



Tornado[®]

SURFACE ASPIRATING AERATOR



Powerful and reliable, self-aspirating surface Tornado aerators are used to upgrade lagoon systems and expand the treatment capacity of mechanical wastewater treatment plants.

Tornado surface aspirating aerators improve aeration and mixing in a wide range of applications.

Tornado provides high oxygen transfer and intensive mixing capabilities in a wide range of applications. The Tornado aerator's turbulent directional mixing and jet propulsion discharge assures that oxygen is quickly blended with

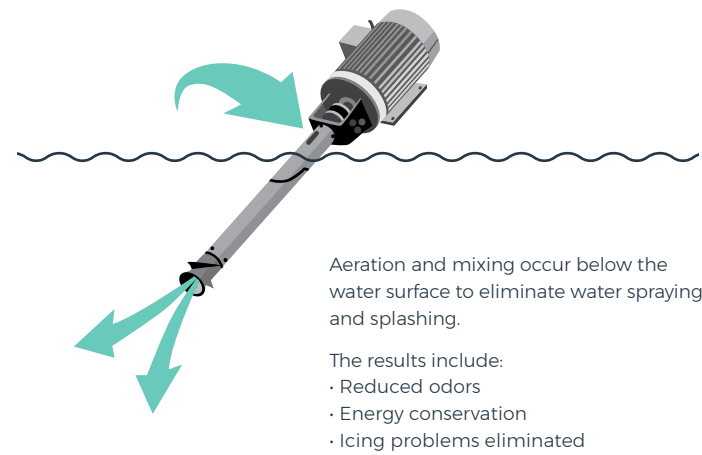
the wastewater for unmatched oxygen transfer. The intense action of the jet propulsion shears wastewater solids to increase treatment performance and provide better contact for the oxygen and wastewater bacteria.



Principle of Operation

The Tornado aerator mounts at an angle in the water with the motor and air intake above the surface and the propeller submerged below the water. The solid motor shaft spins a proprietary stainless steel propeller. Water moves at a high velocity through and near the propeller, creating a low pressure zone at the hub. The low pressure zone draws air in through the stationary intake and down the large diameter draft tube. The air exits into the water at the propeller hub. Turbulence and flow created by the propeller breaks up the air bubbles, mixes the basin, and disperses oxygen.

Air enters the Tornado through the opening in the draft tube



Rugged Construction

Harsh wastewater environments require tough, rugged materials designed for longevity and reliability in extreme environmental conditions. The Tornado's sealed, grease-lubricated bearings allow the aerators to be used in applications with high amounts of solids, grit, or sand and in leachate treatment. The two tapered roller

bearings securely support the aerator shaft, preventing vibration and taking up all propeller thrust loads. The roller bearings are designed for up to 100,000 hours of service life. The unique self-heating bearing design allows the system to be installed in cold climates and operate year-round.

Stainless Steel Components

Durable stainless steel floats are unmatched in the industry and ensure the aerator remains buoyant for its full life, even in the harshest of environments. Proprietary engineering

ensures that the aerator runs properly throughout its service life, without time-consuming maintenance.

Reduced Energy Costs

Every Tornado aerator is equipped with a premium efficiency motor to reduce energy costs. Larger motors are designed to work with soft

start or Variable Frequency Drive (VFD) controllers to eliminate power surge penalties and reduce energy costs.

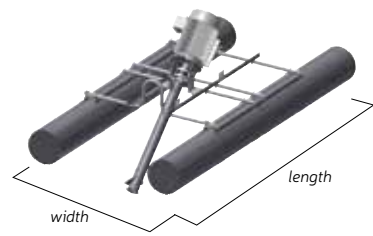
Key Technical Features

- Available horsepower range: 2-100 hp (1.5 kW-75 kW)
- Operational speed: 1800 rpm at 60 Hz (1500 rpm at 50 Hz)
- Premium efficiency (TEFC) motors
- 304 stainless steel (standard) or 316 stainless steel (optional) construction
- Grease-lubricated bearings and a solid shaft ensure a vibration-free design

Markets and Industries	Suitable Applications
• Municipal Wastewater Treatment • Aquaculture • Wineries & Breweries • Chemical Processing • Pulp & Paper Mills • Textile • Oil & Gas • Mining • Dairies • Food & Beverage Processing	• Activated sludge basins • Sludge holding tanks/digesters • Oxidation ditches • Lagoons • Post Aeration • Odor and algae control/air cap • Ice control • Leachate treatment

Tornado® Specifications

hp	kW	60 Hz Motor rpm	Motor FLA 460V	50 Hz Motor rpm	Motor FLA 380 V	Ship Weight lb (kg)	Pontoon System Available	Pontoon System	Length in (cm)	Width in (cm)
2	1.5	1730	3.1	1425	3.7	118 (54)	a, b	2-Float (a)	72 (183)	70 (177)
3	2	1745	4.0	1450	4.8	161 (73)	a, b	4-Float (b)	145 (368)	70 (177)
5	4	1750	6.5	1445	7.9	169 (76)	a, b	6-Float (c)	145 (368)	105 (267)
7.5	5.5	1750	9.4	1445	11.6	225 (102)	a, b	8-Float (d)	145 (368)	105 (267)
10	7.5	1750	12.4	1445	15	248 (113)	a, b			
15	11	1760	18.6	1450	22.6	407 (185)	b, c			
20	15	1760	23.5	1450	31.4	492 (223)	b, c			
25	18.5	1770	29.6	1460	35.2	539 (244)	b, c			
30	22	1770	35.5	1460	42	541 (245)	b, c			
40	30	1770	47.1	1460	55	730 (331)	b, c			
50	37	1770	59.2	1460	68	914 (415)	c, d			
60	45	1775	69.4	1465	83	1146 (520)	c, d			
75	56	1775	86.2	1465	103.5	1219 (553)	d			
100	74.5	1780	114	1480	135	1353 (1353)	d			



Available Accessories

- Anti-erosion shields to prevent erosion in shallow (clay or earthen) basins
 - Anti-vortex shield if vortexing occurs or if an aerator is operated below the standard 45 degree angle of operation
 - Low-level legs to prevent damage to basin or equipment when waterlevels drop below three feet
 - Walls and bridge mounts for mounting flexibility
 - Swing arms to accommodate up to 15 feet of fluctuations in water elevation
 - Maintenance decks built on pontoon platforms for easy servicing access
 - Automatic grease lubrication equipment to reduce maintenance
 - Blower add-on kit accessory to convert to blower-assisted operation
- Rental units also available



The Blower Assisted TORNADO Aerator is used for wastewater treatment applications that require a higher level of oxygenation. A blower is added to the self-aspirating aerator to force additional air down the inlet hole. The blower uses a small motor, typically from 2 to 10 HP (1.5kW to 7.5 kW), that inputs more oxygen as compared to a standard Tornado aerator. The Tornado Blower-assist aerator mounts at an angle on floats or can be wall-mounted. The motor and air intake is above the surface and the propeller is submerged beneath the water.



Fluence is Your EXPERT

With thousands of installed units around the world, Fluence is your expert provider for wastewater treatment solutions. We offer all major wastewater aeration technologies and the expertise to help you select and apply the equipment best suited for your application. Our technical experts are ready to assist you with the proper sizing, layout, and operation of your aeration system.