



# SKE4

## Resistive Steam Electric Humidifier



With this year's launch of the SKE4, the first release of Neptronic's SK4 Generation, this month's article will focus on the standout features, design and technology incorporated into the SK4 generation of humidifiers.

The SKE4 Resistive Electric Steam Humidifier transforms electrical energy into heat that boils the water, producing steam. The process allows mineral-free, odorless and sterile steam to be generated quickly with any type of water.

### What's new in the SKE4?

- New design with separate plumbing, controls and high-voltage electrical sections;
- Silicone piping has replaced copper piping resulting in a system suitable for any water type;
- Manual drain – allows for system drain when there is no power
- Easy to maintain – There's no need to disconnect any power cables or steam hose before servicing
- Tool-free maintenance with a rail-guided, drop-down tank and heating elements that remain fixed to the humidifier cabinet, reducing the weight and strain of heavy-lifting when removing the evaporation chamber
- The SK4 Controller, with its user-friendly interface is an advanced, one menu controller across 3 humidifier types, providing consistency, ease of use and multiple connectivity options
- Patent-pending Water Level Detection System, with the addition of two resistive probes to allow auto-calibration of the water level and, AFEC<sup>®</sup>
- Standard Disconnect Switch on all of the units.

# SKE4 – Separate Plumbing and Electrical Sections

## System Overview

### Patent-Pending Water Level Detection System

- Self-cleaning and self-calibrating sensors
- Utilizes 2 different sensor technologies
- Precise and reliable water level detection
- Anti-Foaming Energy Conservation (AFEC) System: drains water when foam is detected

### \*All Silicone Piping

- No copper piping
- Resistant to higher water temperatures
- Suitable for all water types including DI and RO (Consult factory for Ultrapure water)

\* Alternate piping available



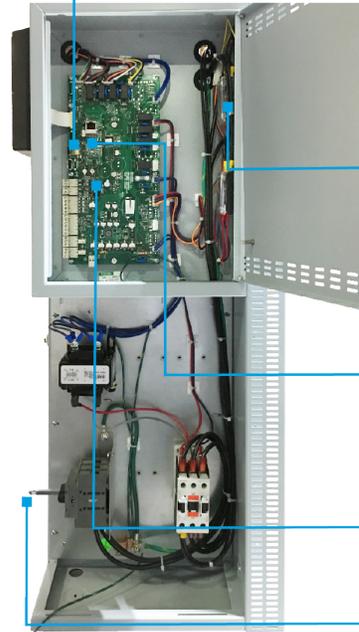
### Manual Drain

- Functions even without power

### Power drain pump

### Quick Connect Water Inlet

- No tools required



### SD Card

- Event history log
- Firmware upgrade

### SSR with External Heat Sink

- No cooling fan required
- Reduces noise level

### Ethernet Module (optional)

- BACnet IP or Modbus IP
- Local and remote web services

### BACnet MS/TP and Modbus Module (optional)

### Disconnect switch

## Ease of Maintenance

No tools or heavy lifting are required to maintain the SKE4. The evaporation tank is removed in three easy steps:

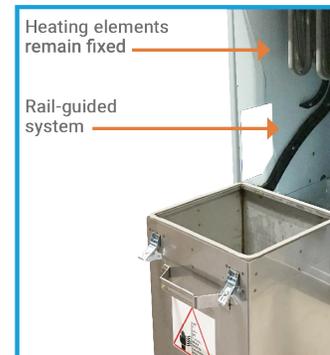
1. Disconnect the water inlet
2. Disengage the clamps
3. Pull down the tank following the rail-guided system



Disconnect the water inlet



Disengage the clamps



Drop down evaporation chamber with rail-guided system

## Neptronic's Water Level Detection System and AFEC®

The patent-pending water level detection system uses self-cleaning and self-calibrating sensors. These sensors make use of two different technologies to ensure precise and reliable water level detection.

As its title would imply, the Anti-Foaming Energy Conservation (AFEC®) System is designed for the purpose of detecting and addressing the issue of foam in the evaporation chamber. Other manufacturers make use of the skimming method for dealing with foam, however this option isn't ideal for water and energy conservation. Skimming (the removal of foam and water via an overflow drain on a tank) and multiple drain cycles result in constant water loss which can reduce the efficiency of steam production. This system is not sensor-driven but rather user-defined (scheduled activation as opposed to sensor activated) which means uncertainty as to its efficiency. This method is energy intensive and can create problems in close control applications.

Neptronic's AFEC® System uses the water level sensor to measure water mass. If the foam and water levels are concurrent by their readings, this indicates that foam is present on the water surface inside the evaporation chamber. The AFEC® system drains water *only* when there is foam present. This increases efficiency since the drain is only activated when foam is detected.



## SK4 Generation Advanced Controller

The new controller features 8 function buttons common to all SK4 generation humidifiers. This integrated, multi-platform controller is a menu driven interface with a 128 x 64 LCD screen. Different user categories ensure that each user has access to the information necessary to them. User rights management will only allow the menu to display the functions which are available to the user logged in. A quick configuration menu can display only the most commonly used functions for faster and easier installation. An integrated scheduling system is also available for unit operation, set points and drain cycling.

### Connectivity

A selectable menu for BACnet MS/TP or Modbus allows access to over 75 points as well as service, alarm status, configuration and integration. BACnet IP and Modbus IP as well as web services are also available add-ons to the SK4 system.

