

# SUPERIOR AERATION SOLUTIONS

*Custom Aeration Systems Tailored to Your Process*



**PHILADELPHIA  
MIXING  
SOLUTIONS**



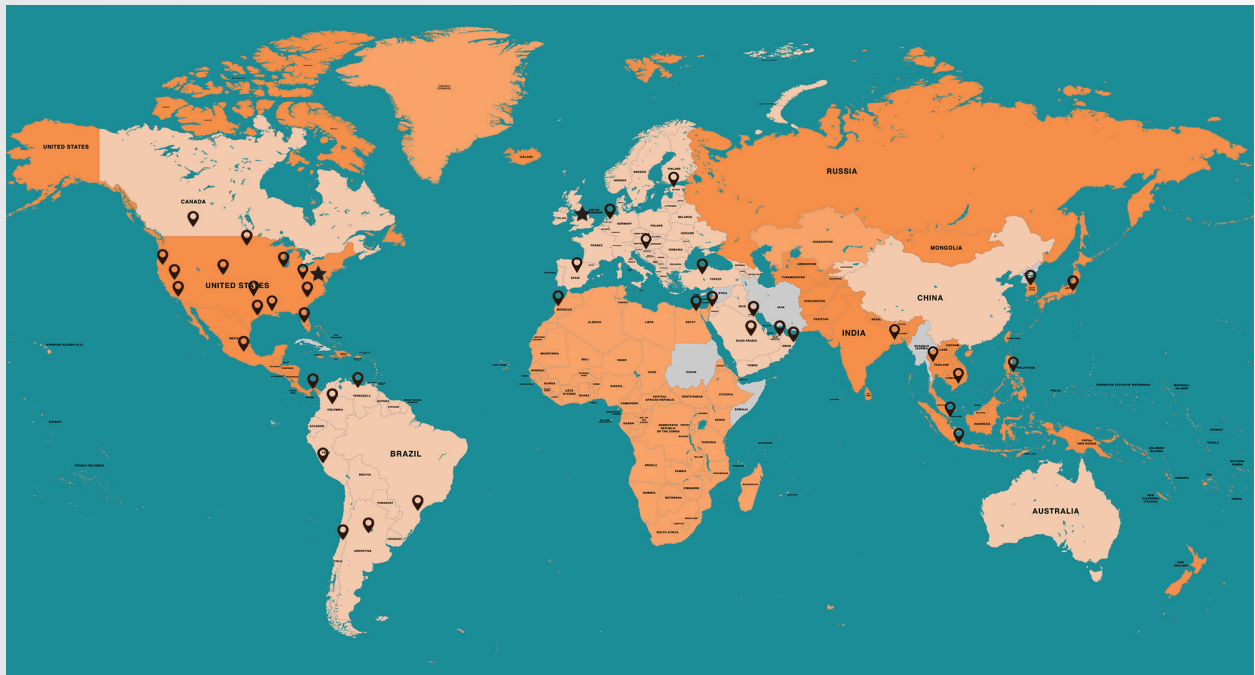
**MIXING  
SOLUTIONS  
LIMITED**

## MISSION: BE THE CUSTOMER'S FIRST CHOICE IN MIXING

## Technical Agitation and Mixing Solutions On-Call

Philadelphia Mixing Solutions, Ltd™ and its subsidiary Mixing Solutions Limited™ lead the industry in providing customers with improved agitation and mixing processes for their mission-critical mixing operations. Backed by over 60 years of industry experience, and with a rich tradition of technology going back to our roots with the original Philadelphia Gear Corporation, our technicians can analyze, design and implement superior mixing operations in a wide variety of agitation applications.

We are a process solution focused company. From high-viscosity non-Newtonian environments to rapid blending and agglomeration, Philadelphia Mixing Solutions and Mixing Solutions Limited can help customers optimize their operating performance. The result—greater throughput, higher quality and lower energy consumption that improves bottom line performance. With manufacturing locations based in the United States and United Kingdom and representatives worldwide, we provide local support for your global operation.



★ Manufacturing facilities

📍 Regional offices

## Markets

- Water & Wastewater
- Oil & Gas
- Chemical
- Mineral Processing
- Power Generation
- Paints & Coatings
- Pulp & Paper
- Food & Beverage
- Phosphoric Acid





# PROVIDING THE RIGHT SOLUTION FOR YOUR PROCESS.

With multiple options for robust, reliable aerators offering flexible operating capabilities, Philadelphia Mixing Solutions can tailor an aeration system to meet the needs of any plant. For increased treatment requirements in existing plants, Philadelphia Mixing Solutions offers products to keep up with the additional capacity without increasing horsepower.

Whether a small industrial waste pretreatment facility or one of the world's highest capacity municipal wastewater treatment systems, Philadelphia Mixing Solutions will provide a reliable, cost-effective solution using proven, cutting edge technology. We utilize Bio-Win™ software to model the influent parameters, treatment process, and effluent results of your process, and to guarantee the performance of our solution.

## Activated Sludge and Lagoon Treatment Solutions

Our directional aeration and mixing solution for lagoons provides an advanced biological waste treatment program to reduce odor and surface foam. When specified, the process can control targeted deposition and provides the lowest overall cost of aeration operations in the industry.

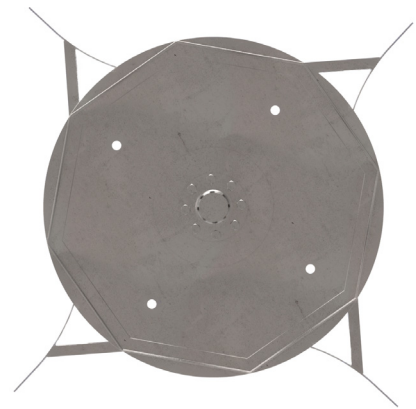
Philadelphia Mixing Solutions offers three aeration solutions for in-tank and lagoon based municipal and industrial wastewater systems:

- Low-Speed Surface Aeration
- Submerged Turbine Aeration

# TALON™ 4RC IMPELLER

Talon, our low speed surface impeller, is the most efficient impeller on the market today. Used in conjunction with a purpose-built mixer drive, our low-speed surface aeration solution maximizes oxygen transfer, eliminates performance reduction over time due to fouling, and provides the following advantages:

- Applicable and adaptable to most aeration operations allowing Talon to be easily retrofitted to existing aeration basins
- Capable of more transfer using less power vs. competitive options
- Provides a higher tangential component of velocity to achieve better mixing
- Maintains high transfer efficiency as output speed is decreased, ideal for variable frequency drives (VFD)
- Significantly improves oxygen transfer compared to traditional designs
- Suited for use in both atmospheric air and high purity oxygen environments with maximum efficiency
- Zero in-tank maintenance
- Anti-ragging design



## A Mixing Solution for Diffuser-based Tanks: ARI-2 Anti-Ragging Impeller

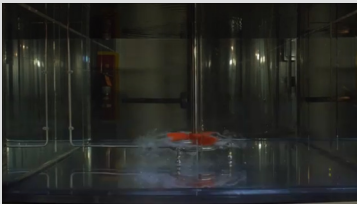
Philadelphia Mixing Solutions offers the ARI-2 impeller in order to provide supplemental mixing and eliminate over-aeration in tanks that use diffuser technology. The ARI-2 impeller can be fitted over the existing diffuser bed. Its high-efficiency hydrofoil design provides suspension of wastewater solids with minimum surface motion in the tank while minimizing the transfer of oxygen and increasing overall system efficiency.



# GDX IMPELLER

Our Submerged Turbine Aeration (STA) system in water and waste water treatment plants combines our GDX Impeller with a sparge ring to disperse gas and feed oxygen to the biology. The anti-ragging GDX impeller was designed to optimize the process requirements with the impeller performance and is especially suited for swing zones which need to operate with both the air on and off.

- Allows for fine-tuning of the process through the combination of the GDX impeller and the sparge ring. The GDX impeller provides necessary mixing and dispersion, while the airflow rate through the sparge ring can be adjusted to provide optimal oxygen transfer for ideal process performance.
- Optimal for smaller tank applications
- Anti-ragging design prevents impeller from collecting fibrous rags found in waste water treatment plants which cause the mixing system to fail.
- Easily retrofitted to existing tankage



Submerged Turbine Aeration provides the maximum process flexibility by uncoupling mixing and aeration. The GDX impeller provides the necessary mixing at all times, while also ensuring that the varying air flows provided through the sparge ring assembly are effectively and efficiently dispersed to maintain the entire tank's dissolved oxygen concentrations at the desired operating level. From fully anoxic operation to maximum airflow and aerobic performance for high load treatment conditions, GDX equipped submerged turbine aerators meet the need with efficiency and reliability.

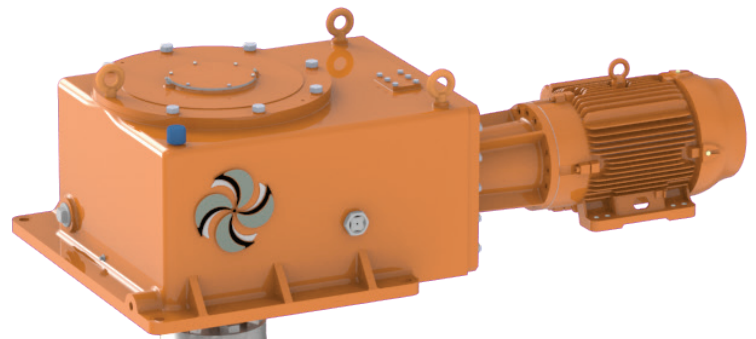


# MIXER DRIVES

Philadelphia Mixing Solutions Limited offers purpose-built mixer drives that work with all three types of impellers and are customized to fit each client's individual needs. Our in-house experts will study your process thoroughly and specify the optimum drive for your application.

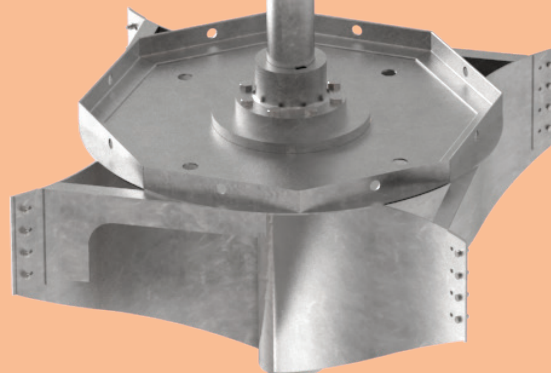
## RAVEN 3800™ SERIES: LONGER LIFE, GREATER RELIABILITY

- Commonly used in top-entry applications
- Withstands high temperatures, harsh conditions, and fluctuating loads
- Provides long, reliable, trouble-free service
- Multiple mounting configurations available
- Designed for quiet operation
- Self-lubricating which eliminates the need for external lubrication kits
- Inspection windows in mixer housing allow for convenient internal inspection without motor or end plate removal
- Extra gusseting provides longer bearing and gear life
- Drywell design eliminates oil leaks from the output shaft



Raven 3800 Series  
Mixer Drive with  
Talon 4RC Impeller

The Talon 4RC Low Speed Surface Aerator Impeller is specifically designed for low speed aeration to provide optimum surface turbulence and oxygen transfer, and also provide optimum liquid phase mixing.



# MIXER DRIVES

## PSA/PVE™ 12-16 SERIES: EXTREME HEAVY DUTY PERFORMANCE

- Option of independent drive or integral shaft driven forced lubrication system provides reliable lubrication across a wide range of operating speeds and allows for maximum energy savings
- Infinitely adjustable impeller location through an adjustable output shaft provides performance optimization and the ability to respond to changing conditions while eliminating the need to enter the tank or the risks associated with jack stud arrangements
- AGMA quality 10 carburized and ground helical gearing deliver quiet operation, long life, and maximum operational efficiency
- Oversized drive sleeve and output bearings provide maximum life with the ability to absorb higher shock loads and high bending moments without the need for supplemental bearings and/or complicated connecting arrangements
- Stand, beam, and baseplate mooring options allow for retrofit capabilities with nearly any aerator installation
- Adjustable manometer seal compatible design allows mixer drive to be used in high purity oxygen and other environments where simple, reliable sealing is required

The Talon 4RC Impeller provides optimum liquid phase mixing to ensure that oxygen depleted liquid is recirculated to the mass transfer dispersion area in the most efficient manner, thereby maximizing the aeration efficiency or oxygen transferred for a specific energy input.



Philadelphia Surface  
Aerator (PSA) with  
Talon 4RC Impeller



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