

MECHANICAL SPECIFICATION

SECTION 23 84 13.29

ELECTRODE STEAM HUMIDIFIERS

1 GENERAL

1.1 DESCRIPTION

- A. Provide connection-ready FlexLine electrode steam humidifiers for fully automated and intrinsically safe production of mineral-free and pure steam in accordance with the contract documents

1.2 WORK INCLUDED

- A. Install steam humidifier as shown on plans and as per manufacturer's instructions
- B. Install operating controls as shown on plans and as per manufacturer's instructions
- C. Manufacturer-specific mounting rail systems are not required

1.3 SUBMITTALS

- A. Provide complete humidifier catalog data, including performance and all components provided
- B. Provide power and control wiring diagrams

1.4 QUALITY ASSURANCE

- A. Provide UL or CSA listed electrode steam humidifiers

2 PRODUCTS

2.1 Self-contained steam humidifiers: Humidifiers shall produce clean, sterile steam from standard tap water by means of stainless steel electrodes immersed in water contained in a cleanable plastic cylinder and shall operate on a wide range of water conductivities

A. Steam Generator

- 1. Cleanable & reusable plastic steam cylinder, constructed of PP/GRP composite material with thick walls for long life and increased insulation for superior efficiency, which can be opened for cleaning and to replace internal components. Throwaway cylinders are not acceptable
- 2. Solid plate stainless steel electrodes designed to shed mineral for reduced maintenance, quickly cleanable or replaceable without tools. Mesh electrodes designed to hold mineral are not acceptable

B. Water Feed / Drain System

- 1. Double check valve water feed system to prevent backflow while allowing pressure feed to the steam cylinder for greatly reduced maintenance
- 2. Heavy-duty blow-down pump to reduce maintenance by grinding and pumping out mineral scale. Drain valves are not acceptable as they are easily jammed

C. Microprocessor Control

- 1. Highly-efficient control electronics for fastest possible steam production, optimum energy efficiency, low-maintenance operation, and comprehensive operational safety through continuous self-monitoring of the unit functions

2. Auto-adaptive operation that automatically adjusts unit operation according to water quality, with automatic system tests including self-diagnoses to check all functions and components
 3. Selectable between sensor input with resident humidifier control (display of humidity and set point on humidifier), or control input for external control of humidifier
 4. Selectable between On/Off, modulating, or PI control
 5. Easy to read, 3.5" backlit graphic capacitive touchscreen display with simple menu structure for intuitive operation with clear service messages in plain text mode and as icons
 6. 2 potential free remote signal relays, one of them freely programmable with 53 options
 7. Selectable stand-by blow-down timer to prevent standing cylinder water according to VDI 6022
 8. Selectable stand-by heating mode to keep the water warm for instant response to demand
 9. Password protected field adjustment parameters to permit field adjustment of operation for difficult non-standard feed waters
 10. Available EIA-485 serial interface cards with either ModBus RTU or BacNet MS/TP protocol
 11. Selectable operating modes: "energy-optimized", "load-optimized" and "quick control"
 12. Separate inputs for voltage, current, and resistance signals
 13. 0-10 Vdc analog output for simultaneous use of several devices
 14. Programmable maintenance cycle timer/display
 15. Optional: Relay circuit board to output 3 control commands / messages from 53 options
 16. Optional: Remote control for spa applications only
 17. Timer controlled "dead leg" flushing to prevent stagnant water in the lines
- D. General Design
1. Steam hose adapter for quick removal and reinstallation of the cylinder without tools
 2. Easily accessible connection terminals for power and control
 3. Removable cover for easy access to all components
 4. Corrosion-resistant stainless steel enclosure, powder-coated
 5. Integral circuit breaker/disconnect
- E. Optional features that may be specified on the plans
1. Integrated HyCool drain tempering system with 140°F maximum drain temperature
 2. CylinderStar for longer life expectancy of the electrodes in highly conductive water (check with factory before selecting this option)
 3. SuperFlush cylinder rinsing system for decreased maintenance, optional pulse system HyFlush
 4. Galvanized electrodes for optimized electrode life expectancy on high chloride water (check with factory before selecting this option)
- F. Steam Distribution for HVAC applications only
1. For Duct Injection: Provide stainless steel steam distribution manifolds sized for the duct dimensions, and having a duct mount plate, condensate return, and steam discharge holes designed for short evaporation without spitting

2. For Room Injection: Provide packaged room distribution units, consisting of a steam distribution manifold with condensate return, integral quiet cross-flow blowers, contained in a powder coated, corrosion resistant housing. Room distribution unit may be direct or remote mounted

G. Equipment

1. Humidifiers shall be FlexLine electrode steam humidifiers as manufactured by HygroMatik GmbH (www.HygroMatik.com)

H. Acceptable Manufacturers

1. HygroMatik GmbH

3 EXECUTION

- 3.1 Comply fully with the manufacturer's installation instructions
- 3.2 Comply fully with all local, electrical, and applicable codes
- 3.3 Connect to untreated domestic water supply