

microniser

Data Center

Adiabatic Humidification and Cooling

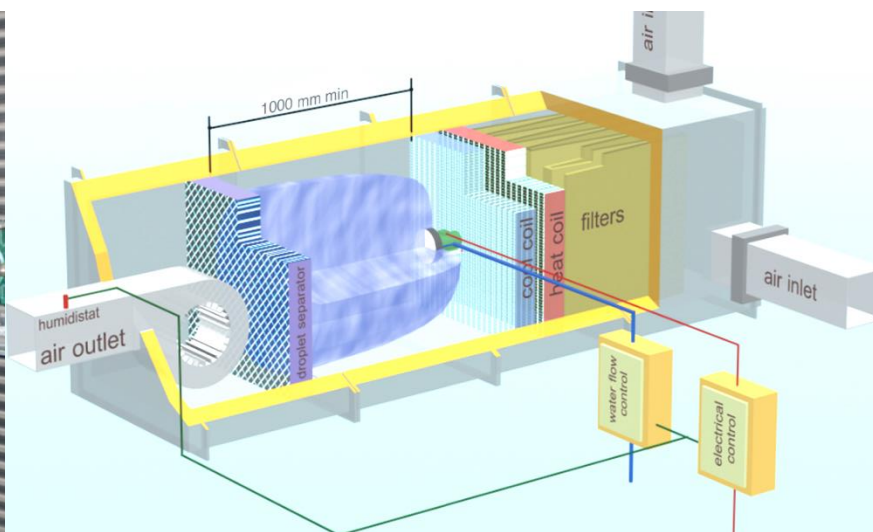
I. Adiabatic = cooling and humidification

The Microniser atomiser consists of a cylindrical mesh cage mounted directly on the axis of the motor. Water is sprayed into fine droplets through the cage rotating at high speed. Mixed with the air to be humidified, these fine particles pass from the liquid state (water) to the gaseous state (vapor) by drawing the energy necessary for evaporation in the treated air.

II. Application areas : Data Center and others

Microniser rotary humidifiers are used for data center cooling as well as for industrial and office applications and also for healthcare facilities or laboratories.

Microniser can be used for direct or indirect adiabatic cooling.



III. Rational use of energy

Microniser is intended for air treatment units from 10,000 m³/h. The Microniser is offered for sale or Full Service and provides substantial water and energy savings.

Without stagnant water or loop circulating water, this solution prevents bacterial development. The Microniser system has a reduced environmental impact recognized by BREEAM.

IV. Regulation : Autonomous or managed by BMS

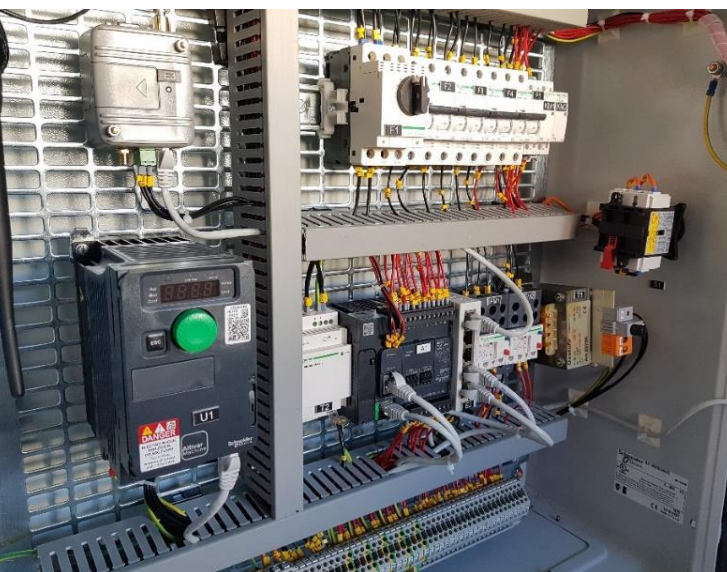
Steam production is set between 0% and 100% by controlling the flow of water spray. It is possible to increase the air humidity directly up to the set value. A humidity sensor, placed at the level of the pulsion duct, allows this setpoint to be followed precisely. The response time is very short and simply depends on the length of the pipe to the atomiser.

The setpoint can be determined internally or be supplied by an external 0-10V signal.

V. Efficiency

As humidifiers without recycling are regulated independently of the dew point, their efficiency is determined by comparing the quantities of water consumed and evaporated. The main parameters influencing the efficiency are: the free humidification distance, the humidity setpoint, the water flow rate, the fineness and homogeneity of the droplets, the distribution of the drops in the air flow, and the drop separator.

Where the best refrigeration machines offer an EER¹ coefficient of 5, Microniser offers an EER coefficient greater than 60! In other words, the energy needed for cooling is divided by 10 with Microniser. In addition, Microniser also makes it possible to regulate the level of relative humidity in order to achieve optimal operating and safety conditions.



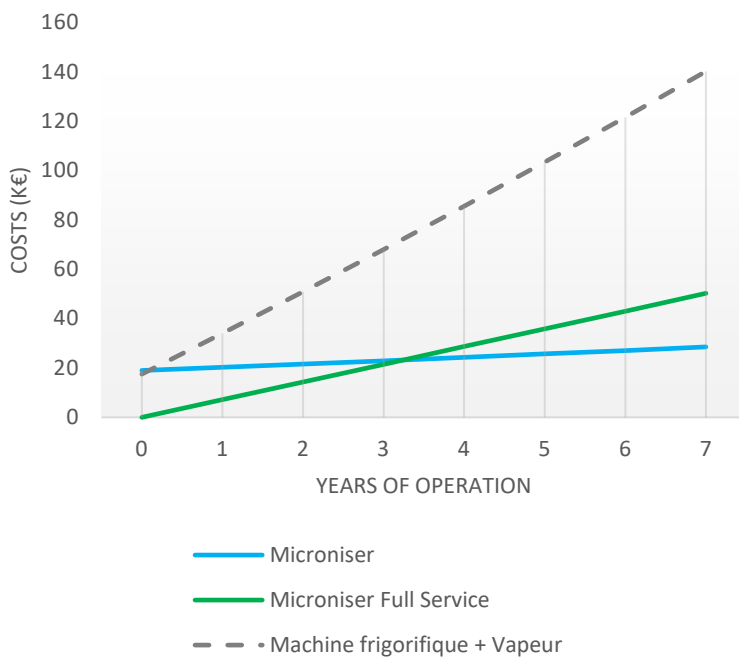
¹ EER : Energy Efficiency Ratio

VI. Financial comparison: advantage to Microniser

The comparison of installation and operating costs for data center cooling and humidification illustrates the financial advantage of the Microniser compared to a refrigeration machine combined with a steam humidification system. The assumptions² are deliberately unfavorable: low flow, short time of use, low temperature decrease, etc.

- Investment: Microniser with ROI <1 year or Full Service without investment.
- Operation: Microniser = low water and energy consumption and low maintenance.

Investment and operation Costs



		Cool machine + Steam	Microniser	Microniser Full-Service
Investment	€	+++	+++	0
Operation	€/y	+++	+	++

Full Service = installation + maintenance + repair + monitoring



Saving water and energy



Zero investment



Reducing the carbon footprint



Monitoring

VII. Water supply

- Demineralized water: recommended to simplify the maintenance of the air handling unit
- Untreated drinking water with maintenance planned accordingly: the minerals present in the water will be dispersed on the walls and the drop separator.

VIII. Humidification box

The humidification section must be waterproof and airtight. It will be equipped with: humidifier; drop separator; access allowing assembly and maintenance; inspection window and IP65 lighting; sloping bottom to a low point fitted with a siphon allowing the rapid and complete evacuation of excess water. The free humidification distance is ideally between 1m and 1.5m.

² Assumptions: operation of 2450 h/year, air flow of 10,000 m³/h, unit inlet (27°C, 50% RH), unit outlet (23°C, 70% RH), untreated water (3.5 €/m³), electricity (0.2 €/kWh), labor (60 €/h), inflation (2%), yield of the osmosis unit (80%), yield of the droplet separator (90%), efficiency of the refrigerating machine (90%). For more details and for a comparison specific to your installation, please contact us at info@microniser.com.

IX. Technical characteristics

Number of atomisers		1	2	3	4	5	6
Maximum steam flow in HVAC	kg/h	75	150	225	300	375	450
Maximum steam flow specific application	kg/h	150	300	450	600	750	900
Electric power	kW	0,3	0,6	0,9	1,2	1,5	1,8
Humidification box							
Standard air flox	m ³ /h	10000	20000	30000	40000	50000	60000
Standard section (H x W)	m ²	1,0	2,0	3,0	4,0	5,0	6,0
Standard lenght (L)	m	1,2	1,2	1,2	1,2	1,2	1,2
Air speed	m/s	0,5 - 5					
General power supply							
Single-phase voltage	V	230					
General circuit breaker	A	16					
General hydraulic supply							
Water intake	Pouce BSP	1/2"					
Inlet pressure (tap water)	bar	1 - 5					
operating pressure (neither pump or compressor)	bar	1 - 2					
Water quality		untreated drinking water or demineralised water					
Regulation							
Relative humidity setpoint	% HR	0-10 V					
Absolute humidity setpoint	0-20 g/kg	0-10 V					
Precision	%	+3%					
Atomiser VG2000 LS							
Design and manufacturing		Made in Belgium					
Patent		Microniser® - Brevet international					
Atomiser dimensions (H x W x L)	mm ³	145 mm x 210 mm x 110 mm					
Atomiser supply by variator		3Φ / 230 V / 1A / 193Hz / 300W / 11800 rpm					
Weight of atomiser	kg	2,9					
Lp: sound pressure at 1m ISO 3744:2010	dB	58,8 dB à 100 Hz; 68,4 dB à 150 Hz; 75,2 dB à 193 Hz					
Lw: sound power ISO 3744:2010	dB	70,5 dB à 100 Hz; 80,1 dB à 150 Hz; 86,9 dB à 193 Hz					
Other characteristics							
Conformity		CE; EN60204-1; EN13849-1; Belgaqua; ISO9001; VCA					
Interface		touch screen + BMS + terminal block					
Tolerated ambient temperature	°C	1 - 50					
Average drop diameter	µm	20 - 30					

