

Alfa Laval ALS

Agitators

Introduction

The Alfa Laval ALS is a side-mounted agitator 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 ALS agitator ideal for use in sterile and aseptic applications. An ATEX-certified version is available for use in potentially explosive environments.

Applications

The ALS side-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) |

Benefits

- Versatile, modular, hygienic design
- 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 Alfa Laval ALS side-mounted agitator consists of a drive unit with bearing frame, shaft with special shaft seal, and specially designed energy-saving impeller (EnSaFoil) with two or three blades. The complete Alfa Laval agitator range includes top-, bottom- and side-mounting models.



Working principle

The Alfa Laval ALS side-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, turning the EnSaFoil impeller. 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
- Stainless steel cover for motor/gear motor
- Spare part kit
- ATEX version

Certification

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



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 420 V, 50 Hz - 3x440 V, 60 Hz. 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.

Product wetted surface finish

| | |
|---|--------------|
| Industrial, shot peened: | Ra < 3.2 µm |
| Hygienic, polished: | Ra < 0.8 µm |
| Hygienic (UltraPure), polished or electro polished: | Ra < 0.51 µm |

PHYSICAL DATA

Materials

| | |
|---|--|
| Steel parts: | EPDMAISI 316L (standard). Other materials on request |
| Seal rubber parts (O-rings or bellows): | FPM/FEP (only for stationary O-rings) |
| | Other materials on request |
| Mechanical seal parts: | FPM |
| | Carbon |
| | Carbon (FDA) |
| | Silicon carbide |

Configurable design

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

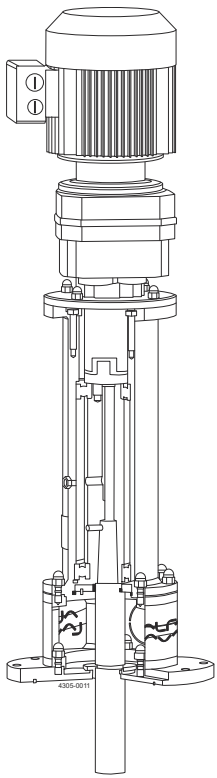
- Drives (drive + shaft support + shaft diameter)
- Seal arrangements (oil trap + shaft seal type)
- Shaft (length)
- Energy Saving Foils (propeller type + surface finish)
- Options

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

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 |
| Easy external cleaning | stainless steel bearing frame design with O-ring seal (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 wear parts such as shaft seals, bearings etc.) can be done from outside of the tank | bearing frame drives with detachable shaft which can be dismantled from outside of the tank |
| Easy dismantling | use of spider type coupling and stainless steel parts (no corrosion) |



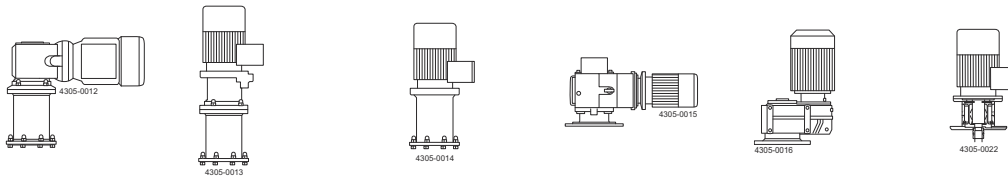
Side mounted agitators

Type ALS

Configuration

Drives

Bearing frame size = xx
Shaft diameter = yy
(not used if xx = yy)



Description
(power, speed and shaft diameter depending on application)

-ME-GR-Bxx(/yy)

Stainless steel bearing frame and right angle gearbox

-ME-GC-Bxx(/yy)

Stainless steel bearing frame and coaxial gearbox

-ME-Bxx(/yy)

Stainless steel bearing frame and direct motor drive

-ME-GR-yy

Right angle gearbox, shaft mounted in hollow shaft of gearbox

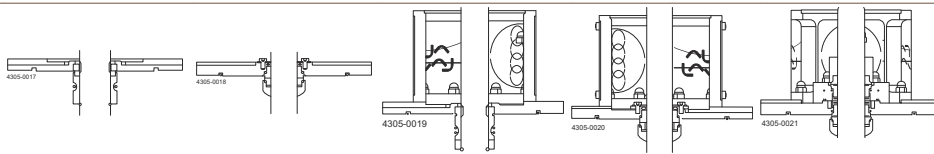
-ME-GP-yy

Parallel shaft gearbox, shaft mounted in hollow shaft of gearbox

-ME-yyLF-S1-

Direct motor drive, shaft connected directly to motor, lantern (spacer), seal flange with O-ring seal against tank flange, drain and shaft seal: single mechanical bellow seal

Seal arrangements



Description
(lower flange and seal material depending on application)

F-S1-

Seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: single mechanical bellow seal

F-S2-

Seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: single mechanical non-bellow seal

LF-S1-

Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: single mechanical bellow seal

LF-S2-

Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: single mechanical non-bellow seal

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



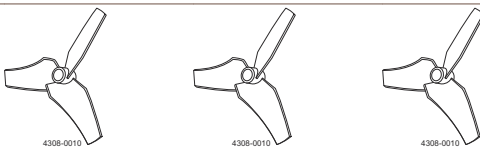
Length = llll
Description
(material depending on application)

-Slll-

SS shaft, length according to application

Energy Saving Foils

Diameter = vv (125 mm to 1900 mm)



-PvvD3P

3 - bladed propeller, finish: polished
Standard: Ra < 0.8 µm

-PvvD3PE

3 - bladed propeller, finish: polished and electro polished
Standard: Ra < 0.8 µm

-PvvD3G

3 - bladed propeller, finish: shot peened

Description
(material depending on application)

Dimensions (mm)

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

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

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