



# Efficient Mixing and Agitation

## Top mounted agitators, type ALT

### Applications

Application	Typical examples
Maintain Media Homogeneous	Milk storage tanks, cream tanks, mixed product tanks, UHT product storage tanks, etc.
Mixing and Solutions (dissolve)	Fluid and fluid mixing, i.e. drinking yoghurt and fruit mix tanks, flavoured milk mix tanks, syrup mix tanks, etc.
Solid Dispersion	Powder protein + oil mix tanks, micro salt + milk product mix tanks, etc.
Suspension	Fluids with particles, i.e. juice tanks, crystallising tanks etc.
Heat transmission	Circulation of media in tanks with dimple jacket (cooling or heating)
Dairy Fermentation (break coagula + mixing)	Yoghurt tanks, cheese culture tanks, crème fraîche, etc.



### TECHNICAL DATA

#### Motor

Motor size and speed as required for duty.  
As standard with IEC motor IP55, other types on request. As standard painted RAL5010.

#### Voltage and frequency

As standard for 3x380 to 420V, 50Hz - 3x440V to 480V, 60Hz.  
All motor voltages and frequencies are available.

#### Gears

Different gear types available according to configuration.  
As standard filled with normal synthetic or mineral oil, optional: Food approved oil. As standard painted RAL5010.

#### ATEX - option

Agitators can be delivered approved for use in an ATEX environment with declaration of conformity according to directive 94/9/EC.

#### 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

### PHYSICAL DATA

#### Materials

Available materials

Steel parts: . . . . . AISI 316L (standard)  
 AISI 304  
 AISI 904L  
 SAF 2205  
 Other materials on request.

Seal rubber parts

(O-rings or bellows): . . . . . EPDM  
 FPM/FEP (only for stationary o-rings)  
 FPM  
 Other materials on request.

Mechanical seal parts: . . . . .

Carbon  
 Carbon (FDA)  
 Silicon carbide

#### Material certificate - option

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

#### Dimensions

Standard propeller diameter range:  $\varnothing$ 125 mm to 1900 mm.  
 Specific dimensions on the drive unit and propeller(s) will depend on the actual configuration selected.

### Standard design

The Alfa Laval range of top mounted propeller agitators is designed to meet almost every customer requirement. Type ALT agitators are characterized by their free hanging shaft without bottom support. Due to their modular build, the agitators can be designed for every kind of application in sanitary industries. The modular construction is designed with the aim to meet both European and American standards and regulations, such as EHEDG, USDA, FDA, 3A etc. Please note that Alfa Laval also offer other agitator solutions:

- Type ALTB, top mounted agitators with bottom steady bearing
- Type ALS, side mounted agitators
- Type ALB, bottom mounted agitators

For more information please see separate Product Data Sheets.

### 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

Sanitary features	Due to
Easy external cleaning	stainless steel bearing frame design with seal O-rings (for wash down)
Connections inside the tank (risk zones) can be avoided	bearing frame drives with drive shaft and special internal shaft connection without having a flange coupling inside the tank
Good drip off properties	no plane surfaces or grooves on internal parts
Easy cleaning	no interior shadow sides between the blades and smooth surfaces

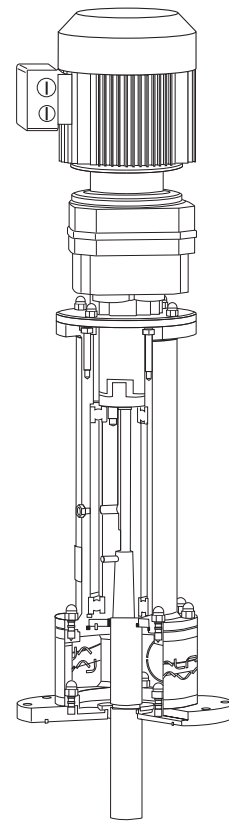
Maintenance features	Due to
All service (replacement of wearing parts such as shaft seals, bearings etc.) can be done from out side the tank	bearing frame drives with detachable shaft which can be dismantled from outside the tank
Easy dismantling	use of spider type coupling and stainless steel parts (no corrosion)

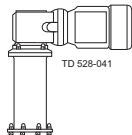
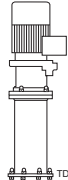
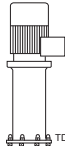
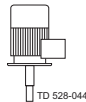
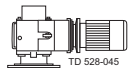
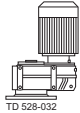

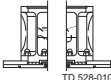
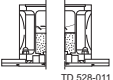
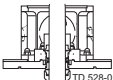
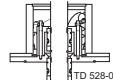




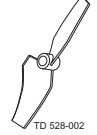
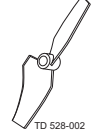
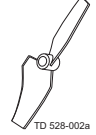


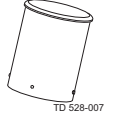
### Configurable design

Type ALT 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)
- Options

Each element has a broad range of different characteristics which make it possible to size the agitator for all applications and requirements.



Type ALT	Configuration					Top mounted agitators
<p><b>Drives</b></p> <p>Bearing frame size = xx Shaft diameter = yy (not used if xx = yy)</p> <p>Description (power, speed and shaft diameter depending on application)</p>	 <p>TD 528-041</p> <p><b>-ME-GR-Bxx(yy)</b></p> <p>Stainless steel bearing frame and right angle gearbox (for low head room applications)</p>	 <p>TD 528-042</p> <p><b>-ME-GC-Bxx(yy)</b></p> <p>Stainless steel bearing frame and coaxial gearbox</p>	 <p>TD 528-043</p> <p><b>-ME-Bxx(yy)</b></p> <p>Stainless steel bearing frame and direct motor drive</p>	 <p>TD 528-044</p> <p><b>-ME-yy</b></p> <p>Direct motor drive, shaft connected directly to motor</p>	 <p>TD 528-045</p> <p><b>-ME-GR-yy -ME-GW-yy</b></p> <p>Right angle (GR) or worm (GW) gear drive, shaft mounted in hollow shaft of gearbox (for very low head room applications)</p>	 <p>TD 528-032</p> <p><b>-ME-GP-yy</b></p> <p>Parallel shaft gearbox, shaft mounted in hollow shaft of gearbox</p>
<p><b>Seal arrangements</b></p> <p>Description (lower flange and seal material depending on application)</p>	 <p>TD 528-009</p> <p><b>F-R-</b></p> <p>Seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: radial seal for atmospheric tanks</p>	 <p>TD 528-010</p> <p><b>LF-R-</b></p> <p>Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: radial seal for atmospheric tanks</p>	 <p>TD 528-011</p> <p><b>LF-S-</b></p> <p>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</p>	 <p>TD 528-012</p> <p><b>LF-D-</b></p> <p>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</p>	 <p>TD 528-013</p> <p><b>LF-DT-</b></p> <p>Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: double mechanical seal (tandem) for low pressure applications</p>	
<p><b>Shaft</b></p> <p>Length = IIII Description (material depending on application)</p>	 <p>TD 528-000</p> <p><b>-SIII-</b></p> <p>SS shaft, length according to application</p>					
<p><b>Energy Saving Foils</b></p> <p>Number =n Diameter = vv (125 mm to 1900 mm)</p> <p>Description (material depending on application)</p>	 <p>TD 528-001</p> <p><b>-nPvvD3P</b></p> <p>3 - bladed propeller, finish: polished Standard: Ra &lt; 0.8 µm</p>	 <p>TD 528-001</p> <p><b>-nPvvD3PE</b></p> <p>3 - bladed propeller, finish: polished and electro polished Standard: Ra &lt; 0.8 µm</p>	 <p>TD 528-001a</p> <p><b>-nPvvD3G</b></p> <p>3 - bladed propeller, finish: shot peened</p>	 <p>TD 528-002</p> <p><b>-nPvvD2P</b></p> <p>2 - bladed propeller, finish: polished Standard: Ra &lt; 0.8 µm</p>	 <p>TD 528-002</p> <p><b>-nPvvD2PE</b></p> <p>2 - bladed propeller, finish: polished and electro polished Standard: Ra &lt; 0.8 µm</p>	 <p>TD 528-002a</p> <p><b>-nPvvD2G</b></p> <p>2 - bladed propeller, finish: glass shot peened</p>
<p><b>Optional</b></p> <p>Description</p>	 <p>TD 528-005</p> <p><b>Welding flange</b></p> <p>Incl. mounting pin nuts and bolts</p>	 <p>TD 528-006</p> <p><b>Blind flange</b></p> <p>Incl. seal O-ring</p>	 <p>TD 528-007</p> <p><b>Cover for Motor / gear motor</b></p> <p>Stainless steel cover - comes in different shapes according to drive type</p>	<p><b>S</b></p> <p><b>Spare part kit</b></p> <p>Standard spare part kit</p>		

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