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HVAC Controls | Electric Actuators | Actuated Valves
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Get Ready for Humidifier Drainage Season

Understanding the importance of the drain cycle

The new Neptronic multi-platform controller is configured specifically for the SKE4, SKG4 and SKS4 humidifier series. It offers multiple ways to accomplish a drain cycle. Why is a drain cycle important to ensure the smooth-running of your SK4 humidifier? It optimizes efficiency by:

• Reducing scale accumulation

• Aiding in the avoidance of foaming conditions and possible corrosion To ensure optimal operation of your SK4 humidifier, it is important to schedule drain cycles based on a variety of factors. Water quality and hardness that can affect the operation of the humidifier.

Water Basics 101

Water is capable of dissolving a variety of different substances, which is why it is such a good solvent. In fact, water is called the "universal solvent" because it dissolves more substances than any other liquid. Water hardens when in contact with calcium (Ca^{2+}) and magnesium (Mg^{2+}). Calcium is dissolved in water as it passes over and through limestone deposits. Magnesium is dissolved as water passes over and through dolomite and other magnesium-bearing formations. Because ground water is in contact with these geologic formations for a longer time than surface water, it is usually harder than surface water.

When hard water is heated during the production of steam from a humidifier, scale forms much faster. Another chemical that is a concern and should avoid accumulation is chloride (Cl^-). High concentrations of chloride in water can deteriorate metallic components that are in direct contact with it. For these reasons, drain cycles are important for the humidifier to operate properly and to facilitate maintenance.

To accommodate all type of usages, Neptronic's humidifiers allow the end user to set the drain times according to their application and the water quality.

Drain features of the SK4 series:

• **Drain Interval [between 0 to 24hr]**: set the frequency of the drain cycle. This feature will initiate a drain cycle once the Operating Time (steam production) has reached the time set in the Drain Interval. During this process, the production of steam is interrupted until the evaporation is filled with water.

[6 hours is the factory default setting]

• **Drain Volume [between 25 to 100%]**: define the volume of water that is drained from the evaporation chamber, relative to the total capacity of the chamber.

- [100% is the factory default setting]

• **Blow Down Rate [between 0 to 100%]**: define the rate of boiler blow down or water dilution to minimize water impurities inside the evaporation chamber.

- The water dilution allows the humidifier to drain small amount of water without interrupting the steam production. Once the value is set above 0%, this feature is enabled. This value indicates the percentage of water to be drained equivalent to the total amount of steam production during an hour. Example: A humidifier producing 10 lb/hr with a Blow Down Rate of 10% will drain during the same hour an amount of 1 lb of water.
- [0% is the factory default setting]

• **Drain Schedule**: create a customized draining schedule with up to six events per day.

o The following features are used to drain the stagnant water from the evaporation chamber to avoid bacterial growth.

• **Idle Time [between 24 to 72hr]**: set the amount of time the humidifier can remain in standby mode (Idle) until an automatic drain cycle is performed.

o [72hr is the factory default setting]

• **Tank Rinse Interval [between 3 to 7 days]**: set the amount of time the humidifier stays in Idle or Off mode before the evaporation chamber undergoes an automatic rinse cycle.

o This option can be enabled or disabled individually, Tank Rinse Idle and Tank Rinse Off.

o [3 days is the factory default setting] To ensure that the Neptronic humidifier operate efficiently, the drain cycles must be activated.

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References:

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About Neptronic

Founded in 1976, Neptronic is a private corporation that designs, manufactures and distributes products for the HVAC industry. The Neptronic product line includes intelligent controllers, electronic actuators, actuated valves, humidifiers and electric duct heaters.

Products are designed and manufactured by over 300 dedicated employees in an 97,000 ft² (9,000 m²) state-of-the-art facility located in Montreal, Canada. Using a vertically integrated plant model, all R&D and manufacturing capabilities are located under one roof, from software and hardware development to SMT circuit board assembly, to sheet metal fabrication, to product testing.

Neptronic is committed to research and development, provides innovative products and technologies worldwide thanks to our exclusive distribution network for the HVAC industry. For more information visit the Neptronic website at neptronic.com