

SKG GAS FIRED HUMIDIFIER



neptronic[®]
www.neptronic.com

SKG GAS FIRED HUMIDIFIER

The SKG gas fired humidifier by Neptonic uses the latest gas technology to produce steam. On a call for humidity, the combustion blower creates a negative pressure across the combined gas valve with venturi orifice located at the air inlet. Gas and air mixture is ignited on the premix gas burner. Products of combustion circulate into the heat exchanger submerged in water, thus heating up the water in the evaporation chamber to produce steam.

SKG Advantages

The SKG gas fired humidifier generates mineral free, odourless, sterile steam by using the power of natural gas or propane. Cost of operation and its carbon footprint is much lower than electric humidifiers with equivalent control accuracy (as low as +/-1%RH).

- ▶ Steam capacity from 100-810lb/hr (50-400kg/hr)
- ▶ Turn down ratio of 10:1
- ▶ Functions with Tap, RO or DI water.
- ▶ Combustion efficiency: 83% to 91% (depending on model)
- ▶ Modular design: 1 to 4 modules, easy to configure and install
- ▶ Easy servicing: cleans and re-installs within minutes
- ▶ Smallest footprint in the industry
- ▶ Patented AFEC technology for safe and efficient operation
- ▶ Available with BACnet MS/TP communication interface
- ▶ Equipped with drain pump.
- ▶ Waste water drained below 140°F (60°C)
- ▶ Self adjusting burner for altitude compensation

Typical Applications

When natural gas or propane or LPG is available on site, the SKG gas fired humidifier is ideal for capacities from 110-810lb/hr (50-400kg/hr). Typical applications for SKG humidifiers include:

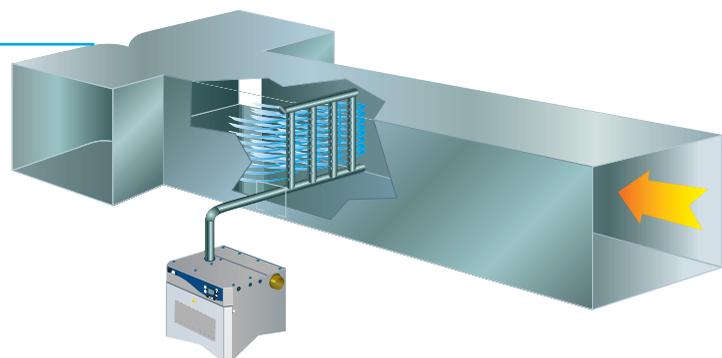
- ▶ Hospitals/ Institutions
- ▶ Paint Booths
- ▶ Clean Rooms
- ▶ Laboratories
- ▶ Commercial



Typical Installation

The SKG gas fired humidifier is designed to distribute steam into a duct or AHU. Common water supply inlet, gas supply inlet, drain outlets and flue outlet can be located either on the right or left hand side of the SKG. Steam outlets are located on top of each module. Air inlet can be through the front door with natural ventilation or from top of each module if direct combustion air (sealed combustion) option is selected.

If flue pipe installation or air supply is an issue, the optional ETL certified outdoor enclosure is an ideal choice.

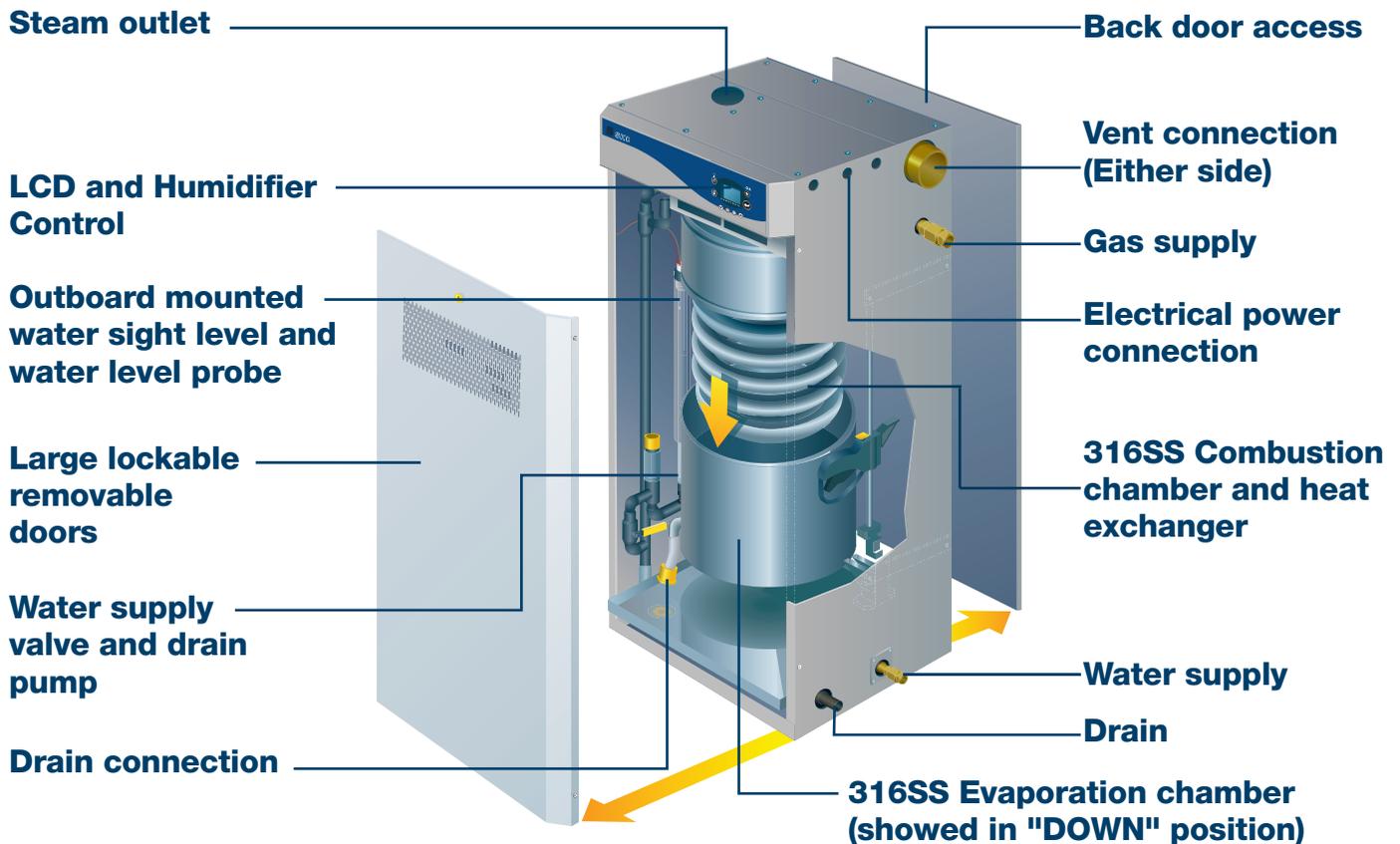


System Overview

Gas Train / Controls (Top View)



User Interface and Controller



Modular Design

Flexible Solution

Modular design offers flexibility and convenience; each module adds up to 220lb/hr (100kg/hr) of steam capacity. With the smallest footprint in the industry, the SKG module can be easily installed and assembled on site when access is limited. Module assembly can be arranged in line, in L shape, or back to back to accommodate any specific space conditions. Water, gas, water drain and flue connections can be located on either side of the enclosure.



■ AFEC System (Anti-Foaming Energy Conservation)



Patented AFEC technology developed by the Nepronic engineering team offers a unique, safe and energy efficient control of boiling water and steam. It provides efficient and accurate water level control whatever the water purity (tap, RO or DI water):

The AFEC system consists of:

- ▶ Mass measuring water sensor
- ▶ Anti-foam sensor
- ▶ Electronic high temperature sensor
- ▶ Interactive LCD display and microprocessor controller
- ▶ Outdoor enclosure is ETL certified

The foam sensing probe, automatically initiates a drain cycle upon foam formation. Without having a continuous skimming to drain off expensive boiling water.

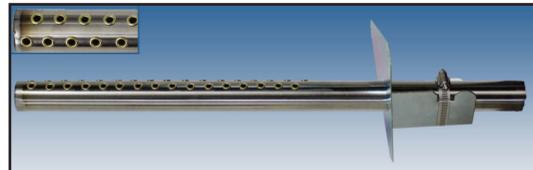
■ Options

■ Steam Distribution Systems

For duct distribution installation, the SKG requires either a Multi-Steam or S.A.M.E2 as a steam distribution system to disperse steam.



Multi-Steam
For absorption distance
of less than 900mm



S.A.M.E2
For absorption distance
of less than 1500mm

■ X-Stream™ Technology

- ▶ High efficiency insulated steam distributor (channel and header) with patent pending steam ejector eyelets
- ▶ Double wall 304 stainless steel with encapsulated Armacell UT/Solaflex™ foam insulation
- ▶ Specially engineered silicone eyelets prevent condensate ejection on start up and any modulating humidity demand
- ▶ Significant reduction in wasted energy
- ▶ Reduces airstream heat gain and generated condensate
- ▶ For more details, refer to the X-Stream™ sales literature



Multi-Steam™ HD

Outdoor Enclosure

Features

- ▶ Hinged doors provide full access (serviceability) from the front, back and top of unit
- ▶ Fully insulated and constructed from heavy duty steel
- ▶ Stainless steel bottom drip pan
- ▶ Zinc primer and polyurethane powder coating for resistance against scratches and corrosion on the exterior and interior surfaces
- ▶ Built-in anti-freeze and overheat protection
- ▶ Easy installation on a roof curb or stand
- ▶ Connection can be made from side or through the roof curb



Maintenance

4 Easy Steps!

- 1 Disconnect the drain water connection
- 2 Disengage bandclamp
- 3 Lower the evaporation chamber
- 4 Remove chamber for scale cleaning



Specifications

Output and Power Consumption

Model	Steam Capacity		Input Capacity btu/hr (kW)		Dimensions		
	lb/hr	kg/hr			A Height	B Width	C Depth
			Natural Gas	Propane Gas			
SKG3-110-1	110	50	166,798 (49)	188,298 (55)	54 in (137 cm)	24 in (61 cm)	22 in (56 cm)
SKG3-155-1	155	70	210,052 (62)	231,552 (68)			
SKG3-180-1	180	80	235,844 (69)	257,344 (75)			
SKG3-210-1	210	100	247,423 (73)	268,923 (79)			
SKG3-265-2	265	120	376,850 (110)	419,850 (123)		48 in (122 cm)	
SKG3-310-2	310	150	420,104 (123)	463,104 (136)			
SKG3-350-2	350	170	457,475 (134)	500,475 (147)		72 in (183 cm)	
SKG3-405-2	405	200	494,846 (145)	537,846 (158)			
SKG3-505-3	505	250	693,319 (203)	757,819 (222)		96 in (244 cm)	
SKG3-560-3	560	270	704,898 (207)	769,398 (225)			
SKG3-610-3	610	300	742,269 (218)	806,769 (236)			
SKG3-710-4	710	350	940,742 (276)	1,026,742 (301)			
SKG3-765-4	765	370	952,321 (279)	1,038,321 (304)			
SKG3-810-4	810	400	989,692 (290)	1,075,692 (315)			

Power supply: 120, 208 or 240Vac (1 phase)

Humidisoft

Specify your SKG Online



Humidifier System Design and Specification Web Application

Ready to specify your SKG Humidifier? Nepronic has developed a web application that saves you time when sizing and specifying Nepronic commercial, industrial or residential humidifiers.

Features

- ▶ Automatic humidification load calculation
- ▶ Web based
- ▶ Report Generator
- ▶ Display Absorption Distance
- ▶ Steam Dispersion Selection
- ▶ Humidifier Options
- ▶ Project Management

Easy to Use

Once you have registered for an online account. You can start creating projects and create your very own humidifier virtually with all the available features with ease.

Project	Humidifier	Dispersion	Options	Reports	Pricing
Type					
<input checked="" type="radio"/> Isothermal (Hot Steam) <input type="radio"/> Adiabatic (cold mist)					
Category					
<input type="radio"/> Commercial Electric <input checked="" type="radio"/> Commercial Gas <input type="radio"/> Residential Electric <input type="radio"/> Steam to Steam <input type="radio"/> Direct Steam					
Entering Air Conditions		Indoor Conditions		Distribution	
Temperature <input type="text" value="70.0"/> °F		Temperature <input type="text" value="70.0"/> °F		<input checked="" type="radio"/> In Duct	
Relative Humidity <input type="text" value="30"/> %		Relative Humidity <input type="text" value="30"/> %		<input type="radio"/> In Space	
Ventilation System					
<input type="radio"/> Natural <input checked="" type="radio"/> Mechanical <input type="radio"/> Economizer					
Total Air Flow <input type="text" value="3000"/> CFM			Outside Air <input type="text" value="100"/> %		
Humidifier(s)					
<input type="checkbox"/> Enter Load Manually Calculated Load <input type="text" value="62.18"/> lb/hr Total Capacity <input type="text" value="110.00"/> lb/hr Select Model					

Project	Humidifier	Dispersion	Options	Reports	Pricing
Voltage					
<input type="text" value="120/1"/> : <input checked="" type="checkbox"/> Show Voltages for current model only					
Gas Supply			Control		
<input type="radio"/> Propane <input checked="" type="radio"/> Natural Gas			<input type="radio"/> On / Off <input checked="" type="radio"/> Modulating		
Humidistat Type					
<input type="radio"/> None <input type="radio"/> Wall Humidistat HRO20 <input type="radio"/> Wall Humidity Sensor SHR10 <input checked="" type="radio"/> Duct Humidity Sensor (return duct) SHC80 <input type="radio"/> Wall Humidistat HRO20 + Wall Humidity Sensor SHR10 <input type="radio"/> Wall Humidistat HRO20 + Duct Humidity Sensor (return duct) SHC80 <input type="radio"/> Window Temperature Sensor SHW0-11					
VAV System (modulating high limit)					
<input checked="" type="radio"/> None <input type="radio"/> High Humidistat HRO20LSS + Duct Humidity Sensor (supply duct) SHC80 <input type="radio"/> High Limit Duct Humidity sensor (supply duct) SHC80					
Flexible Steam Hose			High Limit & Air Pressure Switch		
<input type="text" value="3"/> ' <input type="text" value="10"/> ft			<input checked="" type="checkbox"/> Air Pressure switch APS <input checked="" type="checkbox"/> High Limit Duct Humidistat HC201		
Other Options					
<input type="checkbox"/> BACnet (MS/TP) Network Capability <input type="checkbox"/> Standard DI/RO Water (below 1.0 meqohm) <input type="checkbox"/> Humidifier Weather Enclosure (W) <input type="checkbox"/> Ducted Combustion Air (Seal Combustion)					

Humidifier Product Line



ENGINEERED TO LAST

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

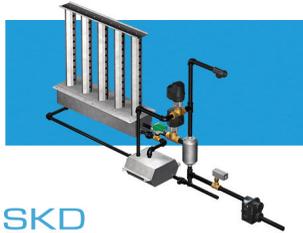
STEAM TO STEAM



SKS

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

DIRECT STEAM



SKD

- ▶ Capacities from 7 - 1157 lb/hr
- ▶ Jacketed or Multi-Steam Type
- ▶ Unique Electronic Steam Controller

GAS FIRED



SKG3000

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

EVAPORATIVE



SKV

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

HIGH PRESSURE ATOMIZER



SKH

- ▶ Capacities up to 2600 lb/hr
- ▶ Up to 32 zones
- ▶ Installation In-duct or In-space

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

MANUFACTURER OF ■

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

■
www.neptronic.com