

**electric steam**

**gas steam**

**atomizing nozzles**

**high pressure nozzles**

**evaporative**

**steam injection**

**steam exchange**

2011

# Product Handbook



**walter  
meier**

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## Why Walter Meier?

Walter Meier specializes in the design and production of superior Nortec humidification systems. We create the most appropriate solutions to meet your specific needs in the most efficient and cost effective way. To this end, we draw upon our extensive experience to develop an ever growing range of products manufactured to our stringent ISO 9001:2000 certified quality standards that will provide our customers with maximum reliability, minimum maintenance and a choice of energy sources.

When you choose Nortec products, you are choosing a company that has built a reputation for superior quality humidification systems. Only with Nortec humidifiers can you select a system operating with electrode steam, subsonic air nozzles, high pressure nozzles, steam injection, steam exchange, or gas-fired technology.

## Why Humidity is Important

People spend 90% of their lives indoors, therefore the importance of correct temperature and humidity levels are critical to personal health and comfort. Too much humidity can be as destructive as too little.

Manufacturing and industrial processes are also directly affected by the indoor environment. Like people, machines work better in favorable surroundings. All equipment and processes respond in various ways to temperature and humidity fluctuations. For maximum performance, reliable temperature and humidity are essential.

**H.E.L.P.** (Humidification Engineering and Loadsizing Program) guides you step by-step through the detailed engineering calculations needed to construct and implement the optimal humidification system. The software includes a *Product Explorer*, an innovative *Engineering Binder* (for loadsizing, project planning, and specifications) with an interactive psychrometric chart, and *Cost Analyzer*. Visit [www.humidity.com](http://www.humidity.com) to download your free copy of H.E.L.P.



The **NH SERIES** electrode humidifier provides pure, clean steam using the most efficient steam humidification process. Energy is conserved with efficient steam conversion rate, smart water use and lowest energy losses due to low hot water drain rates. Maintenance is easy and economical with cylinder technology. Solid mineral scale sinks to the bottom of the cylinder which, when filled with residue, is easily removed and replaced.

Nortec NH electrode humidifiers offer complete application flexibility. They can be integrated into central HVAC systems with distributors, Short Absorption Manifold (SAM-e), or placed in specific locations with their own steam distribution blower pack for individual room control.



The **NHRS Series** resistive element humidifier provides pure, clean steam from potable or DI/RO water with the most precision. With SSR heating element control coupled with a high precision humidistat, the NHRS can be accurate to  $\pm 1\%$  rh.

For potable water applications, the patented scale management system option saves time and money during cleaning. Scale sinks into the scale tank which can be easily removed and emptied.

NHRS resistive element humidifiers can easily be integrated into central HVAC systems with distributors, Short Absorption Manifold (SAM-e), or placed in specific locations with their own steam distribution blower pack.



The **MES2 Series** electrode OEM humidifier is ideal for specialty air handling equipment. Using replaceable cylinders, the MES2 is the easiest component humidifier to maintain. With standard modulation and Modbus, the MES2 can be integrated into the most demanding systems. Multiple configurations and capacities are available for installation flexibility.



The **RH2 SERIES** electrode residential humidifier features the same proven technology as commercial electrode units to deliver efficient and dependable humidification to your home. Two models are available to cover all residential application: the RH2 Space for in-space humidification and the RH2 Duct for humidification through the duct system.



## Why Cylinders?

- ▶ Energy efficient
- ▶ Reduce down time and costly maintenance
- ▶ No special tools required to remove cylinder
- ▶ Removes all minerals left behind
- ▶ No need for specially treated water
- ▶ Keep humidifiers working at optimum performance

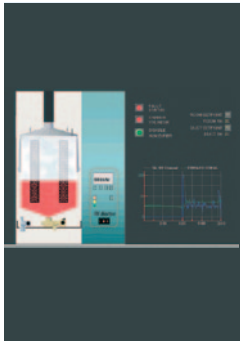


## Output vs. Cylinder Life

Unlike other humidifiers whose performance degrades gradually throughout the life of the cylinder, the Nortec NH Series maintains maximum efficiency from beginning to end. As minerals build-up on the electrodes in the cylinder of the Nortec NH Series, the patented Auto-Adaptive control system automatically raises the water level slightly in the cylinder. This exposes fresh electrode surface to the water and maintains peak output and efficiency from the humidifier. Once the electrode surface is completely insulated by the minerals, the user is alerted to change the cylinder.

All Nortec NH Series humidifiers feature a disposable cylinder. Contact your local Walter Meier agent for more cylinder replacement information.

## options



**Nortec LINKS XPS** offers monitoring and control allowing humidifier(s) to communicate to your Building Management System (BMS). The controller is factory installed and is located internally to the humidifier. Simply specify at time of order what operating protocol you are using – BACnet IP, BACnet MSTP, LonWorks or Johnson N2.



**Nortec OnLine** is a remote interactive communication package that allows satellite contacts to monitor, maintain and control a humidification center from any location worldwide using standard internet connections. This advanced software shows graphic representations of the humidifier and its key parameters (up to 75 functions).

Features Comparison	NHTC	NHFC	NHRS
Display of space RH and set-point	•		•
Keypad set-point adjustment	•		•
Network capabilities	•		•
Autopulse drain valve	•	•	
Cylinder drain 3 day no call	•	•	•
Disposable cylinder	•	•	
Auto adaptive water management	•	•	
Independent circuits on multi-cylinder humidifiers	•	•	
Tempered drain during normal and manual operation	•	•	•
Alphanumeric function display			•
Graphic function display backlight	•		
Keypad programming and status indicator lamps	•	•	•
Output display of capacity in lbs/hour	•	•	•
P+I Control System	•	•	•
Auto self test on start up	•	•	•
Total controller with real time clock	•		
Micro computer electronics		•	•
Potable water operation	•	•	•
DI/RO water operation			•
Stainless Steel tank			•
High quality incoloy heating elements			•
Dual float water level control			•
Manual output adjustment	•	•	•
Foam detection and correction capability	•		
On/Off control system	•	•	•
Single modulation control	•	•	•
Dual modulation control	•		
Fill cup with 1 inch air gap	•	•	•
Safety door interlock switch	•	•	•
Short Cycling detection and correction	•		
C-UL-US Listed	•	•	•
30 month limited warranty	•	•	•
SSR operation			◦
Advanced Scale Management System			◦
Nortec OnLine for web based monitoring and control	◦		◦
Nortec LINKS XPS Building Management System capable of using BACnet, LonWorks or Johnson N2 protocols	◦		◦
Keep Warm (stand-by heating)	◦		◦
<b>Distribution Systems</b>			
Built-on Blower Pack (indoor use only)	◦	◦	◦
Remote Blower Pack	◦	◦	◦
Steam distributor with condensate separators	◦	◦	◦
Short Absorption Manifold SAM-e	◦	◦	◦
<b>Outdoor Units only</b>			
Heating and cooling protection	•		•
Weather proof enclosure	•		•
Integral design with internal pipe chase	•		•

• = standard    ◦ = optional

## Electrode (NHTC / NHPC)

SPECIFICATION	TC/PC 005	TC/PC 010	TC/PC 020	TC/PC 020	TC/PC 030	TC/PC 050	TC/PC 075	TC/PC 100	TC/PC 150	TC/PC 200
Capacity: lbs/hr	1-5	2-10	4-20	4-20	6-30	10-50	15-75	20-100	15-150	20-200
Capacity: kg/hr	0.5-2.2	0.9-4.5	1.8-9	1.8-9	2.7-13.6	4.5-22.7	6.8-34	9-45	6.8-68	9-91
Input kW max	1.9	3.8	7.6	7.6	11.4	18.7	28.1	37.4	56.1	74.8
Voltage	110-120	208-600	208-600	208-600	208-600	208-600	208-600	208-600	208-600	208-600
Phase	1	1	1	3	3	3	3	3	3	3
No. of Cylinders/Control Circuits	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	2/2	2/2
<b>STEAM DISTRIBUTION CHOICES **</b>										
Nortec steam hose I.D.	7/8" 2.2 cm	7/8" 2.2 cm	7/8" 2.2 cm	7/8" 2.2 cm	7/8" 2.2 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm
Duct mounted distributors	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Built-on blower packs	yes	yes	yes	yes	yes	yes	yes	yes	n/a	n/a
Remote mounted blower packs	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Short Absorption Manifold (SAM-e)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

\*\* Refer to Engineering Manual for steam distribution methods.

## Resistive Element (NHRS)

SPECIFICATION	NHRS 010	NHRS 015	NHRS 020	NHRS 030	NHRS 045	NHRS 065	NHRS 090	NHRS 135	NHRS 180	
Capacity: lbs/hr	0-10	0-15	0-20	0-30	0-45	0-65	0-90	0-135	0-180	
Capacity: kg/hr	0-4.5	0-6.0	0-9	0-13.6	0-20	0-29	0-40	0-61	0-82	
Input kW max	3.8	5.1	7.7	11.5	15.3	22.4	30.6	45.9	61.2	
Voltage	208-600	208-600	208-600	208-600	208-600	208-600	460-600	460-600	460-600	
Phase	1	1	1	1/3	3	3	3	3	3	
No. of Stainless Steel Tanks	1	1	1	1	1	1	1	2	2	
<b>STEAM DISTRIBUTION CHOICES **</b>										
Nortec steam hose I.D.	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	1-3/4" 4.5 cm	
Duct mounted distributors	yes	yes	yes	yes	yes	yes	yes	yes	yes	
Remote mounted blower packs	yes	yes	yes	yes	yes	yes	yes	yes	yes	
Short Absorption Manifold (SAM-e)	yes	yes	yes	yes	yes	yes	yes	yes	yes	

\*\* Refer to Engineering Manual for steam distribution methods.

The Nortec **GS SERIES** gas-fired humidifier provides pure, clean atmospheric steam from economical natural gas or propane. For large humidification loads, the GS offers quick payback for building owners.

The GS offers the highest combustion efficiency in its class. With a unique combustion system, the Gas Steam humidifier is ready to meet tomorrow's low emission standards. The most compact stainless steel heat exchanger in the business provides a minimum footprint area. The GS is CSA certified to mount on combustible surfaces and is the only Direct Vent certified gas humidifier in the industry.

Steam distribution is via a duct distributor, Short Absorption Manifold (SAM-e), or in-room with a remote steam distribution blower pack.

Single unit capacities up to 600 lbs/hr (272 kg/hr) are available.

U.S. Patent 5,816,496  
Canadian Patent 2,203,332



GSTC



GS OUTDOOR MODEL

Features Comparison	GSTC	GSP
Multi function, backlight, LCD graphic display	●	
Total controller with keypad programming and real time clock	●	
Manual steam capacity adjustment (lbs/hour)	●	
Keypad setpoint adjustment (humidity %)	●	
Continuous self diagnostic with self-correction and fail safe operation	●	
On screen troubleshooting center with corrective action	●	
On screen indication of service and fault history	●	
On screen graphic indication of humidity demand trends	●	
Low and high relative humidity alarms	●	
Automatic duty cycling of burner for equal usage	●	
Pre-cleaning sequence	●	
Keep warm feature for rapid response and additional freeze protection	●	
Networking up to 10 units (maximum of 6000 lbs/hr)	●	
Intuitive scale management system based on steam production	●	
Smart drain water cooling	●	
On/Off cycling prevention	●	
BMS communication interface via Modbus	●	
Transducer signal acceptance	●	
Modulation control compatible with staging of burners	●	
Industry standard single or dual modulation signal acceptance	●	●
Remote fault indication	●	●
Modulation control utilizing variable speed, and pre-mix blower(s)	●	●
Status indication lamps (demand, service and fault)	●	●
Precise five level water level indication	●	●
Full tank blowdown capability via timer or external trigger	●	●
Hygienic automatic drain on three day off cycle	●	●
Materials suitable for all water types, including Potable, RO and DI	●	●
Turn-down ratio from maximum output to 25 lbs/hr (11 kg/hr)	●	●
Totally enclosed cabinet with integral pipe chase	●	●
Zero clearance to combustible	●	●
Fits through a 36" door	●	●
Single supply water connection	●	●
Large cleaning ports for all capacities	●	●
B or BH venting options	●	●
Low emission NOx and CO levels	●	●
Accepts natural gas or propane	●	●
Accepts 110-120 V or 208-240 V power supply	●	●
CSA approved	●	●
Floor stand	○	○
Sealed combustion and direct vent option	○	○
Nortec Links XPS Building Management System interface	○	○
Nortec Online for web based monitoring and control	○	
<b>Distribution Systems</b>		
Short Absorption Manifold SAM-e	○	○
Steam distributor	○	○
Blower pack	○	○
<b>Outdoor Units Only</b>		
Totally enclosed weather proof integral cabinet	●	
Internal cooling and heating fans	●	
Flue venting (BH stack vent)	●	

SPECIFICATION	GS 100	GS 200	GS 300	GS 400	GS 500	GS 600
Capacity: lbs/hr	25-100	25-200	25-300	25-400	25-500	25-600
Capacity: kg/hr	11-45	11-91	11-136	11-182	11-227	11-273
Input BTU/hr max	140,000	280,000	420,000	560,000	700,000	840,000
Input kJ/hr max	41	82	124	165	206	247
Flue Emissions	Low CO (<10ppm) and NOx (<40ppm)					
Unit rated Amps	4	6	8	10	12	14
Voltage/Phase	110-120V/1	110-120V/1	110-120V/1	110-120V/1	110-120V/1	110-120V/1
Unit rated Amps	2	3	4	5	6	7
Voltage/Phase	208-240/1	208-240/1	208-240/1	208-240/1	208-240/1	208-240/1

## INSTALLATION FEATURES & REQUIREMENTS

Choice of venting comes standard allowing greater installation flexibility, B or BH venting with or without sealed combustion option.

Cabinet and insulation allows mounting to combustible surfaces for minimum space requirement.

Exclusive full size cleanout port for fast and easy servicing.

Floor stand optional for GS indoor units.

All service connections exterior to the humidifier ready for field connections.

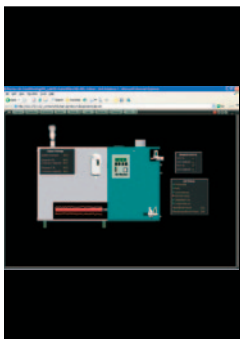
110-120, 208-240V single phase power supply.

Steam outlet configuration ready for duct distributor, remote mounted blower pack or Short absorption manifold connection.

The most compact removeable heat exchanger. 100 lbs/hr (45 kg/hr) of clean steam.



## options



**Nortec LINKS XPS** offers monitoring and control allowing humidifier(s) to communicate to your Building Management System (BMS). The controller is factory installed and is located internally to the humidifier. Simply specify at time of order what operating protocol you are using – BACnet IP, BACnet MSTP, LonWorks or Johnson N2.

**Nortec OnLine** is a remote interactive communication package that allows satellite contacts to monitor, maintain and control a humidification center from any location worldwide using standard internet connections. This advanced software shows graphic representations of the humidifier and its key parameters (up to 75 functions).



Nortec **AIRFOG** systems use nozzle humidification technology that injects droplets of cold water directly into the air. This method of humidification has the following advantages over steam humidification:

- ▶ Lower frequency of maintenance
- ▶ Systems are flexible, and designed to meet the needs of each individual project
- ▶ A “no cost” air cooling benefit due to latent heat of vaporization extracting heat from the air
- ▶ Maintenance is primarily focused on keeping the air compressor operational
- ▶ Change of components is fast and requires minimal system disassembly
- ▶ Energy efficient
- ▶ Stainless Steel construction

## HP HVAC Series

High Pressure Nozzle System  
for air-handling units or duct applications



The **PUMP MODULE** supplies high-pressure water to the patented nozzles eliminating the need for a compressed air system. Reverse Osmosis water is supplied to the pump system at 25-60 PSIG (172-413 kPa) and exits the nozzles at 1000 PSIG (6895 kPa). Pumps are available in brass or stainless steel, and with or without a variable frequency drive.



**HIGH PRECISION NOZZLES** deliver 10-40 micron droplets through a 0.008" orifice. A single nozzle produces 1.2 lbs/hr of water without the need for compressed air. Constructed from durable stainless steel and factory assembled onto manifolds, Nortec nozzles are easy to integrate into any project.

## Compressed Air & Water Nozzle Humidifier (AFE)

Nortec AIRFOG products are available either as a flexible modular system, that requires engineering design, or as a packaged, self-contained system. Both require connection to electrical power, water, and compressed air.

## High-Pressure Nozzle Humidifiers (HP HVAC)

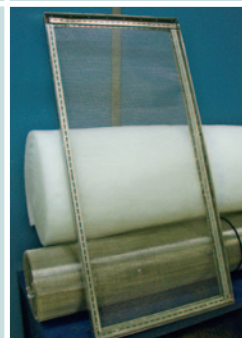
Using advanced atomization nozzles to ensure efficient evaporation, the Nortec HP HVAC humidification system provides considerable operating cost savings when compared to other technologies.

Patented Nortec MicroCool High-Pressure nozzles generate an extremely fine spray of water droplets. A unique nozzle manifold design ensures that the spray is uniform, and absorbed over a short distance. In combination with the Nortec Mist Eliminator, the humidified air is 99% free of aerosols for hygienic operation.

The unique **STAGE VALVE ASSEMBLY** allows you to modulate humidifier output in stages. The valve **CONTROLLER** receives a control signal from the building management system, and manages system operation to ensure efficient operation.



The **MIST ELIMINATOR** protects downstream equipment from water droplets. The media is effective at capturing 99% of droplets and aerosols, is UL Class 2 flame rated, and is compatible with UV light duct sterilization systems.





SPECIFICATION	AFE	MINI	OCTO	HP HVAC
Water particle - micron	3-10	3-10	3-10	10-40
Output lbs/hr (kg/hr)	15 (6.4)*	28 (12.7)**	120 (54.5)***	5000 (2948)
Compressed air consumption/nozzle cfm (l/m)	1.8 (51)	1.8 (51)	1.8 (51)	N/A
Air pressure max psig (kPa)	90 (620)	90 (620)	90 (620)	N/A
Air pressure working min./max. psig (kPa)	0-70 (0-483)	0-70 (0-483)	0-70 (0-483)	N/A
Inlet Water pressure max. psig (kPa)	25 (172)	25 (172)	25 (172)	75 (517)
Nozzle construction	316 SS	316 SS	316 SS	316 SS
Power	120/24 Vac	120/24 Vac	120/24 Vac	120V to 575V
Adjustable cleaning timer	yes	yes	yes	N/A
Low pressure vacuum valve	yes	yes	yes	N/A
Automatic flush cycles	no	no	no	yes
Self-draining manifolds	no	no	no	yes
<b>OPTIONS</b>				
On/off humidistat	yes	yes	yes	yes
Modulation control	yes	no	yes	yes

\* Capacity per nozzle \*\* w/ 2 nozzles \*\*\* w/ 8 nozzles

## AFE

### Atomizing Nozzle Systems for Space Applications



- ▶ AFE nozzles operate on compressed air and water
- ▶ Vacuum system automatically stops water flow if air pressure drops
- ▶ Vacuum ensures equal output to each nozzle - no drip
- ▶ Programmable timer for self-cleaning
- ▶ Can be mounted on walls, columns or from ceilings
- ▶ Water particle size 3 to 10 microns
- ▶ Capacity up to 15 lbs/hr (6.4 kg/hr) per nozzle
- ▶ Evaporative cooling
- ▶ Energy efficient
- ▶ Minimal maintenance required
- ▶ High quality 316 Stainless Steel construction for optimum performance and reliability
- ▶ Suitable for potable, RO, or DI water
- ▶ Modulation available

- ▶ Ideal for specific area or room humidification
- ▶ One or two AFE nozzles produce up to 28 lbs/hr (12.7 kg/hr)
- ▶ Built-in vacuum and control valve
- ▶ Self-cleaning timer
- ▶ Available for RO, DI or potable water
- ▶ On/off control

## MINI

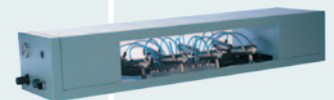
### with AFE nozzle Packaged Wall Mount System



- ▶ Ideal for warehouse or factory projects
- ▶ Four, six or eight AFE nozzles for up to 120 lbs/hr (54.5 kg/hr)
- ▶ Operation via single AIRFOG control panel
- ▶ Available for RO, DI or potable water
- ▶ Built-on control panel option
- ▶ Modulation option

## OCTO

### with AFE nozzle Packaged Ceiling Mount System

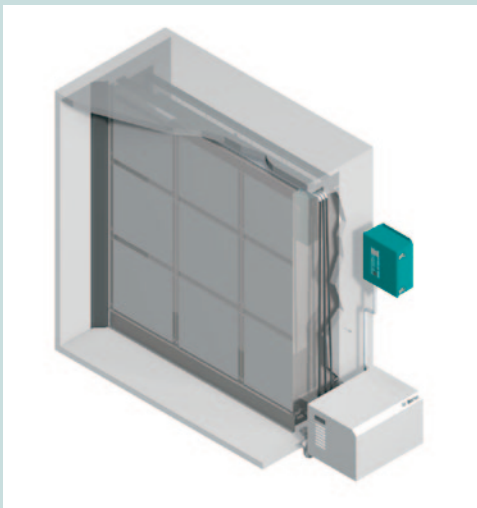


Saving energy and water, while reducing operating costs, is an important challenge in an increasingly energy conscious world. The Nortec **MH SERIES** evaporative media humidifier/cooler is an efficient way to provide both humidification and cooling while reducing building energy usage. Water evaporating from the media extracts sensible heat from the airstream generating cooling in addition to humidity, often as much as 22°F (12.5°C) or more.

The key to this high level of performance is the unique V-profile polyester media, which intensifies the moisture exchange process and is available in both 8” and 12” thicknesses to meet nearly any performance requirement. The media also features an industry leading UL 900 Class 1 smoke and flame rating in the USA (ULC-S111-07 Class 2 in Canada).

The MH Series is available in both flow through and recirculation models. Flow through models are excellent for potable water applications or where a central recovery system is being employed. Recirculation models are ideal for all water types, and feature a unique external hydraulic module. This system combines the electrical and mechanical components in a convenient enclosure installed external to the airstream, simplifying installation and maintenance.

Also available is the advanced Total Controller which features a graphical display and advanced control functions allowing the user to adjust a variety of operational parameters.



Features Comparison	MHB Flow	MHTC Flow	MHTC Reflow
Operates on DI/RO, Potable, Soften Water	●	●	●
Recirculation Water System			●
Direct Water System	●	●	
Total Control (TC) System with Full Backlit Display		●	●
Basic control system	●		
Smart Water Management System		●	●
Adjustable Flush Cycles		●	●
Pre-cleaning Sequence		●	●
Smart Media Box Drying		●	●
Modbus support out of the box		●	●
Programmable Maintenance Settings		●	●
Step-Control 1, 2 or 3 Stage	●	●	●
Multi-Unit Networking		●	●
Display and Control of RH		●	●
Multiple Control Signal Acceptance		●	●
Operation History Log		●	●
Real Time Information		●	●
Adjustable Capacity of Nominal Output		●	●
Remote Fault Indication	●	●	●
Stainless Steel Reservoir	●	●	●
Stainless Side frames	●	●	●
V-Profile Polyester Media	●	●	●
2 Year Limited Warranty *Excluding Media	●	●	●
Conductivity Smart Monitoring			○
Ultra Violet Water Treatment	○	○	●
Nortec LINKS XPS Building Management System capable of using BACnet, LonWorks or Johnson N2 protocols		○	○

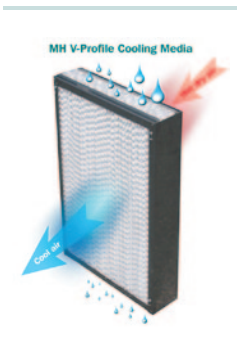
- ▶ High performance with low energy usage
- ▶ Hygienic operation
- ▶ Free evaporative cooling
- ▶ Safe polyester media
- ▶ Complete packaged system
- ▶ Industry first external recirculation module
- ▶ Available Total Controller control system

● = standard    ○ = optional

Specification	
Media Box Effectiveness	85% and 95%
Maximum Face Velocity over Media	750 fpm (3.8 m/s)
Maximum Face Velocity with Integral Mist Eliminator	1080 fpm (5.5 m/s)
Pressure Drop at 500 fpm	0.25 IWC (62 Pa)
Fire Protection Rating	UL 900 Class I (USA), ULC - S111-07 Class 2 (Canada)
Power supply pump (REflow, REflow C, REflow SC)	120 VAC/1, 50 and 60 Hz
Power consumption	0.2 - 0.71 kw
Water supply pressure	30 - 145 psi
Unit Height	26" (650mm) - 130" (3300mm)
Unit Width	24" (610mm) - 166" (4200mm)
Unit Depth (Direction of air flow)	16.6" (422mm)

**INSTALLATION FEATURES & REQUIREMENTS**

Pre-assembled hydraulic package for quick installation
Only three connections to be made- water, drain and electrical
REflow pump model powered by a 120 V 1phase 60Hz connection
Stainless steel water tank and lateral supports
Tool free media replacement
Sized to fit application



**V-profile Media**

- ▶ Hygroscopic Coating
- ▶ High Velocity Performance
- ▶ Low Pressure Losses
- ▶ UL 900 Class 1 Rating
- ▶ Suitable for DI/RO
- ▶ No Droplets, Free of Aerosols

**Total Control (TC) System**

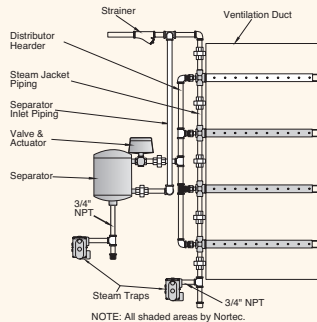
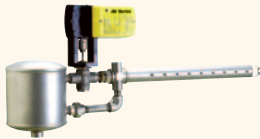
- ▶ Smart Water Management
- ▶ Advanced Hygiene Control
- ▶ Internet Monitoring & Control
- ▶ BMS Interoperability
- ▶ Full Function Operating Panel
- ▶ NRTL-C Approved



Nortec **LiveSteam** pressure steam humidifiers deliver reliable humidity from the facility steam boiler for duct or air handler application. With distributors constructed of premium quality 304 stainless steel, LiveSteam features Nortec's tube in tube design for efficient operation. LiveSteam distributors are available in a wide variety of lengths ranging from 12" to 144" to suit your duct size for the best possible steam dispersion. Multi-tube units are also available.

## LiveSteam

### Pressure Steam Humidifiers



- ▶ Available single or multiple tube configurations (LS tubes)
- ▶ Available with short absorption distributors (SAM-e)
- ▶ Pressure ranges from 2-50 PSIG (14-345 kPa)
- ▶ High capacity system up to 3200 lbs/hr (1452 kg/hr)
- ▶ Economical and cost effective system to meet high humidity requirements
- ▶ Delivers precise humidity control
- ▶ Steam jacketed dispersion tubes to prevent "spitting"
- ▶ Available tube insulation for increased efficiency
- ▶ Suitable for boilers operating on DI, RO or potable water
- ▶ Available pneumatic or electric controls

Nortec **SAM-e**, Short Absorption Manifold, is ideal when steam absorption distance is critical. This multi-distributor system, with precision stainless steel nozzle inserts is engineered specifically for each project. The SAM-e is available for pressurized or atmospheric steam applications. Optional insulation provides increased energy efficiency.



## SE Series

### Steam Exchange Humidifiers

Packaged steam to steam humidifiers produce clean atmospheric steam using boiler steam as an energy source. Available in 3 models: SEP (base), SETC (premiere), SETC Outdoor.



- ▶ Capacities up to 1050 lbs/hr (476 kg/hr)
- ▶ Nortec Total Controller (SETC only)
- ▶ Intuitive scale management based on steam production
- ▶ All components suitable for RO, DI or potable water
- ▶ Suitable for all water types including: Potable, RO and DI
- ▶ Built-in drain water cooling
- ▶ Fully modulating down to 25% of capacity
- ▶ Built-in float and thermostatic steam trap(s)
- ▶ Built-in P-trap
- ▶ Fully insulated tank for efficient operation
- ▶ Pre-cleaning sequence for easier and faster maintenance
- ▶ Building management system compatible
- ▶ Includes valve, actuator and strainer

## options



**Nortec LINKS XPS** offers monitoring and control allowing humidifier(s) to communicate to your Building Management System (BMS). The controller is factory installed and is located internally to the humidifier. Simply specify at time of order what operating protocol you are using - BACnet IP, BACnet MSTP, LonWorks or Johnson N2.

**Nortec OnLine** is a remote interactive communication package that allows satellite contacts to monitor, maintain and control a humidification center from any location worldwide using standard internet connections. This advanced software shows graphic representations of the humidifier and its key parameters (up to 75 functions).



**LiveSteam**

SPECIFICATION	MODEL 200 MODEL LS1	MODEL 300 MODEL LS2	MODEL 450 MODEL LS3	MODEL 600 MODEL LS3	MODEL 800 MODEL LS3	SAM-e mini SAM-e
Pressure range - psig (kPa)	2-50 (14-345)	2-50 (14-345)	2-50 (14-345)	2-50 (14-345)	2-50 (14-345)	2-50 (14-345)
Max. capacity single tube - lbs/hr (kg/hr)	284 (129)	571 (259)	916 (417)	1258 (572)	N/A	N/A
Max. capacity multi-tube - lbs/hr (kg/hr)	374 (170)	653 (297)	1030 (468)	1664 (757)	3209 (1456)	3200 (1452)
Separator physical data - Height x Diameter	7.7" x 6" 195mm x 152mm	8.8" x 6" 223mm x 152mm	10.5" x 6" 268mm x 152mm	11.2" x 9" 284mm x 229mm	12.6" x 9" 322mm x 229mm	Custom
Standard actuator	Electric Modulating 0-10 VDC, 24 VAC					
Standard steam trap	Float & Thermostatic					
Separator and dispersion tube material	Stainless Steel 304					
<b>OPTIONS:</b>						
Pneumatic actuator	yes	yes	yes	yes	yes	yes
Electric on/off actuator	yes	yes	yes	yes	yes	yes
Tube insulation	yes	yes	yes	yes	yes	yes
DI water installation	yes	yes	no	no	no	yes

**SE Series**

SPECIFICATION	SE 050	SE 100	SE 175	SE 250	SE 375	SE 525	SE 750	SE 1050
Pressure range - psig (kPa)	5-15 (35-105)							
Max. capacities (at 15 psi steam pressure) - lbs/hr (kg/hr)	50 (23)	100 (45)	175 (79)	250 (114)	375 (170)	525 (240)	750 (340)	1050 (476)
Physical data - Width x Height x Depth	25.6" x 20.6" x 18.4" 65.1cm x 52.4cm x 46.7cm	46.4" x 32.0" x 20.0" 117.8cm x 81.4cm x 50.8cm		46.4" x 32.0" x 26.4" 117.8cm x 81.4cm x 67.1cm		46.4" x 32.0" x 42.0" 117.8cm x 81.4cm x 106.7cm		46.4" x 32.0" x 58.0" 117.8cm x 81.4cm x 147.3cm
Standard actuator	Electric Modulating 0-10 VDC, 24 VAC							
Built-in steam trap	Float & Thermostatic							
Insulation & Cabinetry	Standard							
Voltage/Phase	110-120/1							
Full load amps	2.1							
Internal Smart Drain Water Cooler	Standard							
Steam Outlets (s) - OD	1 x 1.75" (1 x 4.44cm)		1 x 3" (1 x 7.62cm)			1 x 4" (1 x 10.16cm)	2 x 4" (2 x 10.16cm)	
<b>OPTIONS:</b>								
Nortec Links XPS BMS Interface	BACnet, LonWorks, Johnson N2 protocols (optional, SETC model only)							
Nortec OnLine	SETC model only							
Keep Warm Feature	no	SETC model only						
Freeze Protection	no	SETC model only						
Outdoor Model	no	SETC model only						
Floor Stand	yes	yes	yes	yes	yes	yes	yes	yes

Nortec offers control solutions for every humidification application. Options include on/off humidistats for general control applications, modulating humidistats for precise control and remote control of relative humidity through a building management system.

Contact your local Nortec representative for details.



Digital wall control



Digital duct control

### ON/OFF Controls

Nortec on/off controls can be used with all technologies for humidity control and/or humidification safety.

For room humidity control, Nortec offers a return-air duct mounted on/off digital duct humidistat or a wall mounted on/off digital humidistat. Both humidistats come complete with a built-in sensor, a keypad for adjusting setpoint and a backlit LCD display. Features such as outdoor temperature setback and a relay for furnace/circulation fan control ensure safe, energy efficient operation. Accuracies of  $\pm 5\%$  RH are expected.

For humidification safety, Nortec offers an air-proving and high-limit control. The air-proving switch is used to prevent humidifying when there is no air movement in the duct. For high-limit control, an on/off digital duct humidistat is used to avoid over humidification of the supply duct.

### Modulating Controls

Nortec offers two groups of modulating humidity controls:

- ▶ Humidistats for room and duct control
- ▶ Transducers for humidity sensing

Humidistats provide a demand signal to the humidifier, while transducers sense relative humidity and are used for setpoint control at the humidifier. Typical accuracies of  $\pm 3\%$  RH are expected with standard conditions, while tolerances of  $\pm 1\%$  RH can be achieved for specialty applications.

Humidistats and transducers can either be wall mounted for room humidity control or duct mounted for room humidity and/or high limit control. Both wall and duct controls come complete with a keypad for configuration as well as a backlit digital display. Controls can be combined with Nortec OnLine, LINKS XPS and/or LINKS2, to allow remote display and configuration of humidity setpoints.

DISTRIBUTOR	NH SERIES	GS SERIES	LIVESTEAM	SE SERIES
Steam distributors (atmospheric)	•	•		•
Steam distributors (pressure)			•	
Built-on blower pack (NHTC/PC only)	•			
Remote mounted blower pack	•	•		•
SAM-e	•	•	•	•
mini SAM-e	•	•	•	•

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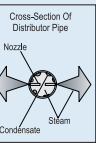
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APPLICATION	°C	°F	%RH	NH SERIES	GS SERIES	LIVESTEAM	SE SERIES	AIRFOG AFE	AIRFOG HP HVAC	MH SERIES
Abrasive	26	79	50	•	•	•	•	•	◦	
Bread	27	81	75	•						
Ceramics	27	81	60-70	•	•	•	•	•	◦	
Cheese Curing	16-18	61-64	90					•	◦	
Clean Rooms	22-23	72-73	43-47	•	•			◦		◦
Data Centers	22-26	72-78	40-55	•				•	◦	◦
Electrical (Instruments)	21	70	50-55	•	•	•	•	◦	◦	◦
Electrical (x-ray)	20	68	40-50	•	•	•				◦
Electrical (Switch gear)	23	73	50	•						◦
Fruit Storage	4-7	39-45	85-90					•	◦	
Fur Storage	4-10	39-50	55-65	•	•		•	•	◦	
Hospitals (Admin.)	21-27	70-81	30-50	•	•	•	•		◦	◦
Hospitals (ICU)	24	75	40	•	•	•	•			
Hospitals (Operating Rooms)	20-24	68-75	50	•	•	•	•			
Leather (Drying)	20-52	68-126	75	•	•	•	•			
Leather (Storage)	10-16	50-61	40-60	•	•	•	•	•		
Lenses (Optical)	27	81	80	•	•	•	•	•	◦	
Libraries	17-22	63-72	50	•	•	•	•			◦
Meat & Fish	0-1	32-34	88-92					•	◦	
Mushrooms	9-16	48-61	80					•	◦	
Paint	16-32	61-90	80	•	•	•	•	•		
Pharmaceuticals	24	75	35-50	•	•	•	•	◦	◦	◦
Photo Studio	21-22	70-72	45-55	•	•		•			◦
Plastics (Manufacturing)	24-27	75-81	45-65	•	•	•	•	•	◦	◦
Plywood (Pressing)	32	90	60					•	◦	◦
Printing (Storage)	24-27	75-81	50	•	•	•	•	•	◦	◦
Printing (Web offset)	24-27	75-81	50	•	•	•	•	•	◦	◦
Rubber (Molding)	23	73	50					•	◦	◦
Textiles (Knitting)	24	75	60-65					•	◦	◦
Textiles (Spinning)	24-27	75-81	35-60					•	◦	◦
Textiles (Weaving)	24-27	75-81	70-85					•	◦	◦
Tobacco	21-24	70-75	55-65	•	•	•	•	•	◦	◦
Schools & Universities				•	•	•	•		◦	◦
Office Space				•	•	•	•		◦	◦

◦ Treated water recommended.



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