Agitator/Mixers

Providing Tools for Research and Industry

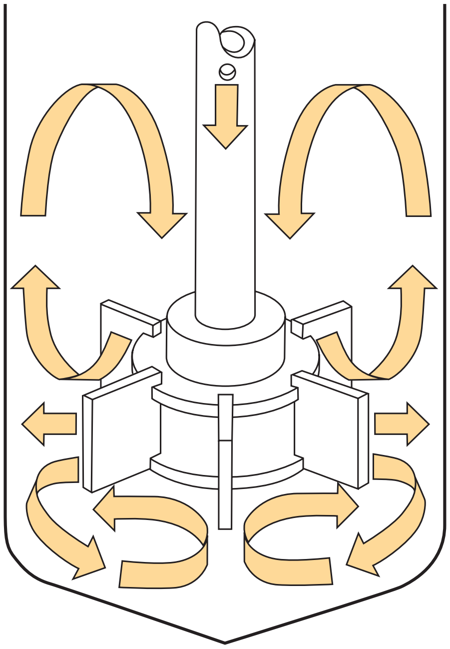
Parker Autoclave Engineers first introduced the Dispersimax™ Turbine to the research industry in 1955, followed in 1958 by the MagneDrive® for contamination-free, packless agitation. Since then, several other impeller designs have been developed to satisfy specific industry needs.

Custom engineering of impeller design can be performed based on developed horsepower, viscosity, critical speed and other key factors associated with specific processes.

At a Glance:

- Several Standard Designs
- Materials to Match the Vessel
- Suitable for Gas, Liquid, and Supported Solids
- Wide Range of Viscosity and Speed
- Custom Engineered Designs Available

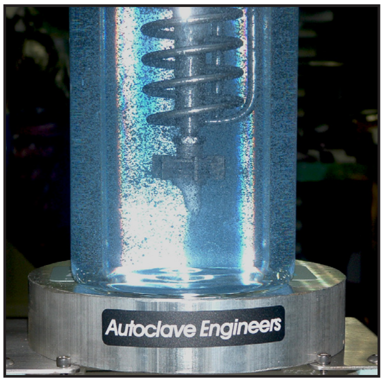
Dispersimax™ Turbine



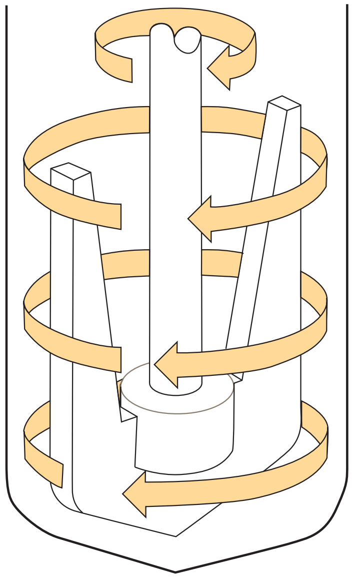
Parker Autoclave Engineers' patented Dispersimax™ Turbine type impeller is well suited for gas/liquid reactions. It provides high speed radial flow stirring, while drawing head space gas down a hollow shaft and dispersing the gas through the impeller ports, for effective entrainment of the gas into the liquid. This is generally for low viscosity applications.*

Standard sizes available: 7/8˝, 1-1/4˝, 2˝ and 4˝ diameter.

***Vessel baffling is required for optimum performance.**

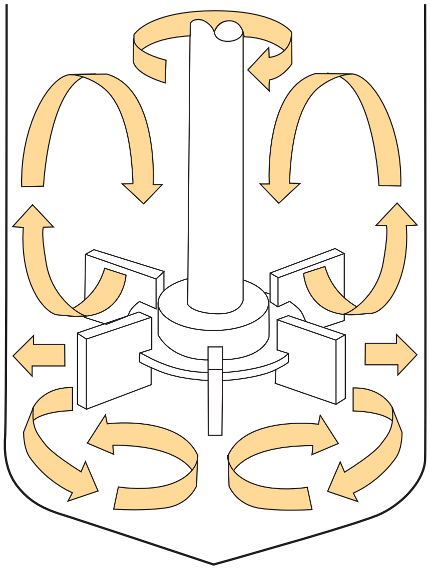


Anchor Impeller



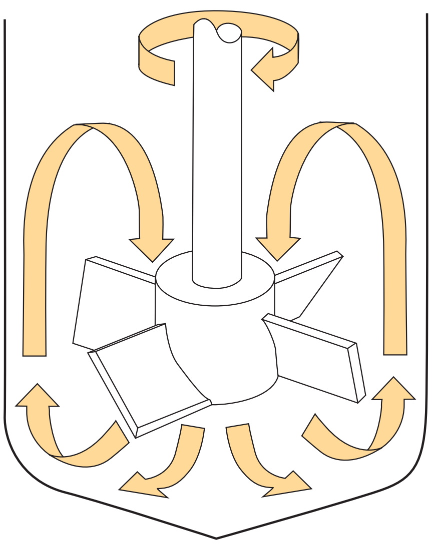
Best suited for high viscosity fluids (5,000-50,000 cp). This impeller provides radial flow and improved heat transfer at relatively low speeds. It generally provides minimal radial clearance between it and the vessel wall. Anchor impellers can be provided with wipers and/or cross arm support.

Straight Blade Turbine



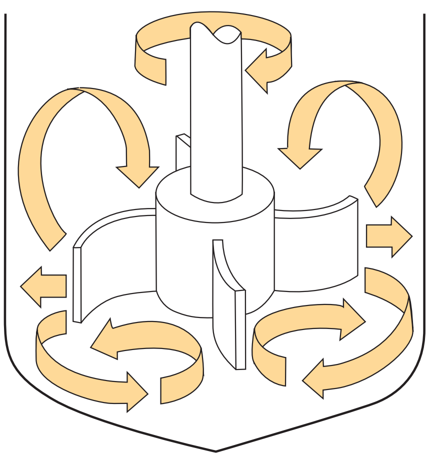
Formerly known as the “Rushton Turbine”, this impeller, like the “AE Dispersimax™ Turbine”, is suited for gas/liquid applications requiring fairly high shear at high speeds.* The impeller also promotes radial fluid flow. ***Vessel baffling may be required for optimum performance.**

Pitched Blade Turbine



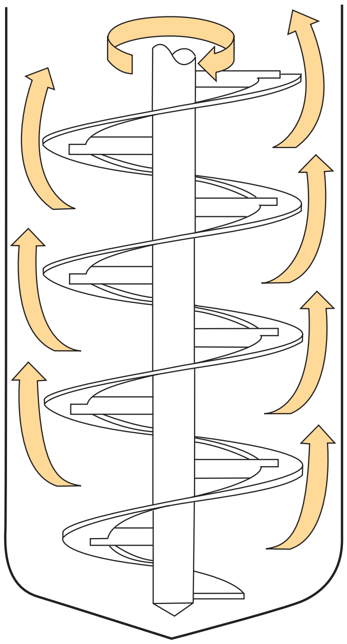
Sometimes termed an “axial flow impeller”, the Pitched Blade Turbine is especially suited for high speed liquid/solid applications where tank baffles may be impractical. Direction of fluid flow can be up or down depending on the pitch. The pitch angle can vary between 0° and 90° from the vertical.

Curved Blade Turbine



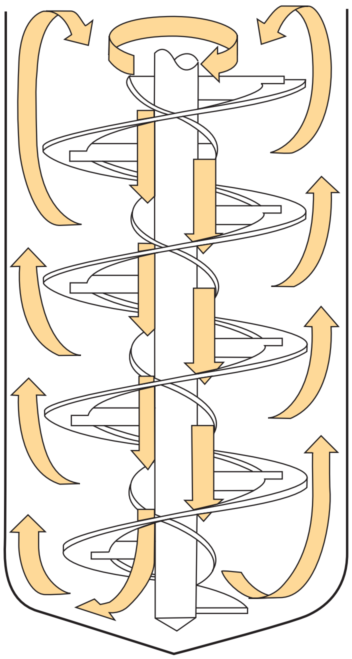
Often referred to as a “backswept turbine”, this impeller can be used in very viscous mixtures where power consumption can be of concern or in liquid/friable solid applications.* It provides reduced shear and a radial flow pattern.***Vessel baffling may be required for optimum performance.**

Helical Impeller



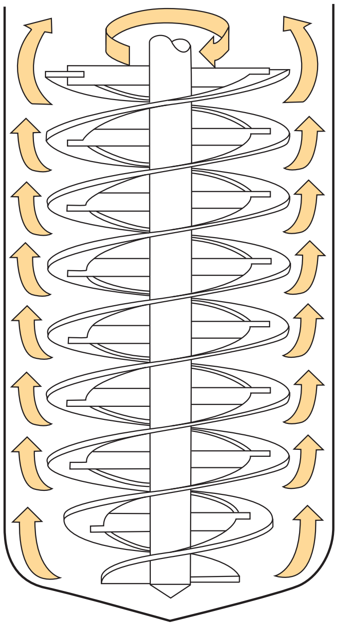
(1 Outer Flight)

Helical Impeller



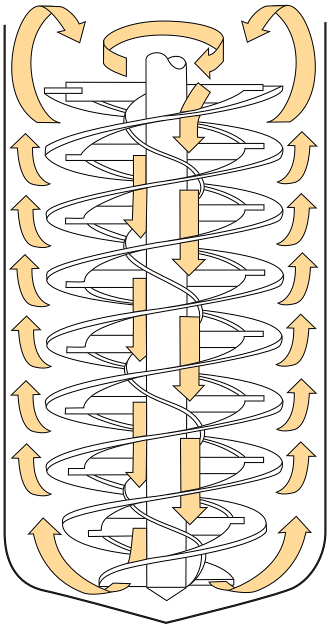
(1 Inner Flight, 1 Outer Flight)

Helical Impeller



(2 Outer Flights)

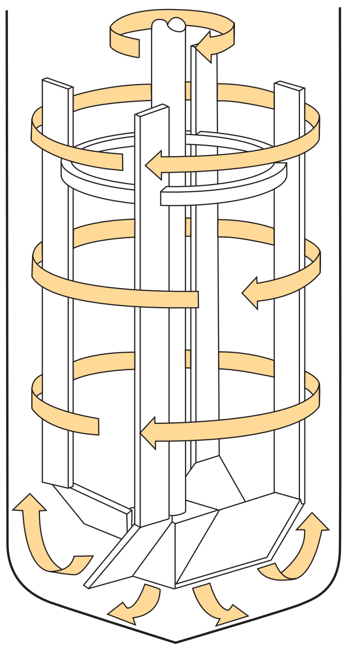
Helical Impeller



(1 Inner Flight , 2 Outer Flights)

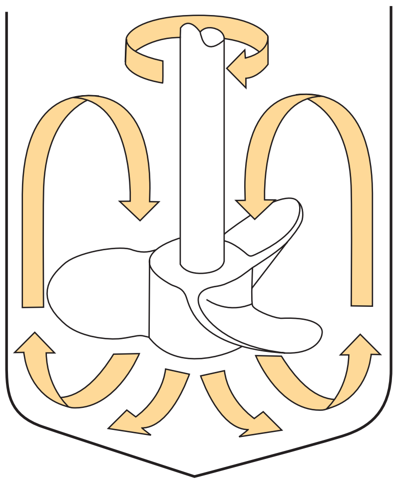
Helical impellers are used primarily in applications involving very viscous materials. They operate with minimal clearance at the vessel wall and provide axial flow at low speed. Their construction can be single or double outer flight with or without an inner flight. The outer flight provides upward pumping action while the inner flight pumps in the downward direction. (The inner flight does not add to impeller performance in the case of Newtonian fluids.) These impellers, like the Anchor, provide improved heat transfer in a viscous fluid system.

Elongated Paddle



The Elongated Paddle impeller provides a combination of axial upward and radial fluid flow. It, like the Anchor and Helical Impellers, operates in close proximity to the vessel wall.

Marine Propeller



The Marine Propeller is an axial flow impeller generally pitched for downward pumping action, however, upward pumping is also available. This impeller provides a high, uniform discharge and therefore is best suited for low viscosity liquid blending applications.
***Vessel baffling may be required for optimum performance.**

References

1. "Selecting Turbine Agitators", by A.P. Weber, Consultant, New York, NY, Chemical Engineering, December 7, 1964
2. "Mixing Theory and Practices", Volumes I & II, by V.M. Uhl and J. B. Gray
3. "Fluid Mixing Technology", by James Y. Oldshue

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