Axial Flow Impeller Types

Pitched Blade Turbine (PBT)

The Pitch Blade Turbine Impeller is the workhorse of the mixing industry. The simple design of the putched blade turbine impeller provides a combination of both radial and axial flow, generates high shear levels, and provides excellent mixing ability while providing easy cleanup. Because of the simple design, it is also very cost effective in large applications and high viscosity applications. While useful in most applications, this design excels in heavy mixing. The Pitch Blade Turbine Impeller can be fabricated to fit any shaft diameter and comes standard in 316 Stainless Steel, but 304 Stainless Steel, Aluminum, and Carbon Steel versions are also available. Various surface finishes are available.

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.

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Advantages

- Constructions with two to eight blades are used (three and four being most common).
- Combined axial and radial flows are achieved. Especially effective for heat exchange with vessel walls or internal coil.
- These impellers can be used in either down-pumping or up-pumping mode.

Applications

- Blending, solid suspension or draw down, gas inducement, and heat transfer.

Technical features

- Moderate shear and moderate flow
- Moderate viscosity mixing up to 10,000 cps
  High intensity mixing.
- Axial flow design suitable for wide changes in process viscosity.
- Good for blending and solids suspension where elevated shear is needed.
- Able to handle higher gas rates over high efficiency designs.

Thai Industrial Business Company Limited
Tel. : +66 (0) 98 996 1504 (HOT LINE), +66 (0) 2 102 0896
E-mail : sales@tib-group.com