

# SKH ATOMIZING HIGH PRESSURE HUMIDIFIER



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# SKH ATOMIZING HIGH PRESSURE HUMIDIFIER

The SKH pumps water at high pressure through a series of nozzles to produce a fine mist. By way of the adiabatic process, the SKH uses energy (heat) from the surrounding air to evaporate the fine mist (water droplets). This evaporative cooling/humidification process provides a very low energy impact with power consumption values of 1.1W to 7.5kW, which is less than other technologies of equivalent capacity, such as compressed air.



Up to 12°C (21.5°F) of free cooling



Close control humidity



Uses energy from ambient air



Up to 32 zones



View and control from any zone



Fast and easy maintenance

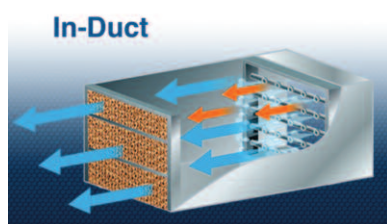
## Typical Applications

With capacities from 66 to 4,738 lb/hr (30 to 2,108 kg/h), multi-zone capability and its low energy impact, the SKH High Pressure Humidifier is ideal for applications such as:

- ▶ Commercial Space
- ▶ Wood Processing
- ▶ Paint Spray Booths
- ▶ Greenhouses
- ▶ Textile Industry



## Typical Installation (or "Distribution")



Custom nozzle racks, make it ideal for use in AHUs

- 1 to 4 stages for sequential control
- 1<sup>st</sup> stage modulates for close control
- Droplet separator if required



Spray directly into the space for high ceiling applications (approximately 30ft)

- Flexible nylon high-pressure hoses or hydraulic high-pressure hoses
- With stainless steel quick connect fittings



Spray directly into the space with a fan (MDU: Mist Distribution Unit) for low ceiling applications (minimum 15ft)

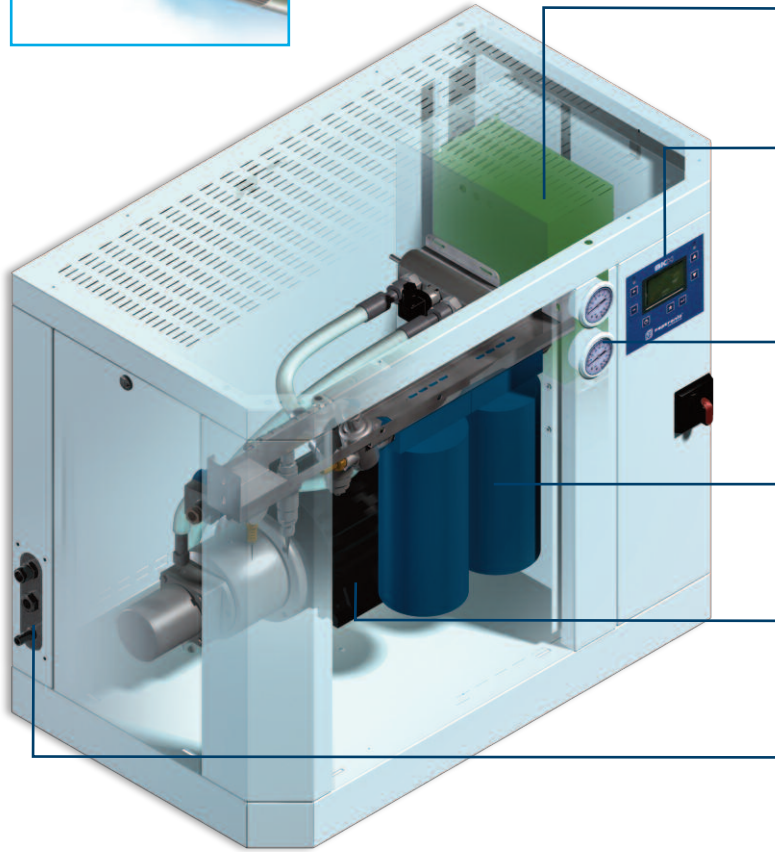
- Horizontal air flow assists in the evaporation process

# System Overview



## Nozzles

Anti-drip nozzles produce droplets of less than 20µm.



## Variable Frequency Drive (VFD)

Regulates motor and pump RPMs to ensure greater energy savings and longer pump life.

## Intelligent Controller

Networkable (BACnet MS/TP), field configurable controller manages sequences of operation and provides close control for up to 4 stages and 32 zones.

## Pressure Regulator and Gauge

Water inlet pressure regulator and gauge to adjust the appropriate water inlet pressure.

## Pre-filter and Silver Ion Cartridge

Water pre-treated with 5µm pre-filter and anti-bacterial silver ions prevent microbial growth.

## High Pressure Water Pump

High efficiency, water cooled axial piston pump (maintenance free).

## High Pressure Water Outlet

Ranges varying from 135 to 2,660 lb/hr (60 to 1,210 kg/h) per pump station depending on model.

## Pump

- ▶ Very high efficiency, small and compact
- ▶ All stainless steel design
- ▶ Water cooled
- ▶ Axial piston pump
- ▶ Maintenance free (no oil to change)
- ▶ Extreme recirculation capability (up to 90%) without overheating
- ▶ Fulfills most stringent hygiene requirements, such as VDI 6022



## Controller

- ▶ Microprocessor based, field configurable controller
- ▶ Real-time clock with flexible scheduler
- ▶ Simple viewing and exporting of trending log and alarm log
- ▶ In-field firmware upgradeable via micro SD card
- ▶ LCD (128 x 64) with context-driven, user-friendly menu

### BACnet MS/TP Communication

- ▶ Select MAC address via menu or network
- ▶ BACnet scheduler (up to 6 events)
- ▶ Firmware upgradeable via network
- ▶ COV (change of value)
- ▶ Automatic baud rate detection
- ▶ Automatic device instance configuration



# Multi-Zone System

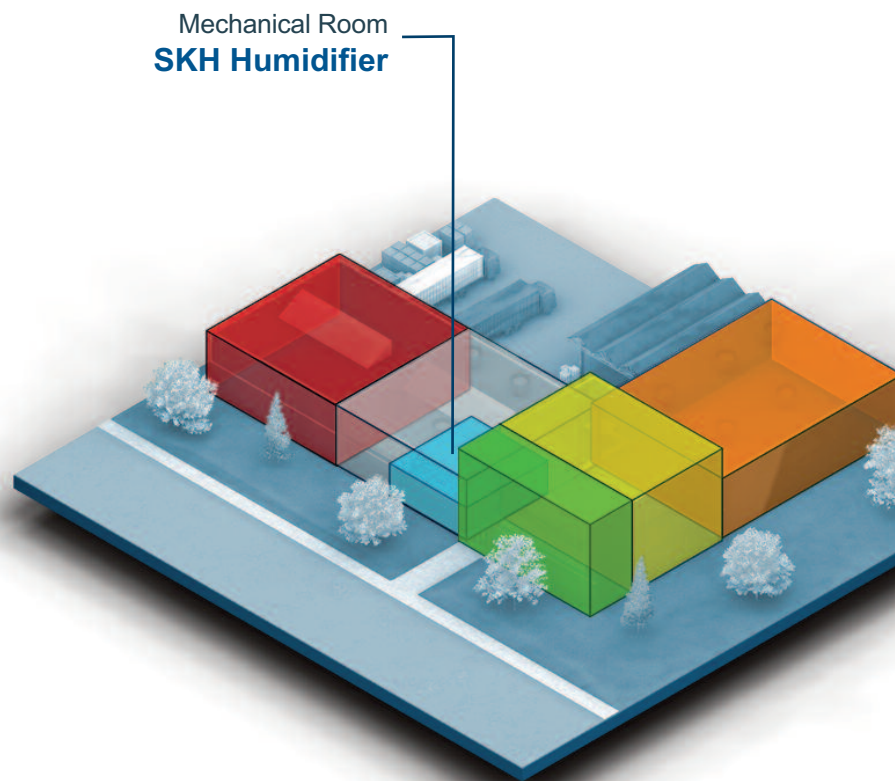
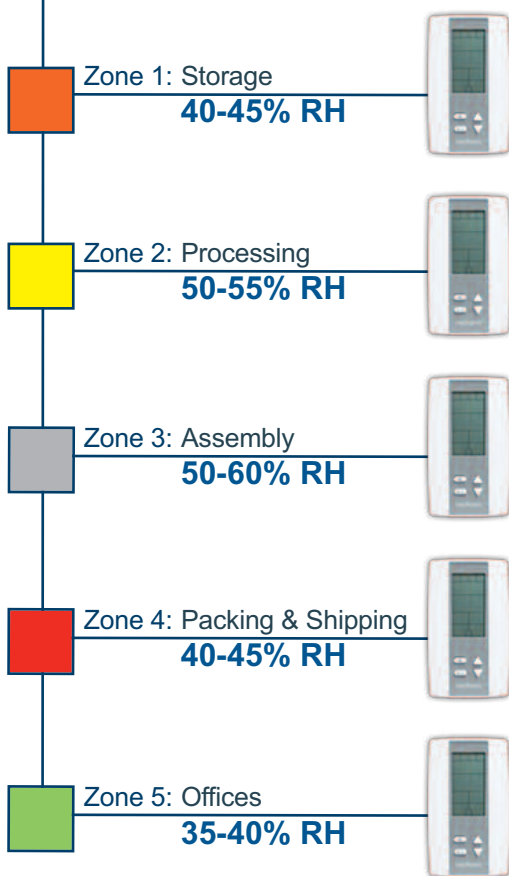
A single pumping station can be used to supply pressurized water to up to 32 zones. The master controller, located in the master pumping station, communicates with each zone controller via a proprietary network. The zone controller communicates its local readings and status to the master controller as well as to the local wall-mount user interface. Using the data received, the master controller manages the distribution and atomization system to maintain close control humidity.

- ▶ Up to 32 zones
- ▶ 4 sequential stages per zone including 1 proportional stage.
- ▶ Connect to any zone with a computer to view and control the system
- ▶ BMS Integration via BACnet MS/TP @ 9600, 19200, 38400, or 76800 bps

Maintain optimal humidity levels in every zone, with only one unit.

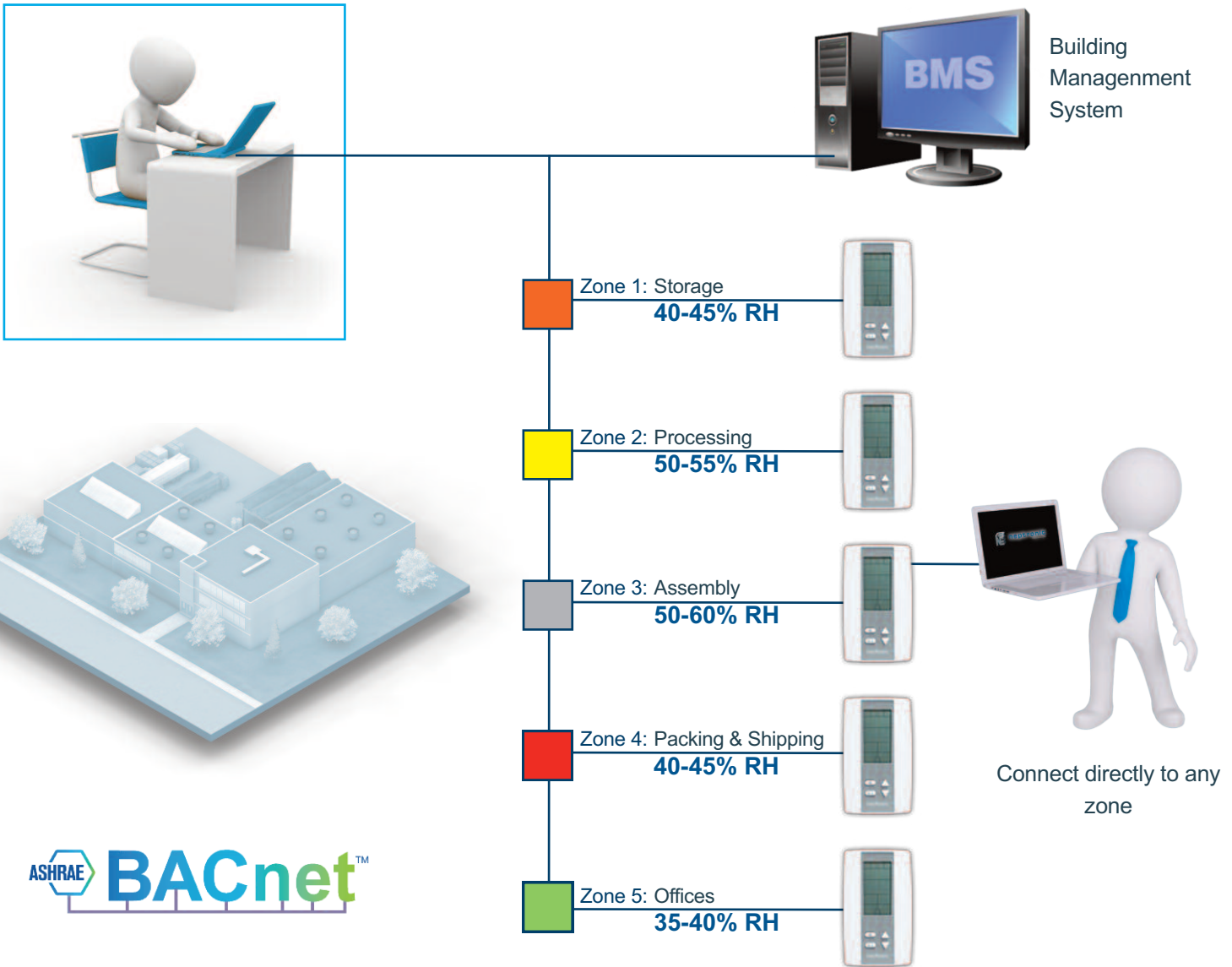


Each zone has an independent humidistat



# Remote System Control

- ▶ Each SKH unit has an integrated system controller that manages all sequences of operation for each zone.
- ▶ Unique to Neptronic, you can tap into the system directly from within the zone by connecting to the zone's thermostat/humidistat.
- ▶ With its BACnet MS/TP communication, integrate the system with your Building Management System (BMS)



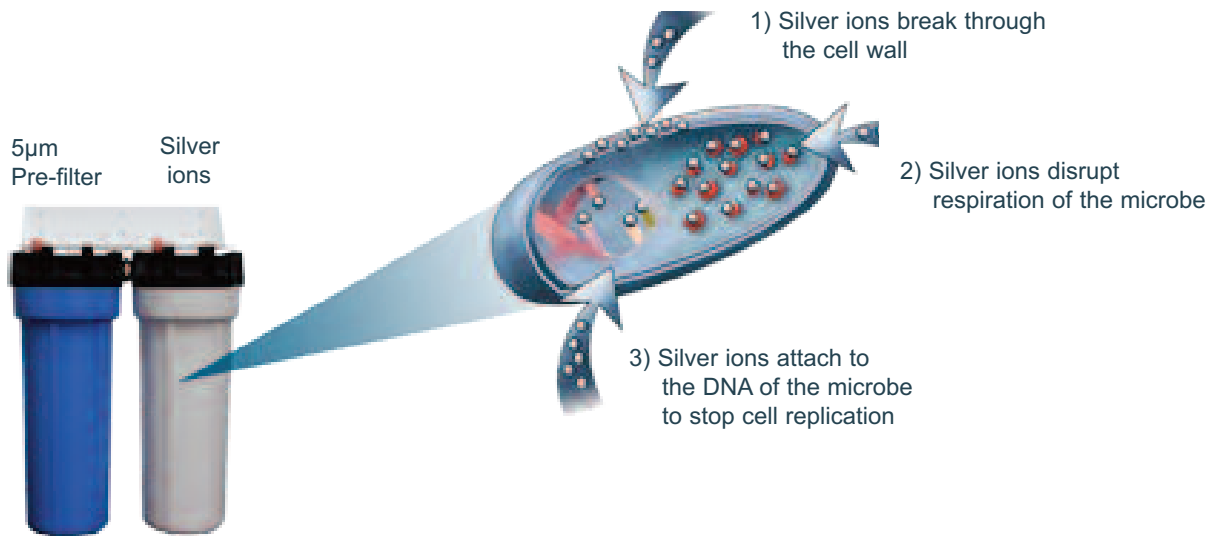
# Models and Capacities

Model	Capacity		Motor	
	lb/h	kg/h	HP	kW
SKH100	66-660	30-300	1.5	1.1
SKH200	141-1126	64-512	2	1.5
SKH300	231-1454	105-661	3	2.25
SKH600	453-2343	206-1065	5	3.75
SKH900	585-3645	266-1657	7.5	5.6
SKH1200	805-4738	366-2108	10	7.5

## Hygienic and Safe

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- ▶ RO water recommended to
  - increase hygienic performance
  - minimize maintenance
  - avoid nozzle blockage
  - eliminate the introduction of dust into the space
  - eliminate use of biocide and chemical disinfectants
- ▶ The systems contain no standing water
- ▶ Automatically activated rinsing of the system prevents standstill contamination, and this without any downtime
- ▶ System design ensures only inert materials come in contact with the water
- ▶ Auto reduction of output in case air absorption capacity is lower than design condition
- ▶ Water pre-treated with 5µm pre-filter and anti-bacterial silver ions prevent microbial growth



## Energy Efficient

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- ▶ By combining a high pressure water pump with the adiabatic process, the SKH uses less energy than other humidifier types that require more expensive air compressors to evaporate the water.
- ▶ Misting without expensive compressed air saves on energy costs, compressor maintenance and installation.
- ▶ Humidifying in the winter reduces heating costs. Providing free cooling in the summer reduces cooling costs.
- ▶ VFD regulates pump performance to best match the current humidity demand, which ensures greater energy savings.

## Fast and Easy to Service and Install

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- ▶ The master controller displays all maintenance intervals and status messages via a multi-functional display screen. An indication also appears on the wall-mount user interface. Operating and fault signals can be integrated into your Building Management System (BMS).
- ▶ Monitoring and troubleshooting can be done remotely via the BACnet network.
- ▶ The water pump is water cooled and lubricated and therefore maintenance is further minimized since there is no oil to change in the pump.
- ▶ The nozzle rack is custom made to fit duct or AHU dimensions
- ▶ The SKH system features quick connects between the nozzle rack, or MDU and pump station.

# Humidifier Product Line



## ELECTRIC



### SK300

- ▶ Capacities from 6 - 270 lb/hr
- ▶ Permanent cleanable chamber
- ▶ Outdoor enclosure available

## RESIDENTIAL



### SKR

- ▶ Capacities from 4.5 - 12 lb/hr
- ▶ Permanent cleanable chamber
- ▶ Reliable Siphon drain

## GAS FIRED



### SKG3000

- ▶ Capacities from 110 - 810 lb/hr
- ▶ Modular design
- ▶ Outdoor enclosure available

## STEAM TO STEAM



### SKS

- ▶ Capacities from 33 - 1250 lb/hr
- ▶ Scale management system
- ▶ Insulated external panels

## HIGH PRESSURE ATOMIZER



### SKH

- ▶ Capacities up to 4738 lb/hr
- ▶ Up to 32 zones
- ▶ Installation In-duct or In-space

## EVAPORATIVE



### SKV

- ▶ Free cooling up to 12 °C (22 °F)
- ▶ Custom design to fit your application
- ▶ Hygienic operation with silver ion dosing system

## DIRECT STEAM



### SKD

- ▶ Capacities from 7 - 1157 lb/hr
- ▶ Jacketed or Multi-Steam Type
- ▶ Unique Electronic Steam Controller
- ▶ Optional pressurized condensate return (PCR) system

## STEAM DISTRIBUTION



### Distribution

- ▶ Multi-Steam distribution
- ▶ S.A.M & S.A.M.E2 wands
- ▶ SDU (Space distribution unit)

## HUMIDITY CONTROLS



### Controls

- ▶ Humidity controls / sensors
- ▶ Safety controls
- ▶ BACnet compatible



## HUMIDISOFT Design Your Humidifier Online

Our web-based tool saves you time when sizing and specifying Nepronic humidifiers.



MANUFACTURER OF ■

- HVAC CONTROLS
- ELECTRIC ACTUATORS
- ACTUATED VALVES
- HUMIDIFIERS
- ELECTRIC HEATERS

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