



Mechanimix

SIDE ENTRY AGITATORS

Professional Mixing Technologies

Side-Entry Agitator Series



VMG

- Compact vertical gearmotor design and ideal where installation space is limited
- Simple mounting and easy alignment
- High gearbox efficiency with a space-saving layout
- Delivers consistent, stable mixing performance
- Widely used in chemical, food, and storage-tank applications
- Ensures reliable homogenization in demanding processes



HMG

- Gear-driven system delivering high torque and excellent energy efficiency
- Smooth power transmission with reduced noise and vibration
- Long service life in heavy-duty, continuous operation
- Ideal for demanding applications in petroleum, petrochemical, and mining
- Provides continuous, robust performance in critical mixing processes



HMB

- Reliable belt-and-pulley drive offering simplicity and flexibility
- Low maintenance costs thanks to a practical design
- Easy speed adjustment to meet different process requirements
- Quiet operation with smooth performance
- Cost-effective solution for continuous mixing
- Quick belt changes minimize downtime and improve efficiency



Applications of Side Entry Agitators

Professional Mixing Technologies

Chemical Industry

- Mixing acids, alkalis, and solvents in large storage tanks
- Dissolving powders or solid additives into liquid chemicals
- Homogenizing liquid formulations for consistent product quality

Petrochemical Industry

- Blending petroleum derivatives such as diesel, naphtha, and lubricants
- Maintaining uniform temperature in crude-oil and heavy-fuel tanks
- Preventing phase separation in petrochemical storage tanks

Biofuel Industry

- Mixing feedstock oils/fats for biofuel production
- Blending different biocomponents to achieve stable fuel quality
- Maintaining temperature control to ensure efficient reactions

Additive Blending

- Dispersing additives into base oils or fuels for improved performance
- Dosing and mixing chemical additives precisely for consistency
- Homogenizing additive blends in temperature-stabilized tanks

Food and Beverage Industry

- Mixing and homogenizing edible oils in large storage tanks
- Blending liquid food ingredients to maintain uniform taste and quality
- Controlling temperature during storage to preserve freshness

Mining Industry

- Keeping solids suspended in leaching tanks
- Enhancing slurry mixing to improve mineral recovery rates
- Preventing sedimentation in open ponds and storage basins

Mineral Processing

- Ensuring uniform slurry feed to downstream processes
- Preventing settling in thickener or feed tanks
- Improving reaction efficiency by maintaining homogeneous slurry conditions



Chemical Industry



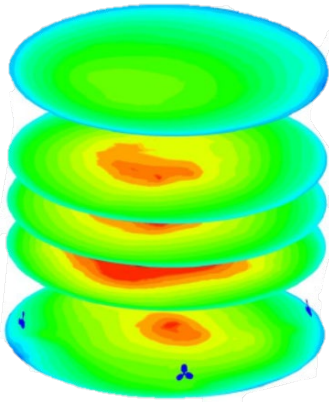
Petrochemical Industry



Food and Beverage Industry

CFD Analysis for Side Entry Agitators

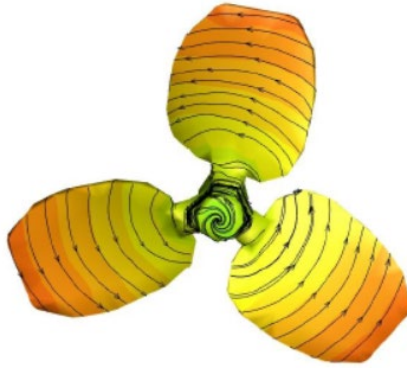
Professional Mixing Technologies



CFD Post A

CFD Post A – Velocity Distribution in the Tank

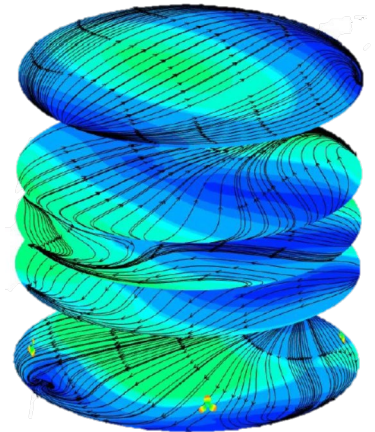
- Visualizes the velocity field within the mixing tank
- Color contours indicate regions of higher and lower fluid velocity
- Identifies zones of strong mixing and limited circulation
- Helps ensure uniform homogenization across the tank volume
- Helps prevent sedimentation by revealing potential dead zones
- Provides insight into mixer performance under different operating conditions



CFD Post B

CFD Post B – Impeller Flow Pattern

- Highlights impeller geometry and its interaction with the surrounding fluid
- Color contours show variations in velocity and pressure on blade surfaces
- Guides optimization of blade angle, thickness, and curvature
- Supports improved hydraulic efficiency and reduced turbulence
- Helps minimize energy losses for efficient operation
- Supports reliable long-term performance with lower power consumption



CFD Post C

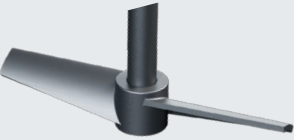
CFD Post C – Energy & Flow Distribution

- Integrates energy-input and flow-direction data across the tank
- Visualizes how motor and impeller energy is transferred into the fluid
- Evaluates power-consumption patterns, mixing intensity, and shear distribution
- Informs design optimization to reduce energy use and increase efficiency
- Balances process performance with operating-cost savings



Professional Mixing Impellers




Professional Mixing Technologies

Model	View	Features
HWM		<ul style="list-style-type: none"> • Mixed/axial flow pattern • Low/medium viscosity • Uniform energy • Minimum Local Turbulence • High Efficiency
HM		<ul style="list-style-type: none"> • Bottom suspension • Low/medium viscosity • Better heat transfer, • Single/multi impellers • 2-4 blades • Adjustable pitch
HWM-B		<ul style="list-style-type: none"> • Low shear • Strong suspension • Homogenizing Function • Working in Gaseous Environments • Heat-transfer support
HWM-SC		<ul style="list-style-type: none"> • 3-blade hydrofoil design • Mixed/axial flow pattern • Minimal dead zones, good suspension • Gentle shear; product friendly • Anti-cavitation blade profile • Suitable for maintenance lock • Cast body
HWM-SW		<ul style="list-style-type: none"> • Strong pumping • Medium shear • Cost-effective • Custom pitch/diameter • 3-blade hydrofoil design



Agitator Drive Solutions Overview

Professional Mixing Technologies

Views			
Series	VMG	HMG	HMB
Applications	<ul style="list-style-type: none"> • Petroleum, chemical, mining, food & beverage • Suspension, homogenization, dispersion in storage tanks 	<ul style="list-style-type: none"> • Heavy-duty operations • High-torque mixing • Chemical, food & storage tanks, mining 	<ul style="list-style-type: none"> • Cost-effective mixing • Flexible speed control • Light-solids suspension; sludge prevention • Homogenization in small-medium storage tanks
Features	<ul style="list-style-type: none"> • Mechanical seal replacement without draining the tank; no agitator removal • Compact vertical gearmotor design • High torque with low power loss • Optimized impeller for stable flow • Durable for continuous operation • Easy integration and seal service 	<ul style="list-style-type: none"> • Mechanical seal replacement without draining the tank; no agitator removal • Heavy-duty gearbox; long service life • High torque for demanding duties • Low noise & vibration • Precise speed control and power transmission • Cost-effective 	<ul style="list-style-type: none"> • Mechanical seal replacement without draining the tank; no agitator removal • Belt-and-pulley drive; simple mechanics • Cost-effective belt drive system • Quiet, low-vibration operation • Quick belt replacement; common spares • On-site speed change (pulley swap); VFD compatible
Advantages	<ul style="list-style-type: none"> • Space-saving vertical layout • Reliable long-term operation • Seal service without dismounting • High efficiency with low energy use • Stable mixing performance • Suitable for limited-space installations 	<ul style="list-style-type: none"> • Robust, heavy-duty performance • High torque with energy efficiency • Long service life in tough conditions • Low vibration and noise for stable operation • Minimal maintenance with extended intervals 	<ul style="list-style-type: none"> • Low CAPEX; economical solution • Low maintenance; no gear oil • Fast installation and commissioning • Safer overload behavior (belt slip) • Good total cost of ownership



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Side Entry Agitator Dimensions

Professional Mixing Technologies

HMB



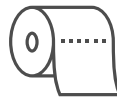
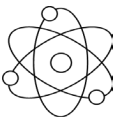
HMG



VMG



Suitable for use in applications ranging from 1 m³ to 20.000 m³. It is specifically designed to handle a wide range of fluids with varying densities and viscosities.



Mechanimix offers side entry agitators in HMG, HMB, and VMG series tailored for industries such as petroleum, petrochemicals, biofuels, chemicals, mining, food, coatings, asphalt, and water treatment. We deliver the most efficient solution based on tank geometry, process goal, and operational conditions.

