Alfa Laval ALTB

Agitators

Introduction

The Alfa Laval ALTB is a top-mounted agitator with shaft and bottom support for hygienic mixing and blending in atmospheric and pressurized tanks. Its versatile, modular and hygienic design enables customization to meet the requirements of virtually any duty and ensures cost-effective, energy-efficient operation. Exceptional cleanability through Cleaning-in-Place makes the ALTB agitator ideal for use in sterile and aseptic applications.

Applications

The ALTB top-mounted agitator is designed for a wide range of tank mixing and blending duties across the dairy, food, beverage, brewery, personal care, biotechnology and pharmaceutical industries.

Duties	Typical examples
Keeping media homogeneous	Milk storage tanks, cream tanks, mixed products tanks, UHT, and products storage tanks
Mixing and solutions	Fluid and fluid mixing, drinking yoghurt and fruit mix tanks, flavoured milk mix tanks, and syrup mix tanks
Dispersing	Powder protein and oil mix tanks, micro salt and milk product mix tanks
Suspension	Fluids with particles, juice tanks, crystallizing tanks, etc
Heat transmission	Circulation of media in tank with dimple jacket (cooling or heating)
Flocculation	Wastewater treatment tanks

Benefits

- Versatile, modular, hygienic design, impellers with standard pitch
- Can be configured for minimum energy consumption
- Gentle product treatment
- More uptime and higher yields due to low maintenance requirements
- Meets EU and US standards and regulations such as EHEDG, USDA, FDA, 3-A Sanitary Standards

Standard design

The ALTB top-mounted agitator consists of a drive unit with shaft, shaft seal, bottom steady bearing (shaft support inside the tank), and specially designed energy-saving (EnSaFoil) impellers with two or three blades. The bottom steady bearing extends agitator service life and reduces cost. The Alfa Laval agitator range includes top-, bottom- and side-mounting models.

Working principle

The Alfa Laval ALTB top-mounted agitator has an electrical drive motor that transmits the energy required for mixing and blending, either directly or via a gearbox, to the agitator shaft. The shaft rotates, supported by the shaft support, turning the EnSaFoil impellers. The impeller movement creates a high flow with low shear due to the highly effective axial pumping effect on the liquid in the tank. This results in effective mixing and blending of the entire contents of the tank.

Options

- Welding flange
- Standard design
- Low level impeller
- Stainless steel cover for motor/gear motor
- Spare part kit

Certification

Alfa Laval Q-doc, available, depending on the individual configuration.

TECHNICAL DATA

Motor
Motor size and speed as required for duty. As standard with IEC motor IP55. Optional: IP66. As standard painted RAL5010.

Voltage and frequency
As standard for 3x380 V to 420 V, 50 Hz - 3x440 V to 480 V, 60 Hz. All motor voltages and frequencies are available.

Gears
Different gear types available according to configuration. As standard filled with food approved oil. As standard painted RAL5010.

Product wetted surface finish	
Industrial, shot peened:	Ra < 3.2 µm
Hygienic, polished:	Ra < 0.8 µm

PHYSICAL DATA

Materials	
Steel parts:	AISI 316L (standard) Other materials on request
Seal rubber parts (O-rings or bellows):	EPDM FPM FPM/FEP (only for stationary O-rings) Other materials on request
Mechanical seal parts:	Carbon Carbon (FDA) Silicon carbide
Wear bushings (on shaft), (bottom steady bearing):	PEEK

Temperature	
During operation:	Max. 90 ºC
CIP:	Max. 95 ºC
SIP:	Max. 150 ºC

Pressure	
Pressure Full vacuum	- 10 barg (145 psi) depending on configuration

Material certificate - option
3.1 Material certificates/FDA conformity statement according to 21 CFR177 on steel/elastomer parts in contact with media

Dimensions	
Standard propeller diameter range:	Ø125 mm to Ø1900 mm.
Specific dimensions on the drive unit and propeller(s) will depend on the actual configuration selected.	

Configurable design

Type ALTB agitator design is fully configurable divided in the following elements:

- Drives (drive + shaft support + shaft diameter)
- Seal arrangements (oil trap + shaft seal type)
- Shaft (length)
- Energy Saving Foils (propeller type + surface finish)
- Bottom steady bearings (type + surface finish)
- Options

Each element has a broad range of different characteristics which make it possible to size the agitator for all applications and requirements. Type ALTB configuration, please see next page.

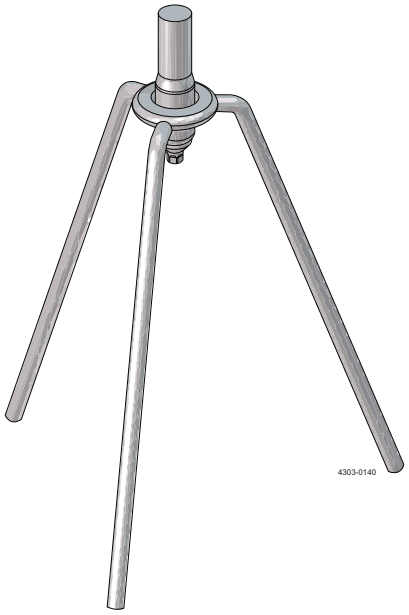
Advantageous and profitable design

Each configuration offers a number of advantages, which are shown in the examples below:

Operation features	Due to
Low energy consumption:	the wide range of high efficiency propellers and drive units makes it possible to design for low operational costs
Gentle product treatment:	the wide range of high efficiency propellers makes it possible to design for low shear operation

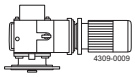
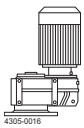
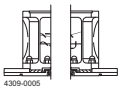
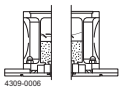
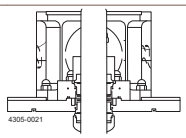
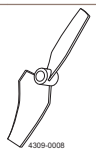
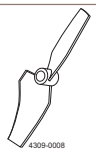
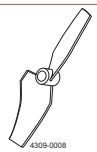
Hygienic features	Due to
Connections inside the tank (risk zones) can be avoided:	propellers can be welded onto the shaft
Good drip off properties:	no plane surfaces or grooves on internal parts
Easy cleaning:	no interior shadow sides between the blades and smooth surfaces

Maintenance features	Due to
Easy bottom bearing replacement:	wear bushings can be replaced without dismantling the agitator drive



BS3P

Top mounted agitators with bottom steady bearing

Type ALTB	Configuration					
Drives						
Shaft diameter = yy Description (power, speed and shaft diameter depending on application)	**-ME-GR-yy** Right angle gear drive, shaft mounted in hollow shaft of gearbox (for very low head room applications)	**-ME-GP-yy** Parallel shaft gearbox, shaft mounted in hollow shaft of gearbox				
Seal arrangements						
Description (lower flange and seal material depending on application)	**-ME-GP-yy** Seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: radial seal for atmospheric tanks	**LF-R-** Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: radial seal for atmospheric tanks	**LF-S/LF-S3** Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: single mechanical dry running seal for high/low pressure applications	**LF-D-** Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: double mechanical seal for high pressure applications and aseptic use		
Shaft Length = llll						
Description (material depending on application)	**-Sllll-** SS shaft, length according to application					
Energy Saving Foils Number =n Diameter =vvv (125 mm to 1900 mm)						
Description (material depending on application)	**-nPvvvD3P** 3 - bladed propeller, finish: polished Standard: Ra <0.8 µm	**-nPvvvD3PE** 3 - bladed propeller, finish: polished and electro polished Standard: Ra < 0.8 µm	**-nPvvvD3G** 3 - bladed propeller, finish: shot peened	**-nPvvvD2P** 2 - bladed propeller, finish: polished Standard: Ra <0.8 µm	**-nPvvvD2PE** 2 - bladed propeller, finish: polished and electro polished Standard: Ra < 0.8 µm	**-nPvvvD2G** 2 - bladed propeller, finish: glass shot peened
Bottom steady bearing						
Description (material depending on application)	**-BS3P** Hygenic bottom steady bearing with PEEK bushing on shaft. finish: polished Standard: Ra < 0.8 µm	**-BS3G** Bottom steady bearing with PEEK bushing on shaft. finish: shot peened Standard: Ra < 3.2 µm				

Ordering

The following information is required to ensure correct sizing and configuration for ordering:

- Tank geometry
- Product properties
- Task of agitator
- Enquiry forms are available
- End-user country

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How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com