Corporate Overview & Capabilities
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.

Markets

- Chemical
- Oil & Gas
- Water & Wastewater
- Mineral Processing
- Power Generation
- Paints & Coatings
- Pulp & Paper
- Food & Beverage
- Phos Acid
CHEMICAL ENGINEERED SOLUTIONS

For the process engineer, new product processes present challenges in heat transfer and mass transfer and other challenging process kinetics requiring more sophistication than the repurposed equipment being used to produce them. Philadelphia Mixing Solutions has a track record in modelling, designing and deploying new mixing solutions, beyond reconfiguring equipment onsite, in a wide variety of demanding applications.

THE DEMANDS OF INNOVATION

The specialty chemical industry is surging on the strength of new abundant supplies of oil and natural gas derivatives. As new compounds are discovered, the demands on the mixers grow increasingly complex and economically challenging. Process engineering groups, process efficiency experts and operations teams are regularly challenged to produce new end products using the same mixing facilities. We can be a partner in developing and deploying new solutions to meet the test of chemical product innovation.

Our process review capabilities include:

- Polymerization
- Fermentation
- Heat transfer processes
- Hydrogenation
- Multi-phase reactors
- Crystallization
- Alkalization
- Mass transfer limited processes
PETROLEUM STORAGE MIXERS FOR 21ST CENTURY OIL STORAGE NEEDS

Petroleum storage is a particularly challenging mixing environment requiring constant blending to keep water and particulates in suspension while successfully combining different grades of crude oil into uniform consistency for shipment. All this while the mechanical equipment is operating exposed to the outside environment including high heat and extreme cold depending on the location.

Philadelphia Mixing Solutions developed and patented a breakthrough impeller design specifically for the challenging petroleum storage environment. The impeller was reshaped into a forward circular rake configuration that produces a superior directional or collimated flow inside the tank. The flow is strong enough to reach across even the largest storage tanks with a velocity sufficient to lift solids off the tank floor and provide complete mixing with fewer mixers.

SUPPORT SERVICES

• Modelling to exactly depict the specific mixing process requirements using Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD) and Flow Field Analysis using Particle Image Velocimetry (PIV).
• Scale-up testing of increasingly larger equipment and mixing solutions from pilot 5–100 gallons (19–378 liters) to full scale up to 750,000 gallons (2.8 million liters).
• Load and vibration testing to ensure field performance on a full production scale.
• Field service and commissioning support for a successful deployment after delivery.
• Mixing training to keep the teams responsible for uptime aware of best practices. Continuing education credits are available.
• Full Inspect & Repair program to determine root cause of failure. Detailed reporting allows the customer to choose the appropriate repairs for operational needs.
• Drive exchange program to reduce downtime by ensuring that there is a spare drive waiting to go when needed.
For over 60 years we have been an industry leader in aerobic and anoxic waste treatment. The solutions use a high torque, low horsepower equipment package that reduces energy requirements in the waste treatment plant. Philadelphia Mixing Solutions and Mixing Solutions Limited specially designed gearboxes have operating lives calculated in decades. The in-tank impellers operate at industry leading efficiencies for more complete mixing and full biological activity promotion. The result is clean clear water ready for release into the environment.

In industrial applications, we have built on a long history of wastewater treatment and have a wide range of process oriented solutions, including our Raptor 4002 series, engineered for open lagoons. The Raptor—a subsurface aerating mixer that promotes suspension of solids, thereby increasing the lagoon volume/retention time. Increased retention time provides more complete treatment.
MINERAL PROCESSING

We rely on our rich history of supplying the global mining and mineral industries with the highest quality agitation equipment. We understand that in mineral processing plants, an improved leach efficiency means higher yields.

Our industry process experts take an application-focused approach. They work with you to understand what drives your process and your desired outcome. Our rugged Raven 3800 series and PVE series drives combined with expertly sized impellers for optimal process performance deliver results.

Applications:
- Pressure leach hydrometallurgical processes
- Atmospheric leach applications
- Solvent extraction
- Crystallizers
- Flotation units
- Various reactor duties
- Bio-oxidation
- Slurry storage and transport

Markets:
- Gold
- Copper
- Base metals
- Uranium
- Iron ore
- Phosphates
- Potash
- Light metals
- Platinum group metals
- Alumina
- Phosphoric acid
- Sulfuric acid

PHOSPHORIC ACID

Our mixing solutions for Phosphoric Acid provides complete solid suspension for full chemical reactions. Our advanced impeller and process technology has resulted in drastically reduced gypsum accumulation in attack tanks.

INDUSTRY STANDARD

STARTUP | 6 MONTHS | 12 MONTHS | 18 MONTHS

OUR SOLUTION

STARTUP | 5 YEARS | 11 YEARS
PROCESS SOLUTIONS TAILORED TO THE CUSTOMER’S SPECIFIC NEEDS

No two blending and agitation operations are the same. Off-the-shelf equipment options will not be able to fully meet customer needs. At Philadelphia Mixing Solutions and Mixing Solutions Limited, the answers start with the customer’s specific blending operations. At our worldwide technical center, experts with over 200 years of agitation experience are ready to work on specific blending challenges. A fully instrumented pilot facility can process customer blending samples to measure, characterize and model a specific fluid in a blending environment. The mixing process rheology and flow are evaluated against agitator input power, torque and impeller tip speed to produce the best output rates and quality. The result is a custom solution that truly meets the customer’s process requirements.

COMMITMENT TO QUALITY

In today’s environment, quality has become a minimum expectation of doing business. Philadelphia Mixing Solutions uses the ISO 9001:2008 system to ensure that you always receive the highest quality products along with traceable quality documentation for verification of compliance to your requirements. All mixers are built to CE safety standards. Our equipment can be supplied in accordance with ATEX.

COMMITMENT TO EXCELLENCE

We believe excellence is an integral part of good customer service. We have rapid response capabilities, a quick assembly and test operation, and standard product lines with the ability to customize using our in-house engineering capabilities to meet your project requirements. All of this is offered with a focus towards on-time delivery.

CORPORATE RESPONSIBILITY

We seek to help our customers meet their corporate responsibility goals through designs that reduce energy consumption and carbon footprint, minimize waste and promote clean water and air.