



STS®

Steam-to-Steam Humidifier

*Vapor-logic® controller with:*

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

*Ultra-sorb® Model XV dispersion option*

# Chemical-free humidification steam



## STS HUMIDIFIER

*The STS steam-to-steam humidifier generates chemical-free humidification steam using boiler steam as its energy source. STS is designed for use with tap or softened water and is available with an option for RO/DI water (water that has been treated using reverse osmosis, or deionized water).*

## HUMIDIFY USING AN ECONOMICAL ENERGY SOURCE

The STS steam-to-steam 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.

## NO DIRECT INJECTION OF BOILER CHEMICALS

Another way to use boiler steam for humidification is to disperse it directly into the air. However, humidifier owners are learning that chemically treated, boiler-generated steam is unsuitable for direct injection humidification for the following reasons:

Boiler water is usually treated with anticorrosion chemicals that can contaminate spaces humidified by direct steam injection.

Airborne boiler chemicals have been found to irritate eyes and skin, and to aggravate respiratory disorders. In addition, they accelerate the aging of certain materials like paper and wood, an issue especially relevant to museum owners.

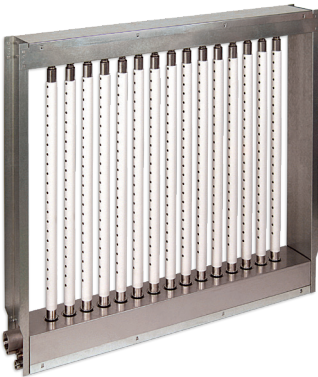
To ensure chemical-free humidification while taking advantage of economical on-site boiler steam, consider using an STS humidifier.

## INTEROPERABILITY, WEB-ENABLED ACCESS WITH VAPOR-LOGIC CONTROL

STS humidifiers are fully interoperable via Modbus or optional BACnet or LonTalk. The Vapor-logic Web interface provides the capability to set up, view, and adjust humidifier functions via Ethernet, either directly or remotely through a network.

## NO DISPERSION-GENERATED CONDENSATE WITH ULTRA-SORB MODEL XV

driSteed's Ultra-sorb Model XV is an STS steam dispersion option, delivering chemical-free humidification steam with no condensate loss. That's because Ultra-sorb Model XV has a single header with an integral heat exchanger. Boiler steam in the heat exchanger instantly flashes dispersion-generated condensate back into humidification steam while returning pressurized condensate to the boiler without additional pumps, valves, or controls.



*Ultra-sorb Model XV disperses STS-generated humidification steam with no condensate loss.*

- Zero water waste from condensate loss
- High-efficiency tubes and insulated header provide up to 85% reduction in wasted energy
- Steam capacity up to 204 kg/h per dispersion panel when used with STS
- Dispersion option for all STS models

**Table 3-1:**  
STS humidifier features and benefits

Reliable	<ul style="list-style-type: none"> <li>Control RH to <math>\pm 3\%</math> of set point; control to <math>\pm 1\%</math> of set point with available options for specific applications. Consult driSteem for recommendations.</li> <li>Electronically monitored water level ensures continuous, safe operation.</li> <li>Closed-loop system results in less wear on the boiler — no need to chemically treat make-up water for humidification.</li> </ul>
Efficient	<ul style="list-style-type: none"> <li>Utilizes energy from existing plant steam.</li> <li>Most energy-efficient means of producing chemical-free steam with pressurized steam as the energy source.</li> </ul>
Flexible	<ul style="list-style-type: none"> <li>Easy retrofit for steam injection humidifiers</li> <li>Broad capacity range from 4.5 to 726 kg/h, link up to 16 units for capacity up to 11,612 kg/h.</li> <li>Supports all fill water types: tap, softened, reverse osmosis, and deionized; easy field conversion if water type changes.</li> <li>Suitable for all dispersion options.</li> <li>Robust outdoor enclosure or weather cover options available for outdoor operation in any climate.</li> </ul>
Easy to maintain	<ul style="list-style-type: none"> <li>Cleanout plate and removable cover provide access to heat exchanger and tank without removing steam dispersion piping.</li> <li>User-adjustable water skimmer eliminates floating minerals, while automatic drain and flush removes precipitated minerals; softened fill water significantly reduces maintenance requirements.</li> <li>Heat exchanger sheds mineral buildup automatically.</li> <li>End-of-season autodrain.</li> </ul>

**Table 3-2:**  
STS humidifier models and capacities

STS models	Steam pressure at connection to STS steam valve (valve provided by driSteem)			
	34 kPa	69 kPa	90 kPa	103 kPa
	kg/h	kg/h	kg/h	kg/h
25C	9	32	45	54
25S	5	11	14	16
50C	23	68	91	109
50S	14	25	34	36
100C	45	136	181	218
100S	27	50	64	68
400C	136	263	327	358
400SNC	77	178	250	289
800C	295	578	680	726
800SNC	96	374	497	555

For use with tap/softened or RO/DI water:

- STS models ending in C (copper heat exchangers with a nickel coating)
- STS models ending in S (stainless steel heat exchangers with a Teflon coating)

For use with RO/DI water option only:

STS models ending in SNC (stainless steel heat exchangers with no coating)



**DriSteem Corporation**

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

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**EXPECT QUALITY FROM THE INDUSTRY LEADER**

For more than 45 years, driSteem has been leading the industry with  
creative and reliable humidification solutions. Our focus on quality is  
evident in the construction of the STS humidifier. driSteem leads the  
industry with a Two-year Limited Warranty and optional extended  
warranty.

**For more information**

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