



CONDAIR PLAYBOOK

Product Features, Benefits, References and
Competitor Comparisons

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Humidity for a better life

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CONDAIR EL ELECTRODE STEAM HUMIDIFIER

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

JUST A FEW APPLICATIONS
UTILIZED IN NORTH AMERICA

- Aerospace and Defense
- Electronics Manufacturing
- Hospitals and Healthcare
- Commercial Offices



CONDAIR EL ELECTRODE STEAM HUMIDIFIER

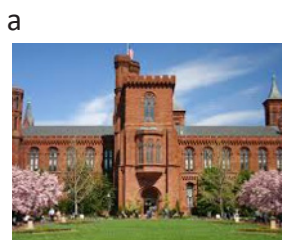
Features and Benefits / References



Features	Benefits
Electrode technology	- Highly accepted and reliable - Highest efficiency of all technologies
Cylinder with patented auto adaptive control	- Optimizes steam production - Minimizes water use, maximizes cylinder life - Easy maintenance using disposable cylinder
- Seismic certification standard - Wrap around cabinet design	- Every unit OSHPD approved - Highest accessibility in the industry - Zero side clearance, ideal for tight spaces
Integrated controller	Programmable touchscreen with standard Modbus, BACnet IP/MSTP

FEATURES AND BENEFITS

References



	Name	Location	Application
a	Smithsonian	Maryland, US	Museum
b	Nike World HQ	Oregon, US	Lab / Development
c	Boeing	Missouri, US	Aerospace
d	RTI Surgical	Florida, US	Manufacturing
e	University of Iowa	Iowa, US	Education
f	Strong Hospital	New York, US	Healthcare
g	NRC	Ontario, CA	Office
h	Facebook	North Carolina, US	Data Center
i	Bikram Yoga	AZ / CT, US	Hot Yoga
j	Prestone Printing	New York, US	Printing

REFERENCES

CONDAIR EL ELECTRODE STEAM HUMIDIFIER

Competitor Comparison

How does the EL stack up against the competition?



VS.



Condaire
EL

DriSteem
XT

Carel
humiSteam

Armstrong
EHU700

Carnes
J Design Series

TRION
Herrmidifier MD

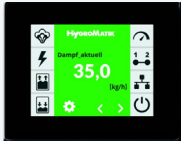
Manufacturer		Condaire	Dristeem	Carel	Armstrong	Carnes	TRION
Model		EL	XT	humiSteam	EHU-700	J Design	Herrmidifier MD
Website		condair.com	dristeem.com	carel.com	armintl.com	carnes.com	www.trioniaq.com
Performance	Capacities (lbs/hr)	5, 10, 20, 30, 50, 75, 100, 150, 200	5, 10, 18, 30, 50, 75, 100, 125, 143, 150, 198, 250, 287	3.3, 6.6, 11, 17.6, 19.8, 22, 33, 39.7, 55.1, 77.2, 99.2, 143.3, 198.4, 286.6	2-42, 12-120, 24-240	5-10, 20-30, 30-100, 125-200	5-30, 10-125, 110-250
	Voltages (voltage/phase)	110-120/1, 208/1, 220-240/1, 277/1, 380-415/1, 440-480/1, 550-600/1, 208/3, 220-240/3, 380/3, 440-480/3, 550-600/3	120/1, 208/1, 240/1, 277/1, 480/1, 600/1, 208/3, 240/3, 480/3, 600/3	208/1, 230/1, 208/3, 230/3, 460/3, 575/3	120/1, 208/1, 240/1, 277/1, 208/3, 240/3, 346/3, 380/3, 415/3, 480/3, 600/3	120/1, 208/1, 230/1, 277/1, 380/1, 415/1, 460/1, 575/1, 208/3, 230/3, 277/3, 380/3, 415/3, 460/3, 575/3	208/1, 240/1, 208/3, 240/3, 480/3, 600/3
	Water Quality	Tap, Softened	Tap, Softened	Tap Water	Tap Water	Tap, Softened	Tap, Softened
	Manual Capacity Adjustment	Standard, with event timers	Standard	Standard	Standard	Standard	Standard



Manufacturer		Conair	Dristeem	Carel	Armstrong	Carnes	TRION
Model		EL	XT	humiSteam	EHU-700	J Design	Herrmidifier MD
Website		condair.com	dristeem.com	carel.com	armintl.com	carnes.com	www.trioniaq.com
Product Specifications	Dimensions (in) (L/W/H)	5-30: 16.5/14.3/26.4 50-100: 20.9/15.7/30.7 150-200: 39.4/15.7/30.7	5-18: 14.6/8.7/20.6, 30-50: 17.7/11.8/24.1, 75-144: 19.9/13.4/25.6, 150-287: 39.6/13.4/25.6	3.3-39.7: 14.4/10.8/28, 55.1-99.2: 21.5/14.8/35 143.3: 25/18.3/25 286.6: 45.3/18.3/35	18/11.5/23, 19.5/14/31, 33.5/14/31	5-100: 20.0/11.7/25.0, 125-200: 38.0/12.5/26.0	5-30: 19/14/24.5, 10-125: 19.3/26/28, 110-250: 19.3/43/28
	Clearances	12/24/36/0/0/0	16/15/36/0/3/3	3.3-39.7: 7.9/15.7/27.6/ 0/7.9/7.9 55.1-286.6: 7.9/0/27.6/0/ 16/4/7.9	EHU-701: 0/5/24/0/4/4, EHU-703,704: 0/5/24/0/4/24	4 top, rest unpublished	All: 12/10/0/0/2/15
	Cabinet Material	Powder coated	Stainless Steel (XTP) or Galvanized Steel (XTS)	Unpublished	Unpublished	20 AWG steel with stainless steel bottoms	16 to 18 AWG Steel
	Weight (lb) (Installed, Full)	5-30: 55 50-100: 150 150-200: 245	5-10: 38 18: 46 30-50: 79 75-143: 115 150-287: 219	3.3-17.6: 41.91 9.8-39.7: 59.5 55.1-99.2: 133.4 143.3: 207.2 198.4: 286.6 286.6: 374.8	80,133,155	Unpublished	5-30: 82 10-100: 131 110-250: 258
	Built-On Blower Pack	Optional	Optional	Available	Unpublished	Optional	Optional
	Fill Cup Extension	Required for high duct pressure	Required for some distributors and steam tubing > 20'	Unpublished	Required for high duct pressure	Unpublished	Not available, inlet water metering screw adjustments needed for higher duct pressure
Controller	LCD Touchscreen Display	Standard	No, Backlit LCD with buttons	No, Backlit LCD with buttons	No, Basic LED display with buttons	Standard, size unpublished	No, LCD display with buttons
	Multi-Mode Availability (Master/Slave modes)	Standard, up to 6	Standard, up to 4	Unpublished	Unpublished	Up to 2	Up to 29 slaves for 5-10 and 10-125 and 14 slaves for 110-250
	BMS Connectivity	Standard: BACnet and Modbus Optional: Lonworks	Standard: Modbus Optional: BACnet, LonTalk	Standard: Carel, Modbus, Winload. Optional: BACnet, LON-Echelon, TREND	Standard: Modbus Optional: BACnet, LonTalk	Optional: Modbus, BACnet, Metasys, Siemens	Unpublished
Plumbing	DWC integral to unit	Standard, cools to 140°F	Standard, cools to 140°F	Standard, cools to 140°F	Standard, cools to 160°F	Standard	Standard
	Integral Air Gap	Standard	Standard	Standard	Standard	Standard	Standard
	No-Demand Automatic Trunk Drains	Standard, 3 Days (adjustable up to 100 hrs)	Standard, 3 Days	Standard, 3 Days	Standard	Standard, 3 Days	Standard, 7 Days
	Keep Warm Feature	Standard	Unpublished	Not Available	Not Available	Standard	Not Available
Warranty	Warranty	2 years, can purchase 1-3 extra years	2 years, can purchase 1 or 2 more	2 years	1 year	1 year	2 years

CONDAIR EL ELECTRODE STEAM HUMIDIFIER

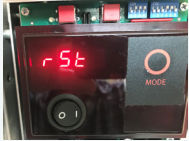
Arguments

Carel	
humiSteam Xplus	
	• Very slow acting navigation. • Besides the user level, the menu is difficult to understand and not intuitive.
	• 5 mm plugs (high heat generation). • Oversized limescale collecting (separate hardness constituents from the drain). • Large outer wall (risk of clogging of the actual drain sieve, more difficult to remove unbound lime deposits). • Condair provides the only electrode steam humidifier that complies with the VDE standard EN 60335-1.
	• Test with cylinder type BLOT3B00H2 for low conductivity for 75..350 μS. • Cylinder A444 (without divider) with software setting for low conductivity. • Performance comparable with water of 75 $\mu\text{S}/\text{cm}$ conductivity.
Hygromatik	
FLEX Line	
	• The display design is not very user-friendly, a lot of unnecessary information on the home screen.
	• Hygromatik only uses full-surface electrodes. Due to the smaller surface area, the current transfer via the water to the electrodes is much worse than with the larger surface of the expanded metal electrodes.
	• With the super-flush only the smallest lime particles can be removed through the drain strainer. Therefore the super-flush is not very effective and the benefit in terms of cylinder durability is questionable. The problem of lime deposits is shifted from the cylinder to the water drain installation.

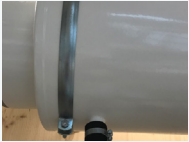


Devatec

ELMC2



- Simple 2-line LCD display. Menu structure difficult to overview.
- Offers minimum information about the operating states.



- Wrong application for demineralized water of at least 30 μ S. Worse current transfer due to the smaller surface area. Stable operation is almost impossible due to the salting time (cannot be regulated).
- The narrowly slotted sieve (according to Devatec "fine filter") tends to clog up very strongly with sludge-like residues of softened or demineralized water.



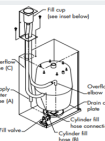
- Separate housing cabinet for installation of the complete units.
- The operating environment for the external housing is specified as 5...40 °C. No information on the IP protection class.

Pluggit

AeroFresh Plus



- Programme display (selection via the mode key) is difficult to understand and read.
- Programming, settings via hard to reach Select and Set buttons is complicated.



- Humidification distance too large and too heavy (1190 mm x Ø260 mm / 9.6 kg).
- Humidification distance only with welded steam lance without integrated condensate drain.



- Condensate drainage at the end of the humidifier section carries the risk of standing water along the entire length of the tube.
- Condensate drain rusts at the welding point.
- Killer criterion regarding hygiene.

DriSteem

XTP



- Old style display with navigation buttons.



- Fill cup extension requires with Ultra sorb or Rapid sorb and when Static pressure exceeds 2" WC.



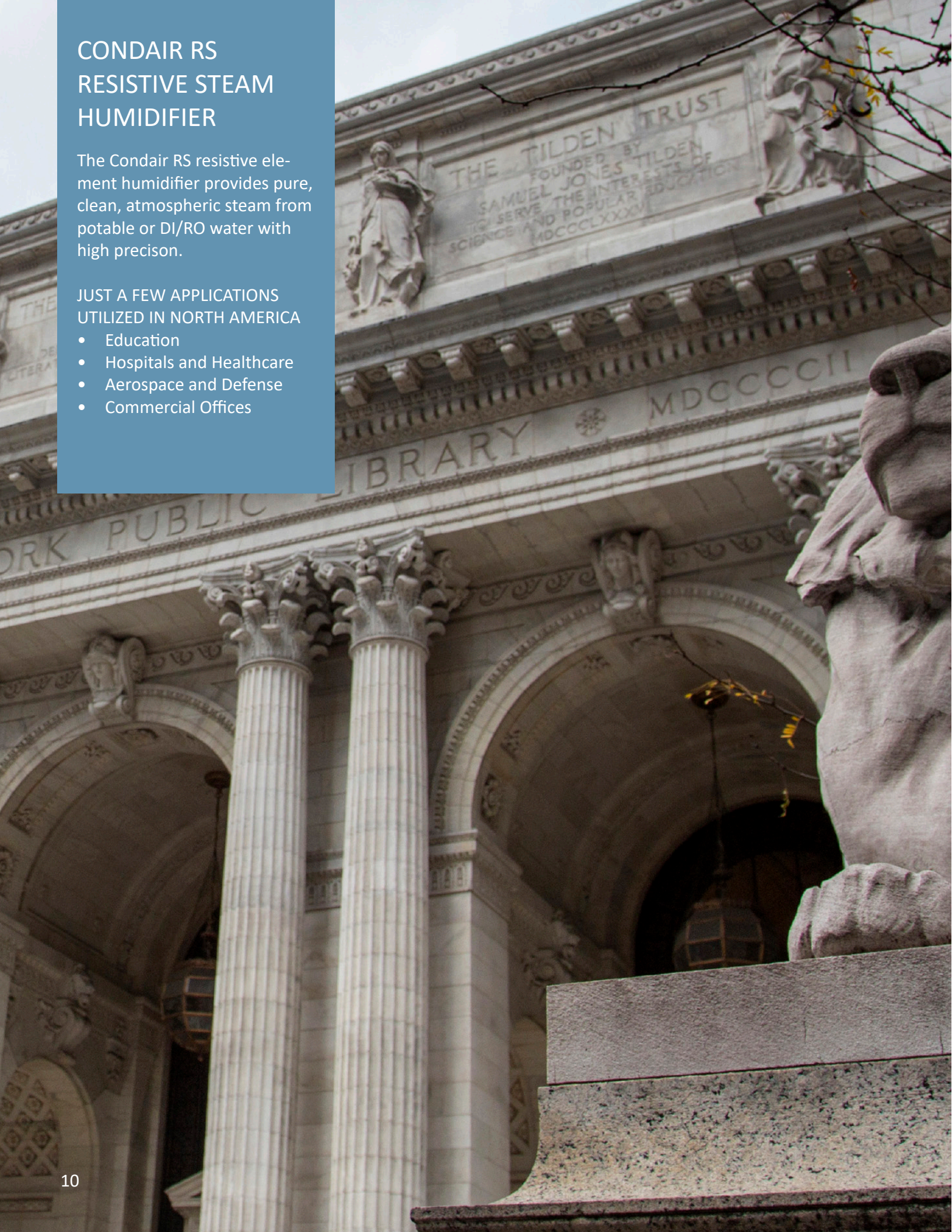
- XTP unit is not recommended by Dristeem when dealing with Low Conductive water(<350 μ S).

CONDAIR RS RESISTIVE STEAM HUMIDIFIER

The Condair RS resistive element humidifier provides pure, clean, atmospheric steam from potable or DI/RO water with high precision.

JUST A FEW APPLICATIONS UTILIZED IN NORTH AMERICA

- Education
- Hospitals and Healthcare
- Aerospace and Defense
- Commercial Offices





CONDAIR RS RESISTIVE STEAM HUMIDIFIER

Features and Benefits / References



Features	Benefits
Resistive element technology	- Use with potable, RO, DI water - Boiling ensures clean, sterile steam production
Patented scale management	- Greatly extends maintenance intervals, simplifies maintenance - Reduces scale buildup in boiling tank - Extends life of heating elements, tank and drain pump
High precision- SSR	- Maintains high steam output accuracy +/- 1% - Fastest response time on steam demand
Cold pool technology	- Prevents deposit of scale, blockage of drain orifices - Allows for long operational periods and save operations
Integrated Controller	Programmable touchscreen with standard Modbus, BACnet IP/MSTP

References



	Name	Location	Application
a	Harvard University	Massachusetts, US	Education
b	Parkland Memorial Hospital	Texas, US	Healthcare
c	NASA	Florida, US	Aerospace
d	Bank of Canada	Ontario, CA	Office
e	Columbus Museum of Art	Ohio, US	Museum
f	Ford Canada	Ontario, CA	Manufacturing
g	Specialized Packaging	New York, US	Packaging

CONDAIR RS

RESISTIVE STEAM HUMIDIFIER

Competitor Comparison

How does the RS stack up against the competition?



Condaair
RS

VS.



DriSteem
RTS



Carel
heaterSteam



Armstrong
HumidiClean



Neptronic
SK300



Pure
ES/EC

Manufacturer		Condaair	Dristeem	Carel	Armstrong	Neptronic	Pure
Model		RS	RTS	heaterSteam	HC-6000	SKE4/SK300	ES/EC
Website		condaair.com	dristeem.com	carel.com	armintl.com	neptronic.com	purehumidifier.com
Performance	Capacities (lbs/hr)	10, 15, 20, 30, 45, 65, 90, 130, 180	6,12,18,24, 30, 36, 42, 48, 63, 75, 90, 102, 126, 144, 162, 189, 216, 243, 264, 288, 324	4.4, 8.8, 13.2, 22, 28.6, 44, 59.4, 88, 116.6, 132, 176	9, 27, 45, 54, 90, 100, 120, 135, 144, 150, 201, 216, 288	6, 12, 18, 30, 40, 48, 60, 90, 120, 150, 180, 210, 240, 270	9, 13.5, 18, 22.5, 31.5, 40.5, 49.5, 58.5, 63, 81, 90, 99, 117, 126, 135, 148.5, 175.5, 189, 198, 234, 252, 306
	Voltages (voltage/phase)	208/1, 220/1, 460/1, 575/1, 208/3, 220/3, 460/3, 575/3	120V/1, 208V/1, 240V/1, 277V/1, 480V/1, 600V1, 208V/3, 240V/3, 380V/3, 480V/3, 600V/3	208-240V/1 (4.4 to 13.2) 400-600/3 (22 to 176)	208/1, 240/1, 480/1, 600/1, 208/3, 480/3, 600/3	120/1, 208/1, 240/1, 480/1, 600/1, 208/3, 480/3, 600/3	120/1, 208/1, 240/1, 480/1, 600/1, 208/3, 240/3, 480/3, 600/3
	Water Quality	Tap, RO, DI, softened	Tap, RO, DI, softened	Tap, RO, DI	Standard: potable Optional: RO, DI, softened	Tap, RO, DI	Standard: potable Optional: RO, DI
	Output Accuracy	+/- 1%	+/- 1%	+/- 1% (Titanium model only)	Unpublished	Unpublished, SSR's are optional	Standard: +/- 5% Optional: +/- 1-3%
	Manual Capacity Adjustment	Standard, with event timers	Unpublished	Unpublished	Unpublished	Standard	Unpublished



Manufacturer		Condair	Dristeem	Carel	Armstrong	Neptronic	Pure
Model		RS	RTS	heaterSteam	HC-6000	SKE4/SK300	ES/EC
Website		condair.com	dristeem.com	carel.com	armintl.com	neptronic.com	purehumidifier.com
Product Specifications	Dimensions (in) (L/W/H)	10-20: 16.5/14.3/26.4 30-90: 20.9/15.7/30.7 90-180: 39.4/15.7/30.7	5.7-15.2: 21.2/34/30.3 17.1-71.3: 26.9/30/30.3 34.2-14 2.5: 30.9/30/34.1 51.3-21 3.8: 37.22/32/46.1 68.4-2 85: 44.7/32/46.1	4.4-28.6: 14.37/10.82/20.03 44-88: 27.16/17.51/34.96 116.6-176: 34.48/17.51/34.96	0-90: 21.9/22.3/32.1 90-288: 26/32.1/56.7	6-18: 19.375/13.75/23 30-90: 22.25/15.125/32 60-180: 33.25/15.125/32 90-270: 33/24.375/48	9-58.5: 17.5/14/13.75 63-189: 25.5/14/13.75 198-306: 34/18.25/13.75
	Clearances (Top/Floor/Front/R/L/Back)	16/24/36/0/0/0	For Models 1 & 2: 24/24/36/6/2/0 For Models 3 & 4: 24/36-48/36/24/2/2	4.4-28.6: 7.9/15.7/27.6/7.9/7.9/0 44-176: 7.9/15.7/27.6/19.7/11.8/0	12/24/24/24/24/0	20/24/48/12/12/0	Unpublished
	Weight (lbs) (Installed, Full)	10-20: 89 30-90: 145 90-180: 291	5.7-15.2: 79 17.1-71.3: 157 34.2-142.5: 237 51.3-213.8: 326 68.4-285: 427	4.4-28.6: 77.1 44-88: 213.8 116.6-176: 341.7	0-90: 230 90-288: 507	6-18: 85 30-90: 152 60-180: 233 90-270: 444	9-58.5: 162.5 63-126: 232 135-189: 253.5 198-306: 315
	Built-on Blower Pack	Optional	Optional	Optional	Optional	Optional	Optional - EC Model
	Fill Cup Extension	Required for high duct pressure	Required for high duct pressure and some distributors	Unpublished	Unpublished	Unpublished	Unpublished
	LCD Touchscreen Display	IC 2.0 Display	Vapor logic touchscreen Display	No, backlit LCD with buttons	No, backlit LCD with buttons	No, backlit LCD with buttons	No, backlit LCD with buttons
Controller	Multi-mode Availability (Master Slave/ Slave Modes)	Standard - up to 6	1Standard - up to 16	Standard - up to 19	Unpublished	Unpublished	Unpublished
	BMS Connectivity	Standard: BACnet and Modbus Optional: Lonworks	Standard: Modbus Optional: BACnet, LonTalk	Standard: Carel, Modbus, Winload. Optional: BACnet, LON-Echelon, TREND	Standard: Modbus Optional: BACnet, Lonworks	Optional: BACnet, Modbus	Optional: Modbus
Plumbing	DWC integral to Unit	Standard, cools to 140°F	Standard, cools to 140°F	No, optional version	No, requires external drain cooler	Standard, cools to 140°F	No, requires external drain cooler
	Integral Air Gap	Standard	Standard	Standard	Standard	Unpublished	Standard
	No-demand Automatic Tank Drains	Standard, 3 Days (adjustable up to 100 hrs)	Standard - 3 days	Standard, programmable	Standard, 3 days	Standard, programmable 0-3 days	Unpublished
	Keep Warm Feature	Standard	Unpublished	Standard	Unpublished	Standard	Standard
	Fill from bottom (No quench)	Standard	Standard	Standard	Standard	Standard	No, fills from the top

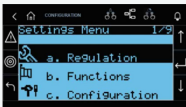
CONDAIR RS

RESISTIVE STEAM HUMIDIFIER

Competitor Comparison (continued) / Arguments

Manufacturer		Condaair	Dristeem	Carel	Armstrong	Neptronic	Pure
Model		RS	RTS	heaterSteam	HC-6000	SKE4/SK300	ES/EC
Website		condair.com	dristeem.com	carel.com	armintl.com	neptronic.com	purehumidifier.com
Maintenance	Scale Management	Standard: Periodic level drains, user programmable up to 720 minutes. Optional: Scale collector tank with cold pool technology. Scale collects in a separate chamber which is easily removed and emptied - no consumables. Cold pool technology introduces thermal shock to tank walls and heating elements to break off scale without wasting water.	Skimmer port, removes small amounts of surface particles. Bulk of scale stays in tank. Skimmer removes hottest part of the water (inefficient).	Removable scale collection bag (only 28.6 lbs/hr models and below). Thermal shock function - drains full tank of water.	Ionic beds sit within the main boiling tank to attract scale particles. Must be replaced relatively often which greatly increases maintenance fees.	Periodic drains to flush out some scale particles. Major scale deposits remain in the main boiling chamber until a complete maintenance is performed.	None / unpublished
Warranty	Warranty	2 years, can purchase 1-3 extra years	2 years, can purchase 1 or 2 more	2 years	1 year	2 years	1 year

Arguments

Carel	
heaterSteam	
	- Corrosion resistant heating elements, but cylinder corrossions still possible. - RS Option Ultra Pure water offers nickel plated elements and a special cylinder (1.4435/316).
	- Cables are not pluggable. - No easy handling during maintenance.
	- Beside user level the menu is poorly designed. - Dated navigation.



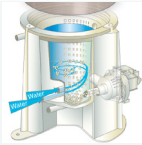
CONDAIR RS

RESISTIVE STEAM HUMIDIFIER

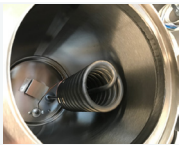
Arguments (continued)

Hygromatic

FlexLine Heater



- Only small particles get drained through the collection grid.
- Very small scale cup has to be emptied often when operating with limy water.
- The whole cylinder has to be totally removed to empty the scale cup.



- Spiral design of the heating elements makes it difficult to clean.
- No replaceable cylinder insert, scale has to be scratched from the cylinder surface directly.
- No corrosion resistant version.



- Difficult access to the heating plug in the back increases the risk of burns.
- Unprotected screw heads on the plug.

Neptronic

SKE



- No touch display.
- Outdated design and navigation.
- Minimal features and little information about current operating conditions.



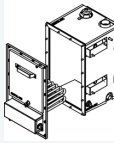
- The chamber has to be cleaned from top.
- To remove the heating cover many components have to be unplugged.
- Small chamber for the lime leads to more frequent maintenance intervals.



- Level detection inside boiling water is prone to errors.
- No safety float for to protect the heating elements with a minimal water.

DriSteem

RTS



- Access to clean the tank is more difficult - many screws need to be loosened.
- No scale management.
- No cylinder/tank insert, minerals stick directly on the metal walls.



- Precisely defined maximum values for corrosive water, no option with corrosion-resistant materials.
- Tank replacement is very difficult, compared to a RS cylinder.



- Due to the positioning of the level sensor directly in the boiling water, there is a risk that minerals will stick to the level sensor and it will display incorrect levels.
- No secondary safety level detection.

CONDAIR RH CLASSIC & RH CONNECT LIGHT COMMERCIAL & RESIDENTIAL HUMIDIFIERS

The Condair RH Classic & RH Connect Electrode Steam humidifiers deliver efficient and dependable humidification. Available for in-space and In-duct systems.

JUST A FEW APPLICATIONS UTILIZED IN NORTH AMERICA

- Residential homes
- Light commercial operations





CONDAIR RH CLASSIC & RH CONNECT

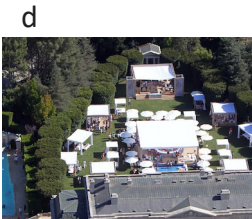
LIGHT COMMERCIAL & RESIDENTIAL HUMIDIFIER

Features and Benefits / References



Features		Benefits
Both	Easy maintenance using a disposable cylinder	- Pure, clean, sterile steam humidification using electrode technology - Main maintenance is easy & quick (cylinder replacement) - Extremely efficient boiling process – power consumption is minimized
	Automatic fill and drain cycle	Standard drain water cooling to 140°F (60°C) means no external equipment required for DWC
	Auto-adaptive control algorithm	Water consumption is optimized with respect to cylinder life
	Operation with 120V, 208V, or 240V – single phase, 50-60Hz	Flexibility in supply voltage depending on availability at customer's home
RH Classic	Multipiple configurations:	- Various configurations available to suit customers' specific installation needs - Steam exit at top of unit for duct-mounted distributor. - Also available: in-space with integrated blower pack, as well as remote blower pack
	Quiet Drain Valve configuration available for noise-sensitive installations	QDV option offers the quietest residential steam humidifier on the market
RH Connect	App and web portal monitoring	- Monitor from anywhere - Lower maintenance & service costs with better service planning. Reduce unnecessary site visits with remote visibility and diagnostics. - Reduced downtime through faster issue identification
	Intelligent diagnostics	- Instant fault notifications when alarms occur, - Identify issues such as drain valve failures, communication errors, water supply issues, and other system faults before traveling to the site, - View errors/warnings history to quickly identify recurring issues.
	Cylinder life monitoring	- Provides an estimate of remaining cylinder life - Receive notifications when cylinder is approaching end of life.

References



	Name	Location	Application
a	Michael Jordan's Residence	Illinois, US	Residential
b	Oprah Winfrey's Residence	Illinois, US	Residential
c	David Letterman's Residence	New York, US	Residential
d	Mariah Carey's Residence	California, US	Residential

CONDAIR RH CLASSIC & RH CONNECT LIGHT COMMERCIAL & RESIDENTIAL HUMIDIFIER Competitor Comparison

How do the RH Classic & Connect stack up against the competition?



Condair
RH Classic



Condair
RH Connect

VS.



AprilAire
800



GeneralAire
GF-5500



Honeywell
HM750

Manufacturer		Condair	Condair	AprilAire	GernalAire	Honeywell
Model		RH Classic	RH Connect	800	GF-5500	HM750
Website		condair.com	condair.com	aprilaire.com	generalaireiaq.ca	honeywell.com
Performance	Dimensions (Wx-DxH) (in)	11.4 x 6.9 x 21.4	10.4 x 6.9 x 18.4	10.125 x 7.125 x 20.875	13 X 8.25 X 21	10 x 7 x 18
	Available Voltages	110-120V 208V 220-240V	110-120V 208V 220-240V	110-120V 208V 220-240V	115V Internal 230V Option Switch	110-120V 220-240V
	Phase / Frequency	1~ / 50-60Hz	1~ / 50-60Hz	1~	1~ / 50-60Hz	1~ / 60Hz
	Maximum Capacity	29 GPD w/ Duct configuration @ 240V	22 GPD @ 240V	34.6 GPD w/ 16.0A & 240V	Up to 28.5 GPD w/ 230V power connection	22 GPD w/ HM750 @ 240V
	Capacity Adjustment	Down to 30% output using potentiometer	Down to 30% output using potentiometer	No	Yes - to 20% of maximum output using UI on front of unit	Down to 30% output using potentiometer
	Control Type	ON/OFF or modulating (move jumper on PCB)	ON/OFF or modulating	ON/OFF (Models 800 & 865) MOD (Models 801 & 866)	ON/OFF or 0-10V modulating	ON/OFF
	Minimum Output	20% of max output	20% of max output	20% of max output	20% of max output	N/A - ON/OFF only
	User Interface	1 green LED + 1 yellow	Remote smartphone app, 4 status LED's on unit	Status LEDs	Monochrome LCD	6 LEDs
	Fan Relay	Yes - via humidifier	Yes - via humidifier	Yes - via humidifier controller (Model 62)	Yes - via Humidifier controller (GFX4)	Yes - via humidifier
	Noise Level*	59 dBA @ 1m	59 dBA @ 1m	78 dBA @ 1m	70 dBA @ 1m	59 dBA @ 1m
*Noise level of RH2+ measured in an accredited testing laboratory, competitors tested in Condair laboratory						



Manufacturer		Condair	Condair	AprilAire	GernalAire	Honeywell
Model		RH Classic	RH Connect	800	GF-5500	HM750
Website		condair.com	condair.com	aprilair.com	generalair.com	honeywell.com
Plumbing	Drain Water Tempering	140°C (60°F)	140°C (60°F)	140°C (60°F)	140°C (60°F)	140°C (60°F)
	Drain Cycles	Water conductivity regulated by amp draw using patented auto-adaptive control	Water conductivity regulated by amp draw using patented auto-adaptive control	Timed drains, full drain @ 168 hours if no drain before then	Unknown algorithm Note that if no drain after 120 hours, forced drain is triggered	Water conductivity regulated by amp draw using patented auto-adaptive control
	Inactive Drain	Drain after 72 hours with no demand	Drain after 72 hours with no demand	Drain after 72 hours with no demand	Drain after 72 hours with no demand	Drain after 72 hours with no demand
	Supply Water Requirements	150-1,200 mS/cm conductivity	150-1,200 mS/cm conductivity	125-1,250 mS/cm conductivity	125-1,250 mS/cm conductivity	125-1,200 mS/cm conductivity
	Blackflow Prevention	Internal air gap	Internal air gap	Internal air gap	Internal air gap	Internal air gap
Distributor	Duct Distributor	Tube (standard) with a series of holes Nozzle (optional)	Direct duct mount or remote mount, angled plastic tube with steam distribution holes	Tube with a series of holes	Tube with a series of holes	Direct duct mount, angled tube with single steam injection orifice
	Space Distributor	Built-on or remote blowerpack available	None	Remote-mounted grille diffusor	None	None
	Condensate Line	Required	None	Required	Required	Not required
Maintenance	Maintenance	Cylinder replacement Clean drain valve	Cylinder replacement. Simple cylinder removal with lever, no tools required, no electrical plugs Clean drain valve	Cylinder replacement Clean drain valve Fill valve strainer	Cylinder replacement Clean fill valve, drain pump, drain pan, pipes	Cylinder replacement Clean drain valve
	Cylinder Configurations	One main cylinder type Other options available, optimized at various conductivity ranges	One cylinder type	One cylinder type	Standard cylinders 7523/7524 (125-400 mS/cm) Low conductivity cylinder 7543 (400-1,250 mS/cm)	One cylinder type
Package Includes	Items included in the package	Humidifier; tube distributor (w/ hardware); 5' steam hose; 7' condensate hose; ON/OFF wall humidistat; air proving switch; hardware	Humidifier, steam distributor, gasket, 5' steam hose, RH duct sensor, 20' water fill line, 10' drain hose, hardware/fittings, quick start guide	Humidifier; tube distributor; 6' steam hose; 10' drain tubing; Model 62 controller (duct, includes outdoor temp sensor); saddle valve; hardware	Humidifier; nozzle distributor; 6' steam hose; 9' condensate hose; 10' water fill line; water fill connector; GFX3 humidistat (wall or duct, includes outdoor temp sensor); ball valve; air proving switch; hardware	Humidifier; H6062 humidistat (wall or duct, includes outdoor temp sensor); 5' steam hose; nozzle distributor; 10' drain hose; 20' water fill line; hardware
Approvals	Approvals	C-UL-US	C-UL-US	ETL	ETL	C-UL-US
Warranty	Warranty	5 years	5 years	5 years	5 years	5 years

CONDAIR GS GAS-FIRED HUMIDIFIER

GS humidifiers have been engineered to meet the highest standards of efficient performance with cost-efficient gas operation.

JUST A FEW APPLICATIONS UTILIZED IN NORTH AMERICA

- Commercial offices
- Education
- Laboratories
- Hospitals





CONDAIR GS

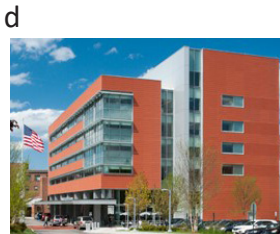
GAS-FIRED HUMIDIFIER

Features and Benefits / References



Features	Benefits
• True condensing high efficiency	• Operation and installation savings
• 316 S.S. heat treated heat exchanger	• Corrosion resistance for increased life cycle, easy maintenance
• Compact footprint, mounting options	• Easy retrofit, replacements
• Integrated Controller	• Easy to use touchscreen controls with built in troubleshooting, BMS
• California Low NOx emission levels	• Certified with SCAQMD
• Huge cleanout port	• Easy maintenance

References



	Name	Location	Application
a	Casino Niagara	Ontario, CA	Human Health
b	Ball Aerospace	Colorado, US	Aerospace
c	Discovery Science Center	California, US	Museum
d	South Shore Hospital	Massachusetts, US	Healthcare
e	Phoenix Medical	Tennessee, US	Medical Device Manufacturing
f	Canadian Blood Services	Alberta, CA	Office
g	Toxikon Corp	Massachusetts, US	Pharmaceutical

CONDAIR GS

GAS-FIRED HUMIDIFIER

Competitor Comparison

How does the GS stack up against the competition?



Manufacturer		Condair	Dristeem	Carel	Armstrong	Neptronic	Engineered Air	Pure
Model		GS	GTS-LX	gaSteam	GFH	SKG	SH Series	GX
Website		condair.com	dristeem.com	carel.com	armintl.com	neptronic.com	engineeredair.com	purehumidifier.com
Performance	Capacities (lbs/hr)	50, 100, 150, 200, 300, 450, 600	50, 75, 100, 150	100, 200, 400	NG: 155, 315, 475P: 150, 308, 465	110, 155, 180, 210, 265, 310, 350, 405, 505, 610, 710, 765, 810	35, 60, 90, 120, 240, 400, 650	110, 300, 600, 900
	Condensing Efficiency (HHV, LHV)	Yes (94%, 105%)	Yes (93%, 103%)	No (83%, 94%)	No	No	No	No
	Voltages (voltage/phase)	120 V/1 Ph/ 60 Hz	120 V/1 Ph/60 Hz	230V/1 Ph/50/60Hz	120 V/1 Ph/60 Hz	120/208/240V/ 1Ph/60Hz	Not Published	120 V/1 Ph/60 Hz
	Water Quality	Potable, RO/DI	Portable RO/DI	Potable, RO/DI	Option for RO/DI	Potable, RO/DI	Potable Only	Option for RO/DI
	Modulation	Turn down varies for each unit	5:1	Turn down varies for each unit	30:1	10:1	15:1	Unknown



Manufacturer		Condaair	Dristeem	Carel	Armstrong	Neptronic	Engineered Air	Pure
Model		GS	GTS-LX	gaSteam	GFH	SKG	SH Series	GX
Website		condaair.com	dristeem.com	carel.com	armintl.com	neptronic.com	engineeredair.com	purehumidifier.com
Product Specifications	Dimensions (in) (L/W/H)	50/100: 24/22/44 150: 27/28/56 200: 38/28/56 450: 63/28/56 600: 74/28/56	50/75: 24/24/43 100/150: 33/24/43	100/200: 41/23/48 400: 41/37/48	150: 47/22/55 300: 51/36/55 450: 55/49/55	1 module: 24/22/54 2 modules: 48/22/54 3 modules: 72/22/54 4 modules: 96/22/54	Not Published	110: 42/46/41 300: 62/55/41 600: 63/55/63 800: 63/56/74
	Clearances	Clearance on Front, Top, Right (and Left for 450, 600)	Front, Left, Top, Right, Back	Front, Top, Right, Left	Front, Top, Right, Left, Rear	Front, Top, Right, Left	Top, Side, Front and 6" from combustibles (24" top)	Right, Front, Top and 6" for combustibles
	Weight (lb) (Empty/Full)	50: 190/340 100: 210/365 150: 320/500 200: 480/775 300: 480/800 450: 800/1200 600: 910/1550	50: 187/303 75: 192/303 100: 240/443 150: 250/446	100: 375/580 200: 375/580 400: 617/1069	150: 295/700 300: 415/1110 450: 540/1670	1 module: 320/444 2 modules: 602/850 3 modules: 950/1322 4 modules: 1270/1766	Not Published	110: 201/420 300: 390/710 600: 827/1391 900: 1125/2072
	Insulation and Cabinetry Standard	Yes	Yes	Yes	Optional Cabinet, Standard Insulation	Yes	Yes	Insulation Yes, Cabinet No
Controller	LCD Touchscreen Display	Yes	Yes	Yes	No	No	No	No
	Multi-Mode Availability (Master/Slave modes)	Standard – maximum number of units unpublished	Standard – max 16	Standard – maximum number of units unpublished	Not Published	Standard, 1-4	No	Standard - maximum number of units unpublished
	BMS Connectivity	Standard: Modbus, BACnet Optional: BTL, LonWorks	Modbus, BACnet, LonTalk	Optional: BACnet, LON-Echelon	Not Published	BACnet MS/TP	No	Modbus

CONDAIR GS

GAS STEAM HUMIDIFIER

Competitor Comparison (continued)

Manufacturer		Condaair	Dristeem	Carel	Armstrong	Neptronic	Engineered Air	Pure
Model		GS	GTS-LX	gaSteam	GFH	SKG	SH Series	GX
Website		condaair.com	dristeem.com	carel.com	armintl.com	neptronic.com	engineeredair.com	purehumidifier.com
Installation	Fill, Drain, Steam, Vent Connections Exterior to Unit (No Cabinet Removal Required)	Yes	No	Yes	No	Yes	No	No Cabinet
	Factory Pre-Configured Burner	Yes	Yes	No, Field Calibrated	No, Field Calibrated	Yes	No, Field Calibrated	Yes, Field Adjusted
	Hour Counter	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Multiple Steam-Outlet for Blower Pack or Distributor	Yes, Optional	Optional	Yes, Optional	Optional	Unknown	Unknown	Yes, Optional
	Mounting Options	Wall, Stand (or floor for 150 lbs/hr + models)	"Integral Base"/ Stand	Floor mounting	Floor Mount	Floor Mount	Floor Mount	Legs
	Wall Mounting	150 lb/hr models	No	No	No	No		No
	Sealed Combustion	Included - 100'	Included - allowed length varies	Mandatory	Optional 40'	Optional	Optional	No
	All Units Fit Through 37" Door	Yes	Yes	No	No	Yes	No	Must Dissassemble
Plumbing	DWC integral to Unit	Yes	Yes	Optional	No	Yes	Yes	No, included
	Integral Air Gap	Yes	Yes	No	Yes	Yes	Unknown	Yes
	No-Demand Automatic Tank Drains	Yes	Yes	Yes	Yes	Yes	Yes	No
	Keep Warm Feature	Yes	Yes	Yes	Not mentioned	Yes	Yes	Yes, optional
	Drain Water Pump	Yes	No, valve only	Yes	No, valve only	Yes	No	No
	Fill From Bottom (No quench)	Yes	No from top	Yes	Yes	Yes	No	No



Manufacturer		Condaire	Dristeem	Carel	Armstrong	Neptronic	Engineered Air	Pure
Model		GS	GTS-LX	gaSteam	GFH	SKG	SH Series	GX
Website		condaire.com	dristeem.com	carel.com	armintl.com	neptronic.com	engineeredair.com	purehumidifier.com
Maintenance	Heat Exchanger	Well spaced, smooth tubes, no removal needed	Difficult, uses chemical solution	Finned exchanger that must be removed for cleaning	Difficult tubular surface	Downward spiral	Top tubular surface	Difficult, tubular surface
	Tank Walls	Easily accessible around heat exchanger from front of unit	Limited access, uses chemical solution	Small front opening and top opening, difficult to reach	Easy, but expensive, cleaning required and replacement of multiple ionic bed filters (\$168 - \$336)	Removable	Difficult and from the top of the unit	Difficult, must remove heat exchanger and blower assembly
	Large Cleaning Port	Largest possible clean out port with no obstruction to cleaning	One small cleaning ports front	Top and front ports of limited size	Small top port only	Removable	Small top port only	Small side port
Venting	Venting Material	CPVC (CS, NX) BH-Vent (CS, NX)	CPVC, PVC, BH	BH-Vent	BH-Vent	BH-Vent	BH-Vent	BH-Vent
	Sidewall Venting Up to 100' Equivalent Without Assistance	Yes	Yes	Yes with caveat, 120' combined	Yes	Yes	Yes	Yes
	Power Venter Required	No	Yes	No	No	No	No	No
Heat Exchanger	Material	Heat Treated 316 S.S.	316 S.S.	S.S.	304 S.S.	316 S.S.	316 S.S.	304 S.S.
	Heat Treated	Yes	No	No	No	No	No	No
	Well spaced surfaces for easy maintenance	Well spaced bent tubes with largest possible door	Bent tubes, hard to reach	No, tight fins	No, stacked tubes	No, downward spiral	No, bundled tubes	No, stacked tubes
	Modular heat exchanger	Yes	No	Yes	Yes	Modular units	No	Yes
	Sacrificial anode to protect against corrosion	Yes	No	No	No	No	No	No

CONDAIR GS

GAS STEAM HUMIDIFIER

Competitor Comparison (continued)

Manufacturer		Condair	Dristeem	Carel	Armstrong	Neptronic	Engineered Air	Pure
Model		GS	GTS-LX	gaSteam	GFH	SKG	engineerdair.com	GX
Website		condair.com	dristeem.com	carel.com	armintl.com	neptronic.com	engineerdair.com	purehumidifier.com
Protections	Combustion Proving Through Air Proving Switch	Flame sensor and air proving	Flame sensor and air proving	Flame sensor only	Flame sensor and air proving	Not clear	Not clear	Not clear
	Insulation and Cabinetry Standard	Yes	Yes	Yes	Optional cabinet, standard insulation	Yes	Yes	Insulation Yes, Cabinet No
	Remote Mounted Water Level Control to Reduce Scale Accumulation	Yes	Conductivity probes in boiling water - optional float ball for RO/DI	Yes	Remote conductivity probes - optional float switch for DI	Yes	Conductivity probes in boiling water	Conductivity probes in boiling water. Float in boiling water option for DI/RO
	Tank Temperature Safety Sensor	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Flue Gas Temperature Sensor	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Low Water Float Protection	Yes	Low water conductivity probe	Yes	Low water conductivity probe	Yes	Low water conductivity probe	Yes
	Integral Steam Trap	Yes	Yes	Yes	No	Yes	Yes	No
	Vacuum Breaker to Prevent Back Syphoning	Yes	No	No	No	No	No	No
	Automatic Float Level, Fill, & Drain Component Check	Yes	No	No	No	No	No	No
	2 year limited warranty	Yes	Yes	Yes	Yes	Yes	1 year	Yes
Warranty	3 year limited warranty on Heat Exchanger	Yes	No	No	No	No	No	No



CONDAIR GS

GAS STEAM HUMIDIFIER

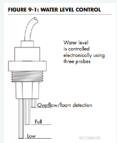
Arguments

DriSteem

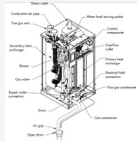
GTS LX



- Efficiency testing inconsistent.
- New touch display is comparable to Integrated Controller.
- Sensitive system, regularly over temp faults.
- Several installation connections are made inside.



- Level sensing happens internal in boiling water.
- No backup float system to ensure water level control is working properly.
- Water level control over conductivity is sensitive and inconsistent.



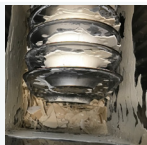
- Algorithm measures and controls water level based on three-rod probe system and water type.
- Difficult to access internals, messy configuration inside the unit.
- Tank corners filled with silicone to achieve proper door seal. does not last.

Carel

gaSteam



- Very small drain outlet valve, will get blocked easily and causes long drain times.
- To allow adequate cleaning, two covers on the tank must be removed.
- Exhaust gas is led through the housing with a flexible, blue rubber hose. Danger of burning.



- Sacrificial anode and heat treated welds. Gives the GS an optimal corrosion protection.
- Lower efficiency than GS-CS because no secondary heat exchanger.
- Heats from bottom to top, therefore longer start-up time than the GS.
- Scale adheres very well to the large surfaces.



- The measurement of precision is not standardized; stable control signal = high control accuracy.
- The welded Carel float body is sensitive to faulty level detection and affects precision.
- Hose to the level unit tends to bend and block.

Neptronic

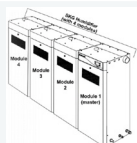
SKG



- Limited space, heat exchanger difficult to clean.
- Small space for scale deposits which can quickly clog the cylinder.
- Tricky assembly, seal cannot be checked on the back side.
- More difficult maintenance as each modular unit has to be serviced individually.



- Modbus and BacNet only available with interface.
- No touch display.
- No additional information for certain operating states.



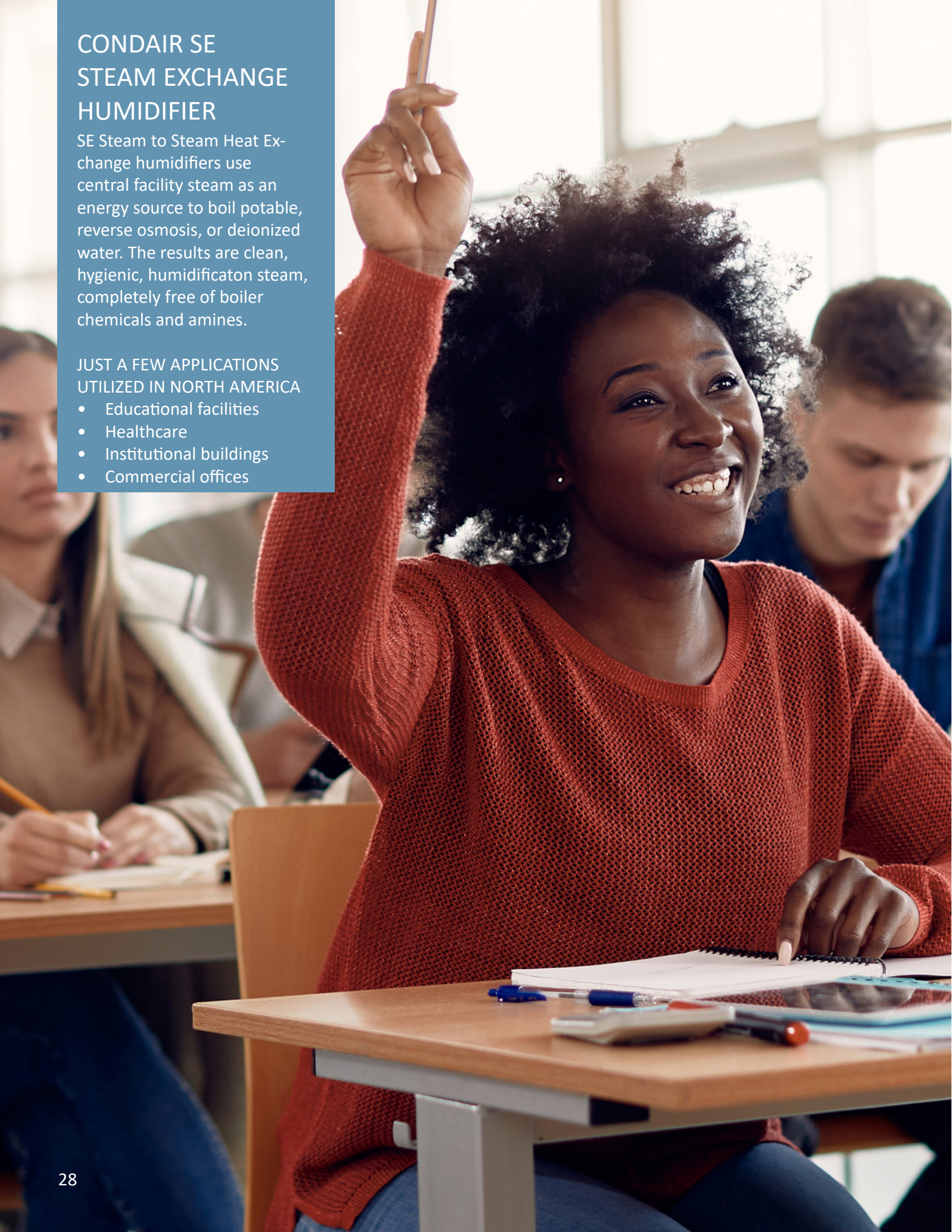
- No secondary heat exchanger, expensive installation.
- Defective igniters have to be replaced often.
- Thanks to the Link Up connection, GS devices are also modularly expandable.

CONDAIR SE STEAM EXCHANGE HUMIDIFIER

SE Steam to Steam Heat Exchange humidifiers use central facility steam as an energy source to boil potable, reverse osmosis, or deionized water. The results are clean, hygienic, humidification steam, completely free of boiler chemicals and amines.

JUST A FEW APPLICATIONS UTILIZED IN NORTH AMERICA

- Educational facilities
- Healthcare
- Institutional buildings
- Commercial offices





CONDAIR SE STEAM EXCHANGE HUMIDIFIER

Features and Benefits / References



Features	Benefits
• 316 S.S. heat treated heat exchanger • Completely packaged unit • Large, easily accessible clean out ports • Built-in drain water cooler • Only depth of units changes • Seismic certification	• Clean, atmospheric steam with either potable, RO or DI water • Easy installation • Easy maintenance • Reduces drain water to 140°F • All units can fit through 32" door • Capacities up to 1050 lbs/hr

FEATURES AND BENEFITS

References

a



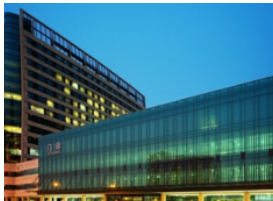
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c



d



	Name	Location	Application
a	Rutgers University	New Jersey, US	Education
b	Vidant Health Foundation	North Carolina, US	Healthcare
c	Pfizer	Ireland	Pharmaceutical
d	Shandong Provincial Hospital	China	Healthcare
e	UCSF Medical Center	California, US	Healthcare

REFERENCES

CONDAIR SE

STEAM EXCHANGE HUMIDIFIER

Competitor Comparison

How does the SE stack up against the competition?



Manufacturer		Condaire	Dristeem	Armstrong	Neptronic
Model		SE	STS	CS	SKS4
Website		condair.com	dristeem.com	armstronginternational.com	neptronic.com
Performance	Capacities (lbs/hr)	50,100, 175, 250, 375, 525, 750, 1050	Copper: 120, 240, 480, 790, 1600 S.S.: 35, 80, 150, 390, 637, 1223	Copper: 110, 240, 400, 800, 1330 S.S.: 35, 120, 180, 260, 520	50,100, 130, 190, 290, 390, 500, 690, 950, 1250
	Voltages (voltage/phase)	110-120 Single Phase	120, 50-60hz	120 or 240	120, 208, or 240/250 Single Phase
	Water Quality	potable, RO, or DI	potable, RO and DI for S.S.	potable, RO or DI	potable, RO and DI
Product Specifications	Dimensions (in)	50: 25.6 x 20.2 x 18.4 100/175: 46.4 x 31.6 x 20.8 250/375: 46.4 x 31.6 x 27.2 525/750: 46.4 x 31.6 x 42.7 1050: 46.4 x 31.6 x 58.3	25: 19.50 x 14.75 x 23.65 50: 19.50 x 14.75 x 39.65 100: 19.50 x 19.25 x 39.65 200: 19.50 x 30.25 x 55.15 400: 19.50 x 30.25 x 55.15 800: 29.75 x 30.25 x 55.15	11: 31.4x15.4x15 12/13: 50-3/4 x 19-1/4 x 42 14: 46.5x21.6x17 15: 45.5x21x23 16: 54.75x41.75x31.4	50-130: 19.7 x 45.8 x 26.2 190/290 : 22.9 x 45.8 x 29.4 390/500: 27.6 x 58.6 x 27.3 690/950: 30.9 x 58.6 x 34.3 1250: 30.9 x 58.6 x 42.5
	Clearances	Front, Right, Top, and Left (0 top clearance for SE 50)	Top, Bottom, Left, Right, Front, Back	-	Top, Bottom, Left, Right, Front, Back
	Weight (lb) (Installed, Full)	50:125/180 100/175:267/423 250/375: 355/599 525/750: 529/992 1050: 703/1384	25:95/175 50:125/336 100:139/350 200:245/850 400:320/950 800:410/1450	11: 85/183 12: 145/398 13: 160/413 14: 400/920 15: 780/1500 16: 830/1830	50: 255/457 100:265/487 130:270/484 190:310/578 290:315/616 390:395/828 500:400/822 690:470/1102 950:475/1168 1250:570/1574



Manufacturer		Condair	Dristeem	Armstrong	Neptronic
Model		SE	STS	CS	SKS4
Website		condair.com	dristeem.com	armstronginternational.com	Neptronic.com
Controller	Multi-Mode Availability (Master/Slave modes)	Yes	Yes	No	Yes
	BMS Connectivity	Modbus, BACnet MSTP/IP, LonWorks, N2	Modbus, BACnet, LonTalk	BACnet Modbus	BACnet Modbus
	Microprocessor Controller	Total Controller	Vapor-logic	yes	Yes
Installation	Fill, Drain, Steam, Vent Connections Exterior to Unit (No Cabinet Removal Required)	Yes	Yes	Yes	Yes
	Mounting Options	Stand or floor mounting (ceiling for SE 50)	Stand, wall, or ceiling (25, 50, 100 only)	Wall	Stand necessary
	Wall Mounting	No	Yes	Yes	No
	All Units Fit Through 930 mm Door	Yes	Yes	No	Yes
Plumbing	DWC integral to Unit	Yes	Optional	No	Yes
	Integral Air Gap	Yes	No	No	No
	No-Demand Automatic Tank Drains	Yes	Yes	No	Yes
	Keep Warm Feature	Yes	No	No	No
	Drain Water Pump	Yes	No	No	Yes
	Fill From Bottom (No quench)	Yes	No	No	Yes

CONDAIR SE

STEAM EXCHANGE HUMIDIFIER

Competitor Comparison (continued)

Manufacturer		Condair	Dristeem	Armstrong	Neptronic
Model		SE	STS	CS	SKS4
Website		condair.com	dristeem.com	armstronginternational.com	Neptronic.com
Maintenance	Heat Exchanger	Easy, flat surfaces	Tubular	Tubular	Tubular
	Tank Walls	Easy, flat surfaces and surface top and front openings	Flat	Flat	Flat
	Large Cleaning Port	Yes, large side port and top for large units	Top Cleaning Port	Top	Top
Heat Exchanger	Material Heat Treated	316 S.S.	Copper or S.S.	Copper or S.S.	S.S.
	Heat Treated	Yes	No	No	No
	Well Spaced Surfaces for easy maintenance	Combination of tube and flat surface exchanger (80% flat)	-	-	-
	Modular Heat Exchanger	Yes	-	-	No
	Sacrificial Anode to Protect Against Corrosion	Yes	No	No	-



Manufacturer		Condair	Dristeem	Armstrong	Neptronic
Model		SE	STS	CS	SKS4
Website		condair.com	dristeem.com	armstronginternational.com	Neptronic.com
Protections	Insulation and Cabinetry Standard	Yes	Optional	No	Yes
	Remote Mounted Water Level Control to Reduce Scale Accumulation	Yes	Yes	No	Yes
	Tank Temperature Safety Sensor	Yes	Yes	No	No
	Low Water Float Protection	Yes	Yes	No	No
	Integral Steam Trap	Yes	No	No	No
	Vacuum Breaker to Prevent Back Syphoning	Yes	No	No	No
	Automatic Float Level, Fill, and Drain Component Check	Yes	Yes	No	Yes
	2 Year Limited Warranty	Yes	Yes	No, 1 year only	Yes
Warranty	3 Year Limited Warranty on Heat Exchanger	Yes	No	No	No

CONDAIR ME & MC EVAPORATIVE HUMIDIFIER AND COOLER

The ME has unique evaporative cassettes offering high efficient operation with low pressure drop. The MC is Condair's most cost-effective evaporative media solution.

JUST A FEW APPLICATIONS UTILIZED IN NORTH AMERICA

- Data Centers
- Laboratories
- Offices

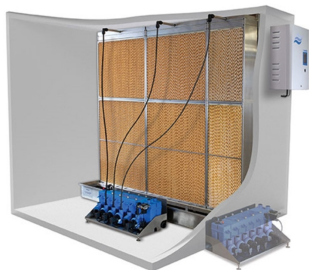


CONDAIR ME & CONDAIR MC

EVAPORATIVE HUMIDIFIER & COOLER

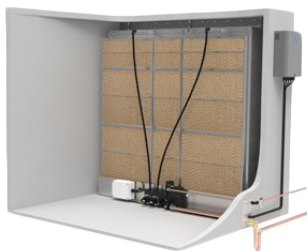
Features and Benefits / References

ME



Features	Benefits
- Fiberglass media - Individual pumps per stage - Hydraulic molded with BioMaster antimicrobial additive - Submerged UV light - Free adiabatic cooling	- Compatible with potable and RO water - Adds a safety redundancy to the unit - Prevents microbial growth - Continuously sterilizes recirculated water and drain pan - Reduces mechanical cooling costs

MC



Features	Benefits
- Fiberglass media - Optimized staging - Basic hydraulic module and controls - Optional submerged UV light - Pump fault detection	- Compatible with potable and RO water > 30 $\mu\text{S cm}^{-1}$ - Minimizes energy consumption - Increased cost-effectiveness - Continuously sterilizes recirculated water and drain pan - Less time spent troubleshooting

References

a



b



c



d



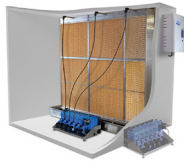
	Name	Location	Application
a	Facebook	Lulea, Sweden	Data Center
b	Embraer	Florida, US	Paint Booth
c	Syracuse University	New York, US	Education
d	Raging Wire	California, US	Data Center
e	H.O. Schools	Alberta, CA	Education
f	Bell Aliant	Quebec, CA	Data Center
g	Tesla Gigafactory	New York, US	Solar Panel Manufacturing

CONDAIR ME & CONDAIR MC

EVAPORATIVE HUMIDIFIER AND COOLER

Competitor Comparison

How does the ME & MC stack up against the competition?



Condaire
ME



Condaire
MC

VS.



Armstrong
WETdek



Munters
FA6



Neptronic
SKV

Manufacturer		Condaire	Condaire	Munters		Munters	Neptronic
Model		ME	MC	WETdek		FA6	SKV
Website		condaire.com	dristeem.com	munters.com		munters.com	neptronic.com
Performance	Capacities (lbs/hr)	Up to 2200	Up to 793	-	-	-	-
	Media Material	Fiberglass	Fiberglass	Cellulose	Fiberglass	Fiberglass	Fiberglass
	Media Brand	-	-	CELdek	GLASdek	GLASdek	Not Published
	Media Flute Angle	30/30	30/30	CELdek7090: 60/30 Celdek 7060: 45/15	45/15	45/15	Not Published
	Media Depth (In)	4, 6, 8	6, 8	4, 6	8, 10, 12	4, 8, 12	4, 6, 8, 12
	Media Efficiency	75%, 85%, 95%	85%, 95%	CELdek7090: 75%, 95% Celdek 7060: 65%, 85%	75%, 85%, 95%	65%, 85%, 95%	65%, 75%, 85%, 95%
	Media Fire Rating	UL 900	UL 900	Unrated	UL900 & ULC-S111	UL900 & ULC-S111	UL 900
	Max Media Velocity	690 fpm (886 fpm with mist eliminator)	690 fpm (886 fpm with mist eliminator)	Not published	689 fpm (738fpm with droplet separator)	689 fpm (985 fpm with droplet separator)	700 fpm (985 fpm with droplet separator)
	Water Quality	Potable, RO	Potable, RO	Potable	Potable, RO	Potable, RO	Potable, RO
	Modulation	2-7 Stages	1-3 Stages	-	-	2-5 Stages	Up to 5
Voltages (voltage/phase)		120V/1ph/ 60hz	120V/1ph/ 60hz	Not Published		120V/1/60Hz	120V/3/60Hz & 230V/1/60Hz



Manufacturer		Condair	Condair	Munters		Munters	Neptronic
Model		ME	MC	WETdek		FA6	SKV
Website		condair.com	dristeem.com	munters.com		munters.com	neptronic.com
Product Specifications	Dimension (in)	W: 24-165 H: 24-157	W: 25.5-118 H: 29.5-118	Custom	W: 12, 24 H: 12, 24, ..., 72 Custom W & H upon request	W: 12, 24 H: 12, 24, ..., 72 Custom W & H upon request	Not Published
	Recommended Clearances (in)	Upstream: 24 Downstream: 24	Upstream: 24 Downstream: 24	Not Published		Not Published	Upstream: 24 Downstream: 24
	Hydraulic Unit	Self contained	Self contained	Built up of Individual components		Built up of Individual components	Built up of Individual components
	Hydraulic Position	Internal/External	Internal	Internal		Internal	Internal
	Stage Pumps	Individual pump per stage	Individual pump per stage	Not published		Individual pump per system with valve	Individual pump per system with valve
	Pump Maintenance	Magnetic pump with 2 parts	Magnetic pump with 2 parts	Complex disassembly with multiple parts		Complex disassembly with multiple parts	Complex disassembly with multiple parts
	Overflow Location	In hydraulic unit	In hydraulic unit	-		On the tank	On the tank
Controller	LCD Touchscreen Display	Yes	No	No		No	No
	BMS Connectivity	Standard: Modbus, BACnet Optional: BTL, LonWorks	Standard: Modbus	Not Published		Standard: Modbus, BACnet	Standard: Analog Optional: BACnet MS/TP

CONDAIR ME & CONDAIR MC

EVAPORATIVE HUMIDIFIER AND COOLER

Competitor Comparison (continued)

Manufacturer		Condair	Condair	Munters	Munters	Neptronic
Model		ME	MC	WETdek	FA6	SKV
Website		condair.com	dristeem.com	munters.com	munters.com	neptronic.com
Options	UV Light	Submerged: Yes Inline: Yes	Submerged: Yes Inline: Yes	No	No	Submerged: Yes Inline: Yes
	Conductivity Monitoring	Yes	No	No	Yes	No
	Remote Fault Indication	Yes	No	-	-	No
	Freeze Protection	Yes	No	-	-	No
	Pureflo Ag+ Filters	Yes	No	No	No	Yes
	Leak Detection Sensors	Yes	No	-	-	No
	Pump Fault Detection	Yes	Yes	-	-	No
Warranty	2 Year Limited Warranty	Yes	Yes	Munters standard 1 year warranty	Munters standard 1 year warranty	Yes



CONDAIR ME & CONDAIR MC EVAPORATIVE HUMIDIFIER AND COOLER

Arguments

Munters	
FA6	
	Controls are an option only with additional cost. Controller is dated.
	Stage control is an option and flow control is mechanical and must be adjusted in the AHU. The Condair ME has stage control as standard and flow is electronically controlled.
	High specification for media refers to the "GX40" type only. Make sure of specification if the standard "GlasDek" specification is quoted. Make sure you are not competing against "CelDek" cellulose media which has far lower fire rating, hygiene credentials and shorter life.
Disair	
HEF2E	
	Low maximum height (2400 mm) and the largest tank footprint on taller systems (818 mm).
	Stage control is an option and flow control is mechanical and must be adjusted in the AHU. The Condair ME has stage control as standard and flow is electronically controlled without mechanical valves or restrictors.
	Make sure you are not competing against lower grade materials as tanks are available in galvanised steel. Make sure you are not competing against cellulose media which has far lower fire rating, hygiene credentials and shorter life.

CONDAIR DL HYBRID HUMIDIFIER

The DL incorporates two humidification principles: atomization and evaporation. It is hygienic, energy efficient, and cost-effective.

JUST A FEW APPLICATIONS UTILIZED IN NORTH AMERICA

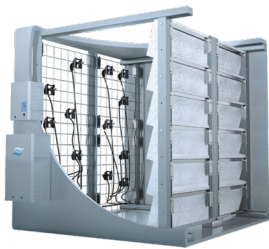
- Hospitals
- Laboratories
- Agriculture
- Concert Halls





CONDAIR DL HYBRID HUMIDIFIER

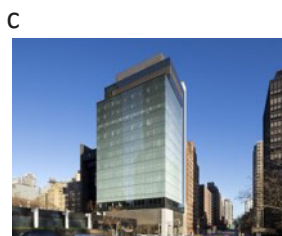
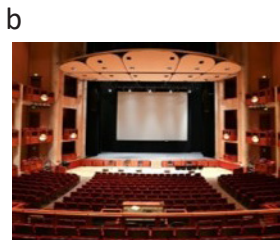
Features and Benefits / References



Features	Benefits
- Hybrid technology - Silver ion dosing	Extremely high water efficiency
- No-wear ceramic media 24" unit footprint	- Most hygienic adiabatic humidification - No replacement
Up to 31 stages	- Ideal for limited space retrofit applications - Incredible modulation ability, control accuracy up to +/- 2%

FEATURES AND BENEFITS

References



	Name	Location	Application
a	Texas Instruments	Texas, US	Chip Fabrication
b	Newman Center for Performing Arts Denver University	Colorado, US	Concert Hall
c	Memorial Sloan-Kettering Cancer Center	New York, US	Hospital / Laboratory
d	USDA Research Facility	North Dakota, US	Agriculture
e	Parkland Logistics Clinical Lab	Texas, US	Hospital / Laboratory
f	Univeristy of Tennessee	Tennessee, US	Education
g	Tufts Vivarium	Massachusetts, US	Vivarium

REFERENCES

CONDAIR DL

HYBRID HUMIDIFIER

Competitor Comparison

Currently, there are no direct competitors of the DL.



Condair
DL

Manufacturer		Condair
Model		DL
Website		condair.com
Performance	Capacity (lbs/hr)	Up to 2200 lbs/hr
	Media Material	Ceramic
	Max Media Velocity	590 fpm (787 with mist eliminator)
	Voltages (Voltages / Phase)	200-240 V / 1 Ph/60hz
	Water Quality	RO/DI
	Modulation	Standard: 7 stages Optional: 15 or 31 stages



Manufacturer		Condair
Model		DL
Website		condair.com
Product Specifications	Dimensions (in)	W: 18–330 H: 18–157
	Control Unit Dimensions (in) (LxWxH)	19.1 x 13.5 x 8.5
	Control Unit Weight (lb)	33
	Hydraulic Unit Dimensions (in) (LxWxH)	31.5 x 20.8 x 10.8
	Hydraulic Unit Weight (lb)	Type A: 119 lbs Type B: 77 lbs
	Recommended Clearances (in)	Upstream: 20 Downstream: 4
	Nozzle Material	316 Stainless Steel
	Nozzle Capacity (lbs/hr)	3.3, 4.4, 5.5, 6.6, 7.7, 8.8, 9.9, 11
	Nozzle Pressure (psi)	43.5 – 101.5
	Silver Ion Dosing	Yes
	Silicone Free Model	Yes
Controller	LCD Touch Display	Yes
	BMS Connectivity	Standard: Modbus, BACnet Optional: BTL, LonWorks
Plumbing	Staging Valve	24 VDC solenoid
	Material	316 Stainless Steel
	System Drain	Yes
Warranty	Warranty	2 Year Standard Warranty
	Extended Warranty	1-3 Year Extended Warranty Available for Purchase

JS60C COMPRESSED AIR & WATER SPRAY HUMIDIFIER

Delivered fully assembled, the JS60C humidifier is a simple way to deliver up to 66lb/h of humidity. The use of compressed air to atomize the water makes it ideal for industrial environments.

JUST A FEW APPLICATIONS UTILIZED

- Dust supression
- Woodworking
- Printing
- Crop storage
- Tobacco



CONDAIR JS60C

COMPRESSED AIR & WATER SPRAY HUMIDIFIER

Features and Benefits



Features	Benefits
Fully assembled unit	Simplifies installation and reduces on-site labor time
Self-cleaning nozzles	Delivers safe humidification while minimizing clogging and hygiene risks
Compatible with mains, softened, or RO water	Offers flexibility in water quality without mandatory RO systems
Directionally adjustable nozzles (horizontal and vertical)	Allows precise targeting of humidification within the space
Low maintenance design	Reduces service frequency and overall operating costs

References

a



b



c



d



	Application
a	Agriculture
b	Education
c	Textiles
d	Data Centers
e	Printing
f	Storage Facilities
g	Wine Cellars

CONDAIR JS60C

COMPRESSED AIR & WATER SPRAY HUMIDIFIER

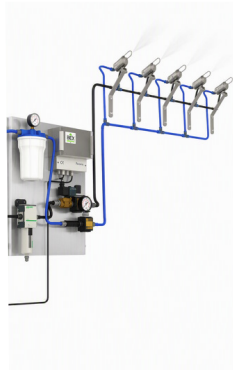
Competitor Comparison

How does the Condair JS60C stack up against the competition?



Condair
JS60C

VS.



Fisair
Atom Spray



Carel
MC Multizone



Armstrong
Cool-Fog



Smartfog
ES100



Manufacturer		Condair	Fisair	Carel	Armstrong	Smartfog
Model		JS60C	Atom Spray	MC Multizone	Cool-Fog	ES100
Website		condair.com	fisair.com	carel.com	armstronginternational.com	smartfog.com
Performance	Capacities (lbs.hr)	11lbs/hr - 66 lbs/hr	5-280 lbs/hr	132 lbs/hr & 507 lbs/hr cabinets	10 lbs/hr - >1000lbs/hr	0-25 lbs/hr
	Control Type	On/Off	On/Off	Offer On/Off & Modulating	Offer On/Off & Modulating	stages on/off
	Power Supply	120V/1/60HZ	230/1/60Hz & 120V/1/60Hz	230/1/60Hz & 120V/1/60Hz	120V/1/60Hz	not published
	Water Type	Potable/RO	Potable/RO	Potable/RO/DI	Cool-Fog : Potable/RO Purefog : DI	potable or RO/DI
	Nozzle Mounting	On Cabinet	Remote	Remote	Remote	remote mounted
	Air Consumption		2,4 m3 /h -38,4 m3 /h	0.15 CFM per lb/hr of water output	Not Published	4 CFM at 100 psi
Warranty	Warranty	2 Year Standard Warranty	2 Year Standard Warranty	Not Published	Not Published	1 year Standard Warranty
	Extended Warranty	N/A	Extension Available	Not Published	Not Published	10 Year Optional Warranty

CONDAIR HP HIGH PRESSURE HUMIDIFIER

The HP High Pressure humidification system offers low operating costs, reduced cooling costs, and requires minimal maintenance.

JUST A FEW APPLICATIONS UTILIZED IN NORTH AMERICA

- Print and Packaging
- Electronics
- Data Centers
- Offices





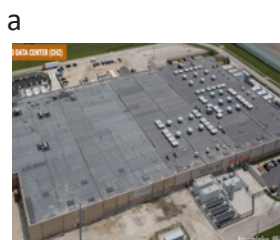
CONDAIR HP HIGH PRESSURE HUMIDIFIER

Features and Benefits / References



Features	Benefits
- Tailored capacities and sizes for project specific needs (26-9900 lb/h) - Precise control +/- 2% RH accuracy	- Precision and capacity on demand when you need it most - Modular/Flexible mounting pieces to fit any duct need
Feed up to 12 air handling units with just 1 pump station & customized solutions	- Lower costs to you and your customer - Redundancy option available
- Stainless steel, water lubricated, direct driven pumps - UV sterilization and automatic line flushing and on-site bacteria testing	- Less maintenance than the competition and longer lasting parts - Very hygienic with field tests in less than 30 minutes
Adiabatic technology	Humidification and cooling at the same time, to synergize on the benefits
Energy savings and free cooling	- Save on electrical costs, compared to other humidification technologies - Reduce energy on cooling methods

References



	Name	Location	Application
a	Ascent	Illinois, US	Data Center
b	Orbital ATK	Arizona, US	Aerospace / Composites
c	ULINE	Wisconsin, US	Shipping, Packaging, Industrial Supplies
d	Facebook	Lulea, Sweden	Data Center / Cooling
e	Indivior	Colorado, US	Pharmaceutical
f	Acuity	Wisconsin, US	Office
g	CBC	Ontario, CA	Office
h	Gentex	Michigan, US	Electronics

CONDAIR HP

HIGH PRESSURE HUMIDIFIER

Competitor Comparison

How does the HP stack up against the competition?



VS.



Condaire
HP

MEE
Industries
MeeFog MFP

Carel
humiFog

Neptronic
SKH4

DriSteem
Adiatec

GoFog
GoFog Pump
Units

Manufacturer		Condaire	MEE Industries	Carel USA	Neptronic	DriSteem	GoFog
Model		HP	Mee-3	HumiFog	SKH4	Adiatec	GoFog Pump Units
Website		condaire.com	meefog.com	carel.com	neptronic.com	dristeem.com	gofoginc.com
Performance	Pump Capacities (lbs/hr)	220, 440, 660, 1100, 1760, 2260, 2860, 3300, 3530, 4410, 5290, 6610, 9920	400, 450, 700, 1200, 1350, 1850, 2000, 2450, 4000	220, 440, 705, 1014, 1323, 2200	210, 500, 1000, 1850, 2800	250, 500, 1000, 1750, 2500, 3500, 5500	800, 1750, 3600, 6000
	Voltages (voltage/phase/Hz)	208 V / 3 / 60 Hz 480 V / 3 / 60 Hz	400 - 2000: 208/460V / 3 / 60Hz 2450 - 4000: 460V / 3 / 60Hz	208 V / 1 / 60 Hz	120 V / 1 / 60 Hz 208 V / 1 / 60 Hz 220-240 V / 1 / 60 Hz 208 V / 3 / 60 Hz 220-240 V / 3 / 60 Hz 480 V / 3 / 60 Hz 600 V / 3 / 60 Hz	240/1/60 480/3/60 600/3/60	460 V
	Water Quality	Reverse osmosis or de-ionized	Reverse osmosis	Reverse osmosis or de-ionized	Reverse osmosis	Reverse osmosis	Reverse osmosis



Manufacturer		Condair	MEE Industries	Carel USA	Neptronic	DriSteem	GoFog
Model		HP	Mee-3	HumiFog	SKH4	Adiatec	GoFog Pump Units
Website		condair.com	meefog.com	carel.com	neptronic.com	dristeem.com	gofoginc.com
Product Specifications	Dimensions (in) (W x D x H)	HP 100 to HP 800: 26x20x51 HP 800/1300 VFD: 26x25x51 HPRO 100 to HPRO 500 VFD: 34x28x63 HPRO 800 & (VFD): 55x28x63	400, 450: 24x51x17 700, 1200: 30x57x24 1350-4000: 36x65x24	40x16x34	SKH4 210 to 1400: 28x14x44 SKH4 1850 to 2800: 31x19x47	250 to 1750: 24x24x60 2500 to 5500: 24x30x60	800: 34x27x65 1750: 34x27x65 3600: 40x29x65 6000: 48x30x65
	Weights (lbs.)	HP100 & HP200 VFD: 143 HP300 & HP500 VFD: 154 HP500 - HP800VFD: 176 HP800 & HP1300 VFD: 198	400, 450: 180 700: 200 1200: 270 1350: 265 1850, 2000: 350 2450: 420 4000: 455	220: 187 440: 187 705: 209 1014: 209 1323: 220	SKH4 210-1400: 300 SKH4 1850-2800: 320	250: 275 500: 300 1000: 325 1750: 325 2500: 350 3500: 400 5500: 450	800: 450 1750: 550 3600: 650 6000: 750
Performance: Pump Station and Water	Skid Type	Skid, 13 sizes available	Skid, 5 S.S. and 5 brass pump sizes	Pump cabinet	Skid 5 S.S. and 5 brass pump sizes	Skid with integrated reverse osmosis	Different sized pump stations, smaller models available
	Stainless Pump	Yes, Standard. Water lubricated axial piston type	Yes, oil lubricated. Water lubricated type optional	Yes, oil lubricated. Silicon free model optional	Yes, water lubricated, axial piston type	Yes, water lubricated, axial piston type	Not available
	Brass Pump	Not available	Yes, oil lubricated	Yes, oil lubricated	Yes, oil lubricated	Yes, oil lubricated	CAT Pump oil lubricated
	Pump Drive	Direct couple	Belt drive, optional direct couple	Belt drive, optional direct couple	Direct couple	Direct couple	Direct coupled, belt driven for larger models
	Variable Frequency Drive	Optional	Standard	Optional		Optional	Standard

CONDAIR HP

HIGH PRESSURE HUMIDIFIER

Competitor Comparison (continued)

Manufacturer		Condair	MEE Industries	Carel USA	Neptronic	DriSteem	GoFog
Model		HP	Mee-3	HumiFog	SKH4	Adiatec	GoFog Pump Units
Website		condair.com	meefog.com	carel.com	neptronic.com	dristeem.com	gofoginc.com
Performance: Pump Station and Water	Low Inlet Pressure Safety	Standard 20 psig trip	Standard	Standard	Standard	Not available	Unknown
	Excess Water Bypass	Standard, up to 100% of capacity	Standard, up to 80%	Standard up to 80%	Standard	Standard	Unknown
	Over Temperature Relief	Standard, activates at 170°F	Standard, activates at 145°F	Standard	Standard	Shut off only	Unknown
	Pressure Gauges	Standard, inlet & outlet	Standard	Standard, inlet & outlet	Standard	Standard	Standard
	Built-in Water Filters	Yes, 1 micron (No RO)/ 5 microns (integrated RO)	Yes	Yes, 1 micron	No	Yes, 1 and 5 micron with RO system	Yes
	Optional RO System	Yes, directly on HP pump skid, up to 3300 lbs/hr	Yes, integrated with 400 & 1200 lbs/hr	Not available	Yes, stand alone RO skid	Yes, stand alone RO skid	3rd party supplied, separate skid
Nozzles and Manifolds	Nozzle Material	316 S.S	316 S.S	S.S.	S.S	S.S.	S.S.
	Nozzle Capacities (lbs./hr.)	5.5-13.2	16	3.2 - 8.8	6 - 10.8	60 - 15	Unknown
	Nozzle Style	Impeller type	Impaction pin type	Impeller type	Impeller type	Impeller type	Impeller type
	Droplet Size	10 - 40 microns(95% of droplets at 15 microns)	5 - 40 microns (90% smaller than 20 microns)	10 - 20 microns	7 - 35 microns	<10 microns (90% of droplets)	20 microns
	Anti-Drip Check Valve	Standard	Optional	Standard	Standard	Standard	Yes
	Manifold Line Material	304 S.S.	316 S.S.	S.S.	S.S	S.S.	S.S.
	Self Draining Manifolds	Pulsed flushing Auto flush	No, must manually compress air	Yes	Yes	No, manual drain	Yes



Manufacturer		Condair	MEE Industries	Carel USA	Neptronic	DriSteem	GoFog
Model		HP	Mee-3	HumiFog	SKH4	Adiatec	GoFog Pump Units
Website		condair.com	meefog.com	carel.com	neptronic.com	dristeem.com	gofoginc.com
Specifications	Type	24V high pressure solenoid	High pressure solenoid	High pressure solenoid	High pressure solenoid, configurable in the skid (6 stages) or outside	High pressure solenoid	High pressure solenoid
	Material	316 S.S.	S.S.	Brass, optional S.S.	S.S	S.S.	304 or 316 S.S.
	Self Draining Manifolds	No	No	Yes	Yes	No	Yes
	Integral Flush Valve	Standard	Standard	Standard	Standard at skid, or optional	Not available	On certain types
	Anti-Hammer System	Not Available	Yes, needle valve	Not available	Optional	Not available	Unpublished
Mist Eliminator	Media	1" thick, antimicrobial coating	1" thick, antimicrobial coating	Stainless	Unpublished	Unpublished	Unpublished
	Frame and Assembly Material	Stainless	Stainless	Stainless, media box type	Unpublished	Unpublished	Unpublished
	Fire Rating	UL 900	UL 900	Unpublished	Unpublished	Unpublished	Unpublished
System Controller	Stages (Steps) Available	7 or 15	3, 6, 15, 31	Custom (up to 64)	6	On/Off, staging as a special option	6
	BMS Feed-back	BACnet, Modbus	BACnet	Modbus, Optional: BACnet, Echelon and TCP/IP	Optional BACnet, Modbus	Digital: Modbus, optional BACnet and optional LonTalk	Modbus, BACnet, LON, and others available
	Control Cabinet	Powder Coated Steel	Plastic	Steel, NEMA type 1, UL 508	Unpublished	Integrated to pump skid	Painted steel cabinet
	Control/Screen	Siemens PLC	Allen Bradley PLC	Custom	Custom	Custom	Horner XL4 OCS with 3.5" Color Touchscreen
	Touchscreen Display	Yes	Yes	Not available	Not available	Not available	Yes
Warranty	Warranty	2 years	2 years	2 years	2 years	2 years	1 year
	Extended Warranty	Yes, available	Unknown	Unknown	Unknown	1-2 extra can be purchased	Unknown

CONDAIR HP HIGH PRESSURE HUMIDIFIER

Arguments

Dristeem
Adiatec
Dristeem does not have a high-pressure skid with integrated RO, leading to an increased footprint
Neptronic
SKH4
- Neptronic does not have a high-pressure skid with integrated RO, leading to an increased footprint - Temperature relief and hygienic flushing, either occurs at the skid (double the installation in hosing) or occurs at the last valve block leading to increased waste water usage. - Neptronic can only control 4 zones per skid and only has 6 stages per zone. Compared to HP/ML in duct that can control up to 12 zones and have either 7 or 15 stages of control.
MEE Industries
MeeFog MFP
MeeFog marketing materials highlight droplet-size performance below 10 microns; however, this performance is based on nozzle testing at 2000 psi. The humidification system operates at around 1000 psi, where larger droplets are expected. This can create an overly optimistic perception of atomization performance and evaporation efficiency. When evaluating atomization quality, customers should compare droplet-size data at the actual system operating pressure, not at maximum test pressure.



CONDAIR HP HIGH PRESSURE HUMIDIFIER

Arguments

Carel USA

Humifog

- Carel high-pressure systems are only able to control up to 6 stages on control. Compared to HP/ML induct that can have either 7 or 15 stages of control.

Go Fog

GoFog Pump Units

- GoFog does not have a high-pressure skid with integrated RO, leading to an increased footprint
- A long lasting stainless steel pump is not available, the CAT pump, which is oil lubricated must be serviced every 2500 hours compared to the Condair stainless steel water lubricated pump with a 8000 hour service life.

CONDAIR ML & VITA DIRECT ROOM HUMIDIFIERS

The ML & VITA Direct Room humidification systems offer low operating cost, reduced cooling costs, and requires minimal maintenance.

JUST A FEW APPLICATIONS UTILIZED IN NORTH AMERICA

- Woodworking
- Print and Packaging
- Evaporative Cooling
- Electronics





CONDAIR ML & VITA DIRECT ROOM HUMIDIFIERS

Features and Benefits



Features	Benefits
High pressure pump	- Atomizes water into micro fine particles for easy absorption - Danfoss water lubricated stainless steel pump – longer life, fewer maintenance hours and an overall cleaner system
Direct room humidification	100% of the water sprayed into the air is absorbed and evaporated - Retrofit – no need for drastic duct renovations or installs
Adiabatic cooling	- Keep spaces, employees, products cool – adiabatically - Easily save energy by reducing need for traditional cooling
Energy savings	Save over 90% of energy for humidification compared to traditional steam humidifiers
Ultra hygienic	- UV light, automatic line flushing, DI water production and clean in place (CIP) function - The ML & Vita systems are certified to VDI and DGUV standards

FEATURES AND BENEFITS

References

a



b



c



d



	Name	Location	Application
a	Harley Davidson	Wisconsin, US	Paint
b	Keurig	Vermont, US	Food
c	Rock & Roll Hall of Fame	Ohio, US	Museum
d	City of Medina	Saudi Arabia	Evaporative Cooling
e	Heidelberg	Georgia, US	Printing
f	Hewlett Packard	Georgia, US	Printing
g	Duke University	North Carolina, US	Greenhouse
h	Lego	Denmark & China	Packaging
i	JABIL	Mexico	Electronics

REFERENCES

CONDAIR ML & VITA DIRECT ROOM HUMIDIFIERS

Competitor Comparison

How does the ML & VITA stack up against the competition?



Manufacturer		Condair	Condair	MEE Industries	Carel USA	Neptronic	DriSteem	GoFog
Model		ML	VITA	Mee-3	HumiFog	SKH4	Adiatec	GoFog Pump Units
Website		condaair.com	condaair.com	meefog.com	carel.com	neptronic.com	dristeem.com	gofoginc.com
Performance	Pump Capacities (lbs/hr)	1100, 1760, 2260, 2860, 3300, 3530, 4410, 5290, 6610, 9920	220, 440, 660,	400, 450, 700, 1200, 1350, 1850, 2000, 2450, 4000	220, 440, 705, 1014, 1323, 2200	210, 500, 1000, 1850, 2800	250, 500, 1000, 1750, 2500, 3500, 5500	800, 1750, 3600, 6000
	Voltages (voltage/phase/Hz)	208 V/3/60 Hz 480 V/3/60 Hz	208 V/3/60Hz	400 - 2000: 208/460 V/3/60Hz 2450 - 4000: 460 V/3/60Hz	208 V/ 1 / 60 Hz	120 V/1/60 Hz 208 V/1/60 Hz 220-240 V/1/60 Hz 208 V /3/60 Hz 220-240 V/3/60 Hz 480 V/3/60 Hz 600 V/3/60 Hz	240 V/1/60Hz 480 V/3/60Hz 600 V/3/60Hz	460 V
	Water Quality	Reverse osmosis or de-ionized	Reverse osmosis or de-ionized	Reverse osmosis	Reverse osmosis or de-ionized	Reverse osmosis	Reverse osmosis	Reverse osmosis
Nozzles and Manifolds	Nozzle Material	316 S.S.	316 S.S.	316 S.S.	S.S.	S.S.	S.S.	S.S.
	Nozzle Capacities (lbs./hr.)	5.5-14.3	0.9 - 14.3	16	3.2 - 8.8	6 - 10.8	60 - 15	Unknown
	Nozzle Style	Impeller type	Impeller type	Impaction pin type	Impeller type	Impeller type	Impeller type	Impeller type
	Droplet Size	10 - 40 microns (95% of droplets at 15 microns)	10 - 40 microns (95% of droplets at 15 microns)	5 - 40 microns (90% smaller than 20 microns)	10 - 20 microns	7 - 35 microns	<10 microns (90% of droplets)	20 microns
	Anti-Drip Check Valve	Standard	Standard	Optional	Standard	Standard	Standard	Yes
	Manifold Line Material	304 S.S.	304 S.S.	316 S.S.	S.S.	S.S.	S.S.	S.S.
	Self Draining Manifolds	Pulsed flushing Auto flush	Pulsed flushing Auto flush	No, must manually compress air	Yes	Yes	No, manual drain	Yes



Manufacturer		Condair	Condair	MEE Industries	Carel USA	Neptronic	DriSteem	GoFog
Model		ML	VITA	Mee-3	HumiFog	SKH4	Adiatec	GoFog Pump Units
Website		condair.com	condair.com	meefog.com	carel.com	neptronic.com	dristeem.com	gofoginc.com
Product Specifications	Dimensions (in) (W x D x H)	ML 100 to 800: 26x20x51 ML 800/1300 VFD: 26x25x51 MLRO 100 to 500 VFD: 34x28x63 MLRO 800 & (VFD): 55x28x63	UV-HP: 22x30x51 Other variants: 30-43x30x64	400, 450: 24x51x17 700, 1200: 30x57x24 1350-4000: 36x65x24	40x16x34	SKH4 210 to 1400: 28x14x44 SKH4 1850 to 2800: 31x19x47	250 to 1750: 24x24x60 2500 to 5500: 24x30x60	800: 34x27x65 1750: 34x27x65 3600: 40x29x65 6000: 48x30x65
	Weights (lbs.)	ML100 & 2000 VFD: 143 ML300 & 500 VFD: 154 ML500 - 800 VFD: 176 ML800 & 1300 VFD: 198	UV-HP: 187 - 198 Other variants: 231 - 617	400, 450: 180 700: 200 1200: 270 1350: 265 1850, 2000: 350 2450: 420 4000: 455	220: 187 440: 187 705: 209 1014: 209 1323: 220	SKH4 210-1400: 300 SKH4 1850- 2800: 320	250: 275 500: 300 1000: 325 1750: 325 2500: 350 3500: 400 5500: 450	800: 450 1750: 550 3600: 650 6000: 750
Performance: Pump Station and Water	Skid Type	Skid, 13 sizes available	Skid, 3 sizes, 4 variants each	Skid, 5 S.S. and 5 brass pump sizes	Pump cabinet	Skid 5 S.S. and 5 brass pump sizes	Skid with integrated reverse osmosis	Different sized pump stations, smaller models available
	Stainless Pump	Yes, Standard. Water lubricated axial piston type	Yes, Standard. Water lubricated axial piston type	Yes, oil lubricated. Water lubricated type optional	Yes, oil lubricated. Silicon free model optional	Yes, water lubricated, axial piston type	Yes, water lubricated, axial piston type	Not available
	Brass Pump	Not available	Not available	Yes, oil lubricated	Yes, oil lubricated	Yes, oil lubricated	Yes, oil lubricated	CAT Pump oil lubricated
	Pump Drive	Direct couple	Direct couple	Belt drive, optional, direct couple	Belt drive, optional, direct couple	Direct couple	Direct couple	Direct coupled, belt driven for larger models
	Variable Frequency Drive	Optional	Standard	Standard	Optional	Optional	Optional	Standard
	Low Inlet Pressure Safety	Standard	Standard	Standard	Standard	Standard	Not available	Unpublished
	Excess Water Bypass	Standard, up to 100% of capacity	Standard, up to 100% of capacity	Standard up to 80%	Standard up to 80%	Standard	Standard	Unpublished
	Over Temperature Relief	Standard, activates at 170°F	Standard, activates at 95°F	Standard, activates at 145°F	Standard	Standard	Shut off only	Unpublished
	Pressure Gauges	Standard, inlet & outlet	Standard, inlet & outlet	Standard	Standard, inlet & outlet	Standard	Standard	Standard
	Built-in Water Filters	Yes, 1 micron (No RO)/ 5 microns (integrated RO)	Yes, 5 microns (inlet to RO, inlet to DI, inlet to HP pump)	Yes	Yes, 1 micro	No	Yes, 1 and 5 micron with RO system	Yes
	Optional RO System	Yes, directly on HP pump skid, up to 3300 lbs/hr	Yes, integrated	Yes, integrated with 400 & 1200 lbs/hr	Not available	Yes, stand alone RO skid	Yes, stand alone RO skid	3rd party supplied, separate skid
System Controller	Number of zones	40	50	Unpublished	12	4	16	Unpublished
	BMS Feed-back	BACnet, Modbus	BACnet, Modbus	BACnet	Modbus, Optional: BACnet, Echelon and TCP/IP	Optional BACnet, Modbus	Digital: Modbus, optional BACnet and optional LonTalk	Modbus, BACnet, LON, and others available
	Control Cabinet	Powder Coated Steel	Powder coated aluminum	Plastic	Steel, NEMA type 1, UL 508	Unpublished	Integrated to pump skid	Painted steel cabinet
	Control/Screen	Siemens PLC	IC2	Allen Bradly PLC	Custom	Custom	Custom	Horner XL4 OCS with 3.5" Color Touchscreen
	Touchscreen Display	Yes	Yes	Yes	Not available	Not available	Not available	Yes

COMPETITOR COMPARISON

CONDAIR ML & VITA

DIRECT ROOM HUMIDIFIERS

Competitor Comparison (continued)

Manufacturer		Condaire	Condaire	MEE Industries	Carel USA	Neptronic	DriSteem	GoFog
Model		ML	VITA	Mee-3	HumiFog	SKH4	Adiatec	GoFog Pump Units
Website		condaire.com	condaire.com	meefog.com	carel.com	neptronic.com	dristeem.com	gofoginc.com
Selling Features	Must haves	- Danfoss oil-free stainless steel pump - 8000+ hour service intervals - Stainless steel pipes and fittings - Custom projects and pump flexibility	- Ring & string line installations - Danfoss oil-free stainless steel pump - 8000+ hour service intervals	- oil-free stainless steel pump - 8000+ hour service intervals	- oil-free stainless steel pump - 8000+ hour service intervals - 7" touch screen display	- Stainless steel panel to house the zone valves - oil-free stainless steel pump - 8000+ hour service intervals	- oil-free stainless steel pump - 8000+ hour service intervals - HCAI seismic certification	- Every pump available with redundancy
	Options	- Clean-in-Place (CIP) - RO Transfer Pump - Electrical Conductivity and CO2 dosing - Data logger - Zone Add-On	- Water conservation with ring line installations. - Fan control during humidification	Unpublished	- oil-free models - cloud supervision - touch display configuration	- Fan-assisted mist distributors - Remote valve panels - Up to 6 stage valves, - Brass or stainless pump options.	- Fan-assisted dispersion - Outdoor enclosure - Seismic certification	- High-availability redundant pump systems available; dual-pump dimensions are listed.
Hygiene	Hygiene	- UV light standard, - Auto-line flushing, - Nozzle purge, - Clean-in-place (CIP) function - BQ tests	- UV light standard - Auto-line flushing - Nozzle purge in string line configurations or purge at skid for ring line installations - BQ tests	Nozzle purge in string line configurations or purge at skid for ring line installations	Auto-line flushing, nozzle purge	UV light standard, auto-line flushing occurs at the skid	UV light standard, auto-line flushing, nozzle purge	Unpublished
		VDI, DGUV (optional) - turn-key install, - Complete start-up & commissioning, - Expert On Site (EOS): routine preventative maintenance - All technicians Condaire employed and BQ certified technicians, pump requires maintenance check after 8,000 hours	VDI, DGUV (optional) install, - Complete start-up & commissioning, - Expert On Site (EOS): routine preventative maintenance - All technicians Condaire employed and BQ certified technicians pump requires maintenance check after 8,000 hours	Unpublished	VDI	Unpublished	VDI	Unpublished
Service	Maintenance	- Oil-free stainless steel pump - 8000+ hour service intervals - Stainless steel pipes and fittings - Custom projects and pump flexibility	- Ring & string line installations - Danfoss oil-free stainless steel pump - 8000+ hour service intervals	- oil-free stainless steel pump - 8000+ hour service intervals	- oil-free stainless steel pump - 8000+ hour service intervals - 7" touch screen display	- Stainless steel panel to house the zone valves - oil-free stainless steel pump - 8000+ hour service intervals	- oil-free stainless steel pump - 8000+ hour service intervals - HCAI seismic certification	- Every pump available with redundancy
	Warranty	2 years	2 years	1 Year	2 Years	2 Years	2 Years	1 Year
	Extended Warranty	Yes	Yes	Unknown	Unknown	Unknown	1-2 extra can be purchased	Unknown

CONDAIR ML & VITA

DIRECT ROOM HUMIDIFIERS

Arguments



Dristeem
Adiatec
- Dristeem does not have a high-pressure skid with integrated RO, leading to an increased footprint - Dristeem has a max control of 16 zones per skid, compared to ML having control of up to 40 zones (with add-on boxes) and Vita with control of up to 50 zones without any additional add-on boxes
Neptronic
SKH4
- Neptronic does not have a high-pressure skid with integrated RO, leading to an increased footprint - Temperature relief and hygienic flushing, either occurs at the skid (double the installation in hosing) or occurs at the last valve block leading to increased waste water usage. - Neptronic can only control up to 4 zones per skid, compared to ML having control of up to 40 zones (with add-on boxes) and Vita with control of up to 50 zones without any additional add-on boxes
MEE Industries
MeeFog MFP
- MeeFog marketing materials highlight droplet-size performance below 10 microns; however, this performance is based on nozzle testing at 2000 psi. - The humidification system operates at around 1000 psi, where larger droplets are expected. This can create an overly optimistic perception of atomization performance and evaporation efficiency. When evaluating atomization quality, customers should compare droplet-size data at the actual system operating pressure, not at maximum test pressure.
Carel USA
Humifog
use FOR DRS oNLY Carel high-pressure systems are only able to control up to 12 zones per skid, compared to ML having control of up to 40 zones (with add-on boxes) and Vita with control of up to 50 zones without any additional add-on boxes
Go Fog
GoFog Pump Units
- GoFog does not have a high-pressure skid with integrated RO, leading to an increased footprint - A long lasting stainless steel pump is not available, the CAT pump, which is oil lubricated must be serviced every 2500 hours compared to the Condair stainless steel water lubricated pump with a 8000 hour service life.

CONDAIR DA DESICCANT DEHUMIDIFIER

The Condair DA provides safe and reliable desiccant dehumidification for nearly any space. It allows for high efficiency dehumidification at low dew points for numerous applications.

JUST A FEW APPLICATIONS UTILIZED

- Pharmaceutical
- Food Processing
- Cold Storage
- Chemical Factories



CONDAIR DA DESICCANT DEHUMIDIFIER

Features and Benefits / References



Features	Benefits
Insulated casing as standard	Improves unit Operation and reduces heat and noise
PLC with touch screen	- Service and Fault alarms, including log - Modbus and other communication protocols available
Self-regulating PTC heaters	Extremely safe, reduces risk of overheat
Fully packaged unit	Fans installed inside for quiet operation
1-side service access	- Our units are meant to be base mounted - Stackable units
UL certified	UL certified

References

a



b



c



d



	Application
a	Pharmaceutical
b	Cold Storage
c	Confectionery Industry
d	Meat Processing
e	Breweries
f	Gas Turbines
g	Electronics
h	Pneumatic Transport Systems
i	Museums and Archives
j	Ice Rinks

CONDAIR DA DESICCANT DEHUMIDIFIER

Competitor Comparison

How does the DA stack up against the competition?



Manufacturer		Condair	Munters	Innovative Air	EBAC	Bry-Air
Model		DA	HCD	Rotor Series	DD Series	EcoDry
Website		condair.com	munters.com	dehumidifiers.com	ebacusa.com	bry-air.com
Performance	Airflow (CFM)	300, 400, 600, 800, 1400, 2000, 2400 ¹	600, 1125, 2250, 4500, 9000	600 – 30,000	700 - 12000	300 - 30000
	Drying Capacity (lbs/h)	@ 75F, 50%RH 300: 7.3 400: 12 600: 16 800: 22 1400: 30 2000: 32 2400: 44	@ 75F, 50%RH 600: 16 1125: 30 2250: 60 4500: 120	@ 70F, 50%RH 600: 16 1000: 26 1500: 38 3000: 75	@ 81, 60%RH 700: 9.6 900: 15 1200: 23 3000: 35	@ 75F, 50%RH 300: 9.7 600: 20 900: 29 1200: 39 1800: 59 2400: 78
	Voltages (Voltage/Phase)	208V – 480V, 3 phase	208V, 230V, 460V, 575V	208V – 600V	220/460/3/60	208V – 600V
	Modulation	Two Stage or Modulation	On/Off or Modulating	Staged	On/Off	On/Off

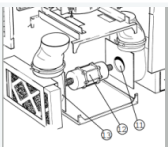
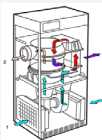
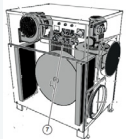
1. Additional models are available for a project-specific range capable of up to 16,000 cfm. Please contact your regional sales manager for custom project opportunities.



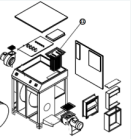
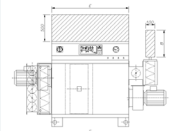
Manufacturer		Condair	Munters	Innovative Air	EBAC	Bry-Air
Model		DA	HCD	Rotor Series	DD Series	EcoDry
Website		condair.com	munters.com	dehumidifiers.com	ebacusa.com	bry-air.com
Product Specifications	Dimensions (in) (L/W/H)	36/48/39	600: 76/31/56 1125: 130/37/72 2250: 146/47/80 4500: 146/66/98 9000: 169/85/112	600: 60.5/43/60.5 1000: 77/65.5/60.5 1500: 65.5/51/68 3000: 90/52/69.5	700: 28/23/40 900: 28/23/48 1200: 28/23/56 3000: 85/39/55	Not Published
	Weight (lbs)	Approximately 440 lbs	600:400 1125: 925 2250:1150 4500:2050 9000:3100	600: 360 1000: 550 1500: 585 3000: 705	700: 170 900: 198 1200: 200 3000: 1114	Not Published
	Insulation and Cabinetry Standard	Yes	Yes	Cabinetry	Cabinetry	Not Published
Manufacturer		Condair	Munters	Innovative Air	EBAC	Bry-Air
Model		DA	HCD	Rotor Series	DD Series	EcoDry
Website		condair.com	munters.com	dehumidifiers.com	ebacusa.com	bry-air.com
Controller	LCD Touchscreen Display	Yes	No	Integrated controls optional	No	Optional
	BMS Connectivity	Modbus and other communications protocols	Optional	Optional	No	Optional
Installation	All units fit through 36" door	Yes	No	No	700-1200: Yes Bigger: No	Not Published

CONDAIR DA DESICCANT DEHUMIDIFIER

Arguments

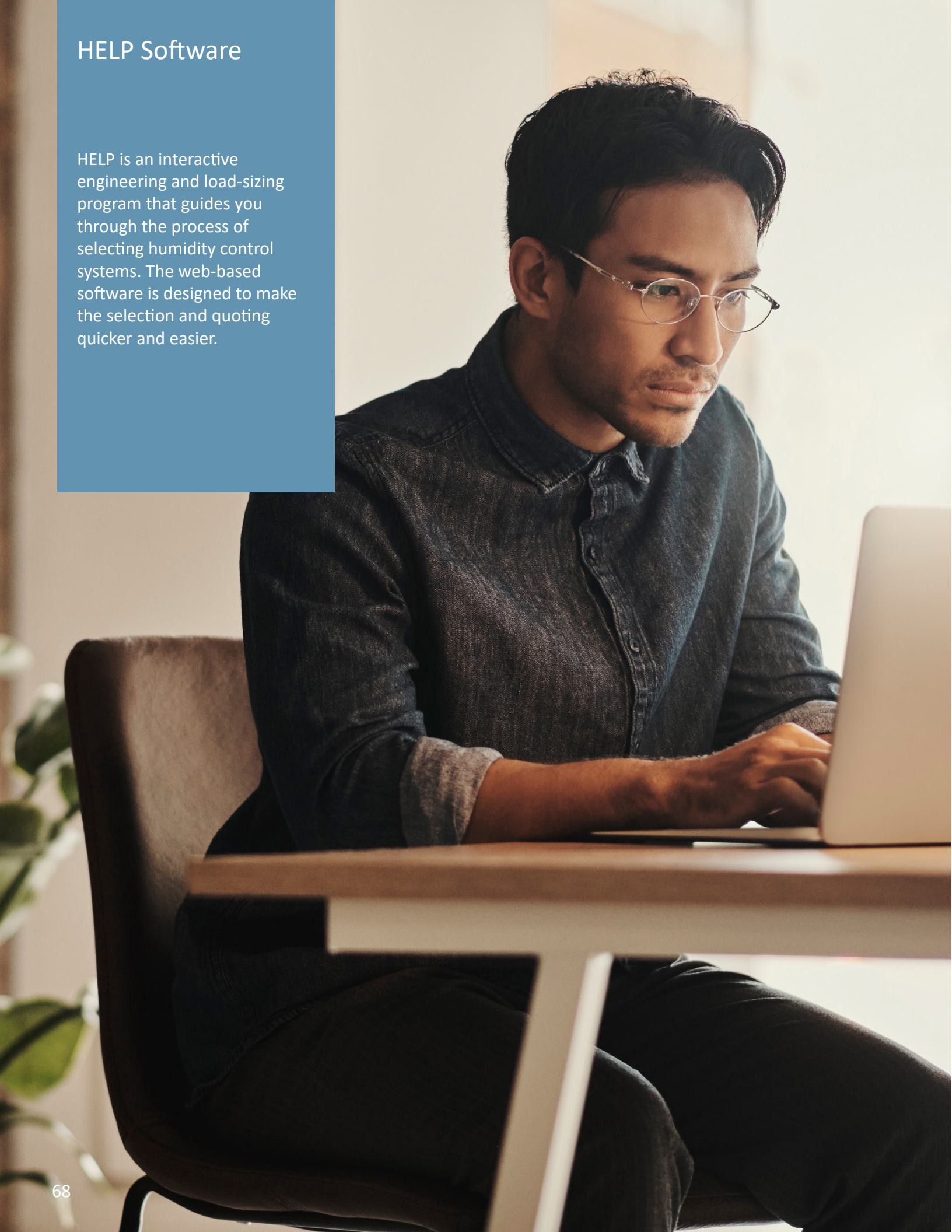
Munters	
ML & MX range	
	- No PTC heaters on any unit so more complex safety circuits. - The ML 180 to 420 units use a single motor to drive both fans on a common shaft. - MX units use externally mounted fans.
	- ML units rotor mounting horizontal so increased wear on bearings. - Complex air path with potential of leakage.
	- ML units. - No insulation to panels. - Option to insulate process air inlet on MX units.
DST	
DC, DR, R, RL & CZ	
	Incoly heating elements with their associated risk and a more complex safety circuit.
	- Very inflexible in product solutions. - The units are fully specced resulting in high price.
	A huge range of units with lots of cross overs in terms of capacity. Certainly not esthetically attractive. On the larger units with the externally mounted fans they have a large footprint.



Fisair	
DFRB & DFRA	
	• Incoloy heating elements with their associated risk and a more complex safety circuit on units over 4.2 kg/h.
	• On DFRA units service access is through the top of the unit consequently a minimum service access space above the unit is required.
	• A huge range of units with lots of cross overs in terms of capacity. Certainly not esthetically attractive. On the DFRA units with the externally mounted fans they have a large footprint.

HELP Software

HELP is an interactive engineering and load-sizing program that guides you through the process of selecting humidity control systems. The web-based software is designed to make the selection and quoting quicker and easier.



HELP SOFTWARE

Features and Benefits

Features	Benefits
• Cloud based	• Easy access, sharing, updates
• Wizard-based load sizing	• Allows for correct load sizing and product selection
• Full project export capability	• All documentation in one place, easy to generate submittals
• Searchable product catalog	• Quickly find details on any product
• Cost analysis feature	• Quickly compare technologies and create reports

NOTES

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