

Waste & Water Treatment

Major U.S. municipalities facility upgrading water production to meet surging demand. Health department inspection requirements turn to Aerovent for emergency water plant construction projects.



Water rationing and raging wildfires during summer months, along with strict health department regulations, lead regional water treatment facilities to Aerovent to help them operate safely and efficiently.

Running a water and wastewater treatment facility can present many challenges, especially when the facility is faced with the added burdens of water rationing plans, raging wildfires that must be quickly extinguished, and strict health department regulations that must be met to receive an operating permit.

THE CHALLENGE

Gases and chemicals present in water and wastewater treatment facilities can cause corrosion, equipment failures, unsafe working conditions (even explosions), plant shut-downs, and increased maintenance and operation costs. The air handling systems and ventilation equipment used in these installations must be designed to meet this challenge. Generally, standard commercial grade HVAC equipment is not suitable for these types of corrosive environments.

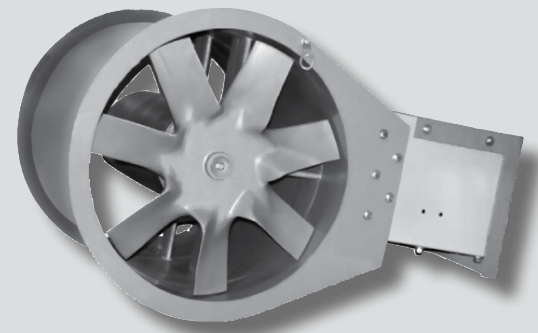
THE AEROVENT SOLUTION

Aerovent's fiberglass axial TF fans are ideal for forced draft aeration and dilution ventilation. A 2-million gallon ground reservoir with six Aerovent 43" TF fans can exhaust a total of 120,000 CFM. The TF fans are sized to exhaust one air change per minute, based on average high and low water levels inside the tanks. Fresh air is drawn through screened aerators and overflow vents. Large volumes of fresh air mix with the aeration process to dilute and substantially reduce corrosive gas levels. In addition, fans can be staggered to distribute air and eliminate condensation and corrosion on interior tank surfaces.



Water Treatment Plant

Type TF Fiberglass Axial Fan
with FRP 7-bladed propeller

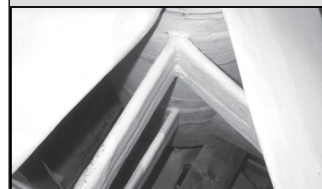


Performance

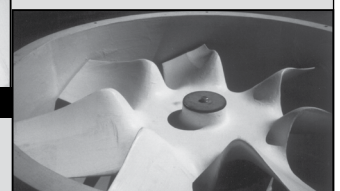
Airflow from 1,980 to 83,200 CFM
Static pressure to 2.5" w.g.

Manufactured Sizes

12" to 60" wheel diameters



Solid Fiberglass Construction



FRP Propeller

THE CHALLENGE

A second challenge is strict health department requirements that must be met for the plant to receive an operating permit. One of these requirements is that tank vent fans must be “insect-proof” since insects can introduce disease into the water. Fans must also be rust resistant to ensure structural integrity and to avoid rust streaks on the facility’s exterior.

To meet the insect-proof requirement, fan curb base and exhaust damper specifications require continuous, insect-proof neoprene gaskets mechanically fastened with 316 stainless steel hardware to pass inspection. Adhesives are not acceptable because gaskets have fallen off and into tanks in the past. Aerovent fans meet these specifications and also include a special insect-proof gasket arrangement.

THE AEROVENT SOLUTION

To ensure rust resistance, Aerovent fans are constructed of all fiberglass with type 316 stainless steel shaft, motor pedestal, motor slide base, lube lines and hardware inside and out. Other commercially manufactured products use coated or encapsulated steel, which can cause rust to occur more quickly and cause exterior rust streaks.

For easy access to the fan’s propeller, shaft seals and bearings for maintenance and repair, Aerovent uses Type 316 stainless steel collar washers and bolts to secure the propeller. This construction isolates the bearings from the corrosive exhaust air and maintains its “insect-proof” integrity. It also avoids the problem of cracked fiberglass, fan imbalance and corrosion that can occur when resin coatings must be removed or a hub has to be pulled away from a shaft to gain access.

Features Overview

- ▶ TF fans provide rust-resistant all-fiberglass construction and 316 stainless steel shaft, motor pedestal and base.
- ▶ Aerovent tank vent TF fans feature a specially designed insect-proof gasket arrangement.
- ▶ 316 stainless steel fan shafts and bearings are oversized to provide extended operating life.
- ▶ Vertical upblast design discharges exhaust air into wind at high velocities for further dilution.
- ▶ Fan bases are curved to reduce pressure losses and corrosion due to fan inlet velocities.
- ▶ Flanges are turned out so that bolted fan connections are weatherproof and out of the airstream.
- ▶ Fan color is matched to building color by pigmenting the fiberglass resin instead of painting (avoids chips loosening or discoloration of fan).



THE INDUSTRIAL CHOICE

Aerovent’s engineering and manufacturing capabilities and industrial quality products have made us the best solution for the most difficult and demanding ventilation problems presented by water and wastewater treatment facilities. Aerovent’s knowledge and expertise in applying the right fan to each customer’s unique situation has made it a leader in its field and has produced an impressive 85 year track record.



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