Nodora AirMist

Industrial Grade Gas Treatment with Nodora AirMist

Advanced Gas Treatment with Wet Scrubbing Technology

Nodora

a MELLIFIQ brand

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Elektravägen 53
SE-126 30 Hägersten, Sweden
++ 46 10 252 30 00
www.mellifiq.com

Introducing Nodora AirMist™

Pioneering the future of gas treatment scrubbing

Our cutting-edge technology is set to redefine the industry standards, offering you unmatched efficiency and performance. The Nodora AirMist™ series is Mellifiq's solution in the world of wet scrubbing technology, ideal for applications dealing with complex mixtures of high contaminant loads that must be treated.

The Nodora AirMist™ uses a semi-counter-flow packed bed principle to provide versatile solutions for soluble substances, making it especially suited for situations where space constraints limit vertical scrubber construction.

Each Nodora AirMist™ unit is designed and delivered with integrated components, including spray nozzles, filler elements, a circulation nozzle pump, and automatic chemical dosing systems. Carefully positioned gas entry and exhaust connections ensure maximum retention time within the system, promoting the highest possible gas-liquid absorption rates.

The versatile solution is designed to effectively address a broad spectrum of pollutants and impurities, including but not limited to ammonia, sulfides, phenols, sulfates, and odor control. It can also be utilized for exhaust gas particle or aerosols with over 90% removal rate above 8 um.

BENEFITS

- Versatile semi-counter-flow packed bed technology
- Streamlined integration for ease of installation
- Enhanced gas-liquid absorption for superior performance
- Ideal for areas with limited clean water access
- Seamlessly combines wet scrubbing and ozonation
- Resistant to corrosion with SS316L option

This not only makes the Nodora AirMist™ series ideal for customers facing challenges related to obtaining clean feed water but also elevates the treatment efficiency within a given space.

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Technical specifications

AirMist™ model	A1	A2	A3	B1	B2	B3	C1	C2	C3
Air flow capacity max (Nm³/h)	10,000	12,000	14,000	15,000	17,000	19,000	22,000	24,000	26,000
Nozzle density	2.0	2.5	3.5	2.0	2.5	3.5	2.0	2.5	3.5
Power max internal (kW)*	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
Gas temp max	95 °C								
Pressure loss (Pa)**	20-120	20-170	20-235	20-165	20-215	20-265	20-265	20-315	20-370
Standard pack material	PP								
Pack material (optional)	PVDF, PVC, HDPE, SS								
Standard pack material size (mm)	90								
Pack material size (optional) (mm)	16, 25, 38 or 50								
Connections									
Standard connection sizes Ø (mm)	600	600	600	800	800	800	1000	1000	1000
Connection sizes Ø (optional) (mm)	400, 450, 500, 630, 710, 900, 1120, 1250								
Material									
Standard material	EN 1.4307/ AISI 304L stainless steel								
Material (optional)	1.4404/ AISI 304L stainless steel								
Weight									
Empty weight (kg)***	900	900	900	1650	1650	1650	2300	2300	2300

**includes circulation nozzle spray pumping at max air flow feed, pH adjustment dosing, chemical dosing.*

***Nominal fan pressure loss up to maximum air flow capacity*

****Weight can vary depending on custom specifics and is subject to change in design.*

All data is Nominal at 99% hydrogen sulfide removal from 4,000 ppm at inlet

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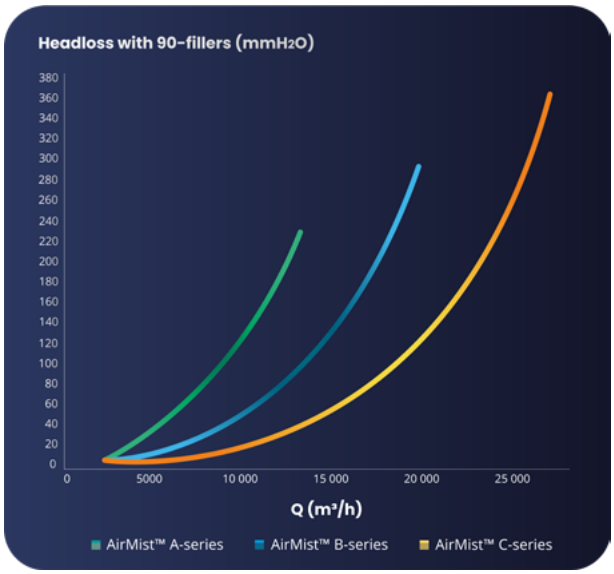
Low pressure drop across AirMist series

The Nodora AirMist™ series stands out for its exceptional efficiency in managing pressure drop. This ensures that our systems maintain optimal performance while minimizing energy consumption, making them a reliable, eco-friendly and cost-effective choice for gas treatment solutions.



Flexible capacity for a wide range of air and gas flows

Nodora AirMist™ is available in three standardized series, A through C, each offering customizable nozzle density configurations to cater to specific airflow and contamination levels. These systems come equipped with automatic pH control, chemical dosing for biofilm prevention, and flexible packing material and sizes from 16 to 90 mm.

The dimensions of each Nodora AirMist™ series have been carefully designed to facilitate easy transportation. Assembly options include modular transport with on-site main parts assembly or a fully assembled unit provided by Mellifiq. Once installed, end users only need to connect utilities such as feed water, drainage, and power.

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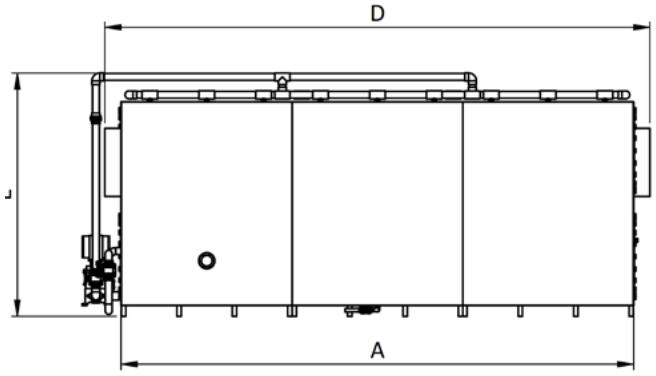
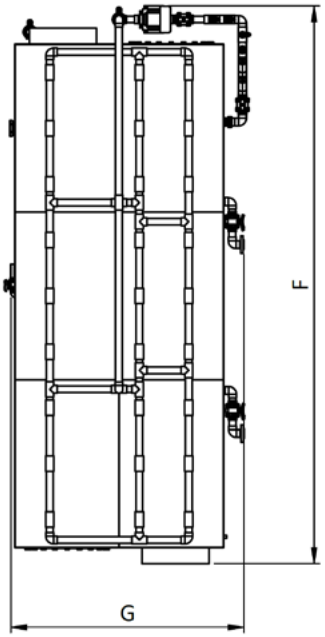
Dimensions

AirMist™ model	A	B	C	D	E	F	G	H
A1 - A3	3600	1600	1800	3900	2065	4100	1800	1325
B1 - B3	4750	2000	2000	5050	2270	5260	2200	1425
C1 - C3	5600	2200	2200	2500	2500	6110	2450	1525

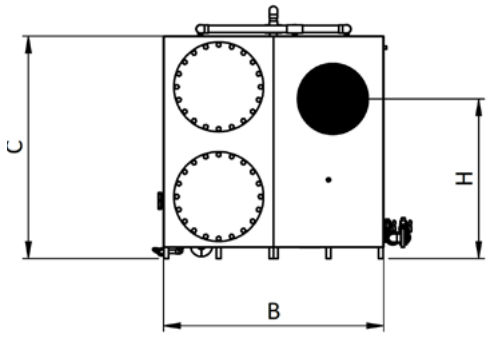
SIDE VIEW



TOP VIEW



FRONT VIEW



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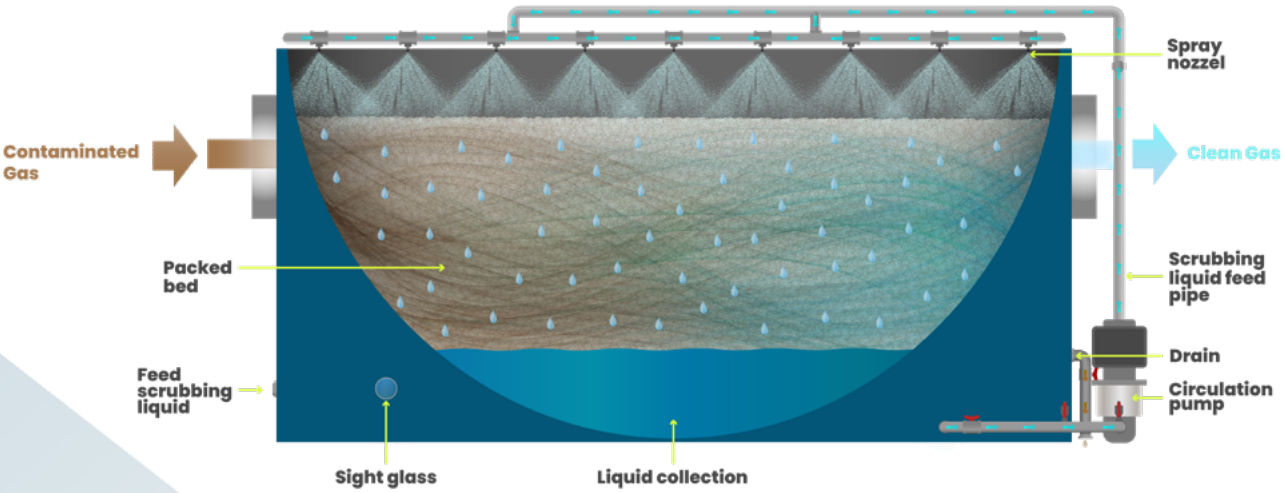
Operational description

Nodora AirMist™ systems use the effective and space effective packed bed design in which the polluted airstream flows horizontally through the packed bed, thereby creating high contact area between the scrubbing liquid and the gas. Particles, VOCs or other pollutants are absorbed by the scrubbing liquid and trickles down to the collector. In our AirMist™ units, the collector is formed by the lower parts of the scrubber with a liquid depth of typically maximum 0.5 m, after which any potential overflow is led to drain. The packed bed height is normally 80% of the scrubber height.

Our Nodora packed wet scrubber systems operate based on the a uniform configuration across all AirMist models.

We utlize an internal circulation loop along with a balanced scrubber liquid feed to maximize liquid-gas mass transfer absorption rates and allows for independent nozzle flows regulation and fine tuned capacity controls. This also enables easy insertion of auxiliary systems such as ozonation or chemical dosing, totally separated from the scrubbing feed and drain rates.



Depending on the type of gas and its pollutant, various scrubbing liquids and pH may be required, where the most common scrubbing liquids are sulfuric acid for low pH for ammonia removal or high pH lime solutions for sulfides.

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Automation and control

Scrubbers are often chosen because of their robust operation and reliable performance. However, some operational target values, depending on the expected results and pollutant type, should be considered.

L/G ratio: the L/G ratio is often crucial in adapting current operating conditions and feed gas. Typically, the L/G ratio, which is the ratio between the scrubbing liquid (L) internal circulation (in L/h) and the gas (G) feed flow (m3/h) is controlled between 3-9. Controlling L/G ratios directly affect the absorption rates where pollutants are transferred from gas phase to liquid phase.

pH: automatic dosing of pH is crucial for achieving a balanced chemical reaction once the gas is scrubbed into the scrubbing liquid.

Chemical dosing: depending on the nutrient and organic content which accumulates in the liquid phase during operation, chemical dosing of biocides may be necessary to prevent microbial growth. Ozonation is a recommended alternative for such situations as additional chlorides or other chemicals will not contribute to further accumulation of dissolved organics or inorganics.

Feed water: inevitably accumulation of pollutants will occur in the scrubbing liquid – the rate of which depends on many factors such as feed gas particulate matter (PM), volatile organics, the level of gas-liquid scrubbing achieved and the feed water rate. Highly contaminated gas will require both higher L/G ratios and fresh feed liquid to avoid microbial growth or clogging.
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Available options and configurations

Type	Standard	Option
Packing media material	PP	PVDF, PVC, SS
Packing media size	90 mm	50 mm, 35 mm, 25 mm, 16 mm
Construction	AISI 304L stainless steel	AISI 316L
Automation	Local pH control including sensors	Central automation with MODBUS TCP, 7" HMI, graphical display with internal L/G controllers, temperature reading, SUM alarm and loggers
Disinfection system	None	Chemical dosing system or ozone system Ozonetech RENA Vivo or Tellus series
Connections	600, 800 and 1000 mm2200	Custom made size upon demand

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About Mellifiq

Mellifiq is a multi-awarded environmental service company group, that has since the early nineties evolved into a world leading system and solution provider with multiple groundbreaking applications for industrial, municipal, and real estate clients. We supply cutting-edge technologies to manage the most sophisticated air, water, and energy challenges.

Mellifiq offers a complete range of air and water treatment technologies and solutions across multiple industries such as processing industry, energy sector, food and beverage, pharmaceutical, wastewater treatment and commercial real estate.

Mellifiq offers strong and renowned brands, such as Ozonetech, Nodora Water Maid, Saniray, Axolot and world-class engineering services combined an excellent track record of more than 40 years of innovation. We help our clients achieve the most efficient and sustainable solutions while creating the maximum value for their businesses.

With several business units across Europe, Mellifiq is headquartered in Stockholm where research and development, production, QA and certification all take place. Our unique technology and our extensive expertise have made us the Center of Excellence for the world's most complex projects, and a global player with installations on all six continents.

Everyday millions of people rely on our solutions for ventilation, disinfection, sanitation, and odor control. We are committed to raising the bar for the concept of clean and the industry standard for engineering, technical services and general contracting.

For additional information, visit our website at www.mellifiq.com

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