

we love humidity













Product Handbook

Humidification &
Evaporative Cooling



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Why Condair?

Condair specializes in the design and production of superior 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 9001:2008 certified quality standards that will provide our customers with maximum reliability, minimum maintenance and a choice of energy sources.

When you choose Condair products, you are choosing a company that has built a reputation for superior quality humidification systems. Condair is also the only humidifier company to manufacturer a complete range of solutions including electric steam, subsonic fogging, high pressure fogging, evaporative media, direct steam injection, steam exchange and gas-fired technologies.

Technical Services – Worry Free Systems

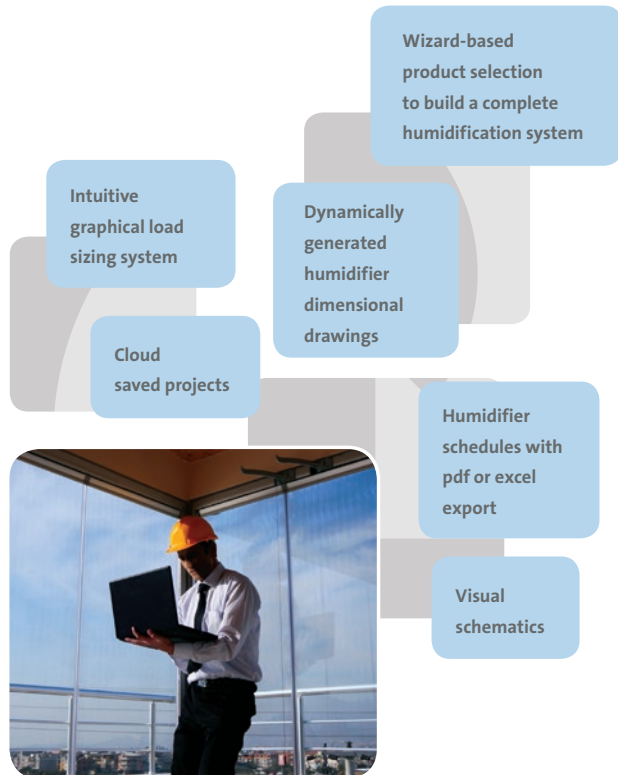
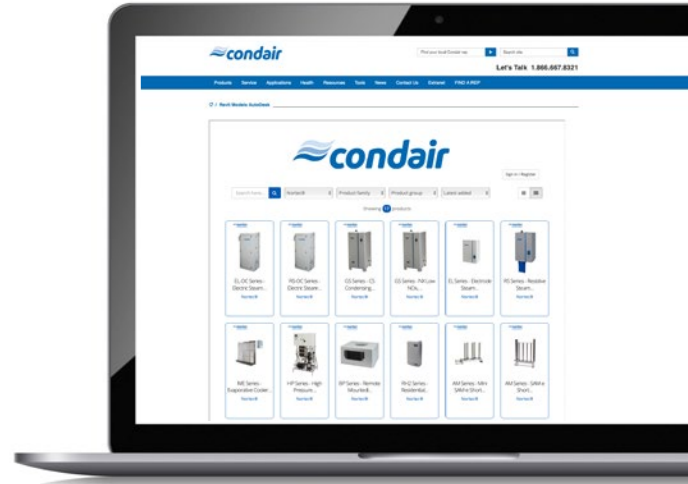
Condair understands the importance of humidification equipment performance, and provides its customers with full access to the industry's best support provided by our factory trained technicians. Condair can provide complete support from the initial system design and engineering through a comprehensive installation and startup. Complete training on the operation and maintenance is provided to your staff on-site. To ensure optimum system reliability, performance and hygiene, Condair provides a comprehensive preventive maintenance program including a BQ bacteria test on-site to ensure proper water quality during humidification. Condair is dedicated to provide the very best service and technical support for your equipment. Please feel free to contact us for all of your service and support needs.

Everywhere you need to be.



HELP is an interactive humidification engineering and load sizing program that guides you through the process of selecting humidification systems. The web based software is designed to make humidification projects quicker and easier. It includes an online catalog, product selection wizards, specification and schedule tools, and a built-in representative finder to connect you with your local Condair representative for pricing.

Visit www.condairhelp.com to register for a free account and see how effortless humidification projects can be!



Revit® Models

Condair offers Building Information Modeling (BIM) models for all product lines! The models are complete with detailed 3D geometry, submittal data, specifications, and product details. Condair is the first humidifier manufacturer to offer this important support tool for architects and consulting engineers.

To access Condair models, simply go to condair.com and click on **tools** in the menu.

Condair electrode steam humidifiers provide 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.

Condair electrode steam humidifiers offer complete application flexibility. They can be integrated into central HVAC systems with distributors, Nortec AM Series, or placed in specific locations with their own steam distribution blower pack (BP Series) for individual room control.

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, Condair electrode steam humidifiers maintain maximum efficiency from beginning to end. As minerals build-up on the electrodes in the cylinder, 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 Condair electrode steam humidifiers feature a disposable cylinder. Contact your local Condair agent for more cylinder replacement information.



The **Nortec EL Series** is the newest electrode steam humidifier from Condair. With seventy years experience and a leader in commercial humidification, Condair has developed an all new touch screen controller that is easy to navigate and contains more information than ever before.

- Intuitive touch screen control
- Standard building automation support with integrated BACnet™ (IP and MSTP)
- OSHPD certification for seismic environments
- USB port for performance downloads
- SIM card storage of all operational information and user changes
- New cabinet design and smaller footprint than previous NH models
- Zero unit side clearance



Options



BP Series
Nortec AS Series
Nortec AM Series



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



Nortec RS Series with scale collector tank option

The **Nortec RS Series** resistive element humidifier provides pure, clean, atmospheric steam from potable or DI/RO water with high precision. With SSR heating element control coupled with a high precision humidistat, the RS Series can be accurate to +/-1%, perfect for humidity-critical applications.

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

- Precise RH tolerances for humidity critical applications
- Use with potable, DI, or RO supply water
- User-friendly touchscreen controller
- Standard building automation support with integrated BACnet (IP and MSTP)
- Scale collector tank option for easy maintenance
- Zero unit side clearance

Options



- BP Series
- Nortec AS Series
- Nortec AM Series



The **Nortec RH Series** electrode steam humidifier features the same proven technology as the Nortec EL to deliver efficient and dependable humidification to light commercial applications. Two models are available to cover all applications: the Nortec RH Space Series for in-space humidification and the Nortec RH Duct Series for humidification through the duct system.



EL-OC and RS-OC

Outdoor models for **Nortec EL Series** and **Nortec RS Series** available for almost any outdoor application.

- Ambient temperature range of -40°F to 104°F (-40°C to 40°C)
- Easiest and fastest installation and maintenance in the industry
- Full range of indoor capacities and voltages
- User-friendly touchscreen display with standard BMS connectivity

Electrode (Nortec EL Series)

SPECIFICATION	EL 005	EL 010	EL 020	EL 020	EL 030	EL 050	EL 075	EL 100	EL 150	EL 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



Steam Distribution Choices **

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
BP Series (built-on)	yes	yes	yes	yes	yes	yes	yes	yes	n/a	n/a
BP Series (remote mounted)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Nortec AS Series	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Nortec AM Series	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

* Nortec EL Series can be field adjusted from 20% to 100% of full output.

** Refer to Engineering Manual for steam distribution methods.

Resistive Element (Nortec RS Series)

SPECIFICATION	RS 010	RS 015	RS 020	RS 030	RS 045	RS 065	RS 090	RS 090	RS 130	RS 180
Capacity: lbs/hr*	0-10	0-15	0-20	0-30	0-45	0-65	0-90	0-90	0-130	0-180
Capacity: kg/hr*	0-4.5	0-6.8	0-9.0	0-13.6	0-20.4	0-29.5	0-40.9	0-40.9	0-59.0	0-81.8
Input kW max	3.9	6.0	7.7	10.8	16.3	24.5	32.6	32.1	48.0	64.2
Voltage	208-600	208-600	208-600	208-600	208-600	208-600	208-240	440-600	440-600	440-600
Phase	1 / 3	1 / 3	1 / 3	1 / 3	3	3	3	3	3	3
No. of Stainless Steel Tanks	1 x small	1 x small	1 x small	1 x med	1 x med	1 x med	2 x med	1 x med	2 x med	2 x med



Steam Distribution Choices **

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	1-3/4" 4.5 cm
BP Series (built-on)	yes	yes	yes	yes	yes	yes	no	yes	no	no
BP Series (remote mounted)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Nortec AS Series	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Nortec AM Series	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

* Capacities are voltage dependent. Output can be field adjusted from 20% to 100% of rated capacity.

** Refer to Engineering Manual for steam distribution methods.



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

The **Nortec GS Series** gas-fired humidifier provides pure, clean atmospheric steam with economical operation. New heat exchanger and component designs allow for simplified maintenance and reliable performance. The GS has an even more minimalistic footprint with two varying unit sizes available that have their own space saving characteristics.

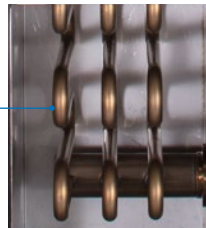
Condair is proud to introduce the revolutionary and industry-first Condensing System (CS) GS model which provides true condensing high-efficiency over 90%. A Low-Emissions (NX) model is also available for the GS Series which meets California emissions requirements. With both savings in installation and operation, the GS offers quick payback for high-efficiency upgrades. For retrofit projects or applications requiring an economical solution, there is the new GS mid-temperature model (MT) with >80% efficiency.

Options



BP Series
Nortec AS Series
Nortec AM Series

GS Heat Exchanger




Features	GS
Intuitive, touch screen Integrated Controller	■
BMS compatibility via Modbus, BACnet IP or BACnet MSTP Slave	■
BMS compatibility via BACnet MSTP Master or LonWorks	■
Single or dual modulation capability	■
USB port for performance download	■
Manual steam capacity adjustment	■
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	■
Adjustable automatic blow down period	■
Pre-cleaning sequence	■
Keep warm feature for rapid response and additional freeze protection	■
Automatic float level, fill and drain component checks	■
Flat plate burner design for more efficient combustion	■
Internal Smart drain water cooling and drain pump	■
On/off cycling prevention	■
Totally enclosed cabinet with internal pipe chase	■
Corrosion and scratch resistant cabinet	■
Float system external to boiling water tank	■
Integrated vacuum break valve	■
Zero clearance to combustibles	■
Fits through a 36" door	■
Single water supply, gas inlet, steam outlet and vent connections	■
Large cleaning port with round edges and no lips for all capacities	■
Heat treated 316 S.S. heat exchanger with minimal welding	■
Materials suitable for all water types, including Potable, RO and DI	■
Stand, floor or wall mounting options	■
Accepts 110-120V power supply	■
Sealed combustion option	■
Sacrificial anode inside tank to protect against corrosion	■
High Efficiency >90%, fully condensing model	■
Low No _x model for California emissions standards	■
>80% efficiency, non-condensing model	■

■ Standard ■ Optional

Nortec GS Series

SPECIFICATION	Compact Size Units		Full Size Units				
	GS 50	GS 100	GS 150	GS 200	GS 300	GS 450	GS 600
Capacity: lbs/hr (kg/hr)	50 (23)	100 (45)	150 (65)	200 (90)	300 (130)	450 (195)	600 (260)
Dimensions: in (mm) W x H x D	25.5 x 22 x 44" (640 x 542 x 1101)	25.5 x 22 x 44" (640 x 542 x 1101)	28 x 29 x 55 (717 x 738 x 1387)	41 x 29 x 55 (1026 x 738 x 1387)	41 x 29 x 55 (1026 x 738 x 1387)	57 x 29 x 55 (1448 x 738 x 1387)	67 x 29 x 55 (1700 x 738 x 1387)
Operating Weight: lb (kg)	327 (148)	351 (159)	490 (222)	721 (327)	757 (343)	946 (429)	1460 (662)
Mounting	Stand / Wall		Stand (GS CS / GS NX), Stand / Floor (GS MT)				
Power Circuit	120V / 1 Phase / 60 Hz						
Models	Condensing System (CS), Low NO _x (NX), Mid-Temperature (MT)						

INSTALLATION FEATURES & REQUIREMENTS	
CPVC venting option for CS and NX models	
Reduced footprint with minimum and recommended clearance requirements	
Cabinet and insulation allows mounting to combustible surfaces for minimum space requirement.	
Largest possible cleanout port for easy service and maintenance	
Heat treated 316SS heat exchanger and sacrificial anode for increased corrosion resistance	
Standard floor stand or wall mounting brackets included with compact size units	
All CS / NX models come standard with stands	
All service connections exterior to the humidifier and ready for field connections	
110-120V, single phase power supply	
Common connections with GSTC for simplified retrofit	



Saving energy and water, while reducing operating costs, is an important challenge in an increasingly energy conscious world. The **ME 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 air stream 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 a UL 900 smoke and flame rating in the USA (ULC-S111-07 Class 2 in Canada).

The ME Series is available in both direct feed and recirculation models. Direct feed 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 features a unique hydraulic module. The self-contained hydraulic module offers flexibility to be installed internally or externally to the airstream. External installations separate the mechanical components from the airstream, simplifying installation and maintenance.

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

Features Comparison	ME control	ME direct feed
Operates on DI/RO, Potable, Soften Water	■	■
Recirculation Water System	■	
Flow Through Water System		■
Integrated Controller With Backlit LCD Touchscreen Display with On Screen Help	■	
Basic Control Panel		■
Smart Water Management System	■	
Adjustable Flush Cycles	■	
Pre-cleaning Sequence	■	■
Smart Media Box Drying	■	■
Modbus Protocol standard	■	
Programmable Maintenance Settings	■	
Individual Step-Control, 1-5 stages	■	
Step-Control, 1 – 5 stages		■
Multi-Unit Networking	■	
Display and Control of RH	■	
Multiple Control Signal Acceptance	■	■
Operation History Log	■	
Remote Fault Indication	■	
Conductivity Smart Monitoring	■	
Ultra Violet Water Treatment	■	
Stainless Steel Reservoir	■	■
Stainless Side frames	■	■
V-Profile Polyester Media	■	■
Glass Fiber Media	■	■
Mist Eliminator V-Profile Polyester Media (above 689 fpm)	■	■
2 Year Limited Warranty *Excluding Media	■	■
Building Connectivity BMS gateways – BACnet, LonTalk, N2	■	

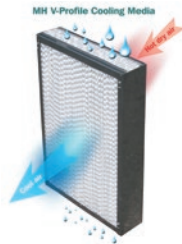
- High performance with low energy usage
- Hygienic operation
- Free evaporative cooling
- Fiber glass or polyester media
- Complete packaged system
- Industry first external recirculation module
- Integrated Control System

ME Series

SPECIFICATION	GLASS FIBER MEDIA	V-PROFILE POLYESTER MEDIA
Media Box Depth	4", 6", 8"	8", 12"
Media Box Efficiency max.	75%, 85%, 95%	85%, 95%
Maximum Face Velocity Over Media	689 fpm (3.5 m/s)	
Maximum Face Velocity With Integral Mist Eliminator	886 fpm (4.5 m/s)	
8" Media Pressure Drop at 500 fpm	0.3 IWC (75 Pa)	0.27 IWC (67 Pa)
Fire Protection Rating	UL 900 Class I (USA), ULC-S111-07 Class 2 (Canada)	
Power Supply Control Unit	100–240 V/1/50...60 Hz	
Power Supply Circulation Pumps	24 V/50...60 Hz	
Power Consumption	85–278W (2-5 stages, no options fitted)	
Water Supply Pressure	29-72.5 psi	
Unit Width	25"- 166" (635 – 4216mm)	
Unit Height	26"- 158" (660 - 4013mm)	
Unit Depth (Internal Installation)	31" (797mm)	
Unit Depth (External Installation)	25" (636mm)	
Standards and Guidelines	NRTL Approval, UL-900, ULC-S111-07	

V-profile Polyester Media

- Hygroscopic Coating
- High Velocity Performance
- Low Pressure Losses
- UL 900 Smoke and Flame Rating
- Suitable for DI/RO, potable, softened water
- No Droplets, Free of Aerosols



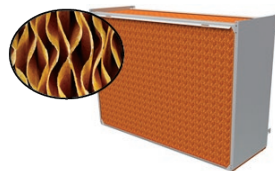
Integrated Control (IC) System

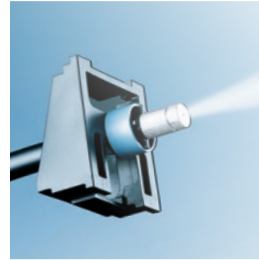
- Smart Water Management
- Advanced Hygiene Control
- Modbus interface standard
- Intuitive touch screen control
- Simple operation
- Available BACnet, LonWorks, N2 gateways
- NRTL-C Approved



Glass Fiber Media

- Glass Fiber Media
- Impregnated with Silver Ions
- High Velocity Performance
- Lowest Pressure Drop
- Suitable for All Water Types
- UL 900 Smoke and Flame Rating





The Condair **DL Series** intelligently combines two humidification technologies to benefit from the advantages of atomization and evaporation. The hybrid humidifier delivers hygiene, performance and cost-effectiveness.

Low pressure molecular nozzles require less compression work which translates to significant energy savings. The nozzle system has the highest control precision with 15 stages of output in conjunction with an adjustable speed driven humidification pump. Using low pressure molecular nozzles combined with unique ceramic media absorption distance is minimized and guarantees the humidified air is absolutely aerosol free.

The HygienePlus® concept is a complete hygiene solution that has the highest hygiene quality. The HygienePlus® concept is based on demand driven silver ionization of the humidifying water to prevent the growth of harmful microbial organisms. The silver ions treat all the humidification components for unmatched hygiene.

- Very low pressure drop: 0.16 IWC at 400 fpm
- Extremely low installation length of 23.6"
- Optimized ceramic for higher humidification efficiency
- Certificated hygiene system with HygienePlus® Concept
- Modern and intuitive touch screen controller
- Low maintenance required
- BMS connectivity available

DL Series

SPECIFICATION	TYPE A (WITH BOOSTER PUMP)	TYPE B (WITHOUT BOOSTER PUMP)
Maximum Duct Velocity	590 fpm (3 m/s)	
Maximum Duct Velocity With Booster	787 fpm (4 m/s)	
Pressure Drop at 500 fpm	Approx. 0.20 IWC (50 Pa)	
Power Supply	110-240 V/1/50...60hz	
Voltage Solenoid Valves	24 V DC	
Water Supply Pressure	44 psi – 102 psi (3 – 7 bar)	44 psi – 102 psi (3 – 7 bar)
Unit Width	17.7" – 165.4" (450 – 4200 mm)	
Unit Height	17.7" – 157.5" (450 – 4000 mm)	
Unit Depth	23.6" – 35.5" (600mm – 900mm)	
Control Accuracy	7-Steps: ±3% RH 15-Steps: ±2% RH 31-Steps: ±2%RH	7-Steps: ±4% RH 15-Steps: ±3% RH 31-Steps: ±3%RH

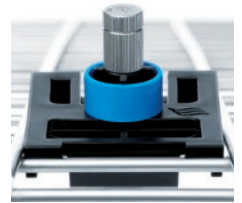
Patented Ceramic Media

- Full surface evaporation
- Maximum utilization of humidifying water
- Aerosol free
- Very low pressure drop
- Does not require replacement



Molecular atomizer nozzles

- Flexible spray angle of 15°
- Non-wearing
- High precision humidification
- Multiple nozzle sizes
- Made from 316 stainless steel





Condair is the world leader in humidification and evaporative cooling technology, creating the most appropriate solutions for every specific need. To this end, we at Condair have developed the new ultrasonic series (**US Series**) that has been engineered to meet the highest standards of cost-effective and efficient performance. The ultrasonic series was designed for ease of installation, simplicity of operation, reliability, energy efficiency and control accuracy.

The US Series is a steam-less humidifier with extra fine atomization (1-3 micron) of water. To humidify the space, the US series creates mist using piezoelectric transducers (~1,7 mhz). Mist is expelled from the unit with internal fans, and from the Condair US series Blower Pack into the space. Mist is then absorbed into the air.

Compared to other humidification technologies, the US Series gives you one of the best energy uses when compared to isothermal steam humidification. The ultrasonic series utilizes minimal energy to create humidification, decreasing energy operating costs up to 90%.

With an easy and quick installation, the US Series is available in four different capacities; medium housing: 3 kg/h (6.6 lb/h); 6 kg/h (13.2lb/h); 9 kg/h (19.8 lb/h); and large housing: 18 kg/h (39.6 lb/h). The unit cabinet includes everything except the mist distribution system (Blower Pack) and water treatment.

Features

- Elegant design - All necessary parts in one design, no separate wiring to control panel.
- UV light & Intake air filtration
- High quality TiN (Titanium Nitrate) coated transducers - Operational lifetime of 10000 hours
- Hourly flushing during operation and automatic self-flushing in standby mode
- Control – On/Off or Demand
- Blower pack allows remote distribution and short absorption distance

Hygiene

Regular flushing cycles – stagnant water poses a risk of microbial contamination. The US Series allows for hourly flushing cycles (when operating) and automatic drain if no demand. When in standby the unit will complete a full flushing cycle every 24 hours. Additionally the US Series has:

- Stainless Steel chemically polished water tank
- UV light
- Air Intake filter - MERV 12
- Antimicrobial & Antistatic internal components

US Series

SPECIFICATION	US-7	US-13	US-20	US-40
Capacity: lbs/hr (kg/hr)	7 (3)	13 (6)	20 (9)	40 (18)
Dimensions (H x W x D): in (mm)	31 x 21 x 16 (780 x 530 x 405)			31 x 39 x 16 (780 x 1000 x 405)
Dry Weight: lbs (kg)	88 (40)	88 (40)	88 (40)	161 (73)
Water	RO or DI*			
Power	250W		650W	1300W
Voltage/Frequency/Phase	110-240V / 50-60 Hz / 1ph			
Control	±1%			

* Recommended

Options

Blower Pack

The Ultrasonic Blower Pack is used with the ultrasonic humidifier to distribute very fine water droplets directly into the space. The Blower Pack can be directly or remotely mounted.

SPECIFICATION	US-BP*
Capacity: cfm	450
Dimensions (H x W x D): in (mm)	14.6 x 19.0 x 17.0 (371 x 483 x 432)
Weight: lbs (kgs)	39 (17.7)
Power	90W
Voltage	24 DC



The **ML Series** combines the high-pressure pumping station with the following direct room humidification heads. The systems can be combined or customized to fit multiple zones, high loads, many different room configurations and applications.



ML/HP-Series Pump Station

The Condair **ML** or **HP** provide a similar high-pressure pumping station that can be served for two different uses: in-space (directly in the room) or in-duct (air handling application).

First, the ML (In-Space) Direct Room humidifiers where the pump station literally feeds the direct room humidification heads in the space that is being humidified.

Second, for the HP (In-Duct) pump station the pump station feeds the nozzles in the duct or air handling unit for humidification throughout the building.



Why Choose the HP or ML Series?

- Modular design to fit many air handling units (AHU) and zones or spaces
- Connect 1 HP pump to numerous AHU's and zones saving on total costs
- Extremely low energy consumption when compared to steam humidifiers (save 90% of total energy)
- The best high pressure nozzle system out there. Nozzles atomize water into micro-fine particles. Anti-drip nozzles and many different size nozzles (3.3, 5.5, 10 or 13.2 lbs/hr)

ML High Pressure Pumpstation and Control: Standard Components

- Consistent high pressure 1000 psi for fine atomization
- High-clean water filtration
- Temperature and pressure pump safety protection
- Water meter
- Hour meter
- UV sterilization of water
- Siemens PLC humidity zone controllers with auto flush feature
- Corrosion resistant materials
- Water lubricated stainless steel Danfoss pump (very low maintenance)
- Turn-key assembly on self-contained single skid frame
- Available capacity from 264 - 264 - 6,600 lbs/hr (120 - 3,000 kg/hr)
- True n+1 (or n+2, even n+3) redundancy available for entire systems or pumps
- Directly coupled motor to pump – never belt driven – no belts to change

Integrated Reverse Osmosis Systems and more

- Ultra-clean de-mineralized water filtration
- 5 micron sediment pre-filter
- Processes normal tap water
- Fully compatible with ML high pressure systems
- Nozzle clogging protection
- Clean In Place (CIP) add-on available to periodically dose the water with sanitizing agent. For ultra low bacteria count and keeping the system hygienic.
- Electrical conductivity sensors to measure water hardness and mineral quantity
- Modular add-ons to allow for de-ionized (DI) water production and CO2 dosing

EVAPORATIVE

ML Princess is a ceiling or wall mounted humidifier. The high pressure humidifier is ideal for use in production areas, warehouses, industrial applications and does not require compressed air. The integrated fan distributes the fog uniformly in a 360 degree fashion.

ML Solo High Pressure Humidifier provides energy-saving humidity control and evaporative cooling directly to the room. Ideal for low ceiling heights or spot humidification.

ML Flex is a high pressure humidifier for use in industrial productions and horticulture as well as dust and evaporative cooling. Suitable for high ceilings and perfect for explosion proof projects because there is no electrical needs.

If you would like help from one of our experts in high pressure humidification, please contact us directly and we will guide you through your project.



SPECIFICATION	ML PRINCESS 2	ML PRINCESS 3	ML SOLO 1	ML SOLO 2	ML FLEX SYSTEM
Nozzles	8 stainless steel nozzles	12 stainless steel nozzles	One stainless steel nozzle with adjustable vaporization angles	Two stainless steel nozzles with adjustable vaporization angles	Customized nozzle and stainless steel pipe system with two stainless steel nozzle designs for full evaporation
Capacity – lbs/hr (kg/hr)	Up to 80 (36) with full evaporation	Up to 120 (54) with full evaporation	5.5 (2.5) - 10 (4.5)	11 (5) - 20 (9)	5.5 (2.5) - 10 (4.5) per nozzle
Built-in Distribution Fan	Even humidification at 55 dBa and 100W	Even humidification at 59 dBa and 160W	Low noise for even humidification at 34 dBa	Low noise for even humidification at 37 dBa	N/A
Ceiling Heights – ft (m)	As low as 12 (3.6)	23 (7) or higher	As low as 8 (2.4)	As low as 8 (2.4)	24 (7.3) or higher
Mount	Ceiling or wall	Ceiling or wall	Ceiling or wall	Ceiling or wall	Suspended, ceiling, or wall
Recommended Use	Humidification and cooling in large manufacturing and production areas in all industries	Humidification and cooling in large manufacturing and production areas in all industries with high ceilings	Small work areas and offices	Small work areas and offices	High racking, explosion-proof and very dusty environments. Customized array construction for induct or plenum spaces.

Draabe Series humidification solutions are for applications with both high or low humidification requirements. The Draabe direct room humidification system can be individually positioned and, in combination with the integrated water treatment unit, is easy to maintain and a completely hygienic solution.



Draabe Series Pump Systems



HighPur

- Consistent 1000 psi operation for fine atomization
- UV-C water sterilization
- 100% evaporation of feed water
- Automatic self-flushing with cyclical exchange of water in stand-by mode
- Electronic safety check with pump monitor and inlet/outlet pressure monitoring
- Fully integrated small unit design
- Capacity of up to 660 lbs/hr and (300 kg/hr) per box



PerPur

- Demineralization of standard tap water
- Up to 80% high yield efficiency
- Pure water hygiene with automatic flushing function
- Optimization of consumables
- Capacity of up to 660 lbs/hr and (300 kg/hr) per box

SynPur

- Ultra-clean deionized water for critical applications
- Cyclical flushing function with additional UV-C sterilization
- Capacity of 880 lbs/hr (400 kg/hr)



DuoPur

- 2 in 1 system: high pressure + reverse osmosis water treatment
- Compact, space-saving system
- No deposits in pipes or nozzles
- 100% germ-free through extensive hygiene functions
- Micro-fine pure water atomisation through a pulsating hydraulic flow
- Very energy efficient
- Full-service approach



TrePur

- 3 in 1 system: high pressure + reverse osmosis water treatment + conductivity sensing/CO2 dosing
- Compact, space-saving system
- Complete demineralisation for sensitive applications
- 100 % germ-free through extensive hygiene functions
- Micro-fine pure water atomisation through a pulsating hydraulic flow
- Very energy efficient
- Full-service approach



EVAPORATIVE



NanoFog



TurboFog Neo1



TurboFog Neo 2x2



TurboFog Neo8

SPECIFICATION	NANOFOG	TURBOFOG NEO1	TURBOFOG NEO	TURBOFOG NEO2X1	TURBOFOG NEO2X2	TURBOFOG NEO8
Nozzles	Single atomizer with one stainless steel nozzle	Single atomizer with one stainless steel nozzle	Single atomizer with two stainless steel nozzles	Dual atomizer with two stainless steel nozzles	Dual atomizer with four stainless steel nozzles	Single atomizer with eight stainless steel nozzles
Capacity – lbs/hr (kg/hr)	Up to 7 (3)	Up to 8 (3.5)	Up to 17 (7.7)	Up to 17 (7.7)	Up to 35 (15.8)	Up to 70 (31.7)
Built-in Distribution Fan	Virtually silent operation	34 dBA	37 dBA	37 dBA	37 dBA	55 dBA
Ceiling Heights – ft (m)	As low as 8 (2.4)	As low as 8 (2.4)	As low as 12 (3.6)	As low as 12 (3.6)	As low as 16 (4.9)	As low as 18 (5.5)
Mount	Wall mounted swiveling atomizer for adjustable distribution of humidity and full evaporation					Ceiling
Recommended Use	Small work areas and offices		Low ceiling work areas and small operations environments		Production work areas and operations environments	Production work areas with higher ceilings

Series AF-22

Compressed Air Humidifier

- Built in set point and humidity sensor (Internal +/- 3% RH)
- Capacity: 22 lbs/hr
- Easy to install – Ideal for retrofits
- User friendly control interface
- Standard UV-light sterilization
- Water quality: Tap water (Reverse Osmosis optional but recommended)
- Regular automatic flushing
- Suitable for woodworking, textile and printing applications



Series B500

Evaporative Humidifier

- No installation required
- Standard UV-light sterilization
- Bio-Filter helps remove impurities
- Manual fill or automatic water supply
- Portable – Easy mobility into any room
- Ease of use – Complete with a remote and wireless hygrometer
- Integrated self-diagnosis system
- Suitable for patient rooms, museums, pharmaceuticals and more!





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

Steam Exchange Humidifiers

Packaged steam to steam humidifiers produce clean atmospheric steam using boiler steam as an energy source. Available in 2 models: SET Indoor and SETC Outdoor.

Options



Building Connectivity
OnLine Series



BP Series
Nortec AS Series
Nortec AM 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)	

Options

Keep Warm Feature	no	yes	yes	yes	yes	yes	yes	yes
Freeze Protection	no	yes	yes	yes	yes	yes	yes	yes
Outdoor Model	no	yes	yes	yes	yes	yes	yes	yes
Floor Stand	yes	yes	yes	yes	yes	yes	yes	yes



Pressure Steam Humidifiers

The **Nortec LS Series** 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, the LS Series features Condair's tube in tube design for efficient operation. LS Series 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.

- Available single or multiple tube configurations (Nortec AS Series)
- Available with short absorption distributors (Nortec AM Series)
- 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

SPECIFICATION	MODEL 200 MODEL LS1	MODEL 300 MODEL LS2	MODEL 450 MODEL LS3	MODEL 600 MODEL LS3	MODEL 800 MODEL LS3	AM AM-MINI
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					

Options

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



BP Series

BP Series blower packs are an optional accessory used for direct steam distribution into localized areas, or into structures that do not have a built-in air distribution system. When used with the Nortec EL Series, RS Series, or RH Series models, built-on blower packs are available for ease of installation. Remote mounted blower packs are also available with the Nortec EL Series, RS Series, SE Series, GS Series, and RH Series humidifiers for better distribution of steam in the space being humidified.



Nortec AS Series

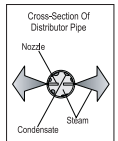
The **Nortec AS Series** atmospheric steam distributor allows for direct introduction of atmospheric steam into a duct system or Air Handling Unit. Atmospheric steam distributors are designed for use with Nortec EL Series, RS Series, GS Series, SE Series and RH Series humidifiers. All steam distributor tubes are made of stainless steel and adjustable for horizontal or vertical flow applications. An Integral condensate return allows for condensate produced at the distributor to be returned back to the humidifier or drained through a convenient floor drain.



Nortec AM Series

The **Nortec AM Series** short absorption manifold, distributes clean steam, precisely controlled, uniformly into the air stream, and void of any condensate spray. Condair's steam absorption system is for use in air handling units and duct systems where short steam absorption distance is critical. Steam distribution takes place via distributor tubes with integrated nozzles which extend into the center of the distribution tube ensuring only condensate-free steam is released. Condensate drains out of the distribution tubes through the header, eliminating the need for jacketed tubes.

An AM Series (mini) is also available for use in ducts with heights ranging from 8" - 24" (20.3 - 61.0 cm). Optional stainless steel air gap insulation can reduce energy losses by up to 70%, while ensuring efficient and hygienic operation.



DISTRIBUTOR	NORTEC EL SERIES	NORTEC RS SERIES	NORTEC RH SERIES	NORTEC GS SERIES	NORTEC SE SERIES
Nortec AS Series	■	■	■	■	■
BP Series (built-on)	■	■	■		
BP Series (remote)	■	■	■	■	■
Nortec AM Series	■	■		■	■
Nortec AM Series (mini)	■	■		■	■



The Condair **DA Series** provides safe and reliable dehumidification for any space. Using industry tested silica gel desiccant technology, the DA Series allows for high efficiency dehumidification at low dew points for numerous applications. As the only fully UL certified desiccant dehumidifier on the market and using self-regulating PTC heaters, the DA-Series is the safest dehumidifier available.

As with all Condair products, the DA Series is a fully packaged unit. This means the fans for the system are internal to the unit. Along with the standard insulated casing, the DA Series is extremely quiet to operate.



Features

- Insulated Casing as Standard
- PLC with touch screen
- Self-regulating PTC heaters
- Fully packaged unit
- 1-side service access
- UL certified



SPECIFICATION	DA 300	DA 400	DA 600	DA 800	DA 1400	DA 2000	DA 2400
Airflow (CFM)	294	412	589	824	1413	2001	2354
Drying Capacity @ 72F, 50%RH (lbs/h)	7.28	11.68	15.65	22.05	29.76	31.97	44.09
Voltage	208-480	208-480	208-480	208-480	208-480	208-480	480
Phase	3	3	3	3	3	3	3



Features

- UL certified
- UV system for sterilization of water
- Fully assembled and tested system, delivered on frame, with separate reservoir (MLRO 500+)
- Modular design for customization
- PLC control
- Reservoir tank closed with 0.2µm breathing filter
- 5 micron sediment pre-filter
- Pressure switch for pump protection
- Separate feed water pump which provides up to 4.2 bar output pressure
- Stainless steel braided or high-pressure rated hoses
- Corrosion resistant materials

Options

- Pre-treatment: softener, dechlorinator
- Electrical conductivity meters/alarms to measure water hardness and mineral quantity
- Modular add-ons to allow for de-ionized (DI) water production and CO2 dosing
- 7 bar output pressure

Reverse osmosis (RO), is an effective and economic method of removing unwanted minerals from water. By removing the minerals from a humidifier's supply water, any scale buildup in the system is virtually eliminated. This results in a much lower level of required maintenance in all types of humidifiers, as well as reduced energy consumption in steam humidifiers. The Condair **MLRO** is available as a stand-alone RO system and is capable of providing treated water to almost any application.

SPECIFICATION	300	500	800	1000	1500
Permeate (L/h) @15°C	275	500	800	1000	1500
Permeate (gpm) @59°F	1.2	2.2	3.5	4.4	6.6
Storage tank gal (l)	13 (50)	52 (200)	132 (500)	132 (500)	132 (500)
Permeate Quality (µS/cm)	5 < EC < 30				
Outgoing pressure RO psi (bar)	43.0 - 60.0 (3.0 - 4.2)				
Permeate/Concentrate Ratio	50/50%	75/25%			
Salt rejection rate	>95%				
Inlet pressure psi (bar)	29.0 - 72.0 (2.0 - 5.0)				
Water temperature °F (°C)	41 - 77 (5 - 25)				
Power supply	208/3/60 or 480/3/60				

Connection and dimension

Inlet Water, Permeate, Drain	3/4" RG				
Size: Frame (LxWxH) in (cm)	34x28x63 (86x70x160)		56x28x63 (140x70x160)		
Size: Tank (LxWxH) in (cm)	On skid	24x24x40 (60x60x154)	31.5x31.5x50 (79x79x186)		
Weight: lb (kg)	552 (115)	485 (220)	552 (250)	600 (270)	705 (320)



Digital wall control



Digital duct control



On/Off Controls

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

For room humidity control, Condair 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, Condair 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

Condair offers **humidistats** for room and duct control.

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 Condair OnLine Series and/or Building Connectivity, to allow remote display and configuration of humidity setpoints.

Condair 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 Condair representative for details.



Condair **Building Connectivity** 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.

Condair **OnLine Series** is a remote interactive communication package that allows web-based 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).

Condair OnLine Series powered by HELP.



PROTOCOL	NORTEC EL SERIES	NORTEC RS SERIES	NORTEC GS SERIES	NORTEC SE SERIES	ME SERIES	DL SERIES
Modbus	■	■	■	■	■	■
BACnet IP	■	■	■	■	■	■
BACnet MSTP (Slave)	■	■	■	■	■	■
BACnet MSTP BTL (Master)	■	■	■		■	■
BACnet IP BTL	■	■	■		■	■
Lonworks	■	■	■	■	■	■
Johnson N2				■		

■ Standard ■ Optional

Option



Nortec EL Series
Nortec RS Series



Nortec GS Series



Nortec SE Series

APPLICATION CROSS REFERENCE



APPLICATION	°C	°F	%RH	NORTEC EL SERIES	NORTEC RS SERIES	NORTEC GS SERIES	NORTEC LS SERIES	NORTEC SE SERIES	ME SERIES	DL SERIES	ML SERIES	DRAABE 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 (Class 1 and 2)	15-32	59-90	20-80	■	■				■	■		
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)	21-24	70-75	30-60	■	■	■	■	■		■		
Hospitals (Operating Rooms)	20-24	68-75	30-60	■	■	■	■	■		■		
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	20-24	68-75	20-60	■	■	■	■	■	■	■		■
Office Space	21	70	20-50	■	■	■	■	■	■	■		■

■ Treated water recommended.

USA

2700 90th Street
Sturtevant, WI 53177

Canada

2740 Fenton Road
Ottawa, Ontario K1T 3T7

1.866.667.8321

na.info@condair.com

www.condair.com



 **condair**