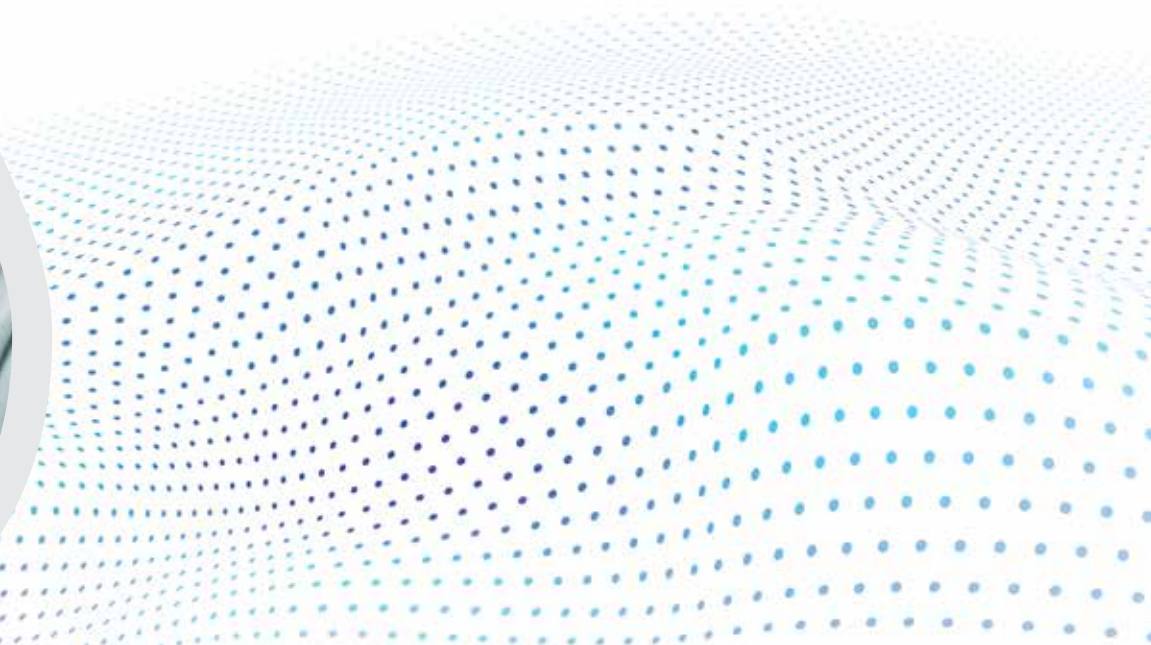
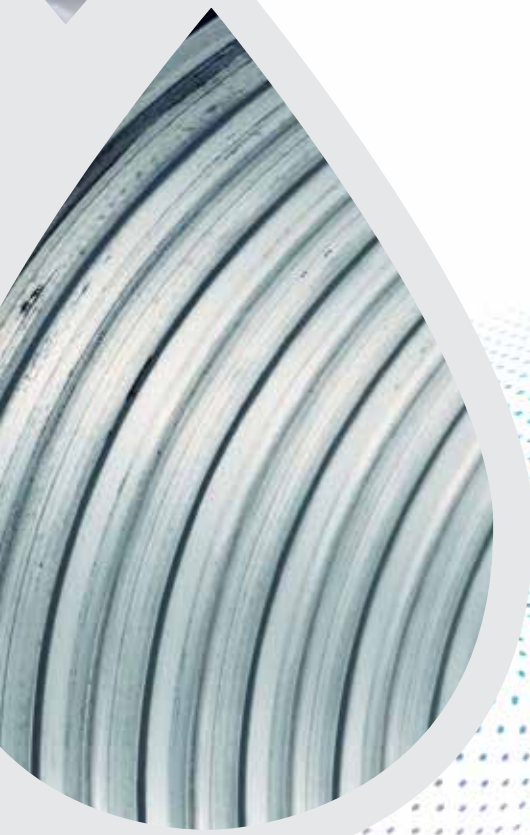


# ALL PRODUCTS BROCHURE

*Humidification Control,  
Evaporative Cooling, and  
Water Treatment*

driSteem 



# WHY HUMIDITY IS CRITICAL

*Properly controlled humidification can promote health and safety, improve processes, extend the life of materials, and enhance occupant satisfaction.*

Aspects to consider when using relative humidity (RH) include the intended use (humidification or cooling), the humidity load, the available energy sources, the quality of the water, where the moisture will be dispersed, and the level and type of controls required. This guide provides helpful guidance on understanding the benefits of humidity and choosing the most appropriate humidification system for your needs or that of your client.

## **BENEFITS OF RELATIVE HUMIDITY WITHIN THE BUILT ENVIRONMENT**

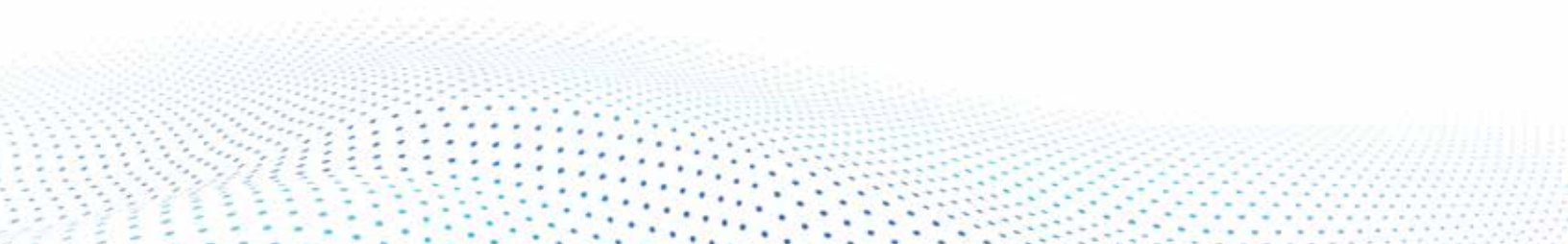
- Competitive advantage through process improvement
- Increase longevity of materials and artifacts
- Create a healthy and comfortable environment for occupants

Gain a competitive advantage by controlling a building's relative humidity (RH) which significantly improves production processes and product quality. Relative Humidity (RH) affects the moisture content of hygroscopic materials, such as wood, textiles, paper, leather, fibers, and foods.

Fluctuating RH causes material to repeatedly absorb and release moisture which shortens the shelf-life. These changes may impact a material's weight, strength, and appearance, which may damage the material and shorten its longevity.

Studies show that when room RH drops below 40 percent, incidents of respiratory illness increase. When room RH exceeds 60 percent, the risk of condensate and mold growth increases, causing potential damage to materials and processes. Proper humidification control ensures an optimal, comfortable environment for your occupants and helps preserve essential materials while optimizing your manufacturing processes.

Relative humidity (RH) protects the bottom line by protecting the people, processes, and materials inside commercial buildings.



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## WHY DRISTEEM

*Developing industry-leading humidity-management solutions for the built environment to optimize processes, preserve materials, and create a healthy environment for occupants.*

### INNOVATION

To support the unique needs of our clients, we are committed to developing innovative designs and building world-class humidification solutions.

### INDUSTRY EXPERTS

Our representatives have experience and expertise in a wide range of environments to help you select the system that best meets your needs, both now and in the future.

### QUALITY

Quality goes beyond words; we provide you with a wide array of white papers and case studies to support your business case. Visit [www.dristeem.com/humidity-university](http://www.dristeem.com/humidity-university)

# STEAM HUMIDIFICATION

Steam humidifiers vaporize water into humidification steam in order to add moisture to indoor air. They can use electricity, natural gas, propane, or even pressurized steam as an energy source.

## ALL DRISTEEM STEAM HUMIDIFIERS

- Disperse steam through ductwork or directly into spaces
- Protect the people, processes, and materials inside the built environment
- Lead the industry in quality and reliability

## ELECTRIC RESISTIVE STEAM HUMIDIFIERS

Electric resistive steam humidifiers boil water using electric resistive heating elements that are submerged in a stainless steel cleanable tank. Tank cleaning frequency and effort depends on the incoming water type and the demand on the humidifier. Electric resistive humidifiers can operate using potable, softened, reverse-osmosis, or deionized water.



### RTS® humidifier RX series:

- **Electric resistive steam humidifier**
- **Capacity:** 6 - 324 lbs/hr (2.7 - 147 kg/h), link up to 8 units for capacity up to 2,592 lbs/hr (1176 kg/h)
- **Control:**  $\pm 1\%$  RH; Vapor-logic control (see page 18)
- **Applications:** Elegant cabinet-style humidifier that continuously learns as it runs, and automatically adapts to optimize steam output. Easy installation and one-sided front access for annual maintenance. Integrated drain water tempering and SSR control make the RTS humidifier the ideal choice for almost any application.
- **Options:** Climate-controlled outdoor enclosure; Modbus, BACnet, or with optional LonTalk protocols; wall or base mount, floor stand; matching fan-based steam dispersion cabinets; seismic certification

*Sustained quality and dependability*



### Vapormist® humidifier:

- **Electric resistive steam humidifier**
- **Capacity:** 6–102 lbs/hr (2.7–46 kg/h); link up to 16 units for capacity up to 1,632 lbs/hr (740 kg/h)
- **Control:**  $\pm 3\%$  RH; Vapor-logic control (see page 18)
- **Applications:** Attractive, compact, cabinet-style unit perfect for finished spaces. Wall mounted. Easy installation.
- **Options:** Matching fan-based steam dispersion cabinets; Modbus or with optional BACnet or LonTalk protocols; SSR control; seismic certification

*Designed for finished spaces*



### CRUV® humidifier:

- **Electric resistive steam humidifier**
- **Capacity:** 6–102 lbs/hr (2.7–46 kg/h)
- **Control:**  $\pm 3\%$  RH; Vapor-logic (see page 18) or LW Series control
- **Applications:** The compact CRUV humidifier is designed to integrate inside an existing enclosure, such as a packaged air conditioning unit. Easy tank access without disconnecting electrical or piping lines.
- **Options:** Modbus or with optional BACnet or LonTalk (with Vapor-logic controller only); SSR control

*Compact and easy to service*



### Vaporstream® humidifier:

- **Electric resistive steam humidifier**
- **Capacity:** 5.7–285 lbs/hr (2.6–129 kg/h); link up to 16 units for capacity up to 4,560 lbs/hr (2,068 kg/h)
- **Control:**  $\pm 1\%$  RH; Vapor-logic control (see page 18)
- **Applications:** 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.
- **Options:** Weather cover, climate-controlled outdoor enclosure; Modbus or with optional BACnet or LonTalk protocols; mounting by wall brackets, trapeze or support legs; seismic certification

*Versatility and critical control*



Discover how building owners and developers can leverage humidification as a competitive advantage.

Scan the QR code with your smart phone or visit [www.drasteem.com/resources-for-contractors](http://www.drasteem.com/resources-for-contractors)

## ELECTRODE STEAM HUMIDIFIERS

Electrode steam humidifiers boil water by using the electrical resistance in conductive fill water. Electrode steam humidifiers are among the most affordable humidification systems to purchase and maintain. Simply replace the worn steam cylinder when prompted. Electrode steam humidifiers can operate using potable water.



### XTP humidifier:

- **Electrode steam humidifiers**
- **Capacity:** 5–287 lbs/hr (2–130 kg/h)
- **Control:**  $\pm 8\%$  RH; Vapor-logic control (see Page 18)
- **Applications:** Wide range of buildings including health care, commercial, industrial, and government facilities
- **Supply water conductivity:** 125 to 1250  $\mu\text{S}/\text{cm}$
- **Options:** Indoor and climate-controlled outdoor enclosures, matching fan-based steam dispersion units, low conductivity cylinders, Modbus, BACnet, or with optional LonTalk protocols, seismic certification

*Easy installation and maintenance*



### XTR humidifier:

- **Electrode steam humidifiers**
- **Capacity:** 5.6–11.3 lbs/hr (2.5–5.1 kg/h), depending on the supply voltage
- **Control:**  $\pm 8\%$  RH; Keypad control
- **Applications:** Health and comfort applications
- Selectable 120, 208, or 230/240 VAC input in one model
- Standard package includes 10' (3 m) steam hose and 8" (200 mm) dispersion tube

*Residential and light commercial*

## TOOLS THAT MAKE IT EASY TO DESIGN THE SYSTEM THAT IS RIGHT FOR YOU

**LoadCalc** allows you to make a quick calculation of the humidification load for your application.

**EnergyCalc** shows the energy cost comparison of using electricity vs gas.

**Building Information Modeling** download DriSteem products in a 3D BIM file to create a digital representation to support your design process. Visit [www.dristeem.com/products/bim-content](http://www.dristeem.com/products/bim-content)

**DriCalc**<sup>®</sup> makes it easy to specify and select DriSteem equipment. You can access your projects online anywhere, any time.

Visit [www.dristeem.com/calculators-and-selection-software](http://www.dristeem.com/calculators-and-selection-software) to access DriCalc, LoadCalc, and Energy Calc.

## GAS-TO-STEAM HUMIDIFIERS

Gas-to-steam humidifiers boil water using a burner and heat exchanger submerged in a stainless steel cleanable tank. The GTS humidifiers can operate using potable, softened, reverse-osmosis, or deionized water.

The GTS LX is a Category IV (condensing, positive pressure) high-efficiency gas appliance, and it is certified Low NOx by the South Coast Air Quality Management District.

### GTS humidifier LX series:

The condensing design of the GTS humidifier LX series results in the highest efficiency gas-fired humidifier available. Compared to non-condensing humidifiers, installation costs are reduced through use of PVC, CPVC, or polypropylene venting.

- **Gas-to-steam humidifier**
- **Capacity:** 50–600 lbs/hr (23–272 kg/h); link up to 8 units for capacity up to 4,800 lbs/hr (2,177 kg/h)
- **Control:**  $\pm 3\%$  RH; Vapor-logic control (see Page 18)
- **Applications:** A broad capacity range, application flexibility, full burner modulation, and integral drain water tempering make GTS the ideal choice for almost any application.
- **Options:** Indoor and climate-controlled outdoor enclosures, floor stand mount, wall mount, Modbus, BACnet, or with optional LonTalk protocols, seismic indoor and outdoor certification



*Lowest operating cost for a steam-generating humidifier*

## STEAM-TO-STEAM HUMIDIFIERS

Steam-to-steam humidifiers create chemical-free, low pressure humidification steam using boiler steam as its energy source. It is a closed-loop system, so no boiler steam or chemicals enter the humidified space. Steam-to-steam humidifiers can operate using potable, softened, reverse-osmosis, or deionized water.

### STS<sup>®</sup> humidifier:

- **Steam-to-steam humidifier**
- **Capacity:** 20–1,600 lbs/hr (9.1–726 kg/h); link up to 16 units for capacity up to 25,600 lbs/hr (11,612 kg/h)
- **Control:** to  $\pm 1\%$  RH; Vapor-logic control (see Page 18)
- **Applications:** The STS humidifier can be used anywhere chemical-free humidification is desired while taking advantage of economical on-site boiler steam. The STS humidifier is commonly used in hospitals and schools where air must be of the highest quality.
- **Options:** Indoor and outdoor climate-controlled enclosures, Wall, trapeze or H-leg mount, Modbus or with optional BACnet or LonTalk protocols, seismic certification



*Chemical-free steam*

# STEAM DISPERSION

Steam for humidification can be non-pressurized or pressurized. DriSteem steam dispersion units disperse steam generated by pressurized steam boilers or by non-pressurized steam humidifiers. The steam is distributed through ducts, air handlers, and even directly into finished spaces.

## ULTRA-SORB® STEAM DISPERSION PANELS

Features of all Ultra-sorb models:

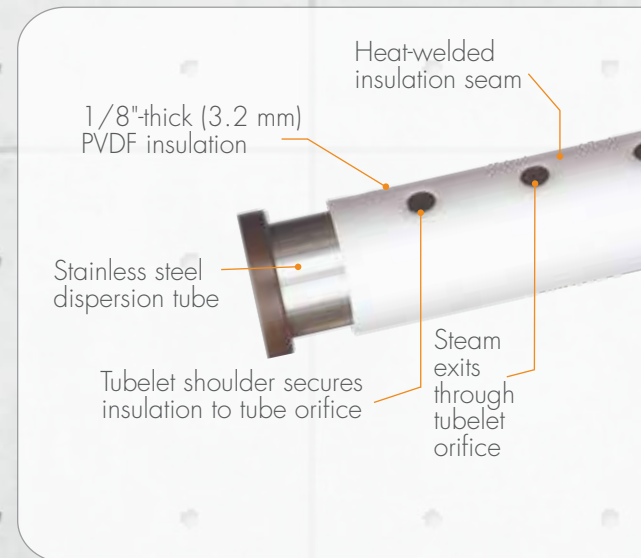
- **Guaranteed, shortest non-wetting distance**  
Install within inches of downstream devices.  
Rapid, drip-free steam absorption means steam does not condense on downstream devices.
- **Reduce wasted energy and condensate up to 85%**  
High-Efficiency Insulated Tubes significantly reduce airstream heat gain and condensate production. (Standard on Model XV; optional on Models LV, LH, and MP.)
- **Higher capacities per insulated tube increase efficiency, reduce cost**  
Insulated dispersion tubes produce less condensate and, therefore, have more steam available for humidification, increasing the capacity of each tube. As a result, fewer tubes can meet application requirements, further lowering condensate production and heat gain while reducing resource consumption and cost.
- **No steam jackets; no unnecessary heat gain**  
When there is no call for humidity, Ultra-sorb panels are at duct temperature while conventional jacketed steam injection systems stay hot and continue to add heat to the airstream.
- **Lowest installation cost**  
Panels ship pre-assembled and install quickly with easy mounting, steam, and condensate connections.

## GUARANTEED SHORT ABSORPTION WITH SIGNIFICANT ENERGY SAVINGS

### WHY CHOOSE DRISTEEM DISPERSION?

Others have never come close to Ultra-sorb and Rapid-sorb's proven and guaranteed absorption capabilities. If you must achieve absorption within a short or critical distance, there is no better choice than DriSteem's Ultra-sorb and Rapid-sorb dispersion systems.

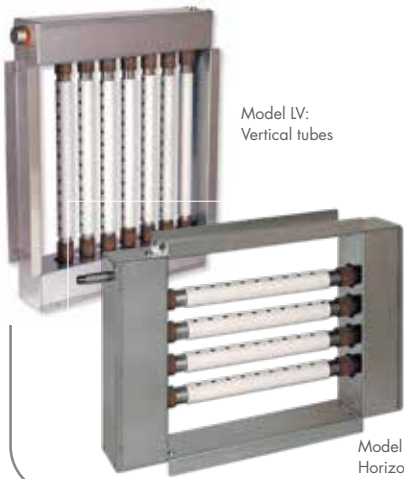
DriSteem takes this industry-leading performance one step further with its revolutionary patented high-efficiency tubes. Standard on Ultra-sorb XV, high-efficiency tubes are also available as an option on new or retrofit Ultra-sorb LV, LH, MP, Rapid-sorb dispersion panels, and single dispersion tube.



Scan the QR code with your smart phone

OR VISIT [www.drirsteem.com/support-and-literature/literature-product-resources/by-product/high-efficiency-tubes](http://www.drirsteem.com/support-and-literature/literature-product-resources/by-product/high-efficiency-tubes)





Model LV:  
Vertical tubes

Model LH:  
Horizontal tubes

### Ultra-sorb Models LV and LH

- **Steam dispersion panel**
- **Disperse pressurized or non-pressurized steam**  
Models LV and LH disperse steam generated by pressurized steam boilers or by non-pressurized steam humidifiers.
- **Capacity:** Pressurized steam: Up to 4000 lbs/hr (1815 kg/h).  
Non-pressurized steam: Up to 1850 lbs/hr (840 kg/h)
- **Options:** High-Efficiency Insulated Tubes, 316 stainless steel construction, Seismic certification

*Most versatile with greatest capacity and installation flexibility*



### Ultra-sorb Model MP

- **Steam dispersion panel**
- **Sustained quality with the best value**
- **Disperse pressurized or non-pressurized steam**  
Model MP disperses steam generated by pressurized steam boilers or by non-pressurized steam 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)  
Non-pressurized steam: Up to 700 lbs/hr (318 kg/h)
- **Options:** High-Efficiency Insulated Tubes  
304 or 316 stainless steel frame  
Seismic certification

*For quicker installation and shorter non-wetting distance at the lowest total installed cost*



### Ultra-sorb Model XV

- **Steam dispersion panel**
- **Integral condensate management**  
A patented industry first for pressurized steam, Ultra-sorb Model XV vaporizes dispersion-generated condensate and returns pressurized condensate to the boiler without additional pumps, valves, vents, or controls.
- **Most efficient dispersion**  
Zero water waste: All condensate returns to the boiler while still hot, saving energy, water, and boiler chemicals  
Lowest heat gain: High-Efficiency Insulated Tubes and an insulated steam delivery header reduce airstream heat gain by up to 85%.
- **Applications**  
For pressurized steam applications, 5 psi (35 kPa) minimum  
Chemical-free boiler steam humidification when used with our STS humidifier  
Seismic certification option
- **Capacity:** Pressurized steam: Up to 2720 lbs/hr (1235 kg/hr). STS humidifier: Up to 450 lbs/hr (204 kg/h) per panel.

*Highest performance for state of the art condensate management*

## NON-PRESSURIZED STEAM DISPERSION

- Provide rapid, dry steam absorption in duct, air handling, units and spaces.
- Disperse steam from any steam-generating humidifier.
- All of DriSteeM's non-pressurized steam dispersion products are made in the USA.



### Rapid-sorb® dispersion tube system

- Non-pressurized steam dispersion
- Short non-wetting distance, compared to a single dispersion tube
- Models available in sizes from 10"×10" (254 × 254 mm) and up
- For horizontal or vertical airflows with header inside or outside duct
- Available with High-Efficiency Dispersion Tubes
- **Capacity:** Up to 2100 lbs/hr (955 kg/h)

*Single header with multiple tubes,  
non-wetting distance*



### Single dispersion tube

- Non-pressurized steam dispersion
- Low-capacity dispersion for horizontal or vertical airflows.
- Available as a High-Efficiency Dispersion Tube
- **Capacity:** up to 97 lbs/hr (44.1 kg/h) wall or base mount, floor stand

*Installation flexibility*



### Space distribution units and blowers

- Non-pressurized steam dispersion
- Space distribution units (SDUs) mount on top of a Vapormist or RTS humidifier. The SDUs can also remotely disperse steam from Vapormist, Vaporstream, or RTS humidifiers.
- XT series steam blowers mount on top of XT Series humidifiers, or they can remotely disperse steam from the humidifier.
- **SDU capacity:** Up to 126 lbs/hr (57 kg/h)
- **Steam blower capacity:** Up to 50 lbs/hr (22.7 kg/h)

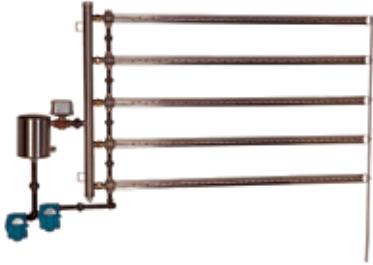


*Remote or humidifier-mounted dispersion*

## PRESSURIZED STEAM INJECTION HUMIDIFIERS

DriStem's Steam Injection humidifiers are available in a wide variety of models and adaptable to numerous applications.

- Steam jacketed dispersion tubes — eliminate condensation and dripping.
- Stainless steel construction reduces corrosion potential and is compatible with steam derived from deionized or reverse-osmosis treated water.
- Lightweight construction — no special supports or hangers required.



### Multiple-tube humidifier

The multiple-tube humidifier is designed for large ducts and air handlers. It achieves short to moderate non-wetting distances and is field piped and field assembled.

The Maxi-bank™ option is pre-assembled and includes the steam header and interconnecting piping.

- **Pressurized steam injection humidifier**
- **Steam pressures:** 2–50 psi (14–345 kPa)
- **Capacity:** 6.5–3989 lbs/hr (2.3–1809 kg/h)
- **Duct sizes:** Width: 6–192" (152–4877 mm); height: 15" (381 mm) minimum

*Fits any need, for large capacity*



### Mini-bank® humidifier

The mini-bank humidifier is designed for small ducts and short non-wetting distances. With a pre-engineered and pre-assembled header/tube assembly, it is ready for mounting and hookup. Seismic certification option.

- **Pressurized steam injection humidifier**
- **Steam pressures:** 2–15 psi (14–103 kPa)
- **Capacity:** 1.6–84 lbs/hr (0.7–38 kg/h)
- **Duct sizes:** Width: 6"–48" (152 mm–1219 mm); height: 6"–24" (152 mm–610 mm)

*Pre-assembled for small ducts*



### Single-tube humidifier

The single-tube humidifier features a wide range of dispersion tube lengths and is suitable for moderate to long non-wetting distances. The separator/tube assembly is pre-assembled.

- **Pressurized steam injection humidifier**
- **Steam pressures:** 2–50 psi (14–345 kPa)
- **Capacity:** 1.5–525 lbs/hr (0.7–238 kg/h)
- **Duct sizes:** Width: 6"–192" (152 mm–4877 mm); height: 9" (229 mm) minimum

*Suitable for small-capacity systems*



### Area-type™ humidifier

The area-type humidifier is designed for open spaces such as warehouses and manufacturing spaces that do not have a duct system. Steam discharged from the humidifier is quietly dispersed by a fan without discharging water droplets.

- **Pressurized steam injection humidifier**
- **Steam pressures:** 2–15 psi (14–103 kPa)
- **Capacity:** 1.8–286 lbs/hr (0.8–130 kg/h)

*For rooms without ducts*

# ADIATEC® EVAPORATIVE COOLING & HUMIDIFICATION

Adiabatic technologies are an energy conscience solution for humidifying by taking existing energy from the air to evaporate water. Take advantage of the free cooling and energy savings inherent with this technology.

## HIGH-PRESSURE SYSTEM

Evaporative cooling and humidification systems draw heat from air to evaporate unheated water introduced by either high-pressure nozzles or wetted media. This process raises the relative humidity (RH) level and lowers the dry bulb air temperature. Consequently, these systems humidify and cool air very efficiently. In space type applications allow for the cooling and humidification to take place right next to the specific application need. This type of application has 100% of evaporation as the nozzles have "anti-drip" check valves integral to them. Lifetime operating cost can be much less than other technologies when these three items are present. The high-pressure system is certified to hygiene standards VDI 6022 part 1 & 6. This ensures best design practices; including stainless steel and NSF approved materials, mist elimination (aerosols), hygienic flush sequences and more.

### REDUCES COOLING LOAD

As water is absorbed in air, the evaporative cooling effect reduces the building's cooling load. Twelve pounds of unheated evaporated water (vapor) reduces the cooling load by about one ton, saving about 12,000 Btus (3.5 kW).

### APPLICATIONS

Adiabatic humidifiers use the heat gain from sources such as printing/packaging, data centers, indoor agriculture, and manufacturing facilities to vaporize water for humidification and free cooling. High-pressure atomization is advantageous when the end user has a large load, multiple zones and can benefit from free cooling.

### LOW MAINTENANCE

High-Pressure Systems are very low maintenance systems. The High-Pressure System's stainless-steel pump is designed to run for 8000 hours before its first maintenance check, and the stainless-steel dispersion nozzles and manifolds are maintenance free. The High-Pressure System provides ultra-pure water that leaves no white dust when used with water treatment options available from DriSteem.



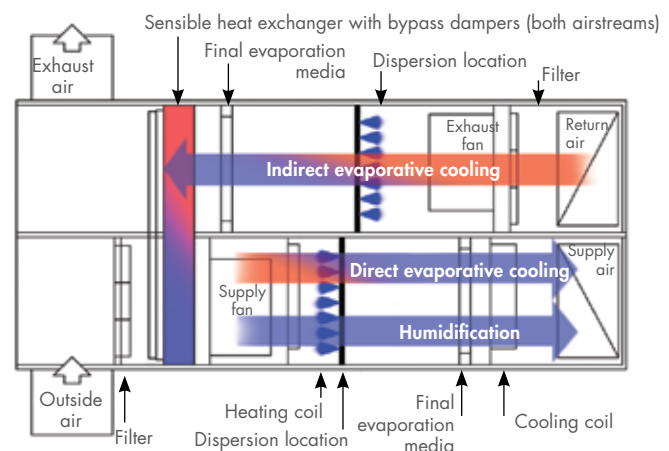
The DriSteem High-Pressure System delivers evaporative cooling and humidification to multiple zones in air handlers, ducts, and open spaces. The Vapor-logic controller provides comprehensive management of all system variables.

## DIRECT OR INDIRECT EVAPORATIVE COOLING

Direct evaporative cooling adds moisture to the supply air while humidifying and cooling the space at the same time.

Indirect evaporative cooling occurs in the heat exchanger without adding moisture. Cooling air before it enters the space without adding moisture to the space.

A High-Pressure System is shown here.



## FAN-ASSISTED DISPERSION

DriSteed's high-pressure fan-assisted dispersion Model FA is a component of a high-pressure atomization system. The fan is designed to throw small water droplets and increase air movement. The Model FA-2 is designed for low ceiling heights. Models FA-3 and FA-4 are designed to pull air from above the fan (typically the hottest air), which promotes better absorption, and throws moisture horizontally. The Model FA can be used for cooling and/or humidification applications.

- Pulls air from above the system rather than below, using the warmest air and minimizing the chance for condensation forming from fog return.
- Utilizes flexible tubing to increase installation speed.
- The hub style system allows for easier access to service all nozzles on the unit.
- Promotes better air movement.
- The stainless steel dispersion design provides quality and longevity of the dispersion system.
- Fan powered dispersion allows for installation in lower ceiling applications.

### APPLICATION VERSATILITY

- |                        |                |                       |
|------------------------|----------------|-----------------------|
| • Greenhouses          | • Wood working | • Clean rooms         |
| • Germination chambers | • Warehouses   | • Cigar manufacturing |
| • Printing             | • Electronics  | • Plastic fabrication |
| • Paper products       | • Textiles     |                       |



## ULTRASONIC HUMIDIFIER

DriSteed's ultrasonic units humidify using a piezo-electric transducer to excite the water in the tank. This high frequency oscillation causes mist to develop in very small droplets, 1  $\mu$ m in size. The developed mist is carried out of the unit via air flow generated in an air handler or integrated fans. Compared to isothermal generators, this ultrasonic unit reduces operating cost for humidification.

- In room or in AHU/duct application flexibility
- 93% less energy required compared to isothermal humidifiers
- Greater effectiveness in low load sensible applications
- $\pm 1\%$  controllability with modulating demand signal and constant temperature/airflow control
- Small water droplet for easily evaporated water
- 5,000 hour maintenance intervals
- Capacities ranging from 2.2 lb/hr to 55.3 lb/hr



# HYDROTRUE® WATER TREATMENT SYSTEMS

## DECHLORINATION, WATER SOFTENING, DI CARTRIDGE SYSTEM, AND REVERSE OSMOSIS EQUIPMENT



Water quality is integral to many commercial and industrial processes and pieces of equipment. Water treatment is used in application to help reduce maintenance, improve system performance, and provide equipment longevity. This is accomplished by improving water quality. Treated water has advantages such as reducing scale of surfaces and helping manage corrosion.

Water quality is equally important for other processes. DriSteem Hydrotrue water treatment systems can be used where softened or RO permeate is desired. Such applications include: humidification, brewery ingredients, make-up, controlled environment agriculture, car washes, pressurized steam boilers, and digital printers.



## DRISTEEM'S HYDROTRUE WATER TREATMENT SYSTEMS OFFER

- Complete suite of products available for all applications — dechlorination, water softening, DI (deionized), and reverse osmosis systems.
- Designed for use with all DriSteem humidification and evaporative cooling systems, or as a stand-alone system for other processes requiring water treatment.
- Single point supply, drain, and electrical connections and system skidding available.
- Supply multiple pieces of equipment or applications with a single water treatment system.
- Components can be used individually or as a complete water treatment solution with DriSteem humidification.

**Capacity:** 288–15,079 gallons per day (100–5,247 lbs/hr; 45–2,380 kg/hr)

## TYPICAL PLUMBED WATER TREATMENT SYSTEM





### DriSteem Softener System

Single or twin alternating softener system with a Clack commercial multi-port valve. The system comes with all necessary equipment including support gravel, cationic resin, FRP vessel, control valve, and brine tank.

**Capacity:** 13,500 grains to 337,500 grains. Flow rate servicing humidifiers up to 5,500 pph. Flow rates for non-humidification applications: 0 gpm-50 gpm. Operating up to 125psi inlet water pressure

**Options:** Water meter option included, for regeneration. Skid mounted available.

*Sized to site water conditions*



### DriSteem Dechlorinator System

Single dechlorinator system with a Clack commercial multiport valve. The system comes with all necessary equipment including support gravel, activated carbon, FRP vessel, control valve.

**Capacity:** 0-16 gpm upstream of an RO system or in terms of humidification application up to 5500 pph

**Options:** Skid mounted available.

*Sized based on contact time*

### DriSteem Filter Housing System

Filter housing option available to either utilize a sediment filter upstream of a device or as a dechlorinator cartridge for low flow applications (<500 pph). Options to get mounting bracket and PVC ball valves installed.

**Capacity:** 0-2 gpm (dechlorinator/activated carbon filter), 0-5 gpm (sediment filter, 5 microns)

*Removes chlorine/chloramine*

### DriSteem DI Cartridge Filter System

**Capacity:** 1.25 gpm recommended flow rate

- Two cartridges in series to provide DI water (removal of impurities such as TDS and CO<sub>2</sub>)
- Options on interface for change-out indication
- Ease of maintenance with cartridge replacement

*Removes ~100% of TDS*



### Hydrotrue® RO 200 Water Treatment System

Significantly reduces or eliminates maintenance on downstream equipment by removing over 98% of dissolved solids from supply water.

**Capacity:** 12-36 gph (100-300 pph) permeate flow rate

Integrated 4.4 gallon bladder tank (option to upgrade size of tank off side)

- Vapor-logic control with top end control communication/alarms
- Heavy duty frame, rotary pump, brass inlet solenoid valve, stainless steel membrane housings
- Hygienic design with inactivity flushes

*Removes over 98% of dissolved solids*

### Hydrotrue® RO 400 Water Treatment System

Maintenance is easy with innovative front-only maintenance access to the system. Quickly replace membranes and sediment filters without wrestling within tight spaces or working around other equipment.

**Capacity:** 0.5-12 gpm (250-300 pph) permeate flow rate

- Storage tank options provided, pressurized or atmospheric with pump
- Vapor-logic control with top end control communication/alarms
- Heavy duty frame, centrifugal pump, brass inlet solenoid valve, stainless steel membrane housings
- Hygienic design with inactivity flushes
- Ease of maintenance with slide out racks for membrane replacement
- Multiple voltage options to fit the need of the end user
- Color coordinated plumbing for ease of identification while operating unit
- Permeate divert capability to increase overall quality of water to end user



*Interoperability available on DriSteem RO systems*

# DEHUMIDIFICATION

*DriSteem Commercial Dehumidification Systems use refrigerant technologies to remove excess moisture from indoor air. They can be applied for continuous control or problem remediation.*

## WHY CHOOSE THE DRISTEEM DEHUMIDIFIER

### Why dehumidify?

- Condensation and frost protection
- Moisture regain control
- Mold, mildew, fungus protection
- Preservation - storage, equipment, etc.
- Process control

### Flexible

- The most water removal for your investment with 0.03 or 0.06 gallons per minute.
- Perfect for manufacturing, food processing, breweries, storage, etc. applications.
- Capacity from 3 to 31 lb/h @ 80°F, 60% RH.
- Can be suspended or installed on ground level.
- Ducting allows you to separate the unit from the environment, saving space and increasing ease of access.

### Easy to maintain

- The RL-31 Series features a variable speed compressor that can modulate the number of BTUs supplied to the refrigeration system. The variable-speed, low grain refrigerant gives the RL-31 dehumidifiers a gas pedal as opposed to an on off switch.
- DriSteem dehumidifiers incorporate a more sophisticated refrigeration system logic that gives us the ability to monitor the temperature of the coil via suction line temp and regulate the BTU output of the compressor. This helps significantly delay going into defrost and allows the unit to continue removing moisture for as long as possible.
- The self-sealing, MERV 11 air filter protects the unit's vital components, plus it's easy to replace.



## COMPREHENSIVE CONTROL WITH THE D77 CONTROLLER

The D77 control allows the user to set and adjust the humidity setting and turn dehumidification on or off from a convenient location. In this application, the RL Series uses an onboard sensor to monitor the relative humidity (%RH) in the space in which it is located and displays the measured relative humidity on the digital display.

- Control range: 35% – 80% RH
- Accuracy: +/-5% RH



### Dehumidifier RL series:

DriSteem dehumidifiers, RL series are designed to dehumidify air coming into the unit by passing the incoming air over an evaporator coil to drop the air temperature below the dew point of the air. Moisture is removed from the air and drained out of the unit to a common floor or waste drain. The air is then reheated in the condenser coil and exits the unit. Dehumidification occurs until the set point is reached, then shuts off until the control determines a need for operation.

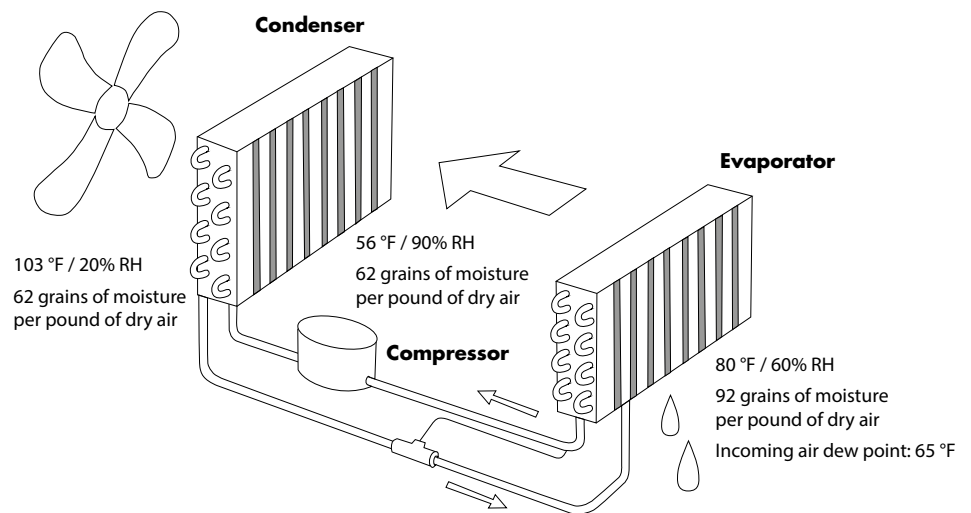
- **Refrigerant based dehumidifier**
- **Capacity:** 3 to 31 lb/h @ 80°F, 60% RH
- **Control:** Model D77 controller, humidistat controller
- **Applications:** A broad range of manufacturing, food processing, breweries and storage applications.
- **Options:** Suspension mount, floor mount, duct mount, and optional BACnet protocol



*Flexible installation for commercial dehumidification*

### THE DEHUMIDIFICATION PROCESS

In the dehumidifier, RL series, the air enters the dehumidifier at 80°F and 60% RH (92 grains/lb of moisture). The air proceeds through the cold evaporator coil resulting in moisture removal with air leaving at 56°F and 90% RH (62 grains of moisture). Air then proceeds to the condenser coil warming the air to 103°F.



# CONTROLS & ACCESSORIES

## ACCURATE, RESPONSIVE CONTROL

*Vapor-logic is the control platform for DriSteem non-pressurized steam generation humidifiers, Hydrotrue water treatment systems, and Adiatec evaporative cooling and humidification systems. Vapor-logic provides accurate, responsive RH control, and PID control tunes the system for maximum performance.*

### VAPOR-LOGIC® CONTROLLER

- BACnet, LonTalk, or Modbus allow interoperability with multiple building automation systems.
- Web interface provides the capability to set up, view, and adjust system functions.
- 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.
- Programmable outputs allow remote signaling and device activation.
- Data logs can be downloaded to a PC for viewing and analysis.



- Advanced system management options.
- Auxiliary temperature sensor/transmitter allows temperature compensation control to prevent window condensation, or air temperature monitoring, such as in a duct.
- Multiple-humidifier control allows staged control of up to 16 humidifiers with one controller.
- Enhanced diagnostics and data collection.

### OUTDOOR ENCLOSURES AND WEATHER COVERS

Heated/ventilated outdoor enclosures for isothermal humidifiers ship to the job site completely assembled, so installation is a snap. Third-party tests ensure that outdoor enclosures provide reliable operation under extreme conditions. The GTS, RTS, and XT outdoor enclosures are CSA certified for outdoor operation, and the STS and Vaporstream outdoor enclosures are ETL approved for outdoor operations. The GTS and RTS outdoor enclosures are seismic certified. Weather covers for Vaporstream and STS humidifiers are fully assembled at the factory to protect against wind, sun, and rain.



**Weather covers** Available for Vaporstream and STS humidifiers

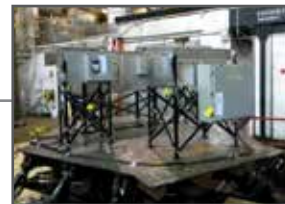


**Heated/ventilated outdoor enclosures** STS, GTS, RTS, XT and Vaporstream humidifiers



### DRANE-KOOLER™ WATER TEMPERING DEVICE

The Drane-kooler mixes cold water with hot discharge water to reduce water temperature before it enters a drain system. This complies with code requirements and prevents damage to PVC drain piping.



### SEISMIC CERTIFICATION OPTION

DriSteem's pre-approved humidifiers passed rigorous tests to meet seismic standards. These products are rated to remain operational after seismic events to help mitigate risk and comply with seismic standards.

# OVERVIEW: HUMIDIFIER PRODUCTS

| DriSteem steam humidifier comparison  |                 |                  |                |                |                |                |                |             |                  |            |
|---|-----------------|------------------|----------------|----------------|----------------|----------------|----------------|-------------|------------------|------------|
|   | GTS             | STS              | RTS            | Vaporstream    | Vapormist      | CRUV           | XTP            | XTR         | High-pressure    | Ultrasonic |
| <b>Energy source</b>  |                 |                  |                |                |                |                |                |             |                  |            |
| Electric, resistive (heating element)   |                 |                  | X              | X              | X              | X              |                |             |                  |            |
| Electric, conductive (electrode)  |                 |                  |                |                |                |                | X              | X           |                  |            |
| Natural gas or propane  | X               |                  |                |                |                |                |                |             |                  |            |
| Boiler steam  |                 | X                |                |                |                |                |                |             |                  |            |
| Electric  |                 |                  |                |                |                |                |                |             | X                | X          |
| <b>Steam capacity, lbs/hr (kg/hr)</b>   |                 |                  |                |                |                |                |                |             |                  |            |
| Maximum for one humidifier  | 600 (272)       | 1600 (726)       | 324 (150)      | 285 (129)      | 102 (46)       | 102 (46)       | 287 (130)      | 11.3 (5.1)  | 5,500 (2,500)    | 55 (30)    |
| Minimum   | 50 (23)         | 20 (9.1)         | 6 (2.7)        | 5.7 (2.6)      | 6 (2.7)        | 6 (2.7)        | 5 (2)          | 5.6 (2.5)   | 250 (114)        | 2.2 (1)    |
| Maximum with multi-tank control   | 4,800 (2,177)   | 25,600 (11,612)  | 2,592 (1176)   | 4,560 (2,068)  | 1,632 (740)    |                | 1148** (520)   |             |                  |            |
| Application size based on steam capacity<br>NOTE: 20% outdoor air at 3 lbs/hr/100 cfm (231 kg/h per m <sup>3</sup> /h), building need of 40% RH @ 72 °F (22.2 °C), typical commercial building load of 1 cfm/ft <sup>2</sup> (18 m <sup>3</sup> /h per m <sup>2</sup> ) |                 |                  |                |                |                |                |                |             |                  |            |
| Square footage (m <sup>2</sup> ) capability of 1 humidifier   | 100,000 (9,290) | 266,000 (24,712) | 54,000 (5,017) | 47,500 (4,412) | 17,000 (1,579) | 17,000 (1,579) | 47,300 (4,394) | 6,200 (575) | 914,375 (84,948) |            |
| <b>Installation options</b>   |                 |                  |                |                |                |                |                |             |                  |            |
| Indoor  | X               | X                | X              | X              | X              |                | X              | X           | X                | X          |
| Outdoor (in optional enclosure)   | X               | X                | X              | X              |                |                | X              |             |                  |            |
| Finished space  |                 |                  | X              |                | X              |                | X              | X           | X                | X          |
| In packaged A/C unit  |                 |                  | X              |                |                | X              |                |             |                  | X          |
| <b>Water type</b>   |                 |                  |                |                |                |                |                |             |                  |            |
| Potable   | X               | X                | X              | X              | X              | X              | X              | X           |                  |            |
| Softened  | X               | X                | X              | X              | X              | X              | X              | X           |                  |            |
| Reverse osmosis   | X               | X                | X              | X              | X              | X              |                |             | X                | X          |
| Deionized   | X               | X                | X              | X              | X              | X              |                |             | X                | X          |
| <b>Controller</b>   |                 |                  |                |                |                |                |                |             |                  |            |
| Vapor-logic controller  | X               | X                | X              | X              | X              | Optional       | X              |             | X                |            |
| Standard controller   |                 |                  |                |                |                |                |                | X           |                  | X          |
| Microprocessor LW417 control  |                 |                  |                |                |                | X              |                |             |                  |            |
| Connectivity: BACnet, Modbus, LonTalk   | X               | X                | X              | X              | X              | Optional       | X              |             | X                | X          |
| <b>Output controllability</b>   |                 |                  |                |                |                |                |                |             |                  |            |
| With modulating demand signal   | ± 3%            | ± 3%             | ± 1%           | ± 1%           | ± 3%           | ± 3%           | ± 8%           | ± 8%        | ± 2%             | ± 1%       |
| With available options for specific applications  |                 | ± 1%             |                |                |                |                |                |             |                  |            |

Continued

DriSteam steam humidifier comparison (continued)

|  | GTS | STS | RTS | Vaporstream | Vapormist | CRUV | XTP | XTR | High-pressure | Ultrasonic |
|--|-----|-----|-----|-------------|-----------|------|-----|-----|---------------|------------|
| <b>Dispersion options</b>                            |     |     |     |             |           |      |     |     |               |            |
| Ultra-sorb Model XV                                  |     | X   |     |             |           |      |     |     |               |            |
| Ultra-sorb Models LV, LH, and MP                     | X   | X   | X   | X           | X         | X    | X   |     |               |            |
| Rapid-sorb   | X   | X   | X   | X           | X         | X    | X   |     |               |            |
| Single dispersion tube                               | X   | X   | X   | X           | X         | X    | X   |     |               |            |
| XTR dispersion tube                                  |     |     |     |             |           |      |     | X   |               |            |
| Space distribution unit, external absorption (SDU-E) | X   |     | X   | X           | X         |      |     |     |               |            |
| Space distribution unit, internal absorption (SDU-I) |     |     | X   | X           | X         |      |     |     |               |            |
| Top- or remote-mounted XT steam blower               |     |     |     |             |           |      | X   |     |               |            |
| Top- or remote-mounted XTR steam blower              |     |     |     |             |           |      |     | X   |               |            |
| XTR fan pack   |     |     |     |             |           |      |     | X   |               |            |
| Area-type fan (mounted on steam humidifier)          | X   |     |     | X           |           |      |     |     |               |            |
| Area-type fan  |     |     |     |             |           |      |     |     | X             |            |
| High-pressure system with mist eliminator            |     |     |     |             |           |      |     |     | X             |            |
| Area-type manifold                                   |     |     |     |             |           |      |     |     | X             |            |
| <b>Water treatment option</b>                        |     |     |     |             |           |      |     |     |               |            |
| Reverse-osmosis filtration                           | X   | X   | X   | X           | X         | X    |     |     | X             | X          |
| Single/duplex softening                              | X   | X   | X   | X           | X         | X    |     |     | X             | X          |
| Dechlorination                                       | X   | X   | X   | X           | X         | X    |     |     | X             | X          |
| Deionized  | X   | X   | X   | X           | X         | X    |     |     | X             | X          |
| <b>Water tempering</b>                               |     |     |     |             |           |      |     |     |               |            |
| Drane-kooler option                                  |     | X   |     | X           | X         | X    |     |     |               |            |
| Integral water tempering                             | X   |     | X   |             |           |      | X   | X   |               |            |
| Seismic certification option                         | X   | X   | X   | X           | X         |      | X   |     |               |            |

| DriSteem dispersion product comparison                          |   |          |       |                       |            |  |        |
|---|---|----------|-------|-----------------------|------------|--|--------|
| Vapor delivery type   | DriSteem product                                  | Capacity |       | Installation location |            | Boiler steam pressure at dispersion assembly |        |
|   |   | lbs/hr   | kg/hr | Duct/AHU              | Open space | psi  | kPa    |
| Evaporative cooling/humidification                              | Adiatec High-Pressure System                      | 5500     | 2495  | X                     | X          | NA   | NA     |
| Ultrasonic  | Adiatec Ultrasonic Humidifier                     | 55       | 25    | X                     | X          | NA   | NA     |
| Non-pressurized steam dispersion from DriSteem steam humidifier | Ultra-sorb Model XV* (with STS humidifier)        | 450      | 204   | X                     |            | NA   | NA     |
|   | Ultra-sorb Model LV*                              | 1850     | 840   | X                     |            | NA   | NA     |
|   | Ultra-sorb Model LH*                              | 1850     | 840   | X                     |            | NA   | NA     |
|   | Ultra-sorb Model MP*                              | 700      | 318   | X                     |            |  |        |
|   | Rapid-sorb dispersion tube system                 | 2100     | 955   | X                     |            | NA   | NA     |
|   | Single dispersion tube (without condensate drain) | 65       | 29.5  | X                     |            | NA   | NA     |
|   | Single dispersion tube (with condensate drain)    | 97       | 44    | X                     |            | NA   | NA     |
|   | SDU-I   | 30       | 13.6  |                       | X          | NA   | NA     |
|   | SDU-E   | 102      | 46.3  |                       | X          | NA   | NA     |
|   | SDU-E-RX (for RTS humidifier only)                | 126      | 57    |                       | X          | NA   | NA     |
|   | SDU-003E (XTR steam blower)                       | 11.3     | 5.1   |                       | X          | NA   | NA     |
|   | SDU-003F (XTR fan pack)                           | 11.3     | 5.1   |                       | X          | NA   | NA     |
|   | SDU-006E (XT steam blower)                        | 20       | 9.1   |                       | X          | NA   | NA     |
|   | SDU-017E (XT steam blower)                        | 50       | 22.7  |                       | X          | NA   | NA     |
|   | Area-type fan                                     | 286      | 130   |                       | X          | NA   | NA     |
| Pressurized steam injection from boiler                         | Multiple-tube humidifier                          | 3989     | 1809  | X                     |            | 2–50   | 14–345 |
|   | Mini-bank humidifier*                             | 84       | 38    | X                     |            | 2–15   | 14–103 |
|   | Single-tube humidifier                            | 525      | 238   | X                     |            | 2–50   | 14–345 |
|   | Ultra-sorb Model XV*                              | 2720     | 1235  | X                     |            | 5–50   | 34–345 |
|   | Ultra-sorb Model LV*                              | 4000     | 1815  | X                     |            | 2–50   | 14–345 |
|   | Ultra-sorb Model LH*                              | 3268     | 1482  | X                     |            | 2–50   | 14–345 |
|   | Ultra-sorb Model MP*                              | 2720     | 1235  | X                     |            | 2-50   | 14-345 |
|   | Area-type humidifier                              | 286      | 130   |                       | X          | 2–15   | 14–103 |

\* Seismic certification option  
 \*\* Four staged XT humidifiers, not via multi-tank control

# CUSTOM ENGINEERING

## TAILORED SOLUTIONS FOR UNIQUE APPLICATIONS

Since 1965 DriSteem has been the only humidification manufacturer to offer engineering design services with custom solutions. Challenge us with your requests! To get you thinking about the possibilities, here are a few of the custom projects we've completed:

- **Racked units, single-point connections.**

We've stacked multiple humidifiers and water treatment systems in racks with single-point piping and electrical connections, making field installation easier and less costly.

- **Strict process requirements.**

To meet ultra-clean standards, or to protect the humidifier from a destructive environment such as one that might cause corrosion, all of our products can be passivated or acid cleaned.

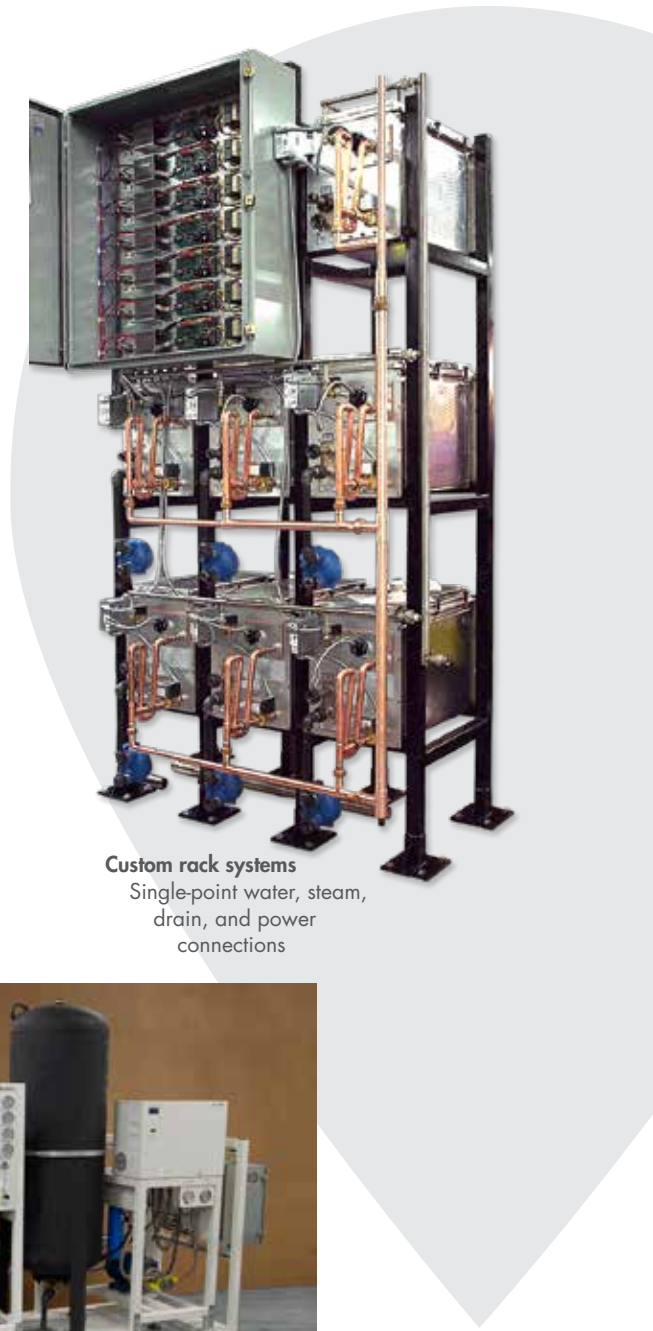
- **Custom configurations.**

We've moved drains to new locations, and added custom drain piping, p-traps and tri-clover connectors to facilitate easy field connections. We've installed special relays to allow the humidifier to work in tandem with a previously installed blower.

- **Non-humidification applications.**

We installed humidifiers at an aquarium to sterilize fish water. We've modified our Drane-cooler water tempering device to cool water discharged from sterilization equipment. Since sterilizers run continuous cold water to temper discharged condensate, the Drane-cooler, with its temperature-actuated valve, admitted cold water only when needed, saving thousands of gallons of water.

These are only a few examples of the custom projects we've done over the years. Let us know if you have a custom project where we can assist you.



**Custom rack systems**  
Single-point water, steam, drain, and power connections



**Vaporstream humidifiers**  
Three Vaporstream humidifiers providing humidity in a performing arts center.



**High-pressure system with water treatment**  
Adiatec high-pressure system with the Hydrotrue® water treatment system.

# TOOLS

| Tools   |  |
|---|--|
| <p><b>WWW.DRISTEEM.COM</b><br/>Our website</p>            | <p>Visit our website to:</p> <ul style="list-style-type: none"> <li>• Launch DriCalc sizing and selection software</li> <li>• Find a DriSteem representative</li> <li>• Get the most current product information</li> <li>• Learn more about humidification</li> <li>• Calculate load online</li> <li>• Calculate energy savings online</li> <li>• Watch product videos</li> </ul> |
| <p><b>LOADCALC</b><br/>Humidification load calculator</p> | <p>LoadCalc provides a humidification load calculation based on entering air, outside air, and desired room conditions.</p> <p>Click <b>Use LoadCalc</b> on the Calculators &amp; Selection Software tab of our website to launch the tool.</p>  |
| <p><b>ENERGYCALC</b><br/>Energy savings calculator</p>    | <p>In many locations, the savings from switching from existing electric humidifiers to new gas humidifiers are so significant the energy savings can offset replacement equipment and installation costs.</p> <p>Click <b>Use EnergyCalc</b> on the Calculators &amp; Selection Software tab of our website to launch the tool.</p>  |
| <p><b>BIM</b><br/>Content</p>                             | <p>Download DriSteem products in a 3D building information modeling (BIM) file to create a digital representation to support your design process.</p> <p>Visit <a href="http://www.dristeem.com/products/bim-content">www.dristeem.com/products/bim-content</a></p>  |
| <p><b>DRICALC</b><br/>Sizing and selection software</p>   | <p>DriSteem's DriCalc software will size loads, select equipment, write specifications, generate as-configured installation guides, and create equipment schedules.</p> <p>Click <b>DriCalc Sign Up</b> on the Calculators &amp; Selection Software tab of our website to launch the tool.</p>   |

**DRI-STEEM Corporation**

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DriSteem U.S. operations are ISO 9001:2015  
certified

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**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 superior construction of DriSteem  
products. DriSteem also leads the  
industry with a Two-year Limited  
Warranty and optional extended  
warranty.

For more information  
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