Who we are

EXPERTS
DriSteem is a premier provider of humidification and evaporative cooling systems. We engineer our products to meet specific demands and custom requirements. We have earned our reputation as experts by supporting our customers’ unique commercial, health care, industrial, and process-critical applications for over 50 years.

INNOVATORS
Through extensive research and development we continue to develop industry-leading innovations that greatly improve methods for cooling and adding moisture to air with precise control.

ON A MISSION
Our mission is to provide customers with exceptional service and superior products that condition air for HVAC applications.

STEAM GENERATION

Electric resistance steam generators
Low-maintenance humidifier
Electrode steam generators
Gas-fired steam generators
Steam-to-steam generators

STEAM DISPERSION

Ultra-sorb® Model XV
Ultra-sorb Models LV, LH
Ultra-sorb Model MP
Steam dispersion tubes
Steam injection
Steam blowers

All-product overview tables Pages 18-20
CREATE HEALTHY ENVIRONMENTS
Bacteria and viruses thrive in dry air. A NIOSH study\(^1\) demonstrated that maintaining relative humidity at 40% or higher significantly reduces airborne influenza virus transmission. Another study\(^2\) demonstrates that when room relative humidity level drops below 40 percent, respiratory illnesses increase. Proper humidification can significantly reduce student and employee absenteeism and reduce exposure to airborne viruses in hospitals and clinics.

IMPROVE PRODUCTION PROCESSES
Controlling a building’s humidity level significantly improves production processes. Humidity affects the properties of hygroscopic materials such as wood, textiles, paper, leather, fibers, and foods. Such materials either absorb or release moisture to reach equilibrium, which can negatively affect production processes.

PRESERVE MATERIALS AND ARTIFACTS
Fluctuating humidity levels cause materials to repeatedly absorb and release moisture. These changes affect a material’s weight, strength, and appearance, which can damage material and shorten its longevity.

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\(^1\) “High Humidity Leads to Loss of Infectious Influenza Virus from Simulated Coughs” (2013). J.D. Nati, F.M. Blanchere, National Institute for Occupational Safety and Health (NIOSH), et al.

Steam generation

**ELECTRIC RESISTIVE-ELEMENT STEAM GENERATORS**

All DriSteem electric resistive-element steam generators:

- Generate steam using long-lasting Incoloy-sheathed submerged heating elements
- Disperse steam through ductwork or directly into spaces
- Provide comprehensive control with Vapor-logic controller and keypad/display and/or web interface (see Page 15)
- Connect to BAS via BACnet, LonTalk, or Modbus
- Operate with tap, softened, reverse-osmosis-filtered, or deionized water
- Can operate several seasons without cleaning

**Vaporstream® humidifier: Versatility and critical control**

- **Capacity:** 5.7–285 lbs/hr (2.6–129 kg/h) for each unit; link up to 16 units for capacity up to 4560 lbs/hr (2068 kg/h)
- **Control:** ±1% RH
- **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, multiple control capabilities, seismic certification

**Vapormist® humidifier: Designed for finished spaces**

- **Capacity:** 6–102 lbs/hr (2.7–46 kg/h) for each unit; link up to 16 units for capacity up to 1632 lbs/hr (740 kg/h)
- **Control:** ±3% RH
- **Applications:** Attractive, compact, cabinet-style unit perfect for finished spaces. Easy installation.
- **Options:** Matching fan-based steam dispersion cabinets, control capabilities, seismic certification
CRUV® humidifier: *Compact and easy to service*
- **Capacity:** 6–102 lbs/hr (2.7–46 kg/h)
- **Control:** ±3% RH
- **Applications:** The compact CRUV humidifier is designed to integrate inside an existing enclosure, such as a packaged air conditioning unit, or added to an existing system, such as an environmental chamber. Easy tank access without disconnecting electrical or piping lines
- **Options:** Vapor-logic or LW Series control

Low-maintenance humidification system: *Fully integrated*
- **Capacity:** 6–102 lbs/hr (2.7–46 kg/h) for each unit; link up to 16 units for capacity up to 1632 lbs/hr (740 kg/h)
- **Control:** ±3% RH
- **Electric humidifier and reverse-osmosis system in one fully integrated, package:** Combines two proven products, the Vapormist® electric humidifier and the 200 Series reverse-osmosis system. Provides single connections for power, water, and drain.
- **Less time and effort for maintenance:** High purity water means less chalky scale build-up in the heat exchanger, ensuring reliable, long-term humidifier performance.
- **Single user interface:** Set up, view, and adjust humidification and water treatment functions at the unit or through building automation systems using a single Vapor-logic controller.
Steam generation

ELECTRODE STEAM GENERATORS

All DriSteem electrode steam generators:
- Create heat caused by electrical resistance in conductive fill water to boil water into steam
- Disperse steam into ductwork or open spaces
- Drain and fill automatically to optimize humidifier performance
- Are easy to maintain — just replace the affordable steam cylinder when prompted
- Are among the most affordable humidification systems to purchase and install

XTP humidifier:
Easy installation and maintenance
- Capacity: 5–287 lbs/hr (2–130 kg/h)
Stage up to four humidifiers together for maximum system capacity of 1148 lbs/hr (520 kg/h)
- Control: ±3% RH
- Applications: Wide range of buildings including health care, commercial, industrial, and government facilities
- Vapor-logic control (see Page 15)

XTR humidifier:
Residential and light commercial
- Capacity: 5.6–11.3 lbs/hr (2.5–5.1 kg/h), depending on the voltage connected to the humidifier
- Control: ±3% RH
- Applications: Health and comfort applications
- Keypad control
GAS-TO-STEAM GENERATORS

GTS® humidifier: Lowest operating cost for a steam-generating humidifier

The GTS humidifier generates humidification steam for dispersion into ducts or open spaces.

- **Capacity:** 75–600 lbs/hr (34–272 kg/h) for each unit; link up to 16 units for capacity up to 9600 lbs/hr (4354 kg/h)
- **Control:** ±3% RH; Vapor-logic control (see Page 15)
- **Applications:** A broad capacity range, compatibility with all water types, application flexibility, full burner modulation, and integral drain water tempering make GTS the ideal choice for almost any application
- **Options:** Indoor and outdoor enclosures

STEAM-TO-STEAM GENERATORS

STS® humidifier: Chemical-free steam

The STS humidifier creates chemical-free humidification steam using boiler steam as its energy source. It accomplishes this by using boiler steam in its heat exchanger to vaporize clean fill water into humidification steam. It’s a closed-loop system, so no boiler steam or chemicals enter the humidified space; they return to the boiler. STS is compatible with all supply water types.

- **Capacity:** 20–1600 lbs/hr (9.1–726 kg/h) for each unit; link up to 16 units for capacity up to 25,600 lbs/hr (11,612 kg/h)
- **Control:** to ±1% RH; Vapor-logic control (see Page 15)
- **Applications:** Most energy-efficient means of producing chemical-free steam with pressurized steam as the energy source. Easy retrofit for steam injection humidifiers.
- **Options:** Indoor and outdoor enclosures, seismic certification
Steam dispersion

ULTRA-SORB STEAM DISPERSION PANELS

Features of all Ultra-sorb models:

- **Guaranteed, short non-wetting distances**
  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 and LH.)

- **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.

**Model XV: Highest performance dispersion**

- **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 steam-to-steam humidifier
  Seismic certification option

- **Capacity**
  Pressurized steam: Up to 2720 lbs/hr (1235 kg/hr)
  STS humidifier: Up to 450 lbs/hr (204 kg/hr) per panel
Models LV and LH: Most versatile

- Disperse pressurized or nonpressurized steam
  Models LV and LH disperse steam generated by pressurized steam boilers or by nonpressurized steam generators such as DriSteem’s GTS, STS, Vaporstream, Vapormist, and XT Series humidifiers.

- Capacity
  Pressurized steam: Up to 4000 lbs/hr (1815 kg/h)
  Nonpressurized steam: Up to 1850 lbs/hr (840 kg/h)

- Options
  High-Efficiency Insulated Tubes
  316 stainless steel construction
  Seismic certification

Model MP: Lowest total installed cost

- Disperse pressurized or nonpressurized steam
  Model MP disperses steam generated by pressurized steam boilers or by nonpressurized steam generators such as DriSteem’s GTS, STS, Vaporstream, Vapormist, and XT Series humidifiers.

- Same side steam inlet and drain for reduced piping

- In-frame drain piping maximizes available face dimensions and minimizes blank-off requirements.

- Integral steam header allows clear space on exterior wall of AHUs or ducts

- Capacity
  Pressurized steam: Up to 2720 lbs/hr (1235 kg/h)
  Nonpressurized steam: Up to 700 lbs/hr (318 kg/h)

- Options
  High-Efficiency Insulated Tubes
  304 or 316 stainless steel frame
Steam dispersion

NONPRESSURIZED STEAM DISPERSION

**Rapid-sorb® dispersion tube system**
*Single header with multiple tubes, short non-wetting distance*

- 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 (see below)

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

**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 (44.1 kg/h)

**Space distribution units and blowers**
*Remote or humidifier-mounted dispersion*

- Space distribution units (SDUs) mount on top of Vapormist humidifiers, or they can remotely disperse steam from Vapormist or Vaporstream 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 102 lbs/hr (46.3 kg/h)
**Steam blower capacity:** Up to 50 lbs/hr (22.7 kg/h)

**High-Efficiency Dispersion Tubes**
*For new and existing Ultra-sorb and Rapid-sorb*

High-Efficiency Tubes are standard on all Ultra-sorb Model XV. Also, they are an available option for Ultra-sorb Models LV, LH, and MP, Rapid-sorb, and single dispersion tube.

- Available as a retrofit option for existing Ultra-sorb Models LV, LH, and MP, and Rapid-sorb
- Highest efficiency
- Up to 85% reduction in wasted energy, airstream heat gain, and condensate production
- Plenum approved for in-duct installation with revolutionary, patented insulating material
PRESSURIZED STEAM INJECTION HUMIDIFIERS

DriSteem’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

*Fits any need, for large capacity*

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.

**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

Mini-bank® humidifier

*Pre-assembled for small ducts*

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.

**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)

Single-tube humidifier

*Suitable for—but not limited to—small-capacity systems*

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.

**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

Area-type™ humidifier

*For rooms without ducts*

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.

**Steam pressures:** 2–15 psi (14–103 kPa)
**Capacity:** 1.8–286 lbs/hr (0.8–130 kg/h)
Evaporative cooling and humidification

**ENERGY EFFICIENT**
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.

**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.

**LOW MAINTENANCE**
High-Pressure and Wetted Media 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.

High-Pressure System water treatment options available from DriSteem provide ultra-pure water that leaves no white dust. The reverse osmosis (RO) system automatically flushes for extended membrane life.

Wetted Media Systems recycle water, after it flows through the media, with robust centrifugal pumps. The Vapor-logic controller manages the concentration of dissolved solids in recirculated supply water to minimize scaling and lengthen media life. When required, new media cassettes easily drop into place.

**DIRECT OR INDIRECT EVAPORATIVE COOLING**

Direct evaporative cooling adds moisture to the supply air. Indirect evaporative cooling occurs in the heat exchanger without adding moisture. A High-Pressure System is shown here. Direct and indirect evaporative cooling can function similarly when using a Wetted Media System.

**HIGH-PRESSURE SYSTEM**

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.

**WETTED MEDIA SYSTEM**

The DriSteem Wetted Media System delivers evaporative cooling and humidification to air handlers and ducts. The Vapor-logic controller’s sophisticated water and scale management capabilities optimize water and media life.
<table>
<thead>
<tr>
<th>Feature</th>
<th>High-Pressure System</th>
<th>Wetted Media System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application versatility</td>
<td>Suitable for any application; commonly used in data centers, industrial manufacturing, printing facilities, and applications using air-side economizers</td>
<td>Controller anticipates cooling requirements, maximizes system on-time, monitors media performance and prompts for replacement, and provides temperature control</td>
</tr>
<tr>
<td>Advanced technology</td>
<td>Micro-turbines in precision-machined atomizing nozzles fragment water droplets into ultra-fine particles (90% are ten microns or less)</td>
<td>Water concentration management maximizes media life and water utilization</td>
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<tr>
<td></td>
<td>Water delivered to nozzles at up to 1200 psi (8.27 MPa) requires no pressurized air</td>
<td>Water concentration management maximizes media life and water utilization</td>
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<td></td>
<td>Integral check valve in nozzle ensures no dripping when system shuts off</td>
<td>Multiple compact recirculation pumps provide redundancy with low system energy usage</td>
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<tr>
<td>Cooling effect saves energy</td>
<td>Every pound of atomized water absorbed in air removes approximately 1000 Btu of heat from the air (every kg absorbed removes approximately 2300 kJ of heat)</td>
<td>Significant energy savings when cooling and humidifying simultaneously</td>
</tr>
<tr>
<td></td>
<td>Utility rebates can offset costs</td>
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<tr>
<td>Low maintenance</td>
<td>Stainless-steel pump is cooled by purified supply water; 8000 hours before maintenance check</td>
<td>Uses potable water, eliminating water treatment maintenance</td>
</tr>
<tr>
<td></td>
<td>Stainless-steel nozzles and manifolds require no maintenance</td>
<td>Water concentration management minimizes media scaling, extending media life</td>
</tr>
<tr>
<td></td>
<td>Thorough water filtration protects stainless-steel components from corrosion and undue wear</td>
<td>Easy-to-replace media cassettes drop into frames in seconds</td>
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<td></td>
<td>Final evaporation media as close as three feet (0.9 m) downstream from heating coil prevents downstream wetting</td>
<td>Powerful pumps keep solids in the holding tank in motion to be easily drained away</td>
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<tr>
<td>Comprehensive system control</td>
<td>Accurate, responsive RH control; PID control tunes system for maximum performance</td>
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<td></td>
<td>Set up, view, and adjust system functions with intuitive keypad/display or Web interface</td>
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<td></td>
<td>Integrates into any building automation system via and optional BACnet, LonTalk, or Modbus communication protocols</td>
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<tr>
<td>Multiple zone control capability</td>
<td>Individual zone monitoring and modulated staging valves provide tight control in all zones with optimized absorption and minimal water waste</td>
<td>Not available</td>
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<td></td>
<td>One system cools and humidifies multiple zones with separate demands</td>
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<tr>
<td>Versatile</td>
<td>Cools and humidifies in air handlers, ducts, and open spaces</td>
<td>Cools and humidifies in air handlers and ducts</td>
</tr>
<tr>
<td></td>
<td>Nozzle staging and pulsed modulation allow high turndown of system output</td>
<td>Media staging and predictive operation allow high turndown of system output; stages can remain active while other stages are in dry-out mode</td>
</tr>
<tr>
<td></td>
<td>Capacities up to 5500 lbs/hr (2495 kg/h), multiple systems can be combined for larger capacities</td>
<td>Media sizes from 4 ft² (0.4 m²) to 100 ft² (9.3 m²); multiple systems can be combined for larger capacities</td>
</tr>
<tr>
<td></td>
<td>Flexibility to accommodate the most challenging applications; extensive network of DriSteem representatives available to assist with system layout and design</td>
<td>Not available</td>
</tr>
<tr>
<td>Complete water treatment solution</td>
<td>Water treatment options available from DriSteem include RO hyperfiltration, particulate filtering, dechlorination, and duplex water softening</td>
<td>Not required</td>
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<tr>
<td></td>
<td>Automatic back-flush technology ensures long RO membrane life</td>
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<tr>
<td></td>
<td>Ultra-pure water eliminates white dust fallout and bacteria/virus proliferation that can occur when using potable water</td>
<td></td>
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</tbody>
</table>
WATER TREATMENT SYSTEMS

Dechlorination, water softening, and reverse osmosis equipment
Enhances performance of and minimizes or eliminates humidifier and evaporative cooling maintenance requirements. Provides the cleanest water possible for humidification and evaporative cooling applications and other processes requiring water treatment.

Water quality is integral to the operation and longevity of humidification and evaporative cooling equipment. Required maintenance, system performance, and water/energy usage are all affected by water quality. Operating with treated water reduces or eliminates hard water scale on equipment surfaces, thereby reducing maintenance requirements. Performance improves in systems using treated water with benefits such as reduced downtime, higher energy transfer, and elimination of clogged nozzles. Humidification vapor quality also improves when the supply water is treated.

DriSteem Water Treatment Systems offer:

- Complete suite of products available for all applications — dechlorination, water softening, 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 evaporative cooling or humidification systems with a single water treatment system
- Components can be used individually or as a complete water treatment solution

Capacity: 288–15840 gallons per day (100–5500 lbs/hr ; 45–2495 kg/hr)

TYPICAL PLumbed WATER TREATMENT SYSTEM
ACCURATE, RESPONSIVE CONTROL

Vapor-logic is the control platform for all DriSteem nonpressurized steam generation humidifiers and DriSteem’s evaporative cooling/humidification systems. Vapor-logic provides accurate, responsive RH control, and PID control tunes the system for maximum performance.

BACnet, LonTalk, or Modbus 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.

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.

Contactor wear leveling distributes cycles among multiple contactors for equal wear and longer contactor life in Vaporstream humidifiers.

Data logs can be downloaded to a PC for viewing and analysis.

Cycle counter triggers a message when it’s time to replace contactors in electric humidifiers.

Nozzle staging and pulsed modulation allow high turndown of system output in the High-Pressure System.

Performance monitor tracks media performance and prompts for replacing media in Wetted Media System.

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.

USB port for firmware updates, downloading data logs, and data backup and restore.

Use the Vapor-logic keypad or the Web interface to control your humidification system.
TAILORED SOLUTIONS FOR UNIQUE APPLICATIONS
For over 50 years, 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 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-kooler Water Tempering Device to cool water discharged from sterilization equipment. Since sterilizers run continuous cold water to temper discharged condensate, the Drane-kooler, 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.
OUTDOOR ENCLOSURES AND WEATHER COVERS
Heated/ventilated outdoor enclosures for evaporative 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 outdoor enclosure is CSA certified for outdoor operation, and the STS and Vaporstream outdoor enclosures are ETL approved for outdoor operations. Weather covers for Vaporstream and STS humidifiers are fully assembled at the factory to protect against wind, sun, and rain.

HUMIDIFIER DE-SCALING SOLUTION
Keep your humidifier operating at peak efficiency with DriSteem Humidifier De-scaling Solution. The solution cleans without corroding humidifier tanks or welds. Clean humidifiers quicker and more easily by using the de-scaling pump kit along with our de-scaling solution.

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.

EXTENDED WARRANTY PROGRAM
An extended warranty provides coverage for one or two years beyond DriSteem’s standard Two-year Limited Warranty to eliminate unforeseen expenses and lay the groundwork for a manageable budget.

SERVICE KITS
Service Kits combine common replacement parts for servicing DriSteem humidifiers. Each Service Kit is priced lower than purchasing the parts individually.

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.
## DriSteem steam generator comparison

<table>
<thead>
<tr>
<th>Energy source</th>
<th>GTS</th>
<th>STS</th>
<th>Vaporstream</th>
<th>Vapormist</th>
<th>CRUV</th>
<th>Low-maintenance</th>
<th>XTP</th>
<th>XTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric, resistive (heating element)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Electric, conductive (electrode)</td>
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<td>X</td>
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<td>Natural gas or propane</td>
<td>X</td>
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<tr>
<td>Boiler steam</td>
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<td>X</td>
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### Steam capacity, lbs/hr (kg/hr)

<table>
<thead>
<tr>
<th></th>
<th>GTS</th>
<th>STS</th>
<th>Vaporstream</th>
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<th>XTP</th>
<th>XTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum for one humidifier</td>
<td>600 (272)</td>
<td>1600 (726)</td>
<td>285 (129)</td>
<td>102 (46)</td>
<td>102 (46)</td>
<td>102 (46)</td>
<td>287 (130)</td>
<td>11.3 (5.1)</td>
</tr>
<tr>
<td>Minimum</td>
<td>75 (34.0)</td>
<td>20 (9.1)</td>
<td>5.7 (2.6)</td>
<td>6 (2.7)</td>
<td>6 (2.7)</td>
<td>6 (2.7)</td>
<td>5 (2)</td>
<td>5.6 (2.5)</td>
</tr>
<tr>
<td>Maximum with multi-tank control</td>
<td>9,600 (4,354)</td>
<td>25,600 (11,612)</td>
<td>4,560 (2,068)</td>
<td>1,632 (740)</td>
<td></td>
<td></td>
<td>1114* (520)</td>
<td></td>
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</tbody>
</table>

### Application size based on steam capacity

<table>
<thead>
<tr>
<th>Square footage (m²) capability of 1 humidifier</th>
<th>GTS</th>
<th>STS</th>
<th>Vaporstream</th>
<th>Vapormist</th>
<th>CRUV</th>
<th>Low-maintenance</th>
<th>XTP</th>
<th>XTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>100,000 (9,290)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>266,000 (24,712)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>47,500 (4,412)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17,000 (1,579)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>47,300 (4,394)</td>
<td></td>
<td></td>
<td></td>
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### Installation options

<table>
<thead>
<tr>
<th>Indoor</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor (in optional enclosure)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Finished space</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In packaged A/C unit</td>
<td></td>
<td></td>
<td></td>
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<td>X</td>
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### Water type

<table>
<thead>
<tr>
<th>Tap</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X***</th>
<th>X</th>
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</thead>
<tbody>
<tr>
<td>Softened</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Reverse osmosis</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deionized</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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### Controller

<table>
<thead>
<tr>
<th>Vapor-logic controller</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>Optional</th>
<th>X</th>
<th>X</th>
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<tbody>
<tr>
<td>Standard controller</td>
<td></td>
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<td></td>
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<td></td>
<td>X</td>
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<tr>
<td>Microprocessor LW417 control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connectivity: BACnet, Modbus, LonTalk</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Optional</td>
<td>X</td>
<td>Optional</td>
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</tbody>
</table>

### Control capability

<table>
<thead>
<tr>
<th>With modulating demand signal</th>
<th>± 3%</th>
<th>± 3%</th>
<th>± 1%</th>
<th>± 3%</th>
<th>± 3%</th>
<th>± 3%</th>
<th>± 3%</th>
<th>± 3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>With on-off demand signal</td>
<td>± 3%</td>
<td>± 3%</td>
<td>± 3%</td>
<td>± 3%</td>
<td>± 3%</td>
<td>± 3%</td>
<td>± 3%</td>
<td>± 3%</td>
</tr>
<tr>
<td>With available options for specific applications</td>
<td>± 1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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Continued
### DriSteem steam generator comparison (continued)

<table>
<thead>
<tr>
<th>Dispersion options</th>
<th>GTS</th>
<th>STS</th>
<th>Vaporstream</th>
<th>Vapormist</th>
<th>CRUV</th>
<th>Low-maintenance</th>
<th>XTP</th>
<th>XTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra-sorb Model XV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultra-sorb Models LV, LH, and MP</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Rapid-sorb</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Single dispersion tube</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>XTR dispersion tube</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Space distribution unit, external absorption (SDU-E)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Space distribution unit, internal absorption (SDU-I)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Top- or remote-mounted XT steam blower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Top- or remote-mounted XTR steam blower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>XTR fan pack</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Area-type fan (mounted on steam generator)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

### Water treatment option

<table>
<thead>
<tr>
<th>Water treatment option</th>
<th>GTS</th>
<th>STS</th>
<th>Vaporstream</th>
<th>Vapormist</th>
<th>CRUV</th>
<th>Low-maintenance</th>
<th>XTP</th>
<th>XTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse-osmosis filtration</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Single/duplex softening</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dechlorination</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

### Water tempering

<table>
<thead>
<tr>
<th>Water tempering</th>
<th>GTS</th>
<th>STS</th>
<th>Vaporstream</th>
<th>Vapormist</th>
<th>CRUV</th>
<th>Low-maintenance</th>
<th>XTP</th>
<th>XTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drane-kooler option</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Integral water tempering</td>
<td>X</td>
<td></td>
<td></td>
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</table>

### Seismic certification option

<table>
<thead>
<tr>
<th>Seismic certification option</th>
<th>GTS</th>
<th>STS</th>
<th>Vaporstream</th>
<th>Vapormist</th>
<th>CRUV</th>
<th>Low-maintenance</th>
<th>XTP</th>
<th>XTR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Four staged XT humidifiers, not via multi-tank control
** 20% outdoor air at 3 lbs/hr/100 cfm [231 kg/h per m²/h], building need of 40% RH @ 72 °F (22.2 °C), typical commercial building load of 1 cfm/ft² [18 m³/h per m²]
***Softened source water is preferred for best product performance. Only consider tap water that is ≤10 grains/gal hardness and is from treated water municipal supply. Although tank maintenance is significantly enhanced with the Low-maintenance humidifier, if hard water is used, tank maintenance may be necessary.
### DriSteem dispersion product comparison

<table>
<thead>
<tr>
<th>Vapor delivery type</th>
<th>DriSteem product</th>
<th>Capacity</th>
<th>Installation location</th>
<th>Boiler steam pressure at dispersion assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>lbs/hr</td>
<td>kg/hr</td>
<td>Duct</td>
</tr>
<tr>
<td>Evaporative cooling/</td>
<td>High-Pressure System</td>
<td>5500</td>
<td>2495</td>
<td>X</td>
</tr>
<tr>
<td>humidification</td>
<td>Wetted Media System</td>
<td>*</td>
<td>*</td>
<td>X</td>
</tr>
<tr>
<td>Nonpressurized</td>
<td>Ultra-sorb Model XV** (with STS humidifier)</td>
<td>450</td>
<td>204</td>
<td>X</td>
</tr>
<tr>
<td>steam dispersion</td>
<td>Ultra-sorb Model LV**</td>
<td>1850</td>
<td>840</td>
<td>X</td>
</tr>
<tr>
<td>from DriSteem</td>
<td>Ultra-sorb Model LH**</td>
<td>1850</td>
<td>840</td>
<td>X</td>
</tr>
<tr>
<td>steam generator</td>
<td>Ultra-sorb Model MP</td>
<td>700</td>
<td>318</td>
<td>X</td>
</tr>
<tr>
<td>Rapid-sorb</td>
<td>2100</td>
<td>955</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Single dispersion tube (without condensate drain)</td>
<td>65</td>
<td>29.5</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Single dispersion tube (with condensate drain)</td>
<td>97</td>
<td>44</td>
<td>X</td>
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<tr>
<td></td>
<td>SDU-I</td>
<td>30</td>
<td>13.6</td>
<td>X</td>
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<tr>
<td></td>
<td>SDU-E</td>
<td>102</td>
<td>46.3</td>
<td>X</td>
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<tr>
<td></td>
<td>SDU-003E (XTR steam blower)</td>
<td>11.3</td>
<td>5.1</td>
<td>X</td>
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<tr>
<td></td>
<td>SDU-003F (XTR fan pack)</td>
<td>11.3</td>
<td>5.1</td>
<td>X</td>
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<tr>
<td></td>
<td>SDU-006E (XT steam blower)</td>
<td>20</td>
<td>9.1</td>
<td>X</td>
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<tr>
<td></td>
<td>SDU-017E (XT steam blower)</td>
<td>50</td>
<td>22.7</td>
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<tr>
<td></td>
<td>Area-type fan</td>
<td>286</td>
<td>130</td>
<td>X</td>
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<tr>
<td>Pressurized steam</td>
<td>Multiple-tube humidifier</td>
<td>3989</td>
<td>1809</td>
<td>X</td>
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<tr>
<td>injection from boiler</td>
<td>Mini-bank humidifier**</td>
<td>84</td>
<td>38</td>
<td>X</td>
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<tr>
<td></td>
<td>Single-tube humidifier</td>
<td>525</td>
<td>238</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Ultra-sorb Model XV</td>
<td>2720</td>
<td>1235</td>
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<td></td>
<td>Ultra-sorb Model LV</td>
<td>4000</td>
<td>1815</td>
<td>X</td>
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<td></td>
<td>Ultra-sorb Model LH</td>
<td>3268</td>
<td>1482</td>
<td>X</td>
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<td>Ultra-sorb Model MP</td>
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<td>1235</td>
<td>X</td>
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<td></td>
<td>Area-type humidifier</td>
<td>286</td>
<td>130</td>
<td>X</td>
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</tbody>
</table>

* Up to 95% cooling efficiency. See the Wetted Media System cooling efficiency and pressure drop chart in our Evaporative Cooling and Humidification Catalog.

** Seismic certification option
### Tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
<th>Website Link</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DRICALC</strong></td>
<td>Sizing and selection software</td>
<td>Click <a href="#">Launch DriCalc</a> on the website to launch the tool.</td>
</tr>
<tr>
<td></td>
<td>DriSteem's DriCalc software will size loads, select equipment, write specifications, generate as-configured installation guides, and create equipment schedules.</td>
<td></td>
</tr>
<tr>
<td><strong>LOADCALC</strong></td>
<td>Humidification load calculator</td>
<td>Click <a href="#">LoadCalc program</a> on the Tools tab of our website to launch the tool.</td>
</tr>
<tr>
<td></td>
<td>LoadCalc provides a humidification load calculation based on entering air, outside air, and desired room conditions.</td>
<td></td>
</tr>
<tr>
<td><strong>ENERGYCALC</strong></td>
<td>Energy savings calculator</td>
<td>Click <a href="#">EnergyCalc program</a> on the Tools tab of our website to launch the tool.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><strong><a href="http://WWW.DRISTEEM.COM">WWW.DRISTEEM.COM</a></strong></td>
<td>Our website</td>
<td>Visit our website to:</td>
</tr>
<tr>
<td></td>
<td>- Launch DriCalc sizing and selection software</td>
<td>• Launch DriCalc sizing and selection software</td>
</tr>
<tr>
<td></td>
<td>- Find a DriSteem representative</td>
<td>• Find a DriSteem representative</td>
</tr>
<tr>
<td></td>
<td>- Get the most current product information</td>
<td>• Get the most current product information</td>
</tr>
<tr>
<td></td>
<td>- Learn more about humidification</td>
<td>• Learn more about humidification</td>
</tr>
<tr>
<td></td>
<td>- Calculate load online</td>
<td>• Calculate load online</td>
</tr>
<tr>
<td></td>
<td>- Calculate energy savings online</td>
<td>• Calculate energy savings online</td>
</tr>
<tr>
<td></td>
<td>- Watch product videos</td>
<td>• Watch product videos</td>
</tr>
</tbody>
</table>
DRI-STEEM Corporation
a subsidiary of Research Products Corporation
DriSteem is an ISO 9001:2000 certified company

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+32 11 82 3595
Email: dristeem-europe@dristeem.com

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