









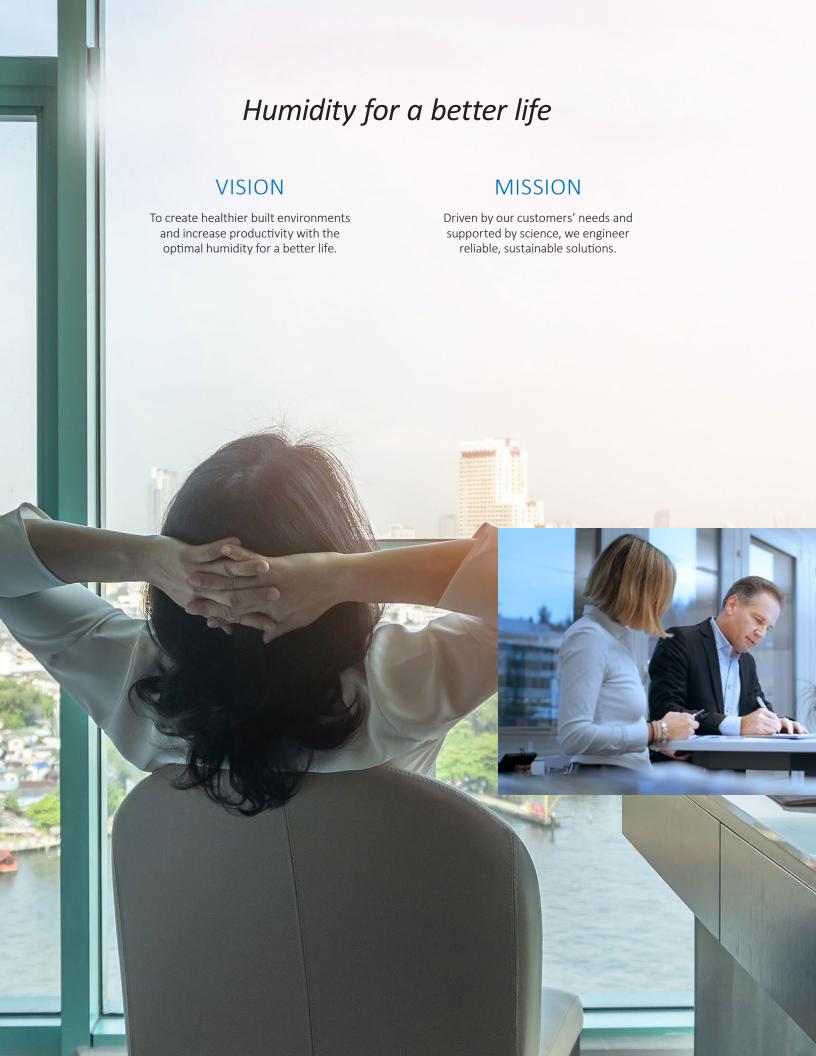
2023COMMERCIAL
PRODUCT CATALOG





CONTENTS

ABOUT CONDAIR	2	DEHUMIDIFICATION PRODUCTS	44
HUMIDITY FOR A BETTER LIFE	4	DA Series	45
APPLICATIONS OVERVIEW	6	WATER TREATMENT PRODUCTS RO-H	46 47
TECHNOLOGY OVERVIEW	8	RO-A MLRO	47 47
HUMIDIFICATION PRODUCTS	10	CONTROLS	48
Electrode Steam	12	BUILDING CONNECTIVITY	50
EL Series OE Series	14 15	DESIGN TOOLS	52
RH Series	15 15	Help	52 53
		BIM Objects	53
Resistive Steam	16		
RS Series	17	EQUIPMENT SERVICE	54
Gas Steam	18	PARTS	56
GS Series	20		
Steam Exchange	22		
SE Series	23		
Steam Distribution	24		
LS Series	24		
BP Series	25		
AS Series	25		
AM Series	25		
Evaporative	26		
ME/MC Series	28		
B500 Series	30		
Ultrasonic	32		
US Series	32		
High Pressure Nozzles	34		
ML Series	36		
HP Series	38		
Hybrid	40		
DL Series	42		



ABOUT CONDAIR

Condair Group, founded in 1948 and based in Switzerland, is the global leader in humidification, dehumidification and evaporative cooling. Supported by science, we engineer individual, holistic solutions that customers can trust through the entire lifecycle. With optimal humidity, we increase productivity and create healthier built environments. Condair Group has production sites in Europe, North America and China, its own sales and service organizations in 22 countries, and representatives in 50 locations worldwide.

With its innovative air humidification systems, Condair sets new standards in the comfortable and energy-efficient "hydration" of indoor air. With the new HumiLife product portfolio, Condair also offers individual solutions in health, productivity and sustainability for offices and private households.

Scientific studies prove that a relative humidity of between 40-60% is optimal for our immune system, successfully fights viruses and bacteria and protects our health. The Condair Group consists of sales and service organizations in 22 countries, production sites in Europe, North America and China, and has international sales partners in more than 50 locations.

You can rely on our comprehensive portfolio of innovative technologies for air humidification, dehumidification and evaporative cooling for the entire lifecycle of each product. We will be pleased to support you in implementing your projects and visions.





In keeping with our vision to create healthier indoor spaces and boost productivity, we ensure optimum air humidity at our Condair locations for the health and well being of our employees. Condair's innovative air humidification systems set new standards in regards to comfortable, convenient and energy-efficient hydration of indoor air.



40-60 % RH



THE PERFECT RELATIVE HUMIDITY

Scofield/Sterling diagram

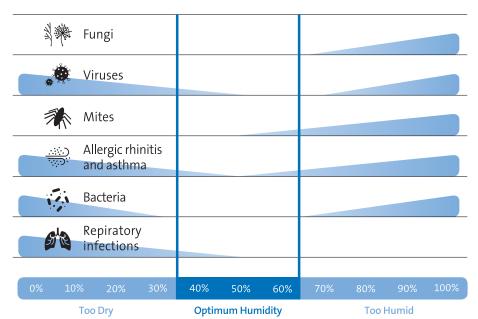
The diagram shows the relevant interdependencies at different room relative humidities for comfort and health protection. The risk posed by undesirable microorganisms and the occurrence of specific symptoms of illnesses are minimal within the optimal range between 40% and 60% relative humidity. The latest studies also confirm that transmission of viruses through particulate matter (e.g. through coughing) is significantly reduced at levels above 40% relative humidity.

The right humidity makes a decisive contribution in a variety of situations encountered in day-to-day life – in the business environment as well as in private spaces. The importance of humidity is so significant that many countries have clear directives for the operation and maintenance of humidification systems.

The scientifically proven and recommended range of 40 -60% relative humidity protects health and increases the sense of well-being for all of us. These clear limits are often difficult to maintain under day-to-day conditions. This is why Condair provides a comprehensive range of different humidification and dehumidification systems embodying a variety of technologies — to ensure optimal air humidity in every situation.

Best Relative Humidity for Health

Scofield/Sterling Diagram



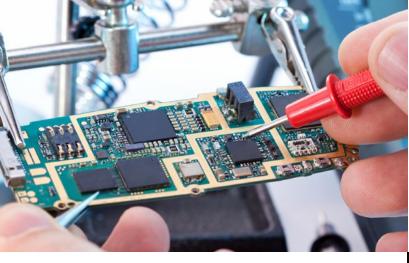
APPLICATIONS OVERVIEW

Correct air humidity is an important factor in many different applications – ensuring production stability, preserving value, and enhancing health and wellbeing. As humidification, dehumidification and evaporative cooling must be appropriately configured according to each specific application, system planning and the selection of the right system and devices are of great importance.

The table below provides typical environmental conditions for a variety of applications, as well as humidity control technologies that are commonly used in the application. Contact your Condair representative to see which product is optimal for your application.

				ISO	THERM	AL (VAP	ORIZATI	ON)	A	DIABATI	C & EVA	PORATI	VE
APPLICATION	°C	°F	%RH	ELECTRODE STEAM	RESISTIVE STEAM	GAS FIRED STEAM	PRESURIZED STEAM	STEAM EXCHANGE	SURFACE EVAPORATIVE	ULTRASONIC	HYBRID	HIGH- PRESSURE NOZZLES	COMPRESSED AIR NOZZLES
Abrasive	26	79	50			-	-	-	-	-	-	-	•
Aerospace Manufacturing	21	70	50-55	•		•	•	•	•	-		-	•
Automotive Manufacturing	21	70	50-55	•		•	•	•	•	-		-	•
Bread	27	81	75	•						-		-	
Call Centres	21	70	40-60	•	-	•	•	•	•			-	•
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	•	-	•		•		-	-	-	•
Greenhouses										•			
Hospitals (Admin.)	21-27	70-81	40-50	•		•	-	•	•	-	-		
Hospitals (ICU)	21-24	70-75	40-60	•	-	•	-	•		•	-		
Hospitals (Operating Rooms)	20-24	68-75	40-60		-	•	-			•	•		
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							•	•	-	
Museums	20	68	20-60	•	-	•	•	•	•	-	•	-	•
Mushrooms	9-16	48-61	80							-	•	-	•
Office Space	21	70	40-60		-	•	-	•	•	•	•	-	
Paint	16-32	61-90	80	•	-	•	-	•	•	•	•	-	•
Pharmaceuticals	24	75	35-50	•	•	•	•	•	•	-	-	-	•
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							•	•	-	•
Senior Living Facilities	21	70	40-60	•	•	•	•	•		•	•	-	•
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	40-60	•	•	•	•	•			•		
Yoga Studios	20-24	68-75	40-60	•	•	•	•	•		•	•		
Woodworking	20-24	68-75	30-65	•	-	•				•		-	•





WOODWORKING

Maintaining proper relative humidity (RH) throughout the entire production cycle reduces dimension changes of wood, minimizes issues with gluing and laminating, and eliminates static electricity and issues with wood working machinery. This improves product quality, increasing profits.



OFFICES

Establishing balanced relative humidity (RH) is essential to occupant health and wellness. By reducing airborn infections it minimizes absenteeism and increases employee comfort and mental focus. Office equipment also benefits from proper RH helping to reduce maintenance and repair costs.



Humidity control is essential to maintain quality and productivity at all stages of print production. Proper RH reduces static, keeping paper sheets from sticking and minimizing machine feed issues; prevents dimensional changes to the paper itself, reducing paper curl and registration issues.





TECHNOLOGY OVERVIEW







VAPORIZATION

For air humidification through vaporization, water is heated to the boiling point, and transformed into a vapor (steam). The great advantage of this process is that steam is sterile and free of germs. Moreover, vaporization is the humidification process that can be controlled most accurately, which is of key importance for various applications.

The energy sources to used to generate steam include electrical power (for electrode steam and resistive steam humidifiers), gas (for gas-fired steam humidifiers), or even steam from a central facility boiler (steam exchange and pressure steam).

EVAPORATION

Evaporation occurs when liquid water is introduced directly into the air. Evaporation is an adiabatic process, which means that the energy required to convert the liquid water into a vapor comes directly from the air. As the water evaporates it draws energy from the air which results in cooling of the air as well as humidification.

With evaporative systems, water is dispersed over evaporator media while air flows simultaneously through the media, becoming enriched with moisture. This simple principle has a major operating cost advantage, particularly when the cooling effect is beneficial to the building.

ATOMIZATION

Atomization also works based on the adiabatic principle. Fine water droplets are released to the surrounding air using mechanical atomizers or nozzles.

In addition to humidification, high-pressure air humidification systems can also be used for cooling purposes in areas where a lot of heat is generated.

COOLING

Due to the cooling effect, evaporation and atomizaion technologies are suitable for both humidification and cooling. Evaporative media systems can achieve the highest level of cooling performance of any adiabatic system and are an energy efficient way to cool and humidify many facilities. Quite often, traditional cooling systems can be reduced in size when an evaporative media system is present, saving significant energy and operating cost.







HYBRID

Hybrid humidification systems combine the advantages of both adiabatic processes (evaporation and atomization) in a single system. Hybrid systems are characterized by a very high degree of efficiency and low energy consumption, which makes them attractive for use in large buildings.

WATER TREATMENT

A precondition for long-term, failure free and hygienic operation of a humidification system is the quality of the water used. Consequently, it is important for the water treatment to work perfectly in line with the humidification system.

With our range of water softeners, desalination systems and systems for complete water purification through reverse osmosis, we can provide solutions that meet all needs and requirements.

DEHUMIDIFICATION

Using advanced silica-gel desiccant rotors, our dehumidification products rely on the principle of adsorption to dry the air. Silica gel adsorbs water molecules as air passes over it making the air more dry. The water molecules are later released into an exhaust air stream through a high temperature regeneration process which restores the drying capability of the silica gel.

These dehumidification systems can be used in a wide variety of commercial and industrial drying applications, and are especially suitable for applications where very low dew-points are desired.



ISOTHERMAL HUMIDIFICATION (VAPORIZATION)



Electrode steam humidifiers

Clean steam technology with a reliable design and touch screen controller.



OEM consoles

Ideal solution for air handling equipment.



Resistive steam humidifiers

Accurate, clean atmosphere steam with scale management.



Gas-fired steam humidifiers

Pure, clean atmospheric steam with energy efficient operation.



Pressurized steam distribution systems

Reliable humidity from the facility steam boiler.



Atmospheric steam distributors

Clean steam, precisely controlled, uniformly into the air.



EVAPORATIVE COOLING AND ADIABATIC HUMIDIFICATION (EVAPORATION AND ATOMIZING)



Surface evaporators/ Evaporative coolers

Efficient solution to provide humidification and cooling while reducing building energy usage.



Hybrid humidifiers

Benefit from the advantages of atomization and evaporation.



High-pressure nozzles

Low energy, precise, customizable modular design.



Compressed air nozzles

Accurate humidity control with directional spray aerosols.



Mobile comfort evaporators

Portable solution that is easy to adapt to many applications.



ELECTRODE STEAM

- √ commercial offices
- √ hospitals

√ schools

√ clean rooms

- √ computer rooms
- √ high-tech centres

√ museums

✓ printing plants

BENEFITS OF ELECTRODE STEAM TECHNOLOGY

Electrode steam technology is an economic, simple and reliable humidification system for in-duct or direct room humidification.

Installation flexibility

EL humidifiers offer unprecedented installation flexibility. They can be configured for both small and large systems. All EL humidifiers are completely packaged for installation ease. The standard drain water cooling ensures drain water does not exceed 140°F (60°C) to meet local plumbing codes.

Easy to service

The EL Series informs the user when a cylinder is full of scale and needs replacing. This is a simple and quick process of draining the unit, removing the old cylinder and replacing it with a new one. This straight forward maintenance keeps downtime to a minimum and maintains humidity control.

Operates on potable water

Electrode steam humidifiers operate on potable water without any need for RO water treatment. This simplifies installation and reduces on-going water consumption.

Economic

The EL Series has an economic capital cost yet is an extremely dependable solution for hygienic steam humidification.

EL SERIES

The **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



TECHNICAL DATA

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	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
AS Series	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
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.

OUTDOOR ENCLOSURE

Outdoor models for **EL Series** is available for almost any outdoor application.

- 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



OE SERIES

The **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.



TECHNICAL DATA

SPECIFICATIONS	05	10	15	20	25	30
Capacity: lbs/hr (kg/hr)	5 (2.3)	10 (4.5)	15 (6.8)	20 (9.1)	25 (11.3)	30 (13.6)
Maximum Input - kW	1.7	3.4	5.1	6.8	8.5	10.2
Voltage		208, 2	220-240, 277, 38	30, 440-480, 55	0-600	
Phase	1	1	1 and 3	1 and 3	3	3
Cylinder	100	200	300	300	400	400

Physical Dimensions*

Depth - in (cm)	6.4 (16.3)	7.9 (20.1)	9.8 (24.9)
Width (remote electrical) - in (cm)	7.5 (2	19.0)	8.9 (22.6)	10.3 (26.2)
Width (attached electrical) - in (cm)	9.8 (24.8)	11.2 (28.4)	12.6 (32)
Height - in (cm)	12.7 (35.3)	16.8 (42.7)	20.0 (50.8)	20.7 (52.6)
Net weight – lbs (kg)	10.7 (5.0)	12.4 (5.8)	16.5 (7.8)	20.2 (9.5)
Full weight – lbs (kg)	14.2 (6.6)	18.4 (8.5)	30.5 (14.2)	43.2 (20.0)

^{*} Dimensions reflect fully enclosed cabinets. Given weights include attached enclosed electronics.

RH SERIES

The **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.

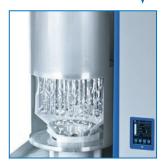


TECHNICAL DATA

SPECIFICATIONS	RH SERIES DUCT	RH SERIES SPACE
Wiring Connection	Hardwired	Hardwired
Rated Current	15.9 A	12.7 A
Maximum Ext. Protection	20 A	20 A
Voltage/Phase	110-240/1	110-240/1
Capacity: lbs/hr (kg/hr)	5.0-10.0 (2.3-4.6)	4.0-8.0 (1.8-3.6)
Consumption: gal/day (l/day)	14.5-29.0 (55.1-110.2)	11.6-23.2 (44.1-88.2)
Dimensions: in (cm)	21.4 (54.4) H x 11.4 (29.0) W x 6.9 (17.4) D
Weight: lbs (kg)	21 (9.5)	22 (10)
Controls	On/off or r	modulating
Steam Distribution	Duct mounted distributor or remote blower	Built-in blower



scale forms



patented scale management breaks away scale



scale from the humidifier gravitates into the scale tank



scale collection tank is emptied

RESISTIVE STEAM

- √ commercial offices
- √ hospitals
- √ computer rooms
- ✓ museums

- √ clean rooms
- √ schools
- √ high-tech centres
- ✓ printing plants

PATENTED SCALE MANAGEMENT

A technical innovation that solves the scale problem.

The patented scale management removes the separated scale particles from the steam cylinder during operation and automatically leads them into the designated scale collection tank. Scale deposits are continuously removed from the steam cylinder.

The pieces of scale are collected in an external scale collection tank where they can be emptied easily. Maintenance work is therefore significantly reduced and operational reliability maximized. The patented scale management system ensures reduced maintenance times and long life of RS steam humidifiers.

Easy cleaning and maintenance

Maintenance intervals are extremely long and the actual maintenance work is reduced to a minimum due to the external scale collection tank. The external location of the scale collection vessel below the unit ensures very easy access. The tank can be removed and emptied easily without the need for opening the unit housing. This makes maintenance tasks simple and very quick.

Innovative drain pump

Scale desposits are not only undesirable in the air humidifier itself; it can also cause problems in the drain piping of a building, if scale remains are left in the drain water. This can reduce the drain pipe cross sections and even block them.

For this reason, in the RS steam humidifier, the drain pump has been placed above the scale collection tank. Scale deposits drop into the collection tank, where they accumulate. This prevents scale remains from being sucked in and transfered to the drain piping.

This arrangement of the drain pump protects the drainage system of the building against undesirable and problematic scale deposits.

RS SERIES

The **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



TECHNICAL DATA

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									
BP Series (built-on)	yes	yes	yes	yes	yes	yes	no	yes	no	no
BP Series (remote mounted)	yes									
AS Series	yes									
AM Series	yes									

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

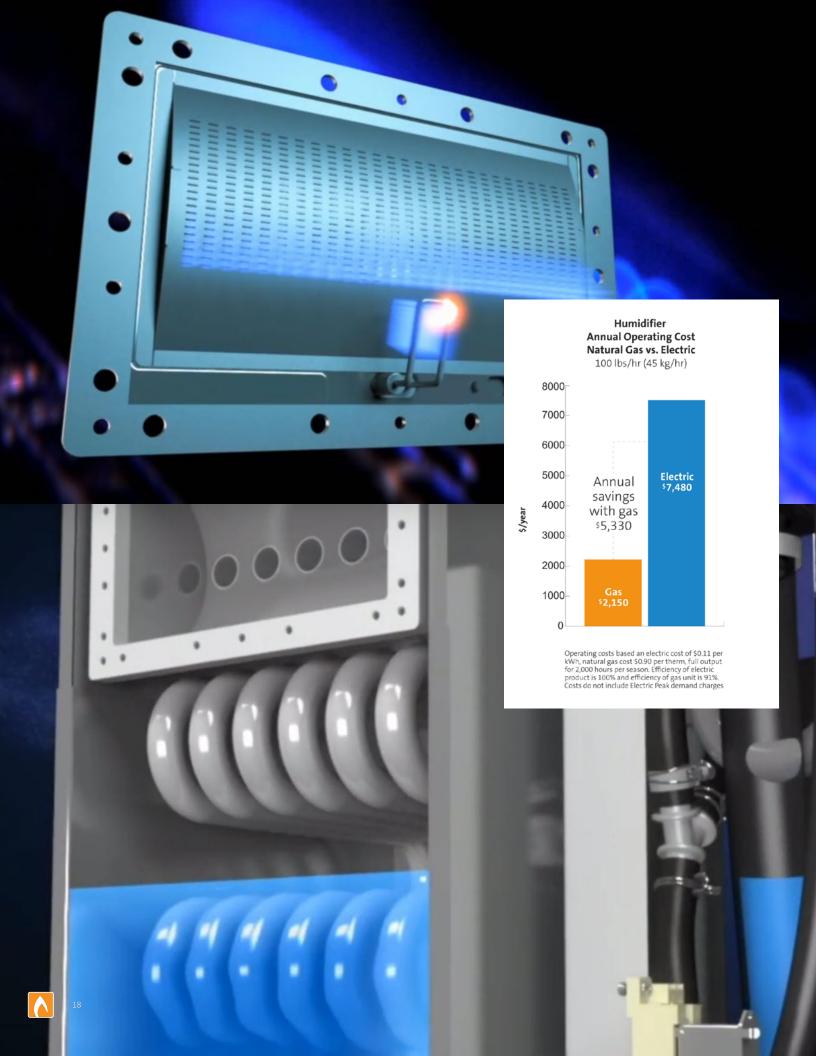
** Refer to Engineering Manual for steam distribution methods.

OUTDOOR ENCLOSURE

Outdoor models for **RS Series** is available for almost any outdoor application.

- 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





GAS STEAM

- ✓ libraries ✓ hospitals
- √ museums and art galleries
 √ printing plants

WHY CHOOSE A GS SERIES HUMIDIFIER

GS Series humidifiers have been engineered to meet the highest standards of efficient performance with cost effective gas operation. They are designed for ease of installation, adaptability, simplicity of operation, ease of maintenance and servicing, energy efficiency, cleanliness and long term reliability. GS Series humidifiers offer complete application flexibility to system engineers, contractors and customers.

MORE STANDARD FEATURES

Touch controller for precise control

The Integrated Controller allows verification of all unit and process data at a glance. Operating data can be called up in real time, and there is a comprehensive data history. Seamless integration into existing Building Management Systems. Standard connection using Modbus, BACnet IP and BACnet MSTP. Option required for LonWorks and BTL certified.

Venting flexibility

The GS series can be vented as a direct room or sealed combustion appliance without any modification to the unit.

Support stand

The GS CS and MX models come standard with a support stand to ensure easy installation.

EASY CLEANING & MAINTENANCE

Water treatment

The GS can operate on both potable water and mineral-free water. Operation with reverse osmosis water reduces the maintenance cycle as well as maintenance costs.

Programmable system drains

Software on the GS system allows for automatic blowdowns, periodic full tank drain cycles and automatic idle drains to reduce mineral concentration in the tank. The amount of water drained can be adjusted based on water conditions and the time of full tank drains programmed for a time that fits the application.

Large cleanout port

Designed with technician feedback, the GS features one of the largest cleanout port on the market. The whole face of the tank is removed to help simplify maintenance.



GS SERIES

Standard Features

- Intuitive, touch screen Integrated Controller
- BMS compatibility via Modbus, BACnet IP or BACnet MSTP Slave (optional 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



	COMPACT	SIZE UNITS	FULL SIZE UNITS						
SPECIFICATION	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 (640 x 54	22 x 44 2 x 1101)	28 x 29 x 55 (717 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	nd / Wall Stand (GS CS / GS NX), Stand / Floor (GS MT)							
Power Circuit		120V / 1 Phase / 60 Hz							
Models		Condensing System (CS), Low NO. (NX), Mid-Temperature (MT)							

MODEL SPECIFICATIONS

SPECIFICATION	GS CS CONDENSING SYSTEM	GS NX LOW NOx EMISSIONS	GS MT MID-TEMPERATURE
Efficiency	Up to 93%	Up to 89%	Up to 84%
Exhaust Temperature	140°F / 60°C	140°F / 60°C	300°F / 150°C
Venting	CPVC, BH	CPVC, BH	ВН
Condensing High-Efficiency	Yes	Yes	No
Gas Type	NG/P	NG	NG









GS OUTDOOR

The $\ensuremath{\mathsf{GS}}\xspace \ensuremath{\mathsf{OC}}\xspace$ gas-fired humidifier features a weather-proof cabinet that is completely integrated with familiar GS Series components and operation and specially designed to operate in extreme temperatures.

The GS OC has a temperature range of -40°C (-40°F) to +50°C (+122°F). The unit also features extensive IP testing and has a rating of IP 55 for dust and water ingress protection.

TECHNICAL DATA

SPECIFICATION	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		39 x 35 x 68 (990 x 889 x 172	7)		5 x 68 89 x 1727)	75 x 35 x 68 (1905 x 889 x 1727)		
Cold Climate								
120V/1/60 Breaker Rating (A)		25		4	0	50	60	
240/3/60 Breaker Rating (A)		15			2	0		
Moderate Climate								
120V/1/60 Breaker Rating (A)		20		25	3	0	35	



STEAM EXCHANGE

- √ hospitals
- √ educational facilities
- √ government buildings
- √ institutional buildings
- ✓ printing plants
- √ museums and galleries
- √ commercial offices

HUMIDIFIERS DESIGNED TO DELIVER RELIABLE HUMIDITY FROM FACILITY STEAM BOILERS.

SE Series steam to steam heat exchange humidifiers use central facility steam as an energy source to boil potable, reverse osmosis, or deionized water. The result is clean, hygienic humidification steam, completely free of boiler chemicals and amines. Boiler steam passes through high-quality 316 stainless steel heat exchangers, turning fresh water into steam. This technique prevents chemical boiler treatments from being dispersed into the building air supply.

SE SERIES

The **SE Series** is a complete packaged humidifier and includes all required components, most of which are contained within the cabinetry. The humidifier is designed for easy installation, reliable operation, and rapid maintenance. Available capacities range from 50-1050 lbs/hr (23 to 475 kg/hr), when supplied with facility steam pressure at a maximum of 15 psi (1 bar).

- Capacities up to 1050 lbs/hr (476 kg/hr)
- 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



TECHNICAL DATA

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)
Dimensions: in (Cm) W x H x D	25.6 x 20.6 x 18.4 (65.1 x 52.4 x 46.7m)		2.0 x 20.0 1.4 x 50.8	46.4 x 32 117.8 x 8	2.0 x 26.4 1.4 x 67.1		2.0x 42.0 4 x 106.7	46.4 x 32.0 x 58.0 117.8 x 81.4 x 147.3
Standard actuator	Electric Modulating 0-10 VDC, 24 VAC							
Built-in steam trap	Float & Thermostatic							
Insulation & Cabinetry	Standard							
Voltage/Phase				110-1	120/1			
Full load amps	2.1							
Internal Smart Drain Water Cooler	Standard							
Steam Outlets (s) - OD in (Cm)	1 x 1.75 (1 x 4.44)			1 x 3 (1 x 7.62cm)		1 x 4 (1 x 10.16)		x 4 l0.16)

Options

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



STEAM DISTRIBUTION

LS SERIES

The **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

TECHNICAL DATA

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 - H x D in (mm)	7.7 x 6 (195 x 152)	8.8 x 6 (223 x 152)	10.5 x 6 (268 x 152)	11.2 x 9 (284 x 229)	12.6 x 9 (322 x 229)	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					
Electric on/off actuator	yes					
Tube insulation	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.



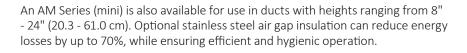
AS SERIES

The **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.



AM SERIES

The **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.





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



EVAPORATIVE

- √ data centers
- ✓ aerospace
- √ clean rooms
- ✓ office towers
- pharmaceutical manufacturing
- √ hospitals
- / warehouses
- √ museums

AN EFFICIENT WAY TO PROVIDE BOTH HUMIDIFICATION AND COOLING

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.

Evaporative cooling

For every 2.2 lbs (1 kg/h) of water evaporated from the ME, 630W of evaporative cooling is also delivered to the airstream. As a single ME humidifier can deliver up to 2200 lbs/h (1,000 kg/h) of moisture it can provide approximately 630kW of cooling while operating on less than 0.3 kW of electricity.

This cooling technique can be employed directly on fresh air entering a building or via indirect exhaust air cooling systems. By humidifying exhaust air with a ME its temperature can be reduced to below that of the incoming fresh air. A heat recovery system then transfers some of this cool energy into the incoming fresh air, lowering its temperature and reducing the need for more expensive mechanical cooling.

The ME is ideal for use in Free Air Cooling systems, such as those used in data centers, where a large volume of outside air is used to cool an internal environment. By evaporating moisture into the incoming airstream, its temperature is reduced, thus extending the cooling capacity of the system.

Hygienic operation

The hygienic nature of evaporative humidification combines with the ME's advanced features to make it one of the most hygienic humidifiers available. Evaporative humidifiers provide aerosol-free in-duct humidity control virtually eliminating the risk of microbial inhalation.

Water is prevented from remaining in the humidifier to stagnate by timer or conductivity controlled flush and drain cycles. This inhibits microbial growth within the system and combats lime scale formation. To reduce water consumption these cycles can be triggered by water conductivity or temperature with optional sensors so that flushes only occur when necessary.

The drain tray of the evaporative module can be fitted with a submerged UV water treatment unit that kills micro-organisms in the reservoir. This is more effective than treatment on a supply line as it combats microbial growth in water after it has been exposed to the contaminants in the airstream. It also provides continuous UV sterilization to the water in the system even when the humidifier is not in use. Optional water supply line UV or silver ion treatment are also available.

ME SERIES

The key to the high level of performance of the **ME Series** is the unique evaporative cassettes that offer highly efficient operation with low pressure drop. Two options are available: Glass fibre and a V-profile polyester. Both types of media are self-contained in a stainless steel frame for added rigidity. 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.





MC SERIES

The MC Series, is our most cost-effective evaporative media solution. The MC offers a simplified design, yet still incorporates the same quality design, innovative hygiene, installation and operational features as the ME. A single unit can offer up to 793 lbs/hr (360 kg/hr) of humidity and approximately 245 kW/h of adiabatic cooling from less than 0.15 kW of electrical energy.





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



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



INTEGRATED CONTROL (IC) SYSTEM

- Smart water management
- Advanced hygiene control
- Modbus and BACnet interface standard
- Intuitive touch screen control
- Simple operation
- Available LonWorks or N2 gateways
- NRTL-C approved

FEATURES COMPARISON	ME CONTROL	ME DIRECT FEED	МС
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	•		•
Bacnet MS/TP and IP Protocol standard	-		
Modbus Protocol standard	•		•
Programmable Maintenance Settings	•		
Individual Step-Control, 1-5 stages	•		
Individual Step-Control, 1-3 stages			•
Multi-Unit Networking	•		
Multiple Control Signal Acceptance	•		•
Operation History Log	•		
Remote Fault Indication	•		•
Conductivity Smart Monitoring	•		
Submerged UV Treatment	•		•
Stainless Steel Reservoir	-	•	•
Stainless Side frames	•	•	•
V-Profile Polyester Media	•	•	
Glass Fiber Media with silver coating	•	•	•
Mist Eliminator V-Profile Polyester Media (above 689 fpm)	-	•	
2 Year Limited Warranty *Excluding Media	•	•	•
Building Connectivity BMS gateways – BACnet, LonTalk, N2	•		

TECHNICAL DATA

SPECIFICATION	ME SERIES	MC SERIES	
Minimum Size (WxH)	600 x 625 mm	600 x 750 mm	
Maximum Size (WxH)	4200 x 4000 mm	3000 x 3000 mm	
Size Increments	150 mm W / 125 mm H	300 mm W / 250 mm H	
Maximum Output	2200 lbs/hr (5 pumps)	793 lbs/hr (3 pumps)	
Pump Fault Detection	Option	Standard	
Number of Stages*	Maximum 7 per system	Maximum 3 per system	
Media Types	Polyester / Glass-Fiber	Glass-Fiber Only	
Media Efficiencies	75% 85% 95%	85% 95%	
Max Face Velocity over Media	689 fpm (3.5 m/s) without droplet separator 886 fpm (4.5 m/s) with droplet separator		
Power Consumption	85 – 278 W	74 – 145 W	
Controller	Condair integrated controller	Basic control with status LED (no display)	
Control Options	BACnet, Modbus, LonWorks (including certified versions)	Modbus only	
System Drain	Integrated overflow with pump assistance	Integrated overflow and gravity drain	





B500 SERIES

Condair's **B500 Series** humidifier brings together mobility and functionality in one professional and stylish unit.

Older buildings and storage areas don't always have proper supply ventilation for duct humidification. For this Condair is proud to offer a convenient solution – the portable B500 professional humidifier.

Not only does the B500 create an ideal indoor climate but it is the professional choice for regulating precious materials and art work.

How does the B500 work?

The B500 humidifier operates based on the natural principle of evaporation. A water pump continuously delivers water from the water tank to the oval water channel. The water seeps through the drainage holes inside the channel and moisturizes the evaporation filter.

A fan inside the humidifier suctions the air in. The air flows through the evaporator filter and is cleaned and humidified at the same time. Then the humidified air is supplied through the air outlet opening on the top and back into the room.

Clean, convenient and reliable

With a special bio filter and UV light for local water treatment, the B500 takes evaporative humidification cleanliness to a whole new level. An optional, charcoal filter for further air cleaning is available.

Reliability is ensured by the infrared remote control. No unauthorized person can tamper with your humidifier. On top of that, the self-diagnosis of the system lets you know when the filter needs to be changed or when water levels are too low.

Wireless humidity sensor and remote control

Every B500 units comes with a wireless humidity sensor and a remote controller for easy worry free flexibility. The wireless humidity sensor can be placed anywhere in the humidified space and sends signals back to the main unit to regulate the humidity level. The remote gives you control of the fan speed and programmed pre-set modes on the humidifier.



TECHNICAL DATA

SPECIFICATION	
Colors	White/Charcoal
Fill Type	Manual (hand fill) or Automatic (piped)
Dimensions (H x W x D): in (mm)	24.4 x 29.7 x 14.4 (620 x 754 x 366)
Weight Empty: lbs (kg)	53 (24)
Water Tank Volume: US gal (L)	13 (49)

Electrical

Voltage	115 V
Frequency	60 Hz
Power	130 Watts
Amperage (fuse)	10 Amps

Performance

Air Output up to	530 CFM
Evaporation Performance up to	5.7 lbs/hr (x.x kg/hr)
Evaporation Filter Surface	37.7 sq. ft. (3.5 sq. m)

Operating conditions

Temperature Range	50-104°F (10-40°C)
Relative Humidity	15 - 80 %
Noise	32 - 44 dB







ULTRASONIC

- √ data centers
- ✓ printing
- √ textile

- ✓ greenhouses
- √ storage facilities
- ✓ wine cellars



US SERIES

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 (13.2 lb/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 component



TECHNICAL DATA

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	DI* or RO			
Power	250W 650W 1300V		1300W	
Voltage/Frequency/Phase	110-240V / 50-60 Hz / 1ph			
Control	±1%			

^{*} Recommended

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





HIGH PRESSURE DIRECT ROOM HUMIDIFIERS

- ✓ printing & packaging
- ✓ electronics
- ✓ aerospace
- ✓ wood

- ✓ horticulture
- √ food industry
- √ tobacco
- √ medical technology

High pressure humidification offers low operating costs, reduced cooling costs and requires minimal maintenance. We provide the highest quality products and services to a wide range of industries in production facilities and office environments to maintain consistent relative humidity levels.

How does high pressure humidification work?

Water is atomized into micron-sized particles which are immediately absorbed into ambient air. Systems are internally controlled to monitor facility humidification zones and respond accordingly, 24 hours a day, to maintain the desired levels of humidity. Typical range of operation is \pm 2% from Relative Humidity set point regardless of environmental conditions. Humidification distribution equipment is matched to the characteristics of the facility to assure 100% evaporation of moisture. Energy incentives are often available for replacement of older, less efficient humidification technology.

How does high pressure humidification reduce energy consumption?

High pressure humidification not only saves energy compared to other technologies, it's an environmentally conscious solution. The evaporation of water particles in air requires energy (0.68 kW per liter of atomized water) which is taken from the surrounding air. This process decreases the temperature of air while increasing the relative humidity.

In operations with mechanical cooling, reductions of air conditioning can be significant. Free cooling environments, such as computer data centers, realize lower energy consumption for cooling, lower power usage effectiveness (PUE) and a decrease of their carbon footprint.

ML SERIES

The **ML Series** direct room humidification system offers low operating costs, reduced cooling costs and requires minimal maintenance. The systems can be combined or customized to fit multiple zones, high loads, many different room configurations and applications.

- Modular design to fit many air handling units (AHU) and zones or spaces
- 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 microfine particles. Anti-drip nozzles and many different size nozzles (3.3, 5.5, 10 or 13.2 lbs/hr)

ML SERIES PUMP STATION

ML Series (In-Space) Direct Room humidifiers use the ML pump station to feed the direct room humidification heads in the space that is being humidified.

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 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





ML PRINCESS

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

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

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. The system is ideal for adiabatic cooling of items, or in zones where a significant cooling effect is required.

SPECIFICATION	ML PRINCESS 2	ML PRINCESS 2 MAX	ML SOLO 1	ML SOLO 2	ML FLEX SYSTEM	
Nozzles	8 stainless steel nozzles	8 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 115 (52) 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	ution Fan Even humidification Even humidifica at at 55 dBa and 100W 56 dBa and 10		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)	As low as 15 (4.5)	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	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.	

HIGH PRESSURE IN-DUCT HUMIDIFIER

- √ data centers
- ✓ printing
- √ textile

- √ greenhouses
- √ storage facilities
- ✓ electronics



HP SERIES

The **HP Series** high pressure humidification system uses advanced atomization nozzles to ensure efficient evaporation, providing considerable operating cost savings when compared to other humidifier technologies.

Precision impeller type 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 Condair Mist Eliminator, the humidified air is 99% free of aerosols for hygenic operation.

High Precision Nozzles deliver 10-40 micron droplets through a 0.008" orifice. A single nozzle is capable of producing up to 12 lbs/hr of humidification. Constructed from durable stainless steel and factory assembled onto manifolds, Condair nozzles are easy to integrate into any project.

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.

- Modular design can fit many air handling unit (AHU) sizes.
- Save on total costs by connecting one HP pump to numerous AHU's.
- Extremely low energy consumption (up to 90% less!) when compared to steam humidifiers.
- Customizable solutions for true (n+l) redundancy, dual pump configuration, BAS/ BMS communication, and large loads (over 9000 lbs/hr).
- Integrated reverse osmosis (RO) water treatment.
- Add-on options for ultra-hygienic and sensitive applications: Deionized (DI) water production and clean-in-place (CIP) intelligent water disinfection.

HP 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 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

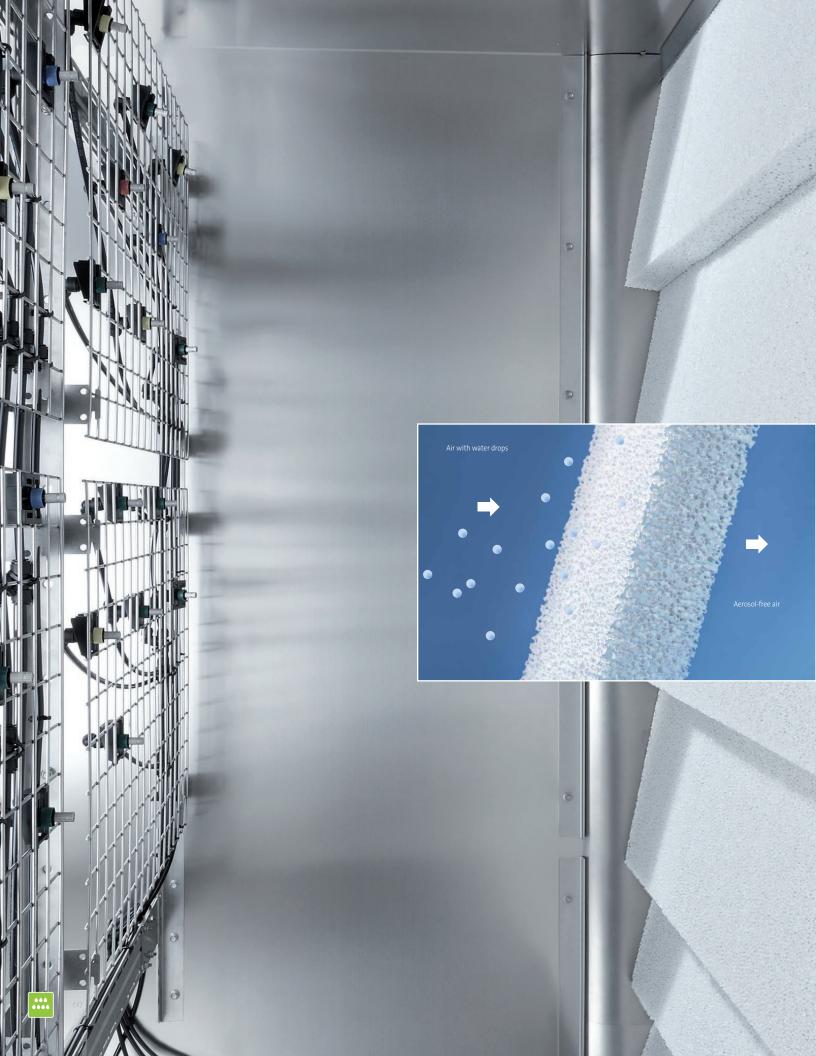
- Ultra-clean de-mineralized water filtration
- 5 micron sediment pre-filter
- Processes normal tap water
- Nozzle clogging protection
- Clean In Place (CIP) add-on available to periodically dose the water with sanitizing agent. For ultra low bacteria count and keeping the system hygienic.
- Electrical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

TECHNICAL DATA

SPECIFICATION	HP 100 (200 VFD)	HP 300 (500 VFD)	HP 500 (800 VFD)	HP 800 (1300 VFD)			
Pump Capacity: lbs/hr (l/hr)	(12 - 120) (36 - 318)		No VFD: 92 - 1162 (42 - 528) With VFD: 88 - 1760 (40 - 800)	No VFD: 159 - 2086 (72 - 948) With VFD: 132 - 2860 (60 - 1300)			
Nominal Output (480V/3/60Hz) kW	No VFD: 1.0 With VFD: 1.8	No VFD: 1.8 With VFD: 2.2	No VFD: 2.2 With VFD: 3.2	No VFD: 3.2 With VFD: 4.0			
Rated Current Amps	1.5	1.9	3.7	5.3			
Required humidifying section (Length)	Min. 4.2 ft. (1.3 m)						
Humidifying capacity	26 - 2860 lbs/hr (12 - 1300 kg/hr)						
Pump supply voltage		208, 400, 480, 600 VA	C / 3 Phase / 50-60 Hz				
Pump operating pressure (Standard)		1015 Psi	(70 bar)				
Inlet water pressure range		30 - 102 Psi	(2 to 7 bar)				
Inlet water quality		Reverse Osmosis, De-	ionized (5 - 30 μS/cm)				
Control signal connection	0-5 VDC, 1-5 VDC, 0-10 VDC, 2-10 VDC, 0-20 mA, 4-20 mA						
Relative humidity control accuracy	± 4% (7 Stage), ± 2% (15 Stage)						
Required air filter class upstream of humidifier	MERV 13						
Allowable air velocity	150 ft/min - 700 ft/min						

Options

Multi-zone Package	Allows up to 4 individually controlled humidifier grids to share a common pump.
Droplet Separator	Easy to install droplet filter contains water to a given evaporation distance and improves water efficiency through post evaporation.
Conductivity sensor	Continuously monitors incoming water quality by measuring conductivity and triggers alarm if water values are out of range. Provides peace of mind as well as enhanced operational safety.
Water meter	Integrated water meters display consumption. Ideal for building performance monitoring or claiming regional water and sewer tax credits.
UV Water Treatment	Factory installed ultraviolet lamp inhibits bacterial growth in the humidification water, enhancing hygienic operation and improving operational safety.
High Precision System	Additional valve staging allows for tighter tolerances and enables control accuracy of up to +/-2%.
Communication Gateway	Provides a factory installed communication gateway for integration of the humidifier into a building automation or SCADA system.
Integrated RO System	Provides a high performance reverse osmosis water treatment system integrated directly into the high pressure pump skid.
Water Softener	Self-regenerating ion exchange softener is ideal for systems with integrated RO systems. Removes hardness prior to RO system, prolonging membrane life.
Carbon Filters	Activated carbon pre-filter removes free chlorine from supply water. Recommended for systems with integrated RO system when chlorine concentrations are above 0.05 – 0.1 mg/l.
Additional Hose	Provides additional high pressure hose for connections between pump and valve blocks.



HYBRID

- √ data centres
- √ office towers

√ textiles

√ hospitals

✓ automotive

- √ airports
- ✓ pharmaceutical
- √ museums

TWO ADIABATIC PRINCIPLES INTELLIGENTLY COMBINED!

The **DL Series** hybrid humidifier is based exclusively on the advantages of the two humidification principles of atomization and evaporation. This results in the sustainable resolution of key problems which can emerge when these technologies are used individually. The humidification system is therefore the first choice in terms of hygiene, energy efficiency and cost-effectiveness.

Atomize

The humidifying water is atomized by stainless steel atomizing nozzles at low pressure. The atomizing nozzles have an adjustable spray output and are optimally distributed over the entire cross-section of the device. A high evaporation efficiency and a uniform humidity distribution are achieved by this layout.

Evaporate

The evaporator unit made of premium ceramic is placed at the end of the humidification distance. It captures the humidifying water and ensures the best possible reevaporation. The ceramic plates thus allow the most effective utilization of the high-grade humidifying water. At the same time, they prevent water accumulation in downstream components.

Aerosol-free air

No water aerosols should enter the air duct system during hygienic humidification. The aerosols could get deposited there and form hazardous wet areas. Water aerosols in microbially contaminated humidifying water or existing biofilms can become germ carriers and contaminate breathable air.

The DL Series offers a sustainable solution with the ceramic evaporator unit which separates and effectively evaporates the humidifying water from the air flow.

DL SERIES

Low pressure molecular nozzles require less compression work which translates to significant energy savings. The nozzle system has the highest control precision with 31 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.

- 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



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.

INTUITIVE TOUCH CONTROLLER

With the Condair touch controller you have all devices and process data at a glance. Functional data can be called up in real time and by using a detailed data history. Via the IoT (Internet of Things) connection, data can be transferred to the Condair Cloud, viewed and analyzed online.

The connection to Modbus RTU or Modbus TCP as well as BACnet IP or BACnet MS/TP is easily made directly via the interfaces attached to the controller.

The DL has BTL (BACnet Testing Laboratories) certified BACnet technology. This certification is carried out by an accredited BTL test laboratory and is considered a worldwide test standard in BACnet communication. The optional gateway board can also be used to connect to a Lonworks network.



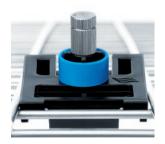






PATENTED CERAMIC MEDIA

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

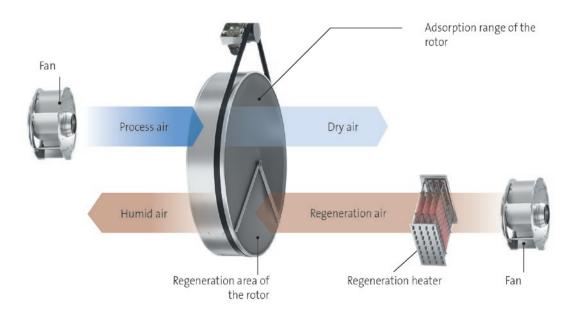


MOLECULAR ATOMIZER NOZZLES

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

SPECIFICATION	TYPE A (WITH BOOSTER PUMP)	TYPE B (WITHOUT BOOSTER PUMP)				
Maximum Duct Velocity	590 fpr	590 fpm (3 m/s)				
Maximum Duct Velocity With Booster	787 fpr	m (4 m/s)				
Pressure Drop at 500 fpm	Approx. 0.2	0 IWC (50 Pa)				
Power Supply	110-240 V,	/1/5060hz				
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" (60	00mm – 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				





INDUSTRIAL DEHUMIDIFICATION

√ cold storage

√ food processing

√ electronics
 √ beverage manufacturing

✓ pharmaceutical
✓ chemical factories

DESICCANT DEHUMIDIFIERS

The Condair **DA Series** provides safe and reliable desiccant dehumidification for nearly 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.

- High-performance desiccant rotor
- EC fans for process and reactivation air fans
- Service-friendly design

Depending on customer requirements, the following options are available:

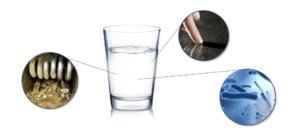
- Pre-cooling and/or post-cooling modules (on request)
- Modbus TCP/IP for PLC
- Modbus RTU RS485 board for PLC



SPECIFICATION	DA 300N	DA 400N	DA 600N	DA 800N	DA 1400N	DA 2000N	DA 2400N
Process Airflow (CFM)	300	400	600	800	1400	2000	2400
Process Air Pressure (in. H₂O)	1.2	0.8	1.2	0.8	1.2	1.2	0.8
Regeneration Airflow (CFM)	90	130	200	235	295	325	500
Reactivation Air Pressure (in. H ₂ O)	1.2	1.0	0.8	1.2	1	0.8	0.8
Drying Capacity (@68°F (20°C), 60%rh)	7.3	11.2	15.6	22.0	29.7	31.9	44.1
Voltage (V/Ph/Hz)	280/3/60, 480/3/60			480/3/60			



WATER TREATMENT



WHY WATER TREATMENT?

Your water may be safe for drinking, but without water treatment may lead to scaling or bacteria build-up in your humidification systems as well as dusting within applications.

When paired with humidification systems, water treatment is used for:

HUMIDIFIER TECHNOLOGY	SCALE MANAGEMENT	HYGIENE
Isothermal	Preventing scaling within the boiling system	Isothermal systems that boil water provide clean
	Reducing maintenance frequency and costs	atmospheric steam without the requirement for water treatment
	Improving operation efficiency, reduced energy costs	treatment
	 Preventing scaling and corrosion of media, nozzles and other components 	Eliminating bacteria content in the water which can be carried over into the air
Adiabatic	 Preventing application dusting due to carryover of particles and contaminents 	during humidfication.
	 Reducing maintenance frequency and costs 	



CONDAIR RO-H

Compact and Economic Reverse Osmosis System

The Condair **RO-H** pure water system removes over 95% of all salts and minerals contained in tap water. Models available: RO-HB and RO-HM.



CONDAIR RO-A

Compact and Integrated Reverse Osmosis System

The Condair **RO-A** pure water system can pair seamlessly with the Condair RS Series resistive steam humidifier through the integrated controller or have it's own controller for standalone operation.



CONDAIR MLRO

Industrial Reverse Osmosis system

The Condair **MLRO** standalone pure water system is ideal for large isothermal or any adiabatic applications. This system provides RO water from pre-treated water to achieve optimal water quality.

SPECIFICATION	ECIFICATION RO-H		MLRO
Permeate output 59°F (15°C)	158 gpd (26 lph)	445-2535 gpd (70-400 lph)	1900-19000 gpd (300-3000 lph)
Humidification capacity (max.)*	40 lb/hr	880 lb/hr	6500 lb/hr
Storage tank gal (I)	2.5, 3.8, 6 (8, 12, 18)	5, 32 (18, 120)	13-264 (50-1000)
Power	120V/1/60, 75W	120V/1/60, 600W	208-480V/3/60
Size (LxWxH) in (mm)	18.7x15.2x9.8 (471x386x250)	32.1x22.5x19.1 (815x572x485)	63x28x34-55 (1600x711x864-1397)
Standard Accessories	carbon filter, 5μ filter, tank	5μ filter, tank, cover	5μ filter, tank
Recommended Pre-treatments	None	carbon filter, softener	softener, dechlorinator

^{*} Dependent on incoming water quality and temperature.

	7	7			****	****	****	****	****
WT SERIES	EL SERIES	RS SERIES	GS SERIES	SE SERIES	ME SERIES	ML SERIES	HP SERIES	DL SERIES	US SERIES
RO-H		•							•
RO-A		•	•	•	•				•
MLRO		•	•	•	•	•	•	•	•





CONTROLS

CONDAIR CONTROL TECHNOLOGY FOR SMOOTH CONTROL OF EVERY HUMIDIFIER APPLICATION

Our customers deserve highly efficient, reliable humidification systems that offer simplistic controls. This is why we at Condair have designed highly accurate control systems that perfectly complement our products. Designed to provide clear information regarding humidifiers and their operating conditions, they allow for users to quickly input preferred functions and maintain system operations. We can supply control technology suited for any type of humidity application including residential, commercial and industrial environments.



Digital wall control



Digital duct control



nLink-Analog control



nSens 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 $\pm 4.5\%$ RH are expected.

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

MODULATING CONTROLS

Condair offers modulating **humidistats** and **transducers** for more precise room and duct control.

Humidistats provide a demand signal to the humidifier, while transducers sense and transmit relative humidity levels to the humidifier, Building Management System (BMS), or wall-mounted humidistat. Typical controller accuracies of $\pm 2.5\%$ RH are expected with standard conditions, while tolerances of $\pm 0.5\%$ RH can be achieved with Condair's new High Precision Package.

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 controllers come complete with a keypad for configuration as well as a backlit digital display. Controls can be combined with BMS to allow remote display and configuration of humidity setpoints.

		••••	••••	••••	••••			7
PROTOCOL	SE SERIES	HP SERIES	ML SERIES	MC SERIES	US SERIES	MLRO	DA SERIES	OE SERIES
Modbus	-	•	•	•		•	•	•
BACnet IP	-	-	•		•	•		
BACnet MS/TP	•	-	•			•		
BACnet MS/TP BTL Certified	•							
BACnet IP BTL Certified	•							
LonWorks	-							

■ Standard ■ Optional



BUILDING CONNECTIVITY

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 – Modbus, BACnet IP, BACnet MSTP or LonWorks.

INTEGRATED CONTROLLER

The Condair products that come equipped with a touchscreen Integrated Controller (IC or IC2) can communicate with common building management systems such as BACnet IP or MS/TP, Modbus, and LonWorks. Products equipped with the Integrated Controller can, as a standard feature, communicate with Building Automation Systems via Modbus RTU, BACnet IP, BACnet MS/TP (master or slave).*

Additionally, the following protocols can be accessed with an optional add-on card: BACnet IP with BTL Certified, BACnet MS/TP (master or slave) with BTL certified hardware, LonWorks.

*Standard BACnet MS/TP master support is available form products running 5.8.x.x or newer. Products equipped with the second generation integrated controller are BACnet BTL certified as a standard feature.

INTEGRATED CONTROLLER PRODUCTS AND STANDARD CONNECTIVITY OPTIONS

				••••	••••	
PROTOCOL	EL SERIES	RS SERIES	GS SERIES	ME SERIES	DL SERIES	RO-A
Modbus	•	•	•	•	•	•
BACnet IP	•	•	•	•		•
BACnet MS/TP	•	•	•	•		•
BACnet MS/TP BTL Certified	•	•		•	•	
BACnet IP BTL Certified	•	•	•	•	•	
LonWorks	-	•	•	•		

LA

■ Standard ■ Optional



DESIGN TOOLS

HELP

HELP is an interactive humidification engineering and loadsizing 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:

- Online product catalog
- Wizard-based product selection to build a complete humidification system
- Specification and schedule tools with pdf or excel export
- Intuitive graphical load sizing system
- Dynamically generated humidifier dimensional drawings
- Visual schematics
- Application resources and product recommendation by application
- Cloud saved projects
- Built-in representative finder to connect you with your local Condair representative for pricing.

Visit **https://na.condairhelp.com** to register for a free account and see how effortless humidification projects can be!

BIM OBJECTS

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.





EQUIPMENT SERVICE

QUALITY SERVICE STRAIGHT FROM THE MANUFACTURER, GUARANTEED!

As the global market leader for humidification and evaporative cooling solutions, Condair is continuously aiming to exceed customer satisfaction through reliable and durable solutions. With service for your humidifier system, provided Condair, we transfer the knowledge from our team at the factory right to the customer's site. We deliver to you, the benefit of a wide range of service offerings, spare part portfolios, service experts, and over 70 years of experience in reliable service delivery.

When choosing Condair to assist with installation support, start-up or provide preventative maintenance for a Condair humidifier, the facility owner, engineer, and contractor will reap the benefit of having the manufacturer's expertise delivered directly on site. Your humidifier will receive service support guaranteed to the highest standard, giving everyone peace of mind.

All Condair orders are automatically archived including the system and design data for each delivered unit. During any service work, a Condair expert can access this data on-site via mobile software to get the most updated installation plan or an accurate picture of the system's history. Condair humidity control expert is the best solution when it comes to the necessary expertise for commissioning support or to maintain a Condair humidification system.

- Technical expertise delivered directly from the manufacturer
- Efficient and long humidifier operational lifetime
- Accommodation for contractor and engineering partners
- Peace of mind knowing that an expert will be on site
- Focus on other projects while we handle your humidifier service
- Professional project management
- Commissioning and start up support



CondairParts.com

YOUR ONE-STOP SHOP FOR OFFICIAL CONDAIR SPARE PARTS AND CONSUMABLES.

Are you a service contractor, facility manager or equipment owner looking for genuine Condair parts, directly from the manufacturer? It is now easier than ever before with CondairParts.com. Now launching Phase 1, **CondairParts.com** provides parts professionals with a robust set of tools to identify, price, and order spare parts.

Intuitive Search

Shop and search by part number, part description, product category, humidifier series, model & voltage. Predictive search and intuitive filters help you find parts you need quickly and easily.

Detailed Product Information

Parts information has been greatly expanded and enhanced with all of the necessary information regarding the kit: 360 degree images, "what's in the box?" a list of components included with the kit, humidifier compatibility and kit specifications. You'll also have easy access to downloads including: engineering manuals, service manuals and exploded view diagrams.

Seamless Orders

Places orders directly with a click of a button! Simply fill a cart with items you wish to order and checkout. You have the option to pay by credit card (Visa and MasterCard), Interac debit or by accelerated checkouts (Apple Pay, Google Pay and Shop Pay).

Express Shipping

Parts orders are now fulfilled and delivery exceptionally fast with same day shipping for US orders placed before 5PM Eastern time. Faster and lower cost shipment options ensure critical parts get to where they are needed in the shortest possible time.

Find a Rep

Not sure where to start? Can't find exactly what you're looking for? Looking for more than just spare parts? Find the Condair representative in your local area and their contact information with our "Find a Rep" feature. Simply type in your zip code or postal code and hit enter. Contact your local Condair rep and they will help point you in the right direction.

READY TO TRY CondairParts.com?

Head to the website and either choose to browse and shop as a guest, or create your own account. An account will allow you to save your information, like shipping address, email and payment preference, as well as keep track of your past orders. Contractor accounts vetted by Condair may be entitled to special discounts.



USA

1021 6th Street Racine, WI 53403

CANADA

2740 Fenton Road Ottawa, Ontario K1T 3T7

1.866.667.8321 na.info@condair.com condair.com



