



CONDAIR ME

In-duct evaporative humidifier and cooler
Very low energy operation



Humidification, Dehumidification
and Evaporative Cooling



In-duct, low energy humidification and evaporative cooling

Evaporative module

Mains or RO treated water is pumped to the top of the evaporative module and flows down the corrugated surfaces of the evaporative cassettes. As air passes through the module it is humidified and cooled without droplets. Evaporative modules are custom built and can range in size from 600mm to 4,200mm wide and 625mm to 4,000mm high.



Drain tray with submerged UV

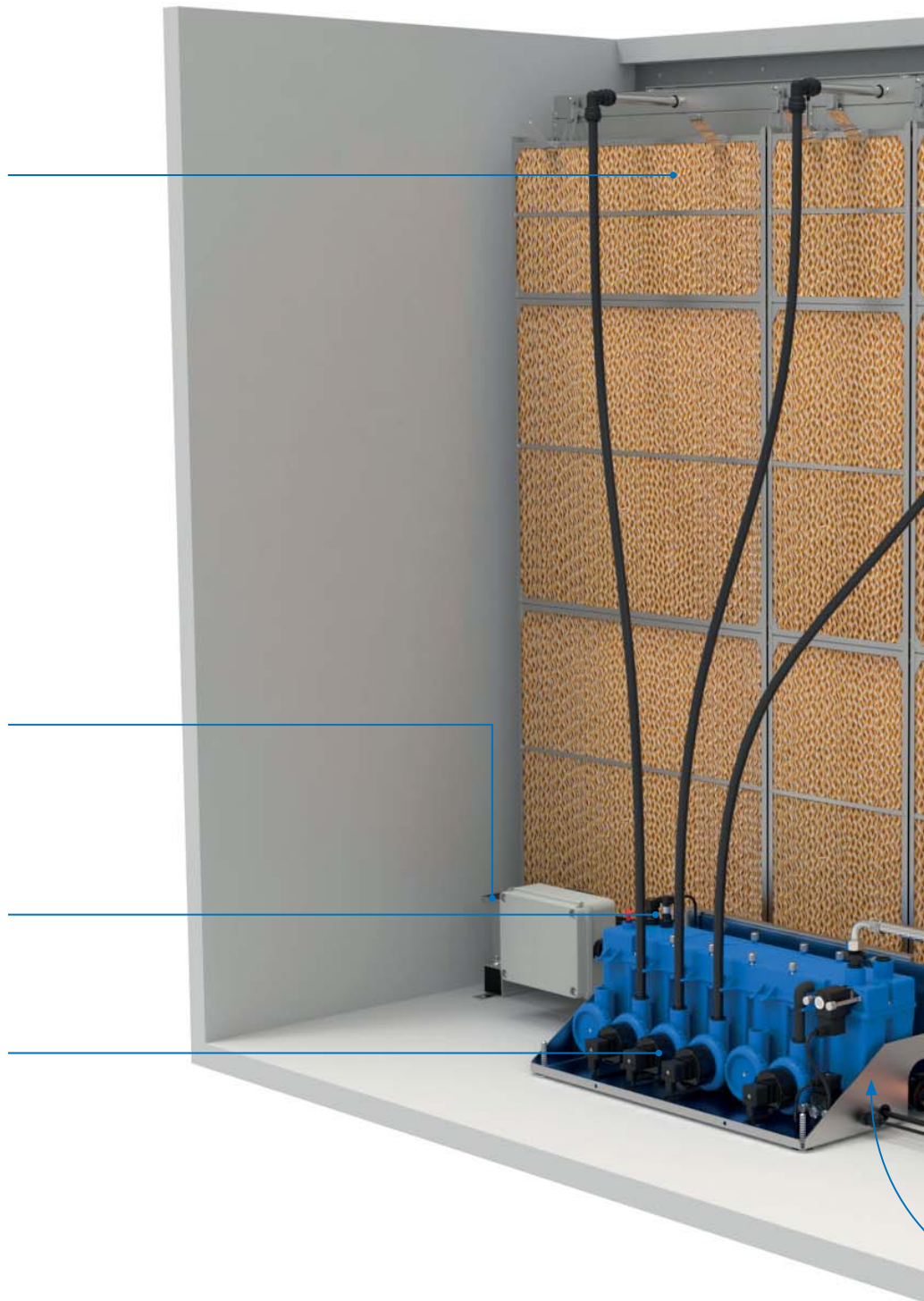
An optional submerged UV combats microbial growth in the water after it has been exposed to contaminants in the airstream. It continues to treat the water even when the humidifier is not operational.

Temperature and conductivity sensor

Hygiene flush cycles can be controlled by timer or optional sensors, ensuring flushes only occur when necessary.

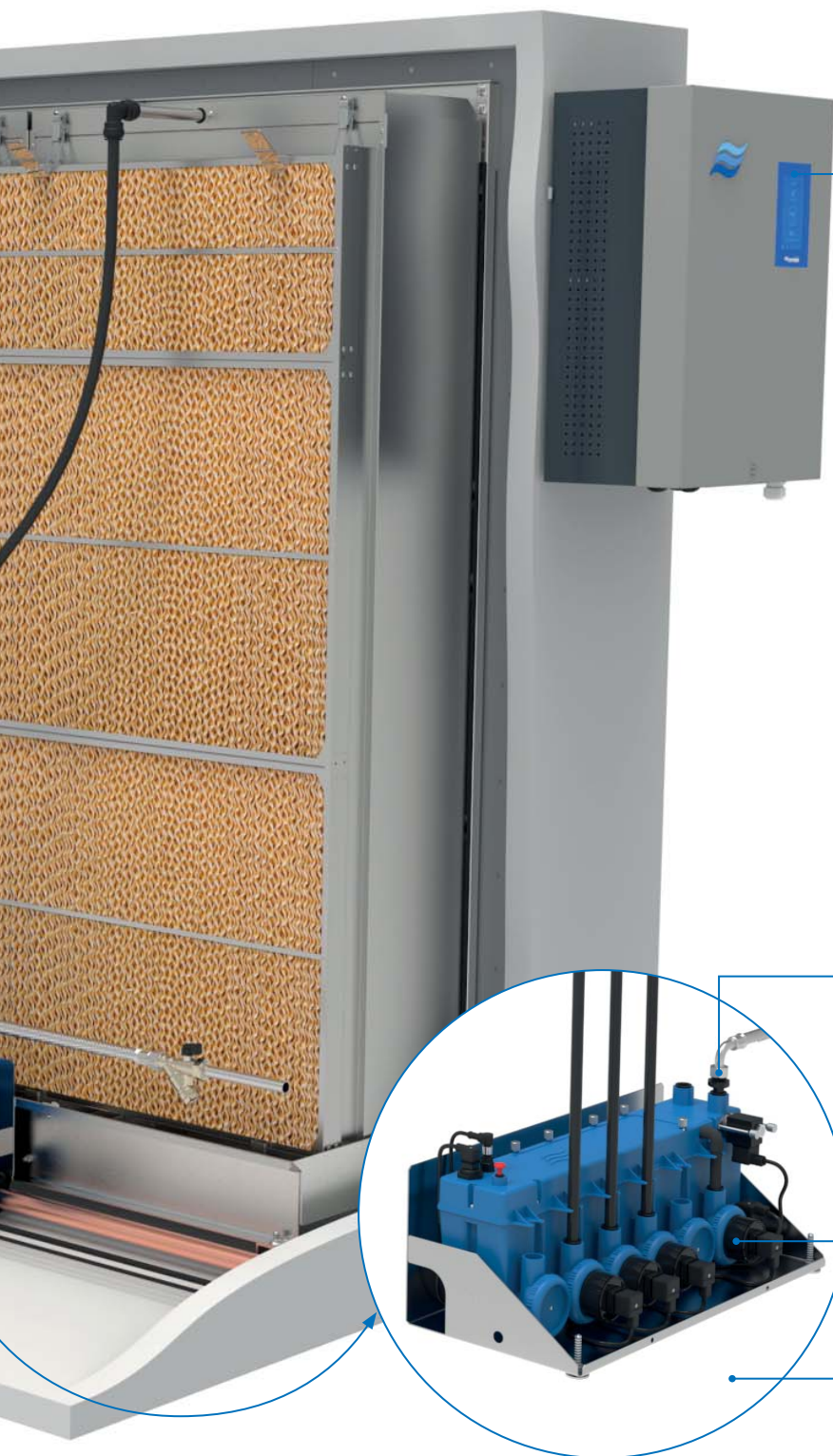
Multi-stage pump system

Up to seven 24Vdc pumps, with magnetic drive impellers, offer up to seven-stage control as standard with energy consumption being proportional to output. The complete system can operate on just 85-536W (excludes options).



Condair ME

Evaporative humidifier and cooler



Touch screen control panel

A touch-screen control panel with intuitive interface allows software-based commissioning and has detailed operational, servicing and fault displays. A USB connection allows software updates and downloading of history reports. The system can also connect to BMS.



In-line water treatment

Water entering can be treated with optional UV or PureFlo Hygiene System for additional hygiene control.

Pump assisted drain

A pump assisted drain improves humidity control by draining significantly faster than a gravity drain, and reduces servicing by removing more deposits from the system.

Interior or exterior hydraulic unit

The Condair ME is an in-duct evaporative humidifier that provides low energy humidity control and cooling.

A single unit can provide large duties of up to 1,080kg/h while operating on 50-85% less energy than other conventional in-duct evaporative humidifiers.

The humidifier can operate on mains or demineralised water and, as evaporation is instant, it can be accommodated in a very short section length within the duct or AHU.



Condair ME with internally mounted hydraulic unit

Innovative technology

Self-contained hydraulic unit

The Condair ME has a patented compact, self-contained hydraulic unit that incorporates a water tank, up to seven pumps and a pump assisted drain. It can be mounted on the evaporative module inside the AHU or externally on the outside wall.

Exterior mounting enables service work to be carried out without AHU downtime. Interior mounting minimises installation requirements.

The innovative hydraulic unit is delivered fully assembled and has simple push-fit pipe connections, finger release screws and hand tightened pump mounts for easy servicing. The full hydraulic unit, or any of its individual components, can be removed and exchanged in minutes making the Condair ME ideal for critical applications that require minimal downtime.

Low voltage components in the hydraulic unit increase safety for engineers working with the system.

Pump-driven stage control

Multiple low energy pumps provide up to five stage control as standard on units up to 3m wide. On units from 3-4.2m wide, up to seven-stage control is available using two hydraulic units. Unlike single pump systems, output adjustments can be made on the control panel without any mechanical alterations to valves. Multiple pumps also reduce running costs as low outputs can be met with the minimal number of pumps and a respective reduction in energy consumption. With two pumps running the humidifier only consumes 85W, unlike a single pump system that would need up to 500W.

Pump assisted drain

The Condair ME's pump assisted drain removes more contaminants from the humidifier than regular gravity drains, and completes a full system drain significantly faster. As well as reducing servicing requirements, the faster drain cycle means it completes its hygiene routine and returns to providing optimum output more rapidly, improving humidity control.

Touch screen control panel

The Condair ME incorporates an advanced touch screen controller that makes the system easy to use and set up, with software based commissioning. Information displayed includes settings, the current conditions of air humidity and temperature, as well as the water level, temperature and conductivity.

Service requirements and fault warnings are displayed and recorded for future reference, and can also be downloaded via a USB connection.

The system can be connected to a BMS via Modbus or BTL Certified BACnet protocols as standard (LonMark certified Lonworks via optional PCB). Software can be updated via a USB port.



Condair ME with externally mounted hydraulic unit

Electronic multi-level sensor offers reliable and accurate water level monitoring

Water conductivity & temperature sensor (optional) with automatic temperature compensation

Pump assisted drain

Toughened glass, fibre reinforced tank, injection moulded with antimicrobial Biomaster® impregnation

Low energy, extremely quiet pumps, with no mechanically connected parts, give an exceptionally long service life and multi-stage control as standard.



Large opening for easy internal access – no disassembly required for maintenance

Finger release screws

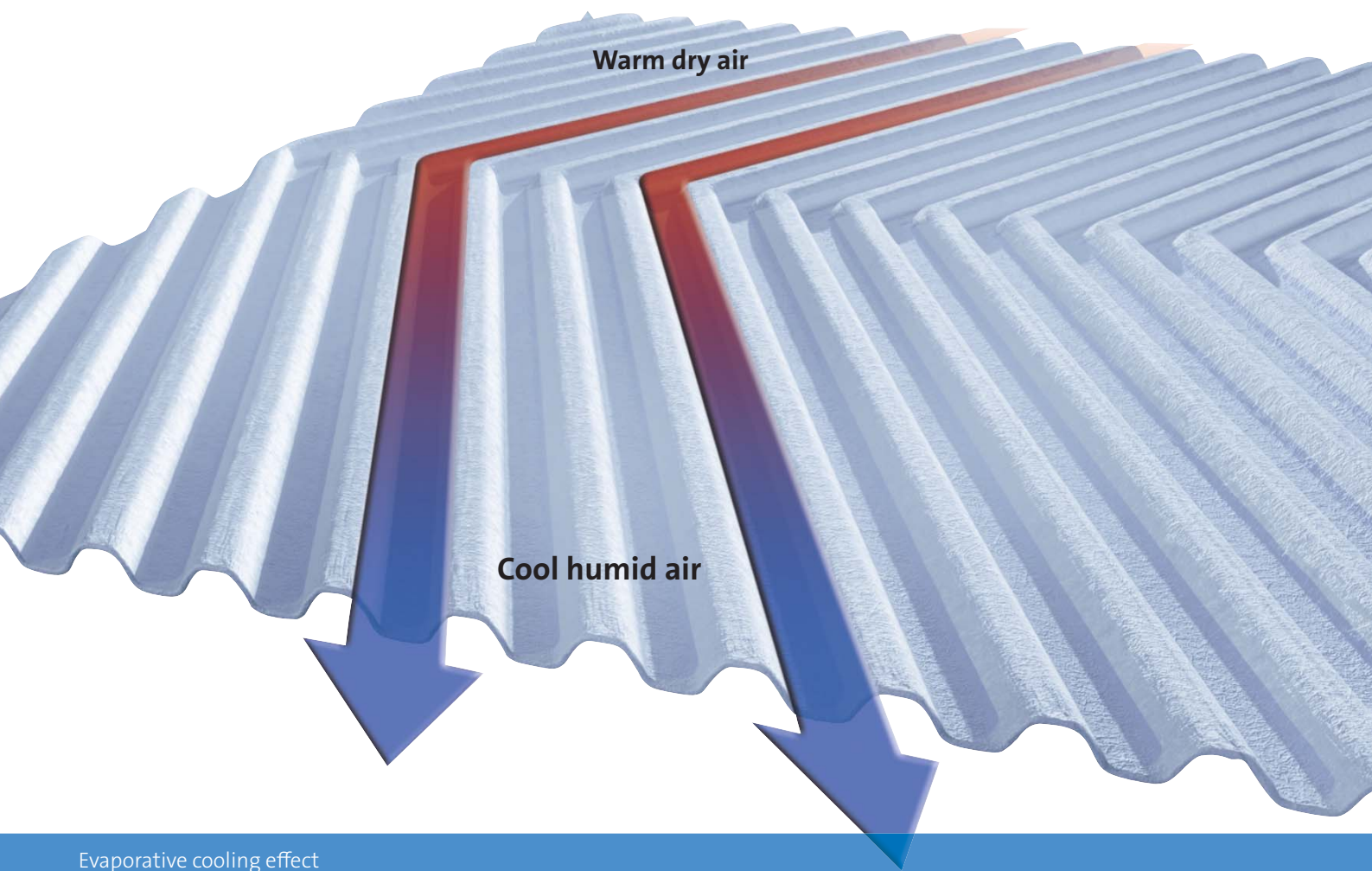
Pressure equalisation spigot for externally mounted applications

Water inlet

Single drain connection (reversible left/right) with integrated overflow

Fail-safe gravity drain

Integrated electrical cable harnesses (rated IP67) with moulded DIN plugs offers rapid exchange of components



Evaporative cooling effect

Evaporative cooling

For every 1kg/h of water evaporated from the Condair ME, 0.685kW of evaporative cooling is also delivered to the airstream. As a single Condair ME humidifier can deliver up to 1,080kg/h of moisture, it can provide approximately 822kW of cooling per hour, while operating on less than 1kW 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 Condair 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 Condair ME is ideal for use in Free Air Cooling systems, such as those used in data centres, 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.





Optional submerged in-tank UV sterilisation

Hygienic operation

The hygienic nature of evaporative humidification combines with the Condair ME's advanced features to make it one of the most hygienic adiabatic humidifiers available.

Evaporative humidifiers provide instant in-duct humidification without the use of spray nozzles or atomisers, reducing the risk of droplet inhalation.

Water is prevented from remaining in the humidifier to stagnate through the use of controlled flush and drain cycles. This inhibits microbial growth within the system and combats limescale formation.

These hygiene cycles can either be triggered on a timer or, to reduce water consumption, only when

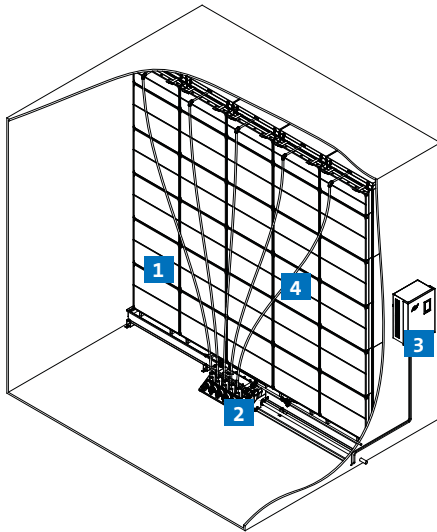
necessary based upon water mineral concentrations or temperature (optional sensors required).

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 the water after it has been exposed to the contaminants in the airstream. It also provides continuous UV sterilisation to the water in the system even when the humidifier is not in use.

Optional water supply line UV or PureFlo Hygiene System are also available.

ME Control system overview

- 1 Evaporative module (flat packed) stainless steel 304
- 2 Fully assembled hydraulic unit with connected cable harness
- 3 Control panel
- 4 Inter-connecting hoses



Options

	ME control	ME direct feed
Submerged UV	o	-
Conductivity and temperature sensor	o	-
Remote fault indication	o	-
Pump fault detection	o	-
Leak detection	o	-
BMS connectivity (ModBus) / BTL Certified BACnet IP/MSTP	s	-
BMS connectivity LonMark Certified LonWorks	o	-
Hydraulic module protective cover	o	-
Freeze protection sensor	o	-
Evaporative module blanking kit	o	o
Hydraulic module external install kit	o	o
In-line silver ion water treatment	o	o
In-line UV water treatment	o	o
Dosing pump (Condair 'Wet')	o	o
Disinfection pump	o	o
Inlet, drain and purge valve kit	-	o
Stage control valves	-	o
Multi-function touch screen control panel	s	-
On/off control panel	-	o
Stage control panel	-	o
Evaporative module pre-assembled (up to certain sizes)	o	o

s = standard o = optional

Evaporative cassette options

Evaporative cassette option	Efficiency (%)	Fire rating	Max air velocity m/s	
			No droplet separator	With droplet separator
Fleece Matrix (polyester)	85	DIN EN 53438 Class F1	3.8	4.5
	95			
Fibre Matrix (glass fibre)	75	Euro Class AS-S2, D0 (UL 900)	3.5	
	85			
	95			

Technical data

Evaporative module dimensions (mm)	Admissible water supply pressure (bar)	Power supply (V / Ph / Hz)	Power consumption (W)	Control panel IP rating
W: 600 - 4,200 H: 625 - 4,000	2 - 5	230 / 1 / 50/60	85 - 536	IP2X