

# Evair® Dehumidifier RQ Series

## DEHUMIDIFIER

DriSteem offers a full line of refrigerant dehumidifiers to take on humidity in any size application, in a variety of environments such as storage, manufacturing, retail, education, water treatment facilities, and more. The RQ Series represents the highest-efficiency platform in the lineup, delivering maximum moisture-removal capacity per kWh while maintaining performance across the widest operating temperature range.

Our innovative design also creates the lightest heat load on your HVAC, pulls less energy, saving money on utility bills, and helps to prevent overload on your state's energy grid, often qualifying you for energy rebates. The compact mechanical design provides increased capacity within a smaller physical footprint, supporting more efficient space utilization in both retrofit and new-construction applications.

**FIGURE 1-1: RQ SERIES DEHUMIDIFIERS**



# Models, capacities, and electrical specifications

**Table 2-1:**  
**Evair Dehumidifier Product Specification@ 80°F / 60% RH**

|                                                                    | Model RQ-4                      | Model RQ-6                                            | Model RQ-9                                            | Model RQ-14                                           | Model RQ-21                                     | Model RQ-31                                                                        |
|--------------------------------------------------------------------|---------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------|
| Water Removal (Pints/Day)<br>Efficiency (Pints/kWh) <sup>(1)</sup> | 100 Pints/Day<br>7.5 Pints/kWh  | 155 Pints/Day<br>8.5 Pints/kWh                        | 225 Pints/Day<br>7.6 Pints/kWh                        | 345 Pints/Day<br>8.0 Pints/kWh                        | 500 Pints/Day<br>9.2 Pints/kWh                  | 730 Pints/Day<br>8.3 Pints/kWh                                                     |
| Supply voltage                                                     | 110-120 Volt<br>1 Phase - 60 Hz | 110-120V<br>1 Phase - 60 Hz                           | 208V-230V<br>1 Phase - 60 Hz                          | 208V-230V -<br>1 Phase - 60 Hz                        | 208-230 VAC<br>1 Phase - 60 Hz                  | 480 VAC<br>3 Phase - 60 Hz                                                         |
| CFM                                                                | 280 @ 0.0"<br>WG                | 500 CFM @ 0.0"<br>WG (tested with<br>duct collars on) | 630 CFM @ 0.0"<br>WG (tested with<br>duct collars on) | 900 CFM @ 0.6"<br>WG (tested with<br>duct collars on) | 1150 @ 0.0"<br>WG                               | 1,650 @ 0.0"<br>WG                                                                 |
| Power                                                              | 540 Watts                       | 750 Watts                                             | 1230 Watts                                            | 1700 Watts                                            | 2250 Watts                                      | 3,665 Watts                                                                        |
| Current Draw                                                       | 5.0A                            | 6.9A @ 110V                                           | 5.5A @ 230V<br>6.1A @ 208V                            | 7.6A @ 230V<br>8.4A @ 208V                            | 9.9A @ 230V<br>10.9A @ 208V                     | 4.9A                                                                               |
| Rated Current Draw<br>(104°F   36%)                                | 9.1A                            | 8.0A                                                  | 7.5A                                                  | 11.3A @ 208V                                          | 15.3A @ 208V                                    | 7.1A                                                                               |
| Minimum Circuit Ampacity<br>(MCA)*                                 | 15A                             |                                                       |                                                       |                                                       | 20A                                             | 15A                                                                                |
| Maximum Overcurrent<br>Protection (MOP)**                          | 15A                             |                                                       |                                                       | 25A                                                   | 20A                                             | 15A                                                                                |
| Energy Factor (L/kWh)                                              | 3.5 L/kWh                       | 4 L/kWh                                               | 3.6 L/kWh                                             | 3.8 L/kWh                                             | 4.4 L/kWh                                       | 3.9 L/kWh                                                                          |
| Operating temperature                                              | 56°F Min – 95°F Max             |                                                       |                                                       |                                                       |                                                 |                                                                                    |
| Air Filter (MERV-13) size                                          | 12" x 14" x 1"                  | 18" x 18" x 2"                                        |                                                       | 22" x 20" x 2"                                        | 18" x 20" x 2" (Quantity 2)                     |                                                                                    |
| Power Cord                                                         | 10', 115 VAC,<br>Ground         | 14/3, SJTW,<br>120V-15A, 9'<br>NEMA 5-15P             | 6' 14/3 SJTW,<br>15A<br>NEMA 6-15P                    | 207/230V:<br>14/3, SJTW (6')<br>NEMA 6-15P            | 207/230V:<br>12/3, SJTW, 20A<br>(6') NEMA 6-20P | No cord;<br>hardwire only<br>Electrical knockout<br>size: 3/4"<br>(1.094" opening) |
| Drain Connection                                                   | 3/4" Threaded NPT               |                                                       |                                                       |                                                       |                                                 |                                                                                    |
| Refrigerant Type:<br>Refrigerant Amount:                           | R454B<br>1 lb 2 oz              | R454B<br>3 lb 4 oz                                    |                                                       | R454B<br>3 lb 8 oz                                    | R454B<br>3 lb 14 oz                             | R454B<br>6 lb 8 oz                                                                 |
| Clearances (minimum<br>clearance on all sides)                     | 24" (36" intake side)           |                                                       |                                                       |                                                       |                                                 |                                                                                    |

<sup>(1)</sup> Rated capacity and energy factor test done and current draw measured in accordance with AHAM DH-1 2008 at 80°F (26.7°C), 60% RH inlet air at 0.0 external static pressure.

\*MCA = Minimum Circuit Ampacity

This number provides a qualified electrician with the information needed to determine the minimum wire size used in the circuit that feeds a single dehumidifier.

\*\*MOP = Maximum Overcurrent Protection

This number provides a qualified electrician with the value of the maximum size circuit breaker that may be used to protect the circuit that feeds a dehumidifier.

## Dimensions and weights

**Table 3-1:**  
Evair dehumidifier dimensions by model number

| Dimensions      | Model RQ-4 |          | Model RQ-6 |          | Model RQ-9 |          | Model RQ-14 |          | Model RQ-21 |          | Model RQ-31 |          |
|-----------------|------------|----------|------------|----------|------------|----------|-------------|----------|-------------|----------|-------------|----------|
|                 | Unit       | Shipping | Unit       | Shipping | Unit       | Shipping | Unit        | Shipping | Unit        | Shipping | Unit        | Shipping |
| Width (inches)  | 24         | 26.5     | 23.6       | 25       | 23.6       | 25       | 32.9        | 36       | 44.7        | 47       | 44.7        | 47       |
| Height (inches) | 14.5       | 18.5     | 20.9       | 21       | 20.9       | 21       | 24.6        | 30       | 29          | 33       | 29          | 33       |
| Length (inches) | 16         | 18.75    | 26.8       | 29       | 26.8       | 29       | 23.7        | 28       | 27.4        | 28       | 27.4        | 28       |
| Weight (lbs)    | 60         | 65       | 130        | 152      | 130        | 152      | 215         | 255      | 275         | 335      | 300         | 360      |

**Table 3-2:**  
RQ Series Accessory Specifications

|                                         | Model RQ-4 | Model RQ-6                   | Model RQ-9 | Model RQ-14 | Model RQ-21   | Model RQ-31 |
|-----------------------------------------|------------|------------------------------|------------|-------------|---------------|-------------|
| Duct Kit                                | Optional   |                              |            |             |               |             |
| Feet                                    | Attached   |                              |            |             | Not available |             |
| Hanging Kit                             | Optional   | Included (see pages 7 and 8) |            |             |               |             |
| Air Discharge                           | End        |                              |            |             |               |             |
| Onboard Controller                      | Front      | End                          |            |             |               |             |
| BACnet Humidistat (Room) Controller     | Optional   |                              |            |             |               |             |
| BACnet Humidistat (Duct) Controller     | Optional   |                              |            |             |               |             |
| Non-BACnet Humidistat (Room) Controller | Optional   |                              |            |             |               |             |
| Non-BACnet Humidistat (Duct) Controller | Optional   |                              |            |             |               |             |

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## Location

The Evair Dehumidifier can be installed in a variety of locations to meet the owner's needs as listed below. In all cases keep the following cautions in mind:

- The unit is designed to operate while level. Failure to level the unit may result in leakage or improper drainage.
- Allow sufficient clearance for filter removal and to prevent airflow obstruction.
- Ducts connected to the dehumidifier shall not contain a **POTENTIAL IGNITION SOURCE**.
- Supply and return air shall be directly ducted to the space. Open areas such as false ceilings shall not be used as a return air duct.
- In order to efficiently control humidity levels, the area in which the dehumidifier is to be operated must be free of water intrusion or excessive fresh (outside) air infiltration. Before installing the Evair Dehumidifier, water intrusion and air infiltration problems should be addressed or noted in calculations.
- It is designed to be installed **INDOORS IN A SPACE THAT IS PROTECTED FROM RAIN AND FLOODING**.

### **INTENDED APPLICATION FOR THE EVAIR DEHUMIDIFIER**

The Evair Dehumidifier is designed to operate in temperatures between 56° and 95°F.

### **UNVENTILATED AREAS**

- Unventilated Areas where the DriSteem's Evair dehumidifier is installed or stored need to be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.
- DriSteem's Evair dehumidifier shall not be stored or ducted into one or multiple rooms with continuously operating open flames (for example an operating gas appliance) or other **POTENTIAL IGNITION SOURCES** (for example an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.
- If the Evair Dehumidifier is ducted to one or more rooms, Auxiliary devices which may be a **POTENTIAL IGNITION SOURCE** shall not be installed in the duct work. Examples of such **POTENTIAL IGNITION SOURCES** are hot surfaces with a temperature exceeding 500°C and electric switching devices.
- The Evair dehumidifier shall be stored so as to prevent mechanical damage from occurring.

## Location

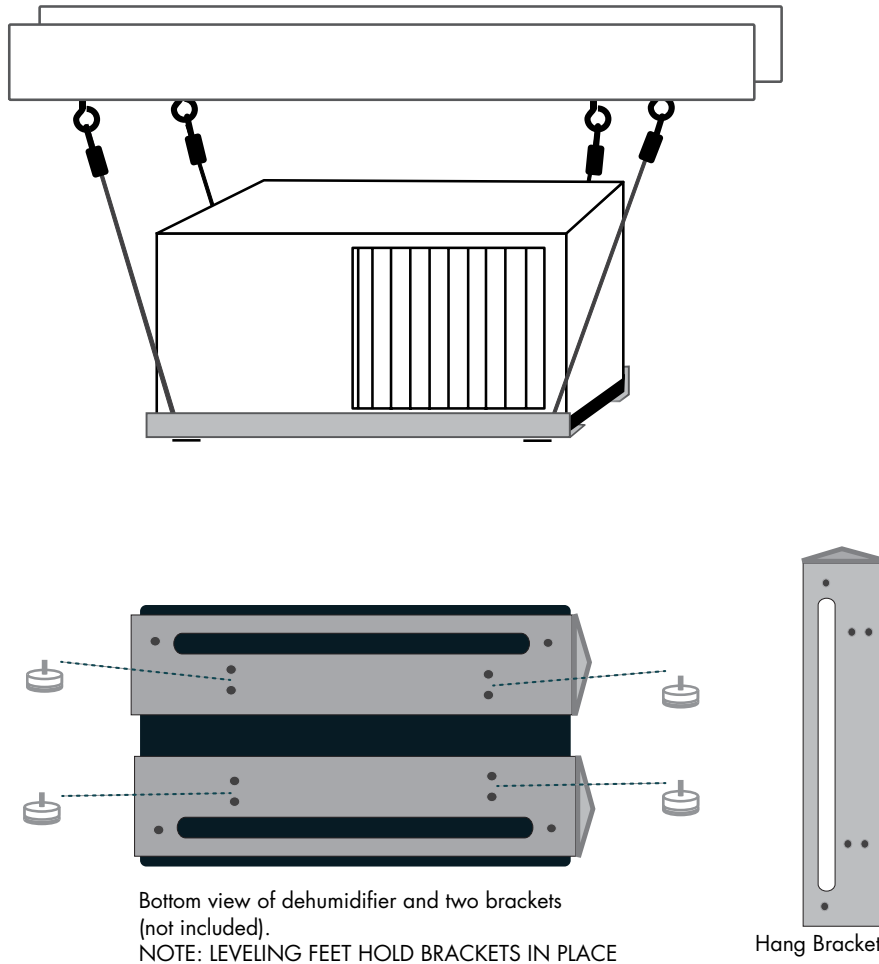
- Locate the dehumidifier near a suitable drain (8' drain hose included). Allow for proper drainage and routing of needed drain pipes.
- Locate the dehumidifier in an area where the cord's length easily reaches a electrical outlet with specified circuit capacity (see Table 2-1).
- Allow sufficient clearance to handle the unit's overall dimensions as well as any optional return and supply ductwork to the unit.
- Electrical service access will require the removal of the top "L" shaped panel. Allow sufficient clearance around the unit.
- The Evair Dehumidifier may be suspended with steel hanger, straps, or a suitable alternative from structural members, unit must be supported from underneath. Don't hang from sides or ends.
- The unit should be suspended with a hang kit from the floor joists if there is any possibility of flooding. A flooded unit is not covered by warranty. Feet will be installed as a securing measure after the hang kit is put on the dehumidifier. DO NOT hang the Evair dehumidifier from its' cabinet.
- Models RQ-4, RQ-6, RQ-9, and RQ-14: The minimum floor area of the room shall be 28m<sup>2</sup> (square meters).
- Models RQ-21 and RQ-31: To establish minimum room area at different altitude, multiply 63.4m<sup>2</sup> by Altitude Adjustment Factor. See Table 5-1.
  - Model RQ-21: The minimum floor area of the room shall be 28m<sup>2</sup> (square meters) at sea level.
  - Model RQ-31: The minimum floor area of the room shall be 63.4m<sup>2</sup> (square meters) at sea level.
- Place the dehumidifier on supports that raise the base of the unit 6" above the secondary drain pan so a P-trap can be installed.
- If installing on ground, use included plugs to cover hanging locations on top of the machine.
- If hanging machine in air, use included plugs to cover holes in base pan for leveling feet.

**Table 5-1:**  
**Model RQ-21 and RQ-31 minimum floor area**

|                     |      |      |      |      |      |      |
|---------------------|------|------|------|------|------|------|
| H <sub>alt</sub> m  | 0    | 200  | 400  | 600  | 800  | 1000 |
| H <sub>alt</sub> ft | 0    | 656  | 1312 | 1969 | 2625 | 3281 |
| Factor              | 1    | 1    | 1    | 1    | 1.02 | 1.05 |
| H <sub>alt</sub> m  | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 |
| H <sub>alt</sub> ft | 3281 | 3937 | 4593 | 5249 | 5906 | 6562 |
| Factor              | 1.05 | 1.07 | 1.1  | 1.12 | 1.15 | 1.18 |

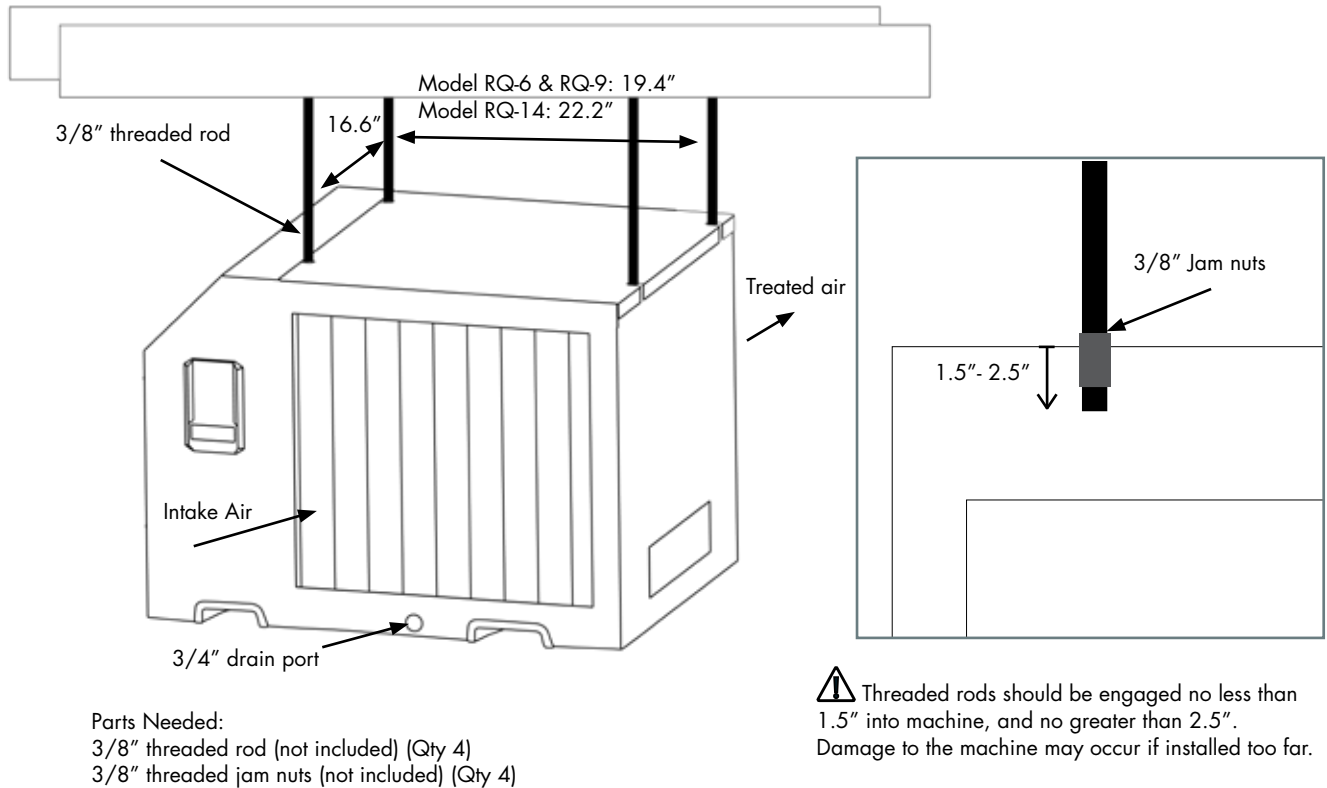
## Hanging the dehumidifier (Model RQ-4)

**FIGURE 6-1: HANGING THE MODEL RQ-4 DEHUMIDIFIER**



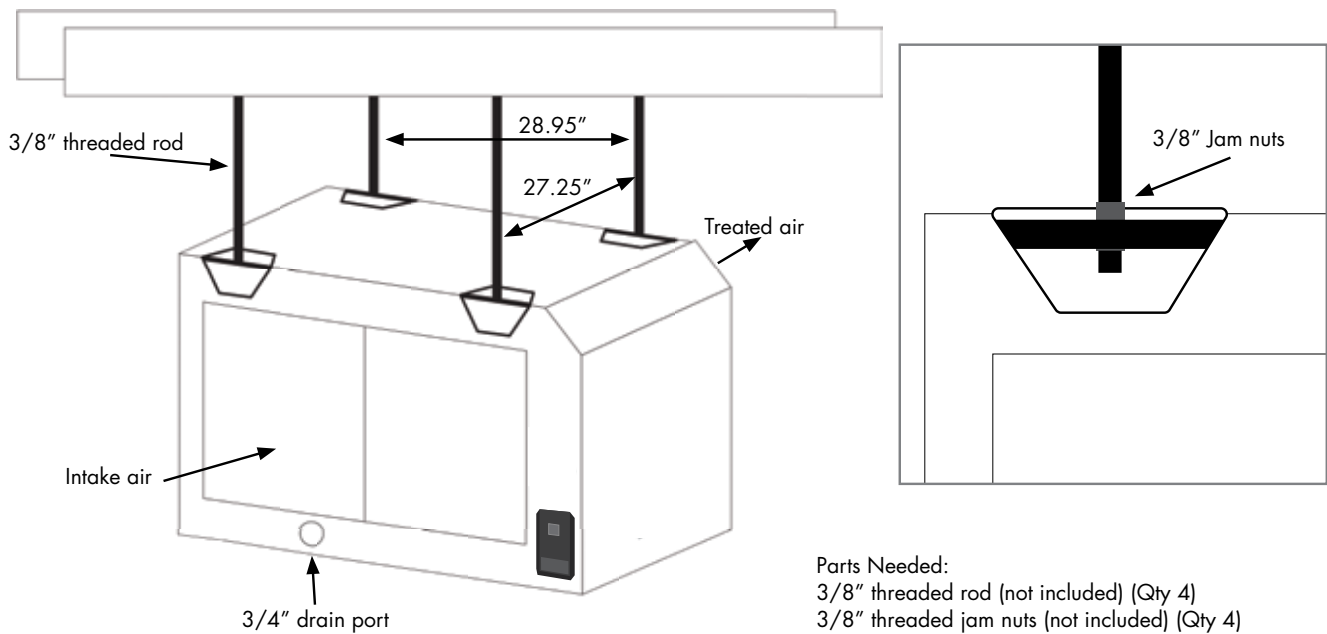
## Hanging the dehumidifier (Model RQ-6, RQ-9, and RQ-14)

**FIGURE 7-1: HANGING THE MODEL RQ-6, RQ-9 AND RQ-14 DEHUMIDIFIER**



# Hanging the dehumidifier (Models RQ-21 and RQ-31)

FIGURE 8-1: HANGING THE MODEL RQ-21 AND RQ-31 DEHUMIDIFIER



**⚠ WARNING**

Check the supporting structure to be used to verify that it has sufficient load carrying capacity to support the weight of the unit. Suspend the unit only from the threaded nut retainers. Do NOT suspend from the cabinet.

**⚠ CAUTION**

Recommended maximum hanger rod is 6 feet (1.8m).

**⚠ WARNING**

Hanging installation must meet all state and local codes.

**⚠ WARNING**

Installation should be done by a qualified agency in accordance with these instructions. The qualified service agency installing this high efficiency refrigeration system is responsible for the installation.