



# Efficient Mixing and Agitation

## Top mounted agitators, type ALTB

ESE00215EN 0901

### Applications

The Alfa Laval top mounted agitator with bottom steady bearing offers mixing solutions to meet many requirements in food, dairy, beverage, pharmaceutical, biotechnology or cosmetic applications

Type ALTB agitators can be dimensioned for several applications for both atmospheric and pressurised tanks and furthermore for use in sterile/aseptic applications.

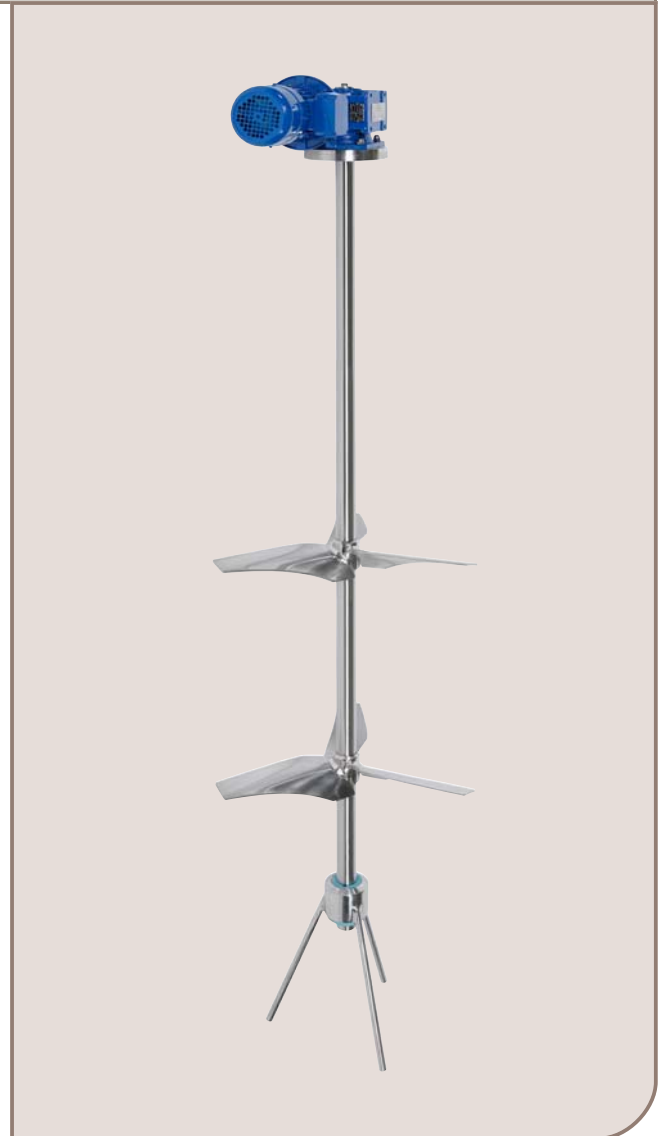
The correct sizing of the agitators ensures an optimised solution offering low energy consumption and configuration to meet specific design requirements. Examples are listed below:

| Application                                 | Typical examples   |
|---|--|
| Maintain media homogeneous                  | Milk storage tanks, cream tanks, mixed product tanks, UHT product storage tanks, etc.                              |
| Mixing and Solutions (dissolves)            | 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.   |

### Standard design

The Alfa Laval range of top mounted propeller agitators with bottom steady bearing is designed to meet almost every customer requirement.

Type ALTB agitators are characterised by having a shaft support inside the tank called a bottom steady bearing. Standard type ALTB agitators are less costly than agitators without internal shaft support. Due to their modular build, the agitators can be designed to suit every kind of application within sanitary industry. 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 ALT, top mounted agitators
- Type ALS, side mounted agitators
- Type ALB, bottom mounted agitators

To read more about these agitator solutions please see separate Product Data Sheets.

## Configurable design

Type ALTB agitators are a fully configurable design and the configuration can be divided into 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                   |

| Sanitary 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 |

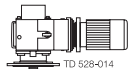
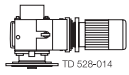
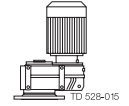

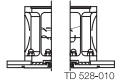
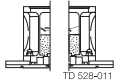
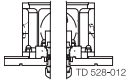
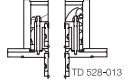




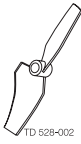
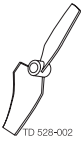
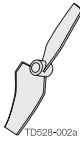





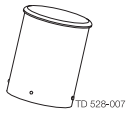
| Maintenance features            | Due to   |
|---------------------------------|--|
| Easy bottom bearing replacement | wear bushings can be replaced without dismantling the agitator drive |



BS1P



BS2P

| Type ALTB   | Configuration   |  |  |   |   |   | Top mounted agitators with bottom steady bearing |  |  |  |  |  |
|---|---|--|--|---|---|---|--|--|--|--|--|--|
| <b>Drives</b><br>Shaft diameter = yy<br>Description<br>(power, speed and shaft diameter depending on application)                     | <br>TD 528-014<br><b>-ME-GR-yy</b><br>Right angle gear drive, shaft mounted in hollow shaft of gearbox (for very low head room applications)         | <br>TD 528-014<br><b>-ME-GW-yy</b><br>Worm gear drive, shaft mounted in hollow shaft of gearbox (for very low head room applications)                                   | <br>TD 528-015<br><b>-ME-GP-yy</b><br>Parallel shaft gearbox, shaft mounted in hollow shaft of gearbox  |   |   |   |  |  |  |  |  |  |
| <b>Seal arrangements</b><br>Description<br>(lower flange and seal material depending on application)                                  | <br>TD 528-009<br><b>F-R-</b><br>Seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: radial seal for atmospheric tanks | <br>TD 528-010<br><b>LF-R-</b><br>Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: radial seal for atmospheric tanks | <br>TD 528-011<br><b>LF-S-</b><br>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 | <br>TD 528-012<br><b>LF-D-</b><br>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 | <br>TD 528-013<br><b>LF-DT-</b><br>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 |   |  |  |  |  |  |  |
| <b>Shaft</b><br>Length = IIII<br>Description<br>(material depending on application)   | <br><b>-SIII-</b><br>SS shaft, length according to application   |  |  |   |   |   |  |  |  |  |  |  |
| <b>Energy Saving Foils</b><br>Number =n<br>Diameter =vvv<br>(125 mm to 1900 mm)<br>Description<br>(material depending on application) | <br>TD 528-001<br><b>-nPvvvD3P</b><br>3-bladed propeller, finish: polished<br>Standard: Ra < 0.8 µm  | <br>TD 528-001<br><b>-nPvvvD3PE</b><br>3-bladed propeller, finish: polished and electro polished<br>Standard: Ra < 0.8 µm   | <br>TD 528-001a<br><b>-nPvvvD3G</b><br>3-bladed propeller, finish: shot peened  | <br>TD 528-002<br><b>-nPvvvD2P</b><br>2-bladed propeller, finish: polished<br>Standard: Ra < 0.8 µm   | <br>TD 528-002<br><b>-nPvvvD2PE</b><br>2-bladed propeller, finish: polished and electro polished<br>Standard: Ra < 0.8 µm  | <br>TD 528-002a<br><b>-nPvvvD2G</b><br>2-bladed propeller, finish: glass shot peened |  |  |  |  |  |  |
| <b>Bottom steady bearing</b><br>Description<br>(material depending on application)  | <br>TD 528-003<br><b>-BS1P</b><br>Bottom steady bearing with PTFE bushing finish: polished<br>Standard: Ra < 0.8 µm                                | <br>TD 528-003a<br><b>-BS1G</b><br>Bottom steady bearing with PTFE bushing finish: shot peened  | <br>TD 528-004<br><b>-BS2P</b><br>Sanitary bottom steady bearing with PVDF bushings finish: polished<br>Standard: Ra < 0.8 µm   |   |   |   |  |  |  |  |  |  |
| <b>Optional</b><br>Description  | <br>TD 528-005<br><b>Welding flange</b><br>Incl. mounting pin nuts and bolts   | <br>TD 528-006<br><b>Blind flange</b><br>Incl. seal O-ring  | <br>TD 528-007<br><b>Cover for motor / gear motor</b><br>Stainless steel cover - comes in different shapes according to drive type  | <b>S</b><br><b>Spare part kit</b><br>Standard spare part kit  |   |   |  |  |  |  |  |  |

## 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.

## Materials

List the range of materials available for wetted parts:

|   |  |
|---|--|
| Steel parts:                              | . . . . . AISI 316L (standard)<br>AISI 304<br>AISI 904L<br>SAF 2205<br>Other materials on request. |
| Seal rubber parts (O-rings or bellows):   | EPDM<br>FPM/FEP (only for stationary o-rings)<br>FPM<br>Other materials on request.                |
| Mechanical seal parts:                    | Carbon<br>Carbon (FDA)<br>Silicon carbide  |
| Wear bushings<br>(bottom steady bearing): | PTFE (BS1P/BS1G)<br>PVDF (BS2P)  |

Specific selection of materials will depend on the actual configuration selected.

## Material Certificate - option

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

## ATEX - option

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

|               |                                   |
|---------------|-----------------------------------|
| In tank:      | II1GDcTX, II2GDcTX or<br>II3GDcTX |
| Outside tank: | II2GDcTX or II3GDcTX              |

NOTE: Not all configurations can be delivered according to ATEX directive 94/9/EC.

## Dimensions

Standard propeller diameter range: Ø125 mm to 1900 mm.

Specific dimensions on the drive unit and propeller(s) will depend on the actual configuration selected.

## Enquiries

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

For budget pricing use the following inquiry handling form from Alfa Laval (electronic version): "Simple enquiry, agitator".

For detailed quotation use the the following inquiry handling form from Alfa Laval (electronic version): "Advanced enquiry, agitator".

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The information contained herein is correct at the time of issue, but may be subject to change without prior notice.

## How to contact Alfa Laval

Contact details for all countries are continually updated on our website. Please visit [www.alfalaval.com](http://www.alfalaval.com) to access the information direct.