

## Pulp and Paper Process Wastewater Treatment



# Aeration and mixing technologies ideal for wastewater treatment



## Heavy Water Demands Create Strong Need for Treatment

Pulp and paper production generates roughly 53,000 gallons (200 m<sup>3</sup>) of wastewater per ton of product. Wastewater characteristics vary widely depending on the process used. Common craft processes produce wastewater laden with suspended solids, BOD/COD, nitrogen and phosphorous, and chlorinated organics (from the bleaching process).

## Proper Aeration is Key to Effective Treatment

Conventional wastewater treatment processes include aeration and mixing within basins and lagoons and aerated activated sludge processes employing biofilm carriers and membrane technologies. Many pulp and paper plants focus their treatment efforts to produce re-use quality effluent, thereby reducing their water demand and environmental impact.

## Aeration and Mixing Technologies to Meet the Demand

Fluence offers aeration and mixing technologies well-suited to treat pulp and paper process wastewater.





## Tornado® Family of Surface Aerators

The Tornado aerator provides superior subsurface directional mixing and oxygen dispersion to wastewater bodies. The intense action of the aerator shears wastewater solids to increase treatment performance by enhancing the surface area for oxygen and bacteria contact.

- 2 - 100 HP (1.5 - 75 kW)
- 1800 rpm at 60 Hz (1500 rpm at 50 Hz)
- Grease-lubricated sealed bearings are ideal for high concentrations of solids, grit, and sand
- Solid shaft; vibration-free design
- Low maintenance and patented replaceable modular seals
- Tapered roller bearings prevent aerator shaft vibration and absorb propeller thrust loads
- Self-heating bearing design is ideal for cold climate locations
- Available in standard 304 stainless steel and optional 316 stainless steel construction
- Premium efficiency motor is designed to work with soft start VFD controllers to eliminate power surge penalties and reduce energy costs
- Blower-assisted models are available for high oxygen demand applications.

## Twister® Low-speed Surface Aerators

Twister aerators are designed for long-term continuous operation in the most challenging and heavily-loaded industrial applications.

Twister technology optimizes the spray of water droplets to generate some of the highest oxygen-transfer rates of any mechanical aeration system. The Twister is ideal for activated sludge, oxidation ditch, and extended aeration applications.

- 5-100 HP (3.75 -75 kW) Models
- 40-100 rpm at 50 or 60 Hz
- Flexible mounting options: stainless steel floats, bridges, and platforms
- Minimum 2.0 gearbox safety factor ensures long life
- Floating fiberglass-reinforced rotor
- All bearings are roller-type; standard units are dip or splash oil-lubricated.



Pulp and Paper Wastewater Treatment Challenges	Fluence Equipment Advantages
Harsh environment due to organic materials or chemicals causes corrosion	All components, including floats, are 304 stainless steel construction—no galvanized parts; 316 stainless steel is available as an option. The Tornado features sealed grease-lubricated bearings that are not exposed to wastewater.
High solids concentrations	Aeration equipment provides intense horizontal mixing, maintaining solids in suspension and providing deep aeration and mixing action.
Foul odors	Surface aerators create an air cap at the water's surface and provide aeration and mixing below the surface, reducing foaming and eliminating splashing or spraying (Tornado only).
Harsh wastewater environments	Fluence aerators are designed for harsh wastewater conditions. Industrial-grade, chemical-duty and explosion-proof motors are available as an option and are designed to withstand high temperatures associated with some processing applications. Corrosion - and UV-resistant stainless-steel construction ensures long-lasting performance.
Energy-intensive treatment	Premium efficiency motors, turn-down capabilities, and smart aerator technologies.
Maintaining treatment equipment	Aerators are easy to install, require little maintenance, and some models are accessible at the surface with no draining or dredging necessary for regular maintenance.



*TORNADO® Self Aspirating Aerator*



*TWISTER® Low Speed Aerator*

# Our Promise to You

Fluence has designed and built our aeration equipment in the US since 1987. We devote our full effort to support the needs of plant operators, consulting engineers, and contractors with premium technology solutions for your wastewater treatment challenges—worldwide.

## Fluence Has Your Back Every Step of the Way

We offer leasing arrangements to reduce your capital expenditures and to provide you with a low-cost method to evaluate our technology in your application. Our program also includes generous lease-to-purchase terms.

We provide high-quality spare parts for our equipment and products. Buying spare parts from Fluence benefits you by offering:

- Full warranty
- Reduced downtime and maintenance requirements
- The right fit and performance with original equipment
- The opportunity to upgrade equipment with the latest innovations

Extended equipment life while maintaining equipment value.

## Our certified field service technicians provide:

- Start-up and commissioning assistance
- Inspection, operation, and maintenance services and training
- Installation, supervision, and project management
- Remote monitoring when employing our Smart Operation software
- Technical, process optimization, and plant upgrading support.

## Applications

- Aerated lagoons
- Aerated tanks
- Digesters
- Equalization basins

## Industries

- Paper mills
- Packaging
- Cardboard

Contact the parts department at +1 (763) 746-9288 or [aerationparts@fluencecorp.com](mailto:aerationparts@fluencecorp.com).

Check out our full range of aeration and mixing technologies at <https://www.fluencecorp.com/aerators/>.

## About Fluence Corporation Limited (ASX: FLC)

Fluence is a leader in the decentralized water, wastewater and reuse treatment markets, setting the industry pace with its Smart Products Solutions, including Aspiral™, NIROBOX™ and SUBRE. Fluence offers an integrated range of services across the complete water cycle, from early stage evaluation, through design and delivery to ongoing support and optimization of water related assets, as well as Build Own Operate Transfer (BOOT) and other Project finance options. With established operations in North America, South America, the Middle East, Europe and China, Fluence has experience operating in over 70 countries worldwide and enables businesses and communities worldwide to maximize their water resources.



[info@fluencecorp.com](mailto:info@fluencecorp.com) • [fluencecorp.com](https://www.fluencecorp.com)



Value from Water