



TYPICAL SPECIFICATION FOR SIMONS-VAPAC VapaNet SERIES (LE / LEP) AUTOMATIC PACKAGED ELECTRODE STEAM HUMIDIFIERS

- The subcontractor shall supply and install where indicated on the Drawing a packaged wall mounted automatic electrode steam humidifier with a capacity not less than _ kg/hr, or as specified in the Schedule forming part of this specification.
- The humidifier shall be of the self contained atmospheric steam generating type with replaceable polypropylene steam cylinder suitable for use connected direct to town mains water supply. The steam cylinder shall be of the easily replaceable type for convenience of maintenance with minimum 'downtime' of the unit.
- The humidifier shall be able to automatically adapt to the normal range of mains water qualities by adjusting the frequency of fill and drain functions consistent with the required operating water conductivity, and thereby maximise the cylinder life. The boiled water condition shall be automatically and continuously monitored to ensure operation with minimum energy wastage.
- The humidifier shall have a robust zinc coated steel cabinet with polyester powder coat finish. The cabinet shall be suitable for securing to the plant room wall or angle-iron stand. The cabinet shall be sectionalised with electrical and water sections being separated by an air gap. Access doors shall be provided to permit easy access for maintenance and servicing of the equipment. Access doors shall be lockable to restrict access to authorised persons only.
- The water compartment shall contain a water inlet strainer with replaceable element, electric drain pump, inlet solenoid valve and a replaceable steam generating cylinder of injection moulded polypropylene with grid type long life electrodes. The steam cylinder shall have a water level sensing electrode probe to close the feed valve and prevent overfilling. To avoid earth leakage the power supply shall be disconnected from the electrodes when the unit is draining water.
- The unit shall comply with local bylaws, regulations and plumbing codes. The unit shall include a fill-cup providing a 25mm air gap on the water feed line to prevent back feeding/contamination of feed water supply line and the drain circuit shall discharge through a drain trap vented into the steam cylinder compartment. The fill-cup shall be fitted with a safety overflow to drain from the water feed line and pump circuit. The humidifier shall include an electric drain pump to minimise interruption to steam generation and the risk of blockage by sediment. The water feed to the unit shall incorporate a strainer and a flow control resistor to suit connection to water supplies with pressure in range 1 to 8 bar.
- The electrical compartment shall contain all electrical equipment and solid state controls necessary to automatically regulate steam output, water level, water inlet, drain and mineral salt concentration to optimise efficiency of operation and life of the steam cylinder. The internal control circuit of the unit shall operate at 24 Vac. The electronic controller shall include a fixed resistor plug to determine the maximum output setting of the unit at the voltage with provision for adjustment down to 50% of this value.



**THE FASCIA PANEL OF THE ELECTRICAL COMPARTMENT
SHALL INCLUDE THE FOLLOWING SWITCHES AND INDICATORS:**

- Power on indicator neon
- Manual Drain Switch
- On/Off Switch
- Water Feed Symbol and indicator LED
- Drain Cycle Symbol and indicator LED
- Demand indicator LED
- Low Output/Cylinder Change warning indicator LED
- The humidifier shall have a microprocessor control able to detect abnormal operation and to respond to it by corrective drainage.
- The humidifier will shut down and flash a red warning indicator light in the event of:
 - High overcurrent
 - A drain pump blockage
 - A fault of the feed water supply

ALPHA-NUMERIC DISPLAY

- FITTED AS OPTION ON ALL LE AND LEP UNITS –

- The unit shall incorporate an Alpha-numeric Display with touch-sensitive keypad for initial Set-up procedure, configuration, diagnostic operational information and for adjustment purposes.
- The keypad shall allow access to the programs so that system operating parameters can be adjusted to match site requirements.
- The Alpha-numeric Display shall be two-line 32 characters with keypad label.
- The system status shall be displayed at the touch of a button using the keypad and screen to operate in the chosen mode while the humidifier is working normally.
- Service help messages shall automatically appear when maintenance is required.
- A simple text message shall scroll across the display describing the action to be taken such as 'cylinder replacement is required'.
- The Alpha-numeric Display and keypad shall be capable of providing the following comprehensive configuration and diagnostic information programs.
 - Status Program - Information displayed
 - Top line: Status of steam cylinder: Feeding, Boiling, Draining, Preheat, Corrective Drain, etc.
 - Bottom line: Performance data of cylinder: Electrode Amps, Supply Amps, Steam Output, % Demand Level, Hours Run
 - Service Program - Options covered
 - To reset hours run timer
 - To add a periodic drain timer function
 - To reset Language
 - To reset Voltage
 - To access Engineer's Service Menu
 - Adjustment Program - Adjustments available
 - To alter output (50% - 100%)
 - To change drain time
 - To change display speed
 - Information Program - Record of events
 - No. of Drain Fault Stops
 - No. of Feed Fault Stops
 - No. of High Overcurrent Stops
 - No. of High Overcurrent Drains

In the event that a fault condition triggers an automatic shutdown of the unit, the display shall identify the particular STOP condition together with a scrolled HELP MESSAGE.



CONTROLS

- The humidifier shall be controlled in an *on/off *modulating mode as set out in the Schedule and the humidifier shall be factory fitted with the corresponding solid state controls. (*Delete as applicable.)
- The humidistat shall be supplied by the 'Controls Subcontractor', who shall ensure that the humidistat selected is compatible with the control system of the humidifier and is wired into the 'terminal blocks of the humidifier in accordance with the "Installation Instruction Manual" supplied with the humidifier.

MICROVAP LE UNIT

- The humidifier shall be able to provide a safe 24vac electrical supply for an external On/Off humidistat connection and shall be able to give a 20-100% response to any one of the following standard ~odulating control signals:
- Potentiometric 135 ohms to 10K
- 0-5v DC 2-10v DC 0-10v DC 1-18v DC 0-20v DC 4-20mA DC
- *For Staefa 0-20v DC signal a Vapac adaptor PCB shall be fitted.
- *For Landis & Gyr 0-10v DC signal a Vapac adaptor PCB shall be fitted.

MICROVAP LEP UNIT

- The humidifier shall include microprocessor control to achieve output response to a modulating control signal across 8-100% of its capacity by power switching semi-conductor devices.
- The output control of the unit shall be independent of the water level.
- The humidifier shall be able to respond to any one of the following standard modulating control signals:
- Potentiometric 135 ohms to 10K
- 0-5v DC 2-10v DC 0-10v DC 1-18v DC 0-20v DC 4-20mA DC
- *For Staefa 0-20v DC signal a Vapac adaptor PCB shall be fitted.
- *For Landis & Gyr 0-10v DC signal a Vapac adaptor PCB shall be fitted.

ACCESSORIES

- *The humidifier shall be supplied with duct mounted stainless steel perforated steam distributor pipes for direct injection of steam into the duct airstream.
- The distributor pipes shall have a built-in 8% inclination for continuous condensate drainage to avoid the need for a separate condensate return line.
- The number and size of distributor pipes supplied shall be in accordance with the manufacturer's recommendation with the length to suit the proposed duct width.
- Three (3) metres of high temperature rubber steam hose shall be supplied with each steam distributor pipe. When it is necessary to install a steam distributor pipe at a level lower than the humidifier, a condense separator shall be supplied and installed in the hose to the steam distributor pipe.
- The condensate from the separator shall be piped to waste.



ROOM DISTRIBUTION UNIT

- The humidifier shall be supplied with a Room Distribution Unit (RDU) for mounting directly to the top of the humidifier or separately wall mounted in the space to be humidified.
- The RDU shall be fitted with a low noise level centrifugal fan and shall circulate room air over the steam outlet and through the supply air register provided in the RDU to ensure rapid circulation and absorption of the steam by the room air.
- The RDU electric fan motor shall be wired into the terminals provided on the humidifier terminal block in accordance with the manufacturer's instructions.

Options

REMOTE ALARM RELAY

A Remote Alarm Relay PCB shall be supplied to provide via volt-free contacts, a time delayed continuous signal for remote indication of a Low output or Cylinder Change fault condition.

MULTI HUMIDIFIER CONTROL

*For multiple systems the humidifier shall be capable of being connected to up to 7 cylinders linked together to provide up to 420 kg/hr. Where variable output is required Varivap micro-processor control shall be fitted to the master cylinder only. Cylinders shall be brought into operation incrementally to match the demand for humidification ensuring optimum energy efficiency at all times.

The humidifier and accessories shall be of the 'Simons-Vapac' make as distributed and serviced by Simons Boiler Co.