |

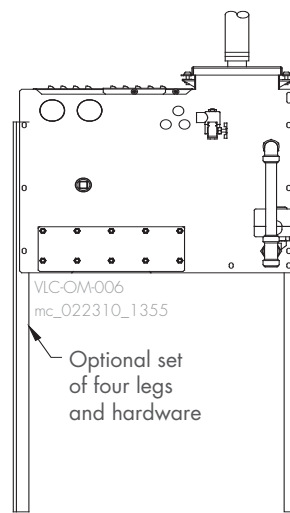
* Wall bracket installation on metal stud walls is not recommended for nine-heater and twelve-heater models.

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WALL BRACKETS

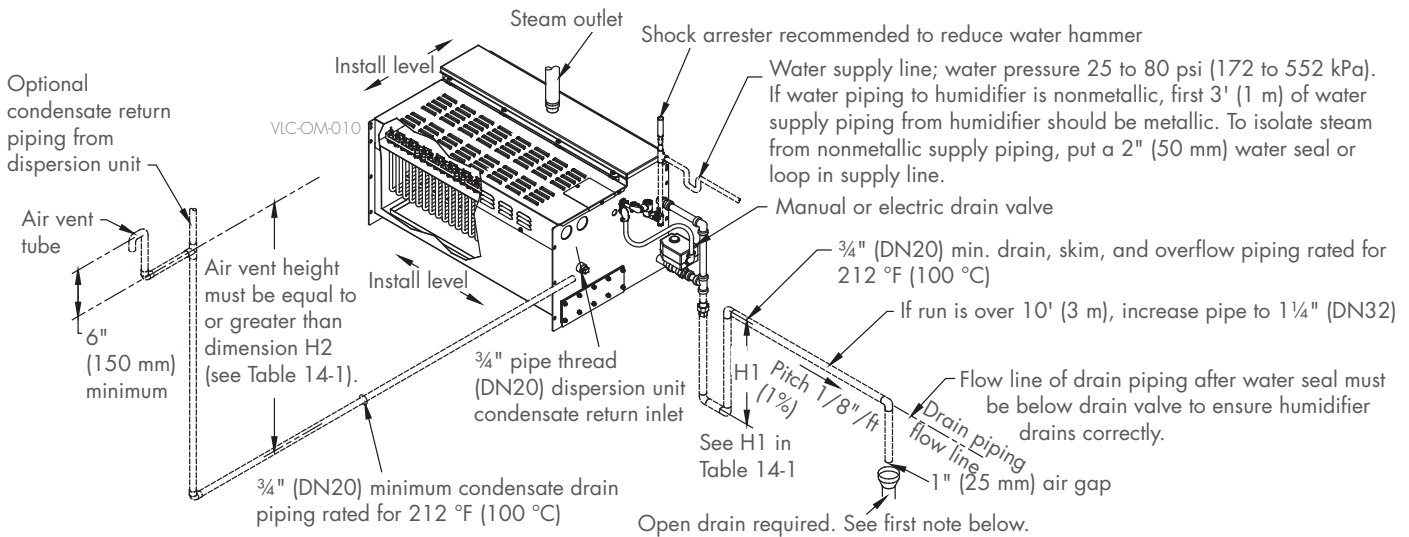


SUPPORT LEGS



Vaporstream piping: Tap/softened water

FIELD PIPING OVERVIEW, VAPORSTREAM VLC WITH TAP/SOFTENED WATER



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 floor drain to prevent flash steam from rising into the humidifier.
- Dashed lines indicate provided by installer.
- The water supply inlet is more than 1" (25 mm) above the skim/overflow port, eliminating the possibility of backflow or siphoning from the tank. No additional backflow prevention is required; however, governing codes prevail.
- Damage caused by chloride corrosion is not covered by your DriSteam warranty.

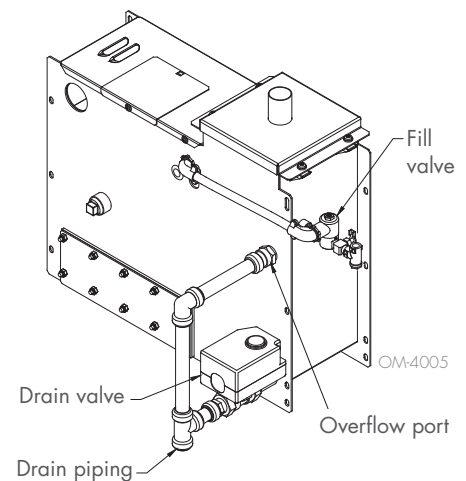
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Table 14-1:
Heights required to overcome Vaporstream internal pressure (H1, H2)

| Unit output | | | Water seal height (H1) | | Air vent height (H2) | |
|-------------|---------|-------|------------------------|-----|----------------------|-----|
| kW | lbs/hr | kg/h | inches | mm | inches | mm |
| ≤ 48 | ≤ 138 | ≤ 62 | 12 | 305 | 22.5 | 572 |
| 49-64 | 139-183 | 63-83 | 15 | 381 | 27.5 | 699 |
| > 64 | > 183 | > 83 | 18 | 457 | 30.5 | 775 |

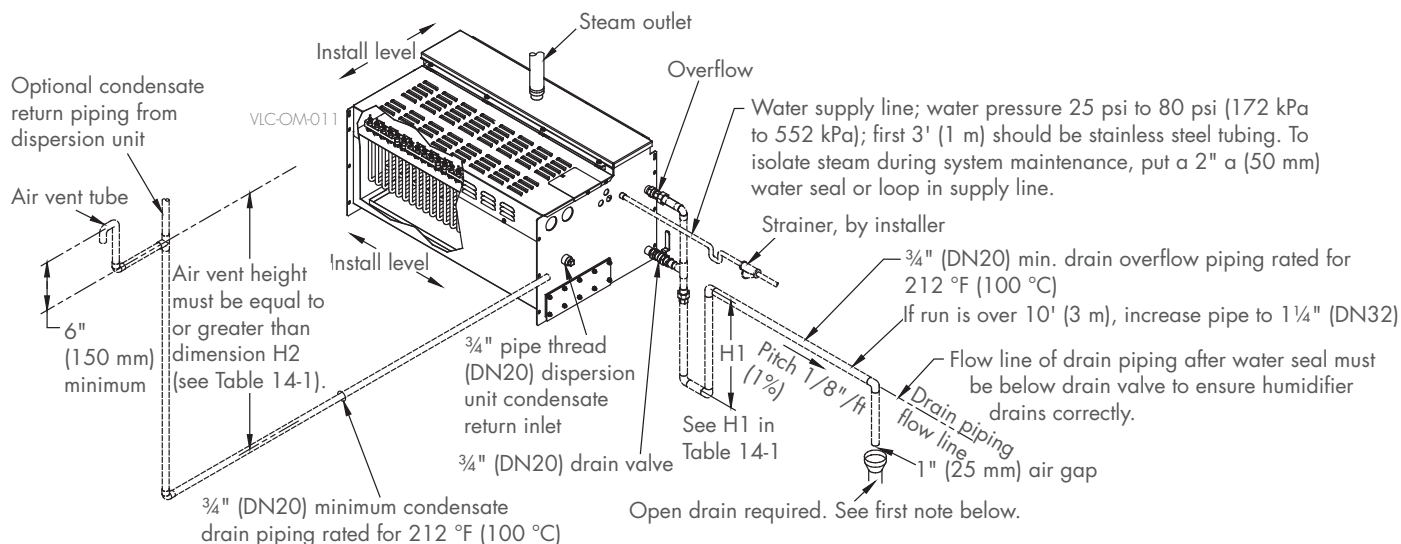
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PIPING, VAPORSTREAM VLC WITH TAP/SOFTENED WATER, MODELS 2-1 THROUGH 5-1



mc_030210_1800

FIELD PIPING OVERVIEW, VAPORSTREAM VLC WITH RO/DI WATER OPTION



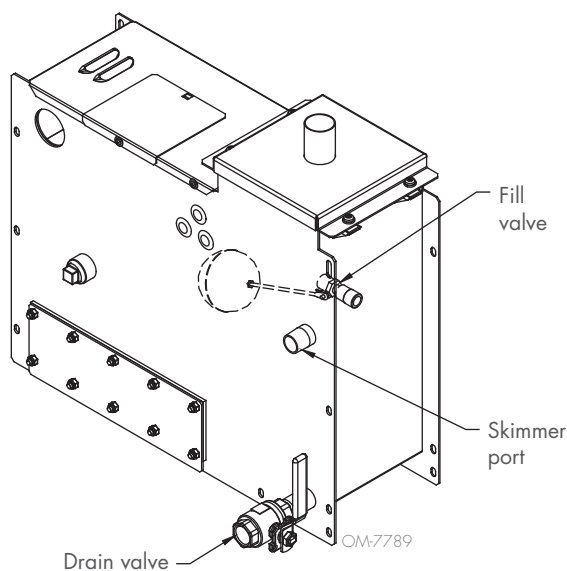
Notes:

- 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 floor drain to prevent flash steam from rising into the humidifier.
- 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.
- Damage caused by chloride corrosion is not covered by your DriSteam warranty.

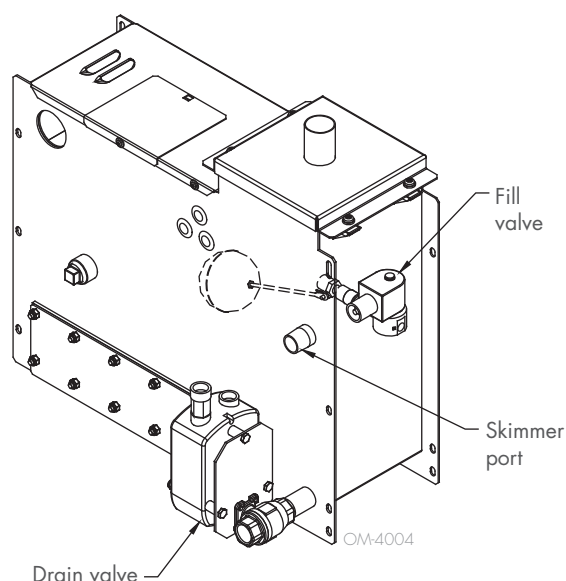
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FILL AND DRAIN ALTERNATIVES FOR VAPORSTREAM HUMIDIFIERS WITH THE RO/DI WATER OPTION

Without end-of-season drain

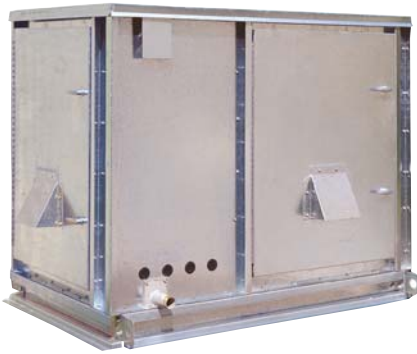


With optional end-of-season drain



Vaporstream outdoor enclosure overview

OUTDOOR ENCLOSURE



Install a Vaporstream 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, legs, 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.

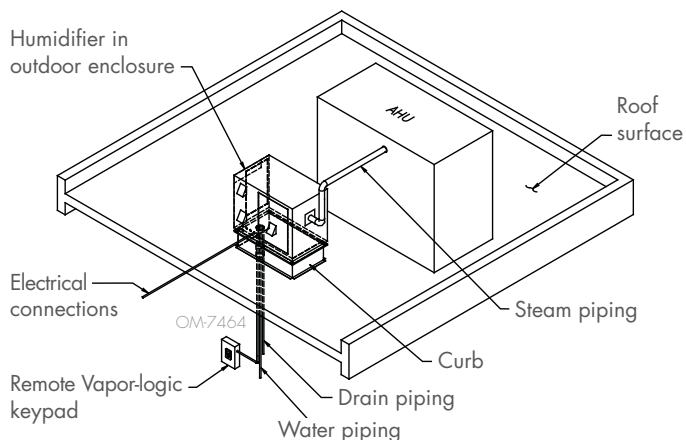
Certified, tested and proven. In-house testing and numerous successful installations have proven that the outdoor enclosure provides reliable operation under extreme conditions.

Easy access for service. Steel enclosure doors provide full access to internal components. The doors feature stainless steel hinges, and the latches operate from outside and inside of the unit.

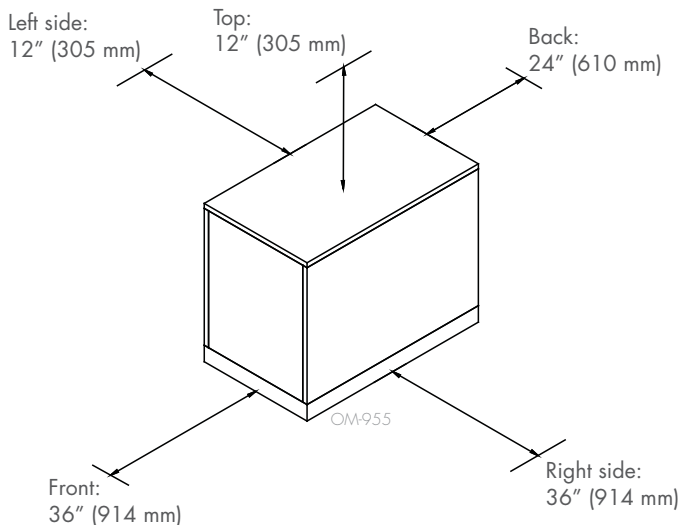
Protects in cold and hot climates. To ensure complete safety and operation in all climates, the outdoor enclosure has supplemental heating and ventilating systems that automatically maintain required operation conditions. DriSteem humidifiers housed in outdoor enclosures operate properly when outdoor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

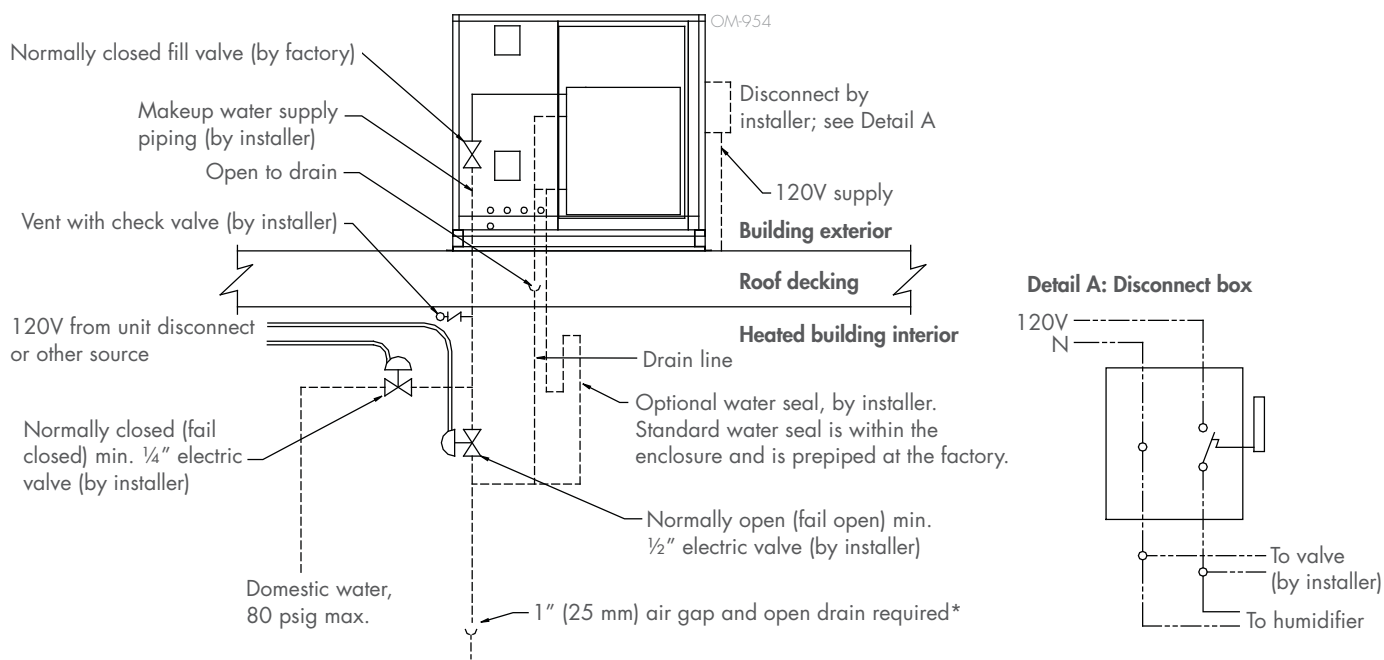
TYPICAL ROOFTOP INSTALLATION OVERVIEW



OUTDOOR ENCLOSURE CLEARANCES



OPTIONAL INSTALLATION METHOD FOR WATER SUPPLY PIPING

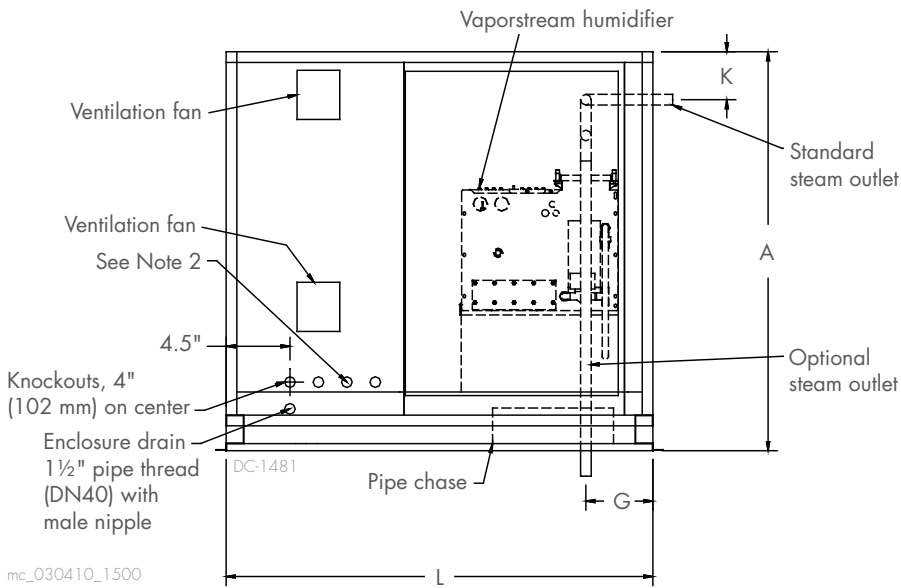


* Locate air gap only in spaces with adequate temperature and air movement to absorb flash steam; otherwise, condensate may form on nearby surfaces. Refer to governing codes for drain pipe size and maximum discharge water temperature.

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Vaporstream outdoor enclosure

VAPORSTREAM OUTDOOR ENCLOSURE WITH STANDARD OR OPTIONAL STEAM OUTLET, ELEVATION VIEW



mc_030410_1500

Notes:

1. The outdoor enclosure has two available steam distribution configurations:

The standard configuration has a steam outlet at the back of the outdoor enclosure for connecting to steam dispersion unit piping.

The optional internal steam distribution configuration routes steam within the outdoor enclosure and down through the enclosure pipe chase into a building.

2. There are four knockouts located on the right and left side of the enclosure. Knockout sizes are 1½" (hole dia. 50 mm) for Vaporstream models with 1-6 heaters and 2" (hole dia. 63.5 mm) for Vaporstream models with 9-12 heaters. Run the electrical power into the enclosure at these knockouts.

3. All piping from the Vaporstream unit to the steam outlet is stainless steel pipe. Depending on the application, interconnecting piping from the steam outlet to the dispersion assembly can be tubing, pipe or DriSteam vapor hose. See the Dispersion section of this document for more information about connecting to the dispersion assembly.

4. A separate 15 amp, 120 VAC service must be brought to the outdoor enclosure to power the enclosure heaters and fans.

Table 18-1:
Vaporstream outdoor enclosure dimensions*

| Item | Description | Vaporstream models | | | |
|------|---------------------|--------------------|------|-------------------|------|
| | | with 1-6 heaters | | with 9-12 heaters | |
| | | inches | mm | inches | mm |
| A | Enclosure height | 56.00 | 1422 | 56.00 | 1422 |
| B | Enclosure width | 40.00 | 1016 | 54.00 | 1372 |
| C | Pipe chase position | 2.50 | 67 | 2.50 | 67 |
| D | | 2.50 | 64 | 2.50 | 64 |
| E | Pipe chase size | 8.00 | 203 | 8.00 | 203 |
| F | | 19.50 | 495 | 19.50 | 495 |
| G | Steam pipe position | 13.50 | 343 | 13.50 | 343 |
| H | | 22.00 | 559 | 29.50 | 899 |
| J | | 7.00 | 178 | 7.00 | 178 |
| K | | 8.25 | 210 | 9.25 | 235 |
| L | Length | 60.00 | 1524 | 64.00 | 1626 |

* See drawings above and on facing page.

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VAPORSTREAM OUTDOOR ENCLOSURE, TOP VIEW

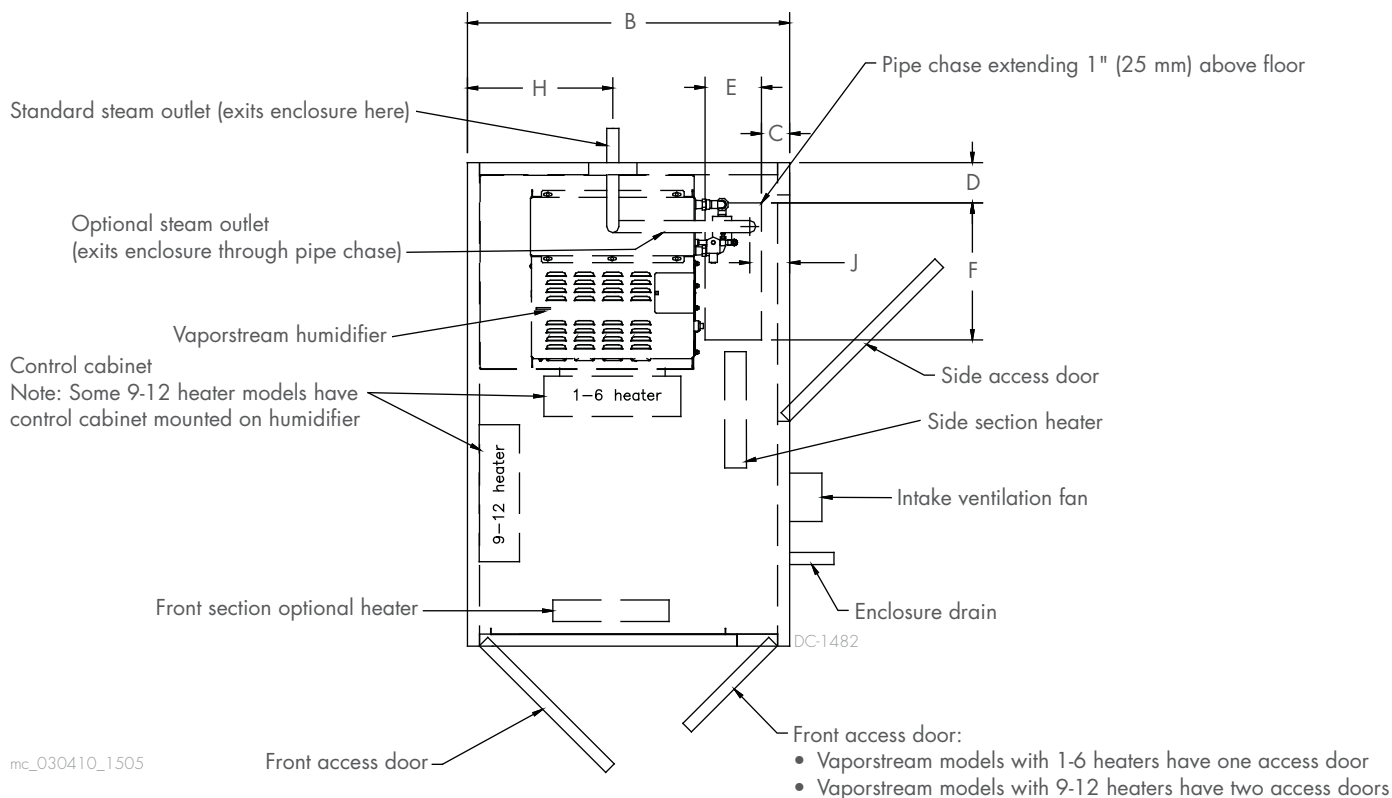


Table 19-1:
Vaporstream outdoor enclosure connection sizes

| Description | All Vaporstream models |
|---------------------|-------------------------|
| Water makeup (fill) | 1/4" pipe thread (DN8) |
| Drain | 3/4" (DN20) |
| Condensate return | 3/4" pipe thread (DN20) |

mc_030410_1101

Notes:

- See Table 8-1 for capacities and input requirements.
- Add 15 full load amps (120 VAC) when using an outdoor enclosure with a heater package.
- Add 2 full load amps (120 VAC) when using an outdoor enclosure without a heater package.

Table 19-2:
Vaporstream outdoor enclosure weights

| Vaporstream model | Number of heaters | Outdoor enclosure shipping weight* | | Outdoor enclosure operating weight* | |
|-------------------------------------|-------------------|------------------------------------|-----|-------------------------------------|-----|
| | | lbs | kg | lbs | kg |
| 2-1, 3-1, 4-1, 5-1 | 1 | 485 | 220 | 530 | 240 |
| 6-1, 9-1, 12-1, 16-1, 21-1, 25-1 | 3 | 515 | 234 | 620 | 281 |
| 12-2, 18-2, 24-2, 32-2, 42-2, 50-2 | 6 | 535 | 243 | 690 | 313 |
| 18-3, 27-3, 36-3, 48-3, 63-3, 75-3 | 9 | 860 | 390 | 1090 | 494 |
| 24-4, 36-4, 48-4, 64-4, 84-4, 100-4 | 12 | 910 | 413 | 1190 | 540 |

* Includes humidifier

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Vaporstream weather cover

**Table 20-1:
Weather cover weights**

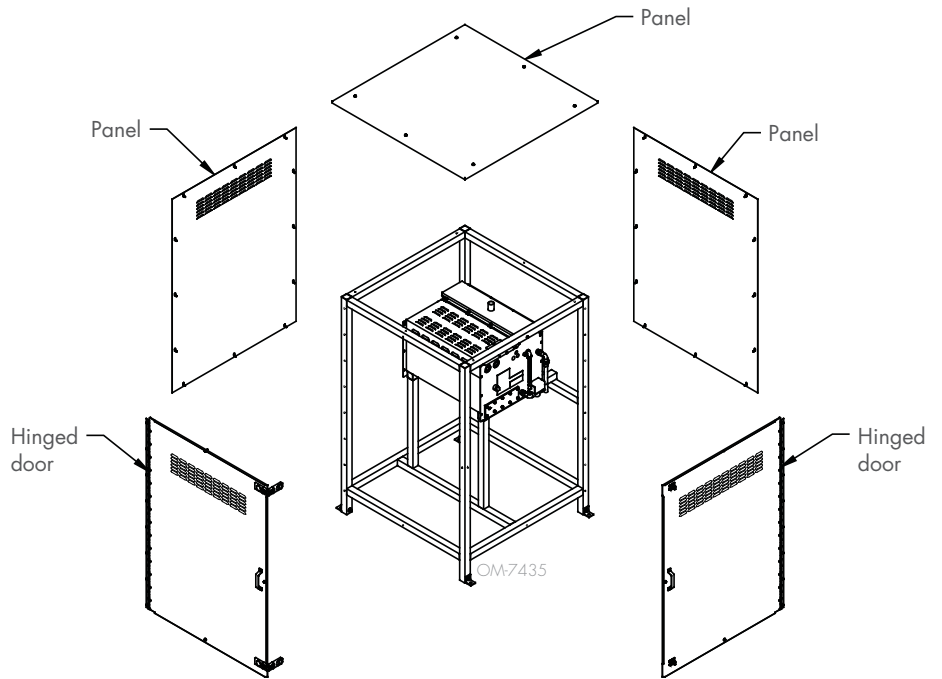
| Weather cover size | Weight* | |
|--------------------|---------|-----|
| | lbs | kg |
| 1-heater | 390 | 177 |
| 3-heater | 395 | 179 |
| 6-heater | 430 | 195 |
| 9-heater | 465 | 211 |
| 12-heater | 500 | 227 |

* Weight does not include humidifier or control cabinet.

mc_030210_0950

The optional Vaporstream weather cover is water-resistant and designed to protect the humidifier from rain and sun. The weather cover has been tested and approved by ETL Testing Laboratories, Inc., and is listed to UL Standard 1995 and certified to CAN/CSA Standard C22.2 No. 236.

WEATHER COVER EXPLODED VIEW



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WEATHER COVER DIMENSIONS

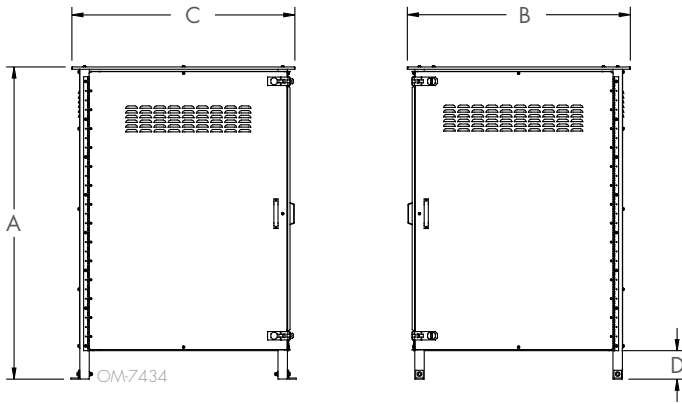


Table 21-1:
Weather cover dimensions

| Letter | Description | 1-heater and 3-heater covers | | 6-heater cover | | 9-heater cover | | 12-heater cover | |
|--------|----------------------|------------------------------|------|----------------|------|----------------|------|-----------------|------|
| | | inches | mm | inches | mm | inches | mm | inches | mm |
| A | Height | 66 | 1676 | 66 | 1676 | 66 | 1676 | 66 | 1676 |
| B | Length | 44 | 1118 | 44 | 1118 | 44 | 1118 | 44 | 1118 |
| C | Width | 35 | 889 | 39 | 991 | 44 | 1118 | 50 | 1270 |
| D | Distance from bottom | 6 | 152 | 6 | 152 | 6 | 152 | 6 | 152 |

mc_02231_0_1645

Vaporstream steam dispersion options



Ultra-sorb Models LV

ULTRA-SORB MODELS LV AND LH

Most versatile

- Guaranteed, short non-wetting distances — install within inches of downstream devices
- Reduce wasted energy up to 85% and increase capacity with optional High-Efficiency Dispersion Tubes
- Lowest installation cost — factory assembly for easy installation

Capacity: Up to 1850 lbs/hr (840 kg/h) per panel



Ultra-sorb Models LH

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



Ultra-sorb Model LV
with High-Efficiency Tubes

Rapid-sorb
with High-Efficiency Tubes



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

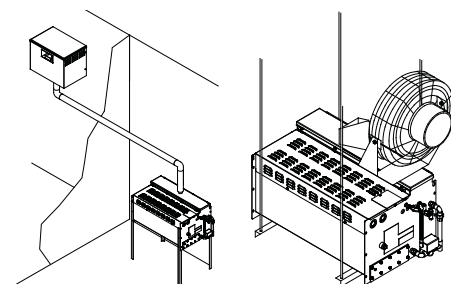
SPACE DISTRIBUTION UNITS, AREA-TYPE FAN

Quiet, fan-based steam dispersion

- SDUs mount remotely and are designed for finished spaces
- Area-type fan mounts directly on top of Vaporstream and has higher capacity than SDUs

SDU capacity: Up to 102 lbs/hr (46.3 kg/h)

Area-type fan capacity: Up to 300 lbs/hr (136 kg/h)



SDU mounted remotely

Area-type fan mounted on humidifier

DriSteem Corporation

A subsidiary of Research Products Corporation
An ISO 9001:2000 certified company

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Form No. VLC-Catalog-RevWeb

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 the Vaporstream humidifier, which features cleanable, stainless steel construction. DriSteem leads the industry with a Two-year Limited Warranty and optional extended warranty.

For more information
www.dristeem.com
sales@dristeem.com

For the most recent product information visit our website:
www.dristeem.com

Your DriSteem Representative is:

