

## Tender specification

### Heater element steam humidifier **FlexLine Plus Process (TPRO)**

Ready-to-connect compact steam humidifier for fully automatic and intrinsically safe generation of mineral-free, odourless and sterile steam for air-conditioning and production technology applications. Steam output 5 – 50 kg/h per individual unit. Installation and maintenance friendly design, for wall mounting. Easy to mount with all commercially available mounting rail systems, manufacturer-specific systems are not required. Completely stainless steel cabinet for optimum handling additionally powder-coated with lockable stainless steel cover and separate areas for steam generation and electrics.

With VDE and GS certification; CE- and EAC-compliant. Developed and produced in Germany.

The FlexLine Plus Process TPRO is operated with demineralised water.

Powerful control electronics for fastest possible steam delivery with optimal energy utilisation and low maintenance operating mode. Comprehensive operational reliability through continuous self-monitoring of all unit functions. The control processes all common signals and is modularly extendible.

#### Standard equipment:

- Graphic capacitive 3.5" touch display with simple menu structure for intuitive operation and clearly laid out display of all operating and service messages in plain text mode and as icons
- Separable corrosion resistant stainless steel cylinder, cleanable without using chemicals, re-usable and with especially long service life
- Steam hose adapter, connectors and cylinder tension ring for quick and easy cylinder removal without tools
- Individually replaceable resistance heaters in Incoloy; extremely heat resistant and corrosion proof even with aggressive water qualities
- Electronic level control – exceptionally tough due to non-wearing contact free continuous proportional water level recording with no moving parts. Non-use of conventional float switches is deliberate in order to eliminate any risk of failure due to swollen or leaking floats
- Units are equipped with certified, discrete and software-independent components and as verification of the highest standard of intrinsic safety are tested and certified by an independent body in compliance with the current product safety legislation of 17/03/2016 based on the low voltage directive (2014/35/EU)
- Powerful blowdown pump to extend service lives through pumping out scale deposits and hardeners
- Good component accessibility from three sides facilitated by unit's removable cover
- Roomy electric compartment
- Assembly materials
- Separate inputs for voltage, current and resistance signals
- Freely programmable overload protected digital input; amongst others load dumps or limited power decreases for reduction of power surges are consequently easily achieved

#### Performance characteristics:

- Automatic system test incl. power-up diagnosis to check all functions and unit components
- Support of preventative maintenance by maintenance-required messaging in good time BEFORE the occurrence of a possible malfunction by means of selective component monitoring with three service messages
- Load-dependent and/or time-based adjustable service interval display
- Integrated PI controller for top control quality
- Quad solenoid valve cascade for quasi continuous water make-up and highest control precision
- Variable maximum humidity limitation for improved control in case of input air humidity
- Continuous or single-stage control selectable
- Control accuracy of  $\pm 0,5\%$  as an essential feature

- Proportional controllability in the range of 5-100% of the nominal output (0-100% possible)
- Analogue output 0-10 V for simultaneous use of several units
- Greatest operational reliability through thermal protection of the heater elements
- Thermal overload protection of the power semiconductor relay
- Practically maintenance-free due to the operation with demineralised water
- Blowdown performance individually adjustable via touch display
- Stand-by blowdown to prevent stationary cylinder water according to VDI 6022
- DVGW compliant flushing of dead-end line to prevent tap water stagnation
- Standby heating for quick steam production
- Integrated galvanically isolated serial interface RS-485 (EIA-485)
- Integrated communication protocol Modbus RTU and BACnet MS/TP
- 2 potential-free relay signal functions; one of them freely parametrisable from 53 functions (factory preset: operating message and collective fault)

Optional:

- Integrated waste water cooling to limit waste water temperature to max. 60°C when using PVC waste water pipes or pumping equipment
- Up to 7 additional relay signal functions, freely parametrisable from 53 functions for optimum integration in superordinate building technology
- External 3.5" touch display as surface-mounted version in its own housing