Close at hand

Mixing equipment for Hygienic Fluid Handling Equipment,
January 2025

Alfa Laval Everything at your fingertips

Tackle the challenges you face with innovative Alfa Laval solutions for hygienic applications. Regularly updated, this convenient online catalogue gives you fast access to our comprehensive product range.

Sustainability is at the core of Alfa Laval technologies. These hygienic components and equipment can help you reduce emissions, contamination risks, energy and water use, and total cost of ownership. They also increase uptime, safety and product integrity.

Wherever you are, you have fast access to the components, equipment and expertise you need through the Alfa Laval global network of more than 1500 partners, supported by our sales companies worldwide. Using our eBusiness portal, our channel partners can locate the products you need, order equipment, or track shipments in real time.

To make your life easier, take advantage of Alfa Laval tools and resources. Simply click on the sales item number to view or download 3D CAD models and 2D drawings from our CAD portal. Or download product documentation, including Q-doc documentation for our UltraPure portfolio, here.

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www.alfalaval.com

Pumps

Centrifugal pumps


LKH


LKH UltraPure


LKHex


LKH Evap


LKHPF


LKHI


LKH Multistage

Valves

Double seat valves


Aseptic Mixproof


Unique Mixproof


Unique Mixproof 3-body


Unique Mixproof UltraPure


Unique Mixproof Large Particle


Unique Mixproof Tank Outlet

Diaphragm valves


Unique DV-ST UltraPure


DV-ST Multiport

Ball valves


SBV Sanitary

Shutter valves


Koltek Valves

Regulating valves

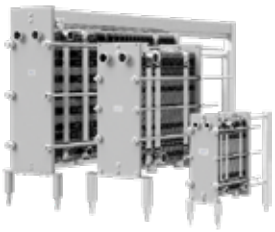

Unique RV-ST


Unique RV-P


CPM-2

Heat transfer

Gasketed plate heat exchangers


Hygienic line


FrontLine


BaseLine


Industrial line

Tank equipment

Tank cleaning machines


SaniJet 25 UltraPure


SaniJet 20 UltraPure


TJ40G


TJ 20G


TZ74


TZ89


GJ PF FT


GJ A6


GJ A2


GJ 9


Multijet 25

Agitators


ALS and ALS-SD


ALB


ALT


ALTB

Mixers


Hybrid Powder Mixer


Rotary Jet Mixer

Tubes and fittings

Hygienic tubes and fittings


Flanges, clamps and unions


Bends, tees and reducers


Tubes and tube support

UltraPure tubes and fittings


UltraPure tubes and fittings

Filters and strainers


Strainers

Rotary lobe pumps


LKH Prime


LKH Prime UltraPure


SolidC


SolidC UltraPure


MR


OptiLobe


SRU

Double seal valves


Unique Mixproof Horizontal Tank


Unique Mixproof CIP


Unique Mixproof Process


SMP-BC


SMP-BC 22

Single seat valves


Unique SSV


Unique SSV Change-over


Unique SSV Aseptic


SSV Tangential

Control/Check valves


LKC-2 Non-Return


LKC UltraPure


Unique Vacuum Breaker


LKUV-2 Air-Relief


LKBV Air-Blow

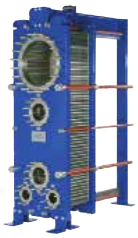
Safety valves


Safety Valve


SB Anti Vacuum House


SB Anti Vacuum Valve


TS-series


AlfaCond


AlfaVap

Fusion-bonded plate heat exchangers


AlfaNova

Brazed plate heat exchangers


Brazed PHE


GJ 8


GJ BB


MultiJet 45


GJ 4


SaniMicro


SaniMidget


SaniMagnum


SaniMidget SB


SaniMagnum SB


SaniMega SB

Static spray balls

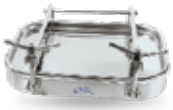

LKRK Static Spray Ball

Tank covers


LeviMag®


LeviMag® UltraPure


LKDC-LP


Type R


LKD


Type CG


Type C

Membranes and filters


Spiral membranes


Flat sheet membranes


Plate and frame module


LabStak™ modules


Pilot plants


Membrane filtration systems

Auxiliary membrane equipment


Housing

Circumferential piston pumps


SX


SX UltraPure


DuraCirc


DuraCirc Aseptic

Twin screw pumps


Twin Screw

Gear pumps


M Gear


Unique SSV Tank Outlet


Unique SSV Manual


Unique SSSV Small Single Seat


LKAP Air-Operated

Butterfly valves


LKB


LKB-F


LKB UltraPure

Sampling valves


SB Pressure Relief Valve


Unique Sampling Valve


SB Membrane Sample Valve


SB Micro Sample Port


SB Micro Sample Port Type M

Welded spiral heat exchangers


Spiral Heat Exchangers

Welded plate and block heat exchangers


Combabloc Free Flow

Scraped surface heat exchangers


Contherm

Tubular heat exchangers


Pharma-line S and P


Pharma-line Point of Use

Wall mounted cleaning nozzles


PlusClean®/PlusClean® UltraPure

Automation Sensing and control


ThinkTop® V70


ThinkTop® V50


ThinkTop® V20


ThinkTop® Basic Intrinsically Safe


IndiTop


Unique Control LKB

Tank accessories


Sight glasses


Tank feet

Condition monitoring


CM Connect


CM

Cleaning validation


Rotacheck

Service and spare parts


Service kits

Service tools


Service tools valves


Service tools mixing and blending


Service tools tank cleaning


Service tools pumps

Alfa Laval Stainless Steel and Rubber Materials

Technical Information

Stainless Steel

Our stainless steel material have the following demands to the contents of the most essential alloys:

Descriptions	Standard	Chrome Cr%	Nickel Ni%	Molybdenum Mo%	Carbon C%
AISI 304	ASTM A270	18.0-20.0	8.0-10.5	0.0	≤ 0.08
AISI 304L	ASTM A270	18.0-20.0	8.0-12.0	0.0	≤ 0.03
AISI 316L	ASTM A270	16.0-18.0	10.0-14.0	2.0-3.0	≤ 0.03
1.4301 (304)	EN 10088-1 (X 5CrNi18-10)	17.0-19.5	8.0-10.5	0.0	≤ 0.07
1.4307 (304L)	EN 10088-1 (X 2CrNi18-9)	17.5-19.5	8.0-10.0	0.0	≤ 0.03
1.4401 (316)	EN 10088-1 (X 5CrNiMo17-12-2)	16.5-18.5	10.0-13.0	2.0-2.5	≤ 0.07
1.4404 (316L)	EN 10088-1 (X 2CrNiMo17-12-2)	16.5-18.5	10.0-13.0	2.0-2.5	≤ 0.03
1.4435 (316L)	EN 10088-1 (X 2CrNiMo18-14-3)	17.0-19.0	12.5-15.0	2.5-3.0	≤ 0.03
1.4571 (316TI)	EN 10088-1 (X6CrNiMoTi17-12-2)	16.5-18.5	10.5-13.5	2.0-2.5	≤ 0.08

Rubber Materials

In order to obtain the longest possible lifetime for rubber seals it is essential to choose the right quality for the actual duty. Consequently when choosing rubber quality, the characteristics of the different rubber types should be considered. All product wetted rubber material are in conformity of FDA.

EPDM Rubber (Ethylene Propylene)

EPDM rubber is widely used within the food industry as it is resistant to most products used in this sector. Another advantage is that it may be used to a recommend max. temperatures of 140°C (244°F). However, there is one essential limitation, EPDM is not resistant to organic and non-organic oils and fats.

Actylonitrile Butadiene Rubber, NBR

NBR is the rubber type most frequently used for technical purposes. It is quite resistant to most hydrocarbons, e.g oil, grease and fat. It is sufficiently resistant to diluted lye and nitric acid and may be used to a recommended max. 95°C (203°F). As NBR is attacked by ozone it may not be exposed to ultraviolet rays and should thus consequently be stored so that this is avoided.

Silicone rubber, Q

The most significant quality of silicone rubber is that it can be applied from temperatures below -50°C (-58°F) to approx. + 180°C (356°F) and still keep its elasticity. The chemical resistance is satisfactory to most products. However, undiluted lye and acids as well as hot water and steam may destroy silicone rubber. The resistance to ozone is good.

Fluorine rubber, FPM

FPM is often used when other rubber types are unsuited, especially at high temperatures up to approx. 180°C (356°F). The chemical resistance is good to most products, however hot water, steam, lye, acid and alcohol should be avoided. The resistance to ozone is good.

Hydrogenated actylonitrileButadiene Rubber, HNBR

Mechanically strong and normally resistant to ozone and strong oxidizers, animal and vegetable fats, nonpolar solvents, oils and lubricants, water and aqueous solutions. The recommend max. temperature is 130°C (266°F).

Perfluoroalkoxy polymer, PFA

PFA is very similar to PTFE, but opposite to those PFA is thermo plastic and has minimal porosity. PFA has a very high mechanical strength which makes it a perfect choice when dealing with abbrasive products. The PFA seal offers longer service intervals. The recommended max. temperature for the PFA seal is 90°C (194°F).

Product and chemical resistance of flexible rubber materials

The information below is intended as an aid in selecting the best rubber quality for an actual application. It is not possible to state any general lifetime of rubber seals as many factors influence it: chemical attack, temperature, mechanical wear etc. Extreme temperatures, even within the generally accepted limits, may worsen other kinds of attack and thus reduce the lifetime.

Ratings

1 = Unsuitable.

2 = Limited suitability.

3 = Normal suitability.

4 = High suitability.

- = Not recommended for other reasons.

The table contains data which have been compiled from the results of our own tests and the recommendations of our raw material suppliers. The data should be considered as recommendations only and will be brought up-to-date from time to time. They are based on constant contact with the specified product.

In case of doubt or lack of information it would be advisable to consult us directly, which will enable us to investigate specific applications.

Product or process	NBR [1]	HNBR [2]	EPDM [3]	Q [4]	FPM [5]	PTFE [6]
Dairy products (milk, cream)	3	3-4	3-4	3-4	-	3-4
Dairy products (sour milk products)	3	3-4	3-4	3-4	-	3-4
Brewery products (beer, hops etc.)	3	3-4	3-4	1-2	2-3	3-4
Wine and yeast	3	3-4	4	4	2-3	3-4
Animal and vegetable fats: 100°C	3	4	1–2	3	4	3-4
Water and water solutions < 70°C	3	4	4	3	2-4	3-4
Hot water and steam < 130°C	1	4	4	2	-	3-4
Concentrated fruit juices and etheral oils < 100°C	1	-	1	1	3	3-4
Non-oxydising acids < 80°C	1-2	2	3	1–2	2	3-4
Oxydising acids < 80°C	-	2	3	1	2	3-4
Weak concentrate of lye < 100°C	2	3-4	4	2	2	3-4
Strong concentrate of lye < 100°C	1	2-3	3	1	1	3-4
Mineral oils < 110°C	3	4	-	-	4	3-4
Aliphatic carburetted hydrogen (hexane)	3	3	1	1	4	3-4
Aromatic carburetted hydrogen (benzole)	1	2	1	1	3	3-4
Alcohols	1–3	2-3	2-3	3-4	3-4	3-4
Ester and ketones	1-2	1-2	1-2	1-2	3-4	3-4
Ether	1	2	1	1-3	3-4	3-4
Methylene chloride	1	2	1	2-3	3-4	3-4
Ozone and atmospheric conditions	1-2	3	4	4	3-4	3-4

International designation of flexible rubber materials according to ISO R 1629.

ISO = International standard.

Notes

	Designation of flexible rubber materials	Abbreviation symbol
[1]	Nitrile rubber	N
[2]	Hydrogenated actylonitrile rubber	H
[3]	Ethylene propylene rubber	E
[4]	Silicone rubber	Q
[5]	Fluorinated rubber	F
[6]	Polytetraflour ethylene	

Compliance and certification

We can provide documented and certified compliance with a broad spectrum of relevant international and local hygiene standards, worldwide. This helps you significantly reduce the engineering costs of setting up and operating standard-compliant processing plants around the world.

Please find below some examples of regulations, standards, and guidelines applicable to our products used in hygienic applications.

More information can be found in Instruction Manuals on alfalaval.com page.

For special requests please contact your local Alfa Laval organization.

Authorized to carry the 3A symbol

The mission of 3-A SSI is to enhance product safety for consumers of food, beverages, and pharmaceutical products through the development and use of 3-A Sanitary Standards and 3-A Accepted Practices. The 3-A symbol is a registered mark used to identify equipment that meets 3-A Sanitary Standards for design and fabrication.

ATEX-directive is the popular name for the European Directive 2014/34/EU setting the rules for equipment and protective systems intended for use in potentially explosive atmospheres.

Compliance to the Regulation (EC) No. 1935/2004.

The framework regulation (EC) No. 1935/2004 regulates food contact materials and articles within EU. It includes several requirements for materials and articles intended to come into contact with food to ensure material safety.The glass and fork symbol may be used to indicate that the relevant requirements stated in (EC) No. 1935/2004 are met.

CE marking is a mandatory conformity mark for products placed on the market in the European Economic Area (EEA). With the CE marking on a product the manufacturer ensures that the product conforms with the essential requirements of the applicable EC directives. The letters "CE" stand for "Conformité Européenne" ("European Conformity").

UKCA marking is a mandatory conformity mark for products placed on the market in Great Britain (England, Scotland, and Wales). With the UKCA marking the manufacturer ensures that the product conforms with the relevant requirements of the applicable legislations.

Within United States, requirements for food contact materials and articles are specified by the Food and Drug Administration (FDA) and are regulated under the Code of Federal Regulations, Title 21 “Food and drugs”, Parts 170-199 “Food for human consumption”.

USP Class VI / ISO 10993

The United States Pharmacopeia (USP) standards, chapter 87 and 88, and International Organization for Standardization (ISO) standard 10993, sections 5, 6,10 and 11, specifies requirements to ensure biocompatibility of product contact parts intended to be used in pharma applications.

BPE

The American Society of Mechanical Engineers Bioprocessing Equipment (ASME BPE) is the Bioprocess Equipment group of the ASME that provides engineers and quality control professionals a measurable way to specify and purchase equipment for the Biotechnology, Pharmaceutical and Personal Care Products industries.

Mixing equipment

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Agitators

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:	AISI 316L (standard). Other materials on request
Seal rubber parts (O-rings or bellows):	FPM/FEP (only for stationary O-rings) EPDM or FPM Other materials on request
Mechanical seal parts:	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.

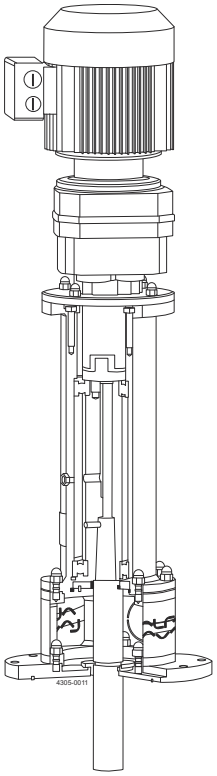
Advantageous and profitable design

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 dismounted from outside of the tank
Easy dismantling	use of spider type coupling and stainless steel parts (no corrosion)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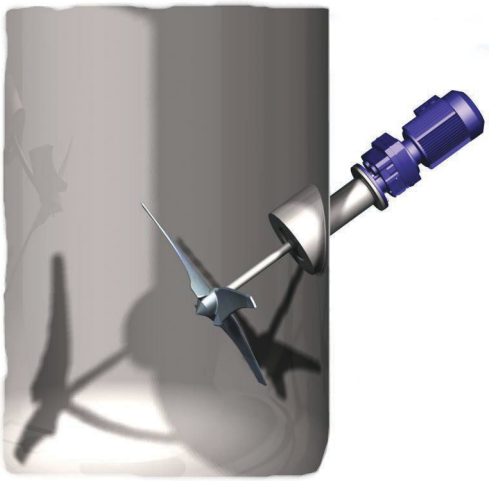
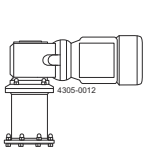
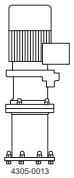
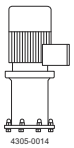
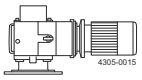
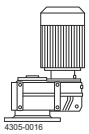
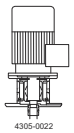
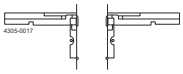
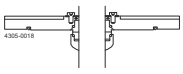
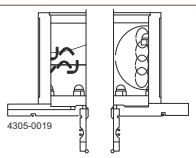
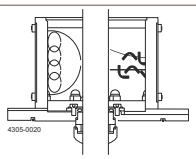
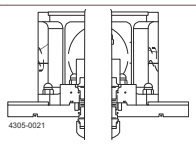


Side mounted agitators

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)	**-SIIII-** SS shaft, length according to application					
Energy Saving Foils Diameter = vvv (125 mm to 1900 mm)						
Description (material depending on application)	**-PvvvD3P** 3 - bladed propeller, finish: polished Standard: Ra < 0.8 µm	**-PvvvD3PE** 3 - bladed propeller, finish: polished and electro polished Standard: Ra < 0.8 µm	**-PvvvD3G** 3 - bladed propeller, finish: shot peened			

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

Alfa Laval ALT

Agitators

Introduction

The Alfa Laval ALT is a top-mounted agitator with free-hanging shaft 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 ALT agitator ideal for use in sterile and aseptic applications. An ATEX-certified version is available for use in potentially explosive environments.

Applications

The ALT top-mounted agitator is designed for a wide range of tank mixing and blending duties across the dairy, food, beverage, 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
- 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 and 3-A Sanitary Standards

Standard design

The Alfa Laval ALT top-mounted agitator consists of a drive unit with optional bearing frame, free-hanging shaft with special shaft seal, and one or multiple specially designed energy-saving impellers (EnSaFoil) with two or three blades. The Alfa Laval agitator range includes top-, bottom- and side-mounting models.

Working principle

The Alfa Laval ALT 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, 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
- Low level impeller
- 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 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 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

ATEX - option
Agitators can be delivered approved for use in an ATEX environment with declaration of conformity

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

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

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 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

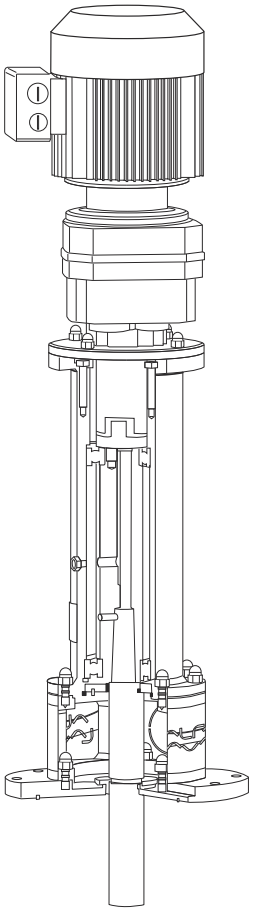
Maintenance features	Due to
All service (replacement of wearing parts such as shaft seals, bearings etc.) can be done from outside the tank:	bearing frame drives with detachable shaft which can be dismounted from outside the tank
Easy dismantling:	use of spider type coupling and stainless steel parts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

Configurable design

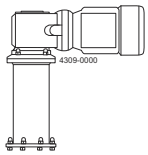
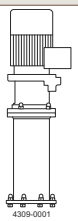
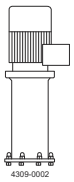
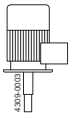
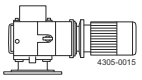
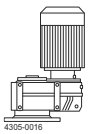
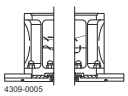
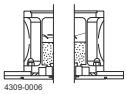
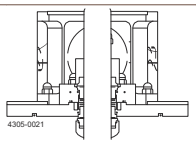
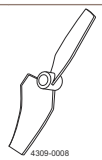
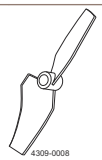
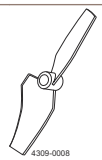
Type ALT agitator design is fully configurable divided in the following elements:

- 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.



Top mounted agitators

Type ALT	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 (for low head room applications)	**-ME-GC-Bxx(/yy)** Stainless steel bearing frame and coaxial gearbox	**-ME-Bxx(/yy)** Stainless steel bearing frame and direct motor drive	**-ME-yy** Direct motor drive, shaft connected directly to motor	**-ME-GR-yy -ME-GW-yy** Right angle (GR) or worm (GW) 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)	**F-R-** Seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) 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-** 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

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

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 °C
CIP:	Max. 95 °C
SIP:	Max. 150 °C

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.

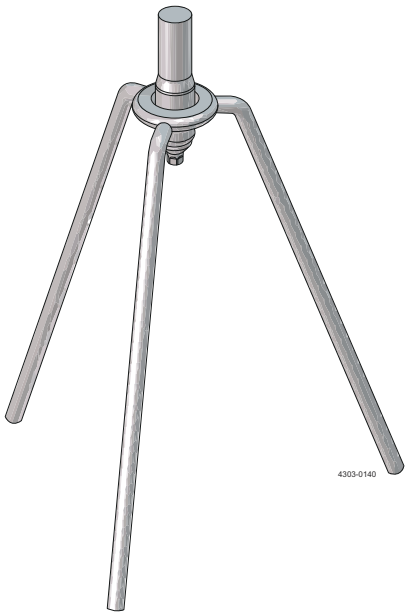
Advantageous and profitable design

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

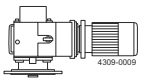
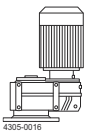
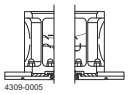
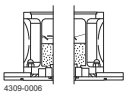
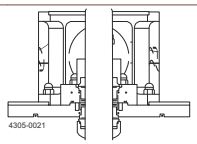
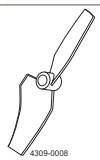
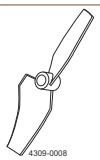
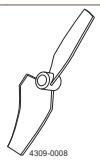
Hygienic features	Due to
Connections inside the tank (risk zones) can be avoided:	propellers can be welded onto the shaft
Good drip off properties:	no plane surfaces or grooves on internal parts
Easy cleaning:	no interior shadow sides between the blades and smooth surfaces

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	 4309-0009	 4305-0016				
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	 4309-0004	 4309-0005	 4309-0006	 4305-0021		
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)	 4308-0010	 4308-0010	 4308-0010	 4309-0008	 4309-0008	 4309-0008
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

Alfa Laval ALB

Agitators

Introduction

The Alfa Laval ALB is a bottom-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 ALB agitator ideal for use in sterile and aseptic applications.

Applications

The ALB bottom-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
- Can be configured for minimum energy consumption
- Gentle product treatment
- More uptime, higher yields due to low maintenance requirements
- Meets EU and US standards and regulations such as EHEDG, USDA, FDA and 3-A Sanitary Standards

Standard design

The Alfa Laval ALB bottom-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 Alfa Laval agitator range includes top-, bottom- and side-mounting models.

Working principle

The Alfa Laval ALB bottom-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 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
- Stainless steel cover for motor/gear motor
- Spare part kit

Certification

Alfa Laval Q-doc 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

ATEX - option
Agitators can be delivered approved for use in an ATEX environment with declaration of conformity.

Materials. List the range of materials available for wetted parts:	
Steel parts:	AISI 316L (standard)
	Other materials on request
Seal rubber parts (O-rings or bellows):	EPDM
	FPM/FEP (only for stationary O-rings)
	FPM
	Other materials on request

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

PHYSICAL DATA

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 1900 mm.
Specific dimensions on the drive unit and propeller(s) will depend on the actual configuration selected.	

Configurable design

Type ALB 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

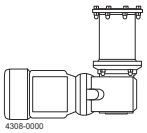
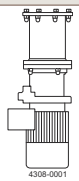
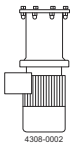
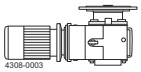
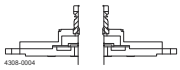
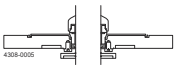
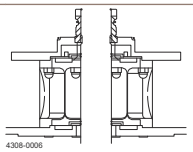
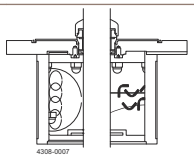
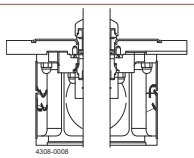
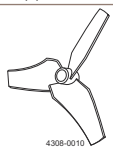
Each configuration offers a number of advantages, which are shown in the examples below:

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 seal O-rings (for washing)
Connections inside the tank (risk zones) can be minimised	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 outside the tank	bearing frame drives with detachable shaft which can be dismounted from outside the tank
Easy dismantling	use of spider type coupling and stainless steel parts

Bottom mounted agitators

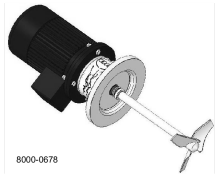
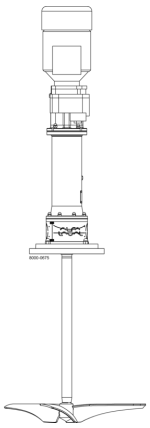
Type ALB	Configuration				
Drives Bearing frame size = xx Shaft diameter = yy (not used if xx = yy)	 4308-0000	 4308-0001	 4308-0002	 4308-0003	
Description (power, speed and shaft diameter depending on application)	**-ME-GR-Bxx(/yy)** Right angle gearbox, shaft mounted in hollow shaft of gearbox	**-ME-GC-Bxx(/yy)** 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	
Seal arrangements	 4308-0004	 4308-0005	 4308-0006	 4308-0007	 4308-0008
Description (lower flange and seal material depending on application)	**F-S1-** Seal flange with O-ring seal against tank flange, drain, fluid trap and shaft seal: single mechanical bellow seal	**F-S2-** Seal flange with O-ring seal against tank flange, drain, fluid trap and shaft seal: single mechanical non-bellow seal	**LF-S1-** Lantern (spacer), seal flange with O-ring seal against tank flange, drain, fluid trap and shaft seal: single mechanical bellow seal	**LF-S2-** Lantern (spacer), seal flange with O-ring seal against tank flange, drain, fluid trap and shaft seal: single mechanical non-bellow seal	**LF-D-** Lantern (spacer), seal flange with O-ring seal against tank flange, drain, fluid trap and shaft seal: double mechanical seal for high pressure applications and aseptic use
Shaft	 4308-0009				
Length = llll Description (material depending on application)	**-Sllll-** SS shaft, length according to application				
Energy Saving Foils Diameter = vvv (125 mm to 1900 mm)	 4308-0010	 4308-0010	 4308-0010		
Description (material depending on application)	**-PvvvU3P** 3 - bladed propeller, finish: polished Standard: Ra <0.8 µm	**-PvvvU3PE** 3 - bladed propeller, finish: polished and electro polished Standard: Ra <0.8 µm	**-PvvvU3G** 3 - bladed propeller, finish: shot peened		

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

ALSIS Code: 5504

Item no.	Volume range	KW	Ø imp.	RPM	Welding flange	
	[m3] at 10°C		(mm)			
						ALS, EU + CN, 0-10 cP, Direct drive
9615041480	Up to 6.1	0.75	175	955	TE2603023190	
9615041481	6 < X ≤ 11	0.75	200	955	TE2603023190	
9615041482	11 < X ≤ 19	1.10	225	955	TE2603023190	
9615040676	19 < X ≤ 31	2.20	250	965	TE2603022590	
9615040679	31 < X ≤ 70	4.00	300	970	TE2603022590	
9615040680	70 < X ≤ 140	5.50	350	970	TE2603022590	
						ALS, EU, 0-10 cP, Geared drive
9615041289	2 < X ≤ 8	0.25	300	275	TE2603023190	
9615041290	8 < X ≤ 18	0.37	350	295	TE2603023190	
9615041291	18 < X ≤ 30	0.55	400	276	TE2603023190	
9615041300	30 < X ≤ 36	0.55	450	221	TE2603023190	
9615041493	36 < X ≤ 57	0.75	500	220	TE2603023190	
9615041483	57 < X ≤ 90	1.1	550	222	TE2603023190	
9615041224	90 < X ≤ 148	1.5	600	238	TE2603023190	
9615041494	209 < X ≤ 286	3.0	700	234	TE2603022590	
9615041486	286 < X ≤ 368	4.0	700	276	TE2603022590	
9615041495	368 < X ≤ 466	5.5	750	262	TE2603022590	

Liquid mixers

Alfa Laval SB Static Mixer

Liquid mixers

Introduction

The Alfa Laval SB Static Mixer is a static mixer mainly intended for dissolving gasses into liquids. In this case the mixer is equipped with a gas inlet connection.

It can also be used for mixing of different liquids in case the mixing requires high mixing force. The mixer Type L is in this case delivered without any gas inlet.

The Alfa Laval SB Static Mixer is intended for mixing of liquids demanding low or medium mixing force.

Since the mixer can be used at high pressure and that a certain product treatment takes place inside, it has been concluded that the mixer is to be considered as pressure vessel - and thereby subject to approval according to relevant PED regulations.

The design is made according to EN 13445 (unfired pressure vessels), inspection and testing according to rules for conformity assessment in this directive

Application

HP Mixer Type L – For mixing and dissolving gases into liquids and for mixing of liquids demanding high mixing force.

HP Mixer Type S – For mixing of liquids demanding low mixing force.

Benefits

- Hygienic - no sintered parts
- All parts in contact with the liquid are made of stainless steel
- Sanitary design
- Compact
- Easy to install

Standard design

The mixer is supplied with flange connection or nut and liner both with weld end according to ISO 2037 or DIN11850.

Working principle

The HP Mixer is a specially developed high performance static mixer for brewery or other beverage applications. The product components are mixed by a combination of pressure and turbulence.

The mixer consists of an outer shell and an insert which is positioned at the centre. The insert is equipped with propeller shaped wings that puts the incoming liquid(s) into rotation. When this has been obtained, another pair of wings changes the rotation direction and the turbulence created gives an extremely effective mixing.

The mixer type L with gas connection is designed so that the gas inlet is located at a position where the turbulence is at a maximum. This means that the injected gas will be dispersed in very small bubbles that are easily dissolved into the liquid phase.

Technical Data

HP Mixer Type L	Approx. length (mm/inch)	Kv/Cv (water)
HP - LF - 51	480/19	7.5/8.7
HP - L - 51	680/27	10/11.6
HP - L - 63	920/36	20/23
HP - L - 76	1060/42	25/28.9
HP - L - 101	1250/49	35/40.5
HP - L - 125	1550/61	65/75
HP - L - 150	1560/61	110/127

HP Mixer Type S	Approx. length (mm/inch)	Kv/Cv (water)
HP - S - 51	420/17	15/17
HP - S - 63	540/21	25/28.9
HP - S - 76	630/24	35/40.5
HP - S - 101	750/30	55/63.6
HP - S - 125	900/35	65/75

Flow range in tables is indicative only - selection of most suitable mixer to be done based on the actual application.

Calculation of pressure drop for water according to the following formula:

$$\Delta P = \frac{Q^2}{Kv^2}$$

ΔP = Pressure drop in bar / PSI

Q = Flow in m^3/h / Gallons

Physical Data

Material Specifications	
Product wetted steel surfaces	EN 1.4404 (AISI 316L)
Product wetted seals	EPDM

Installation Recommendations

The mixer can be installed in horizontal or vertical position. In cases of low flow rates, the mixing action is improved if the mixer is installed vertically.

ALSIS Code: 5540

Product wetted steel part: 1.4404 (316L)
Surface finish: Shot blasted
Product wetted seals: EPDM

Item no.	Size		Connection type	Gas inlet	Kv water	Dimension A		
	iso	din				(mm)	(inch)	
								L - 51
9680125970	51		Nut and liner with weld end	No	10	680	27	
9680125972	51		Nut and liner with weld end	Yes	10	680	27	
9680151441		DN50	Nut and liner with weld end	No	10	680	27	
9680151447		DN50	Nut and liner with weld end	Yes	10	680	27	
								L - 63
9680151454		DN65	Nut and liner with weld end	No	20	920	36	
9680151455	63.5		Nut and liner with weld end	No	20	920	36	
9680151457		DN65	Nut and liner with weld end	Yes	20	920	36	
9680151458	63.5		Nut and liner with weld end	Yes	20	920	36	
								L - 76
9680147475	76.1		Nut and liner with weld end	No	25	1060	42	
9680151462		DN80	Nut and liner with weld end	No	25	1060	42	
9680151464		DN80	Nut and liner with weld end	Yes	25	1060	42	
9680151465	76.1		Nut and liner with weld end	Yes	25	1060	42	
								L - 101
9680151469		DN100	Nut and liner with weld end	No	35	1250	49	
9680151470	101.6		Nut and liner with weld end	No	35	1250	49	
9680151472		DN100	Nut and liner with weld end	Yes	35	1250	49	
9680151473	101.6		Nut and liner with weld end	Yes	35	1250	49	
								L - 125
9680151476		DN125	Flange	No	65	1550	61	
9680151478		DN125	Nut and liner with weld end	Yes	65	1550	61	
9680151479		DN125	Nut and liner with weld end	Yes	65	1550	61	
								L - 150
9680151482		DN150	Flange	No	110	1560	61	
9680151484		DN150	Nut and liner with weld end	Yes	110	1560	61	
9680151485		DN150	Nut and liner with weld end	Yes	110	1560	61	
								LF - 51
9680125971	51		Nut and liner with weld end	No	7.5	480	19	
9680126421		DN50	Nut and liner with weld end	No	3.5	480	19	
9680151443		DN50	Nut and liner with weld end	No	7.5	480	19	
9680151446	51		Nut and liner with weld end	No	3.5	480	19	
9680151448		DN50	Nut and liner with weld end	Yes	7.5	480	19	
9680151449	51		Nut and liner with weld end	Yes	7.5	480	19	
9680151450		DN50	Nut and liner with weld end	Yes	3.5	480	19	
9680151451	51		Nut and liner with weld end	Yes	3.5	480	19	

ALSIS Code: 5540

Product wetted steel part: 1.4404 (316L)
Surface finish: Shot blasted
Product wetted seals: EPDM

Item no.	Size		Connection type	Gas inlet	Kv water	Dimension A		
	iso	din				(mm)	(inch)	
								S - 51
9680151438		DN50	Nut and liner with weld end	No	15	420	17	
9680151439	51		Nut and liner with weld end	No	15	420	17	
								S - 63
9680125973	63.5		Nut and liner with weld end	No	25	540	21	
9680151452		DN65	Nut and liner with weld end	No	25	540	21	
								S - 76
9680151459		DN80	Nut and liner with weld end	No	35	630	24	
9680151460	76.1		Nut and liner with weld end	No	35	630	24	
								S - 101
9680151466		DN100	Nut and liner with weld end	No	55	750	30	
9680151467	101.6		Nut and liner with weld end	No	55	750	30	
								S - 125
9680151474		DN125	Flange	No	80	900	35	

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Tank mixers

Alfa Laval LeviMag®

Mixers

Introduction

The Alfa Laval LeviMag® is an aseptic magnetic mixer that uses a patented levitating impeller and advanced design to mix down to the last drop and maximize product yield.

Compact, energy-efficient and easy to maintain, it provides dry-running capabilities and efficient mixing at low speeds, which ensures gentle product treatment, as well as at high speeds for high-intensity mixing. This provides greater process flexibility to handle a wide range of fluid types and mixing duties.

Its open design and low-speed rotation during cleaning contribute to effective residue removal and minimize contamination risks from wear particles. All this contributes to fast return on investment and maximum product yield in tanks ranging in size between 30 litres and 40,000 litres.

It is supplied with Alfa Laval Q-doc, a comprehensive documentation package that provides full transparency of the entire supply chain.

Applications

Alfa Laval LeviMag magnetic mixer offers effective mixing for multiple processes in the dairy, food, beverage, biotechnology, pharmaceutical and other industries that have demanding requirements for sterile or aseptic storage or processing.

Benefits

- Maximum process efficiency, minimal product loss
- Optimal flow with higher efficiency and less energy consumption
- Mixing down to the last drop for maximum yield due to low agitation and dry-running capability
- Optimized Cleaning-in-Place (CIP) due to full drainability
- Minimized downtime due to ease of maintenance

Standard design

The Alfa Laval LeviMag consists of a detachable drive unit, levitating impeller unit with radial blades, seals, ceramic bearings and magnetic coupling, weld plate and connections. It is available in five sizes, with mixing speeds ranging from 10 rpm up to 800 rpm.

Working principle

An impeller with radial blades installed inside the tank rotates due to the torque from the magnetic coupling. The rotation of the impeller mixes the fluid inside the tank. The unique design of the Alfa Laval magnetic coupling ensures the levitation of the impeller at all times. This enables dry-running and complete drainability of process fluids from the tank possible. This ensures highly efficient mixing down to the last drop and, subsequently, maximum yield. It also enables the free flow of CIP liquid and steam around all parts of the mixer, thereby ensuring thorough cleaning. Impeller levitation also eliminates axial wear.

Available versions

- Impeller with male/female bearing
- Impeller complete, with drive unit
- ATEX version (Cat. II -/2G Ex h IIC T4 -/Gb)

Drive unit versions

- Painted (fan ventilated)
- Clean room finish, Sealed Surface Conversion Treatment (smooth, closed, none fan ventilated)
- Extended console for insulated tanks

Motor efficiency

- IE4 (standard)
- Premium (CUS for US)

Safety class

- No requirements (IE4, Premium)
- Eex-de IIC T4 (on ATEX version)
- Class I div.I, group D T4

Accessories:

- Weld plates
- Inspection & Service tools
- Installation tools

TECHNICAL DATA

Internals	
Product Wetted Surface finish:	Ra <0.8 µm Mech. Polished
Working pressure:	-1 to 7 bar(g)
Impeller diameters:	100, 150, 200, 250 & 300 mm

Weld Plate	
Size WP50:	For impeller size 100 & 150 mm
Size WP81:	For impeller size 200, 250 & 300 mm

Drive Unit	
Motor, IE4 (standard)	
Integrated Permanent Magnet Synchron Motor (IPMSM) which has to be operated with a frequency inverter for IE4 motors	
The frequency converter (not Alfa Laval supply) must be ordered for the voltage available at the place of operation	
Efficiency class:	IE4
Enclosure / Motor protection:	IP66
Configuration:	Blue
Nominal Power:	1.1 kW
Nominal Voltage and frequency (from frequency converter):	Output 217 VAC, connected in delta, 70 Hz, 2100 RPM
Nominal Current:	3.59 A
Configuration:	Clean room, WP50
Nominal Power:	0.75 kW
Nominal Voltage and frequency (from frequency converter):	Output 199 VAC, connected in delta, 70 Hz, 2100 RPM
Nominal Current:	2.53 A
Configuration:	Clean room, WP81
Nominal Power:	1.1 kW
Nominal Voltage and frequency (from frequency converter):	Output 195 VAC, connected in delta, 70 Hz, 2100 RPM
Nominal Current:	3.61 A
Country Code:	All (one type covers all)

Motor, option Premium/CUS	
Efficiency class:	Premium
Enclosure / Motor Protection:	IP66
Configuration:	Blue, WP50
Nominal Power:	0.37 kW
Nominal Voltage and frequency (from frequency converter):	Output 265 VAC, connected in delta, 60 Hz
Nominal Current:	1.40 A
Configuration:	Blue, WP81
Nominal Power:	0.75 kW
Nominal Voltage and frequency (from frequency converter):	Output 265 VAC, connected in delta, 60 Hz
Nominal Current:	2.72 A
Country Code:	US/CA

Motor, option ATEX	
Efficiency class:	IE3
Enclosure / Motor Protection:	IP66
Safety class:	II2G Ex de IIC T4
Configuration:	Blue, WP50
Nominal Power:	0.25 kW
Nominal Voltage and frequency (from frequency converter):	Output 230 VAC, connected in delta, 50 Hz
Nominal Current:	1.30 A
Configuration:	Blue, WP81
Nominal Power:	0.75 kW
Nominal Voltage and frequency (from frequency converter):	Output 230 VAC, connected in delta, 50 Hz
Nominal Current:	2.94 A
Country Code:	EU + Not specific

Motor, option LV Explosion Proof Motor	
Efficiency class:	Premium
Enclosure / Motor Protection:	IP66
Safety class:	Class1 Div1 Group D
Configuration:	Blue, WP50
Nominal Power:	0.37 kW
Nominal Voltage and frequency (from frequency converter):	Output 208-230 VAC, connected in delta, 60 Hz
Nominal Current:	2.1 – 2.0 A
Configuration:	Blue, WP81
Nominal Power:	1.1 kW
Nominal Voltage and frequency (from frequency converter):	Output 230 VAC, connected in delta, 60 Hz
Nominal Current:	4.4 A
Country Code:	US/CA

Gear	
High efficiency helical bevel right angle gearbox.	
Lubricant:	Food compatible oil
Maximum mounting angle acc. to horizontal:	0° - 45° (Different angle intervals based on configuration - Note: Motor may not point downwards)
Surface finish drive unit, standard:	Painted Blue RAL 5010
Surface finish drive unit, Clean Room option:	Sealed Surface Conversion Treatment, Smooth Body (no fan)

Console/flange	
Standard height or option for extended height for insulated tanks.	
Attachment, Size WP50:	Clamp connection
Attachment, Size WP81:	Flange-bolt connection

PHYSICAL DATA

Materials	
Impeller and Weld plate:	AISI316L (UNS S31603)
Drive Rotor, shaft and console/flange:	AISI304 (UNS S30400)
Gear motor, Painted:	C2 according to DIN 12944 (NSF/ANSI 51-2009e)
Gear motor, Clean room:	Permanent Bond Surface (nsd tupH) - compl. w. FDA Title 21 CFR 175.300
Male Bearing:	
Female bearing:	Silicium Carbide (EN 12756)
Seals:	FEP/FKM
Gearbox oil:	USDA H1

Temperatures	
During product Mixing, media:	Max. 90 °C
During CIP (max. 50 RPM):	Max. 95 °C
During SIP (max. 50 RPM):	Max. 125 °C
During SIP (max. 0 RPM):	Max. 150 °C

Max. speed	
Impeller size 100:	800 RPM (81 Hz)
Impeller size 150:	480 RPM (48.5 Hz)
Impeller size 200:	480 RPM (83 Hz)
Impeller size 250:	230 RPM (40 Hz)
Impeller size 300:	200 RPM (34.5 Hz)

Documentation:

As standard with Q-Doc including:

- Compliance with Regulation (EC) No.: 1935/2004
- Compliance with (Ex/ATEX) directive 2014/34/EU (ATEX option, II -/2G Ex h IIC T4 -/Gb)
- Compliance to the EC Regulation for GMP
- 3.1 Material Certificates acc. to EN10204 (MTR) for all wetted parts
- Compliance to FDA CFR 21 (non-metallic parts) for elastomers, ceramics and gear oil
- TSE (Transmissible Spongiform Encephalopathy) / ADI (Animal Derivative Ingredient) Declaration
- Surface finish compliance declaration

Build up:

1. Impeller
2. Seals
3. Female Bearing
4. Male Bearing
5. Weld Plate
6. Clamp ring connection (WP50 only)
7. Flange-Bolt Connection (WP81 only)
8. Drive unit

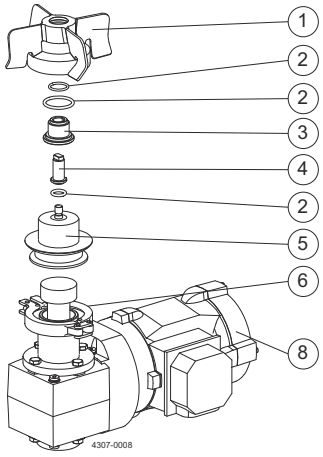


Figure 1. LeviMag WP50

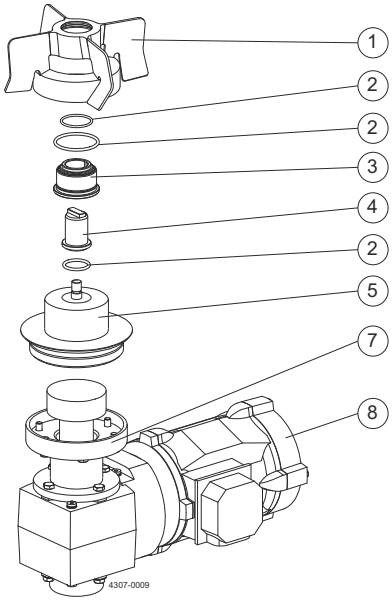
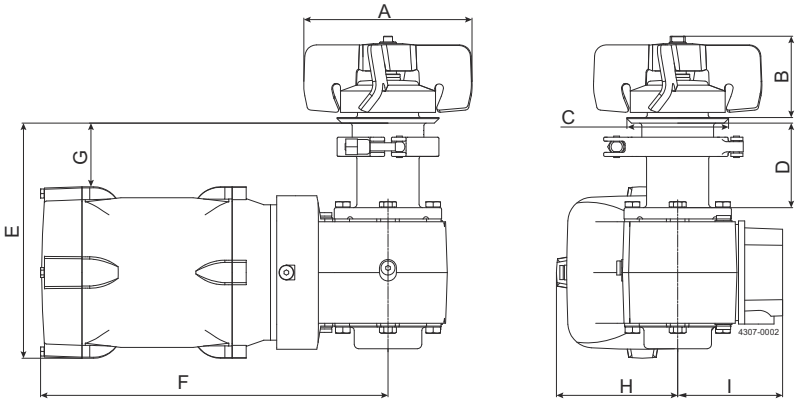


Figure 2. LeviMag WP81

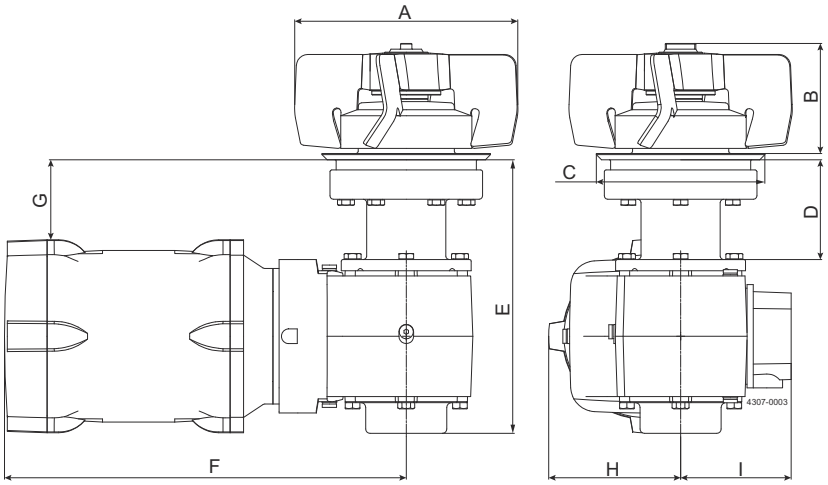
Dimensions (mm)



LeviMag WP50

Model	Size WP50 - Ø100 impeller				Size WP50 - Ø150 impeller			
Configuration	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor
A	Ø100	Ø100	Ø100	Ø100	Ø150	Ø150	Ø150	Ø150
B	72	72	72	72	72	72	72	72
C	Ø90	Ø90	Ø90	Ø90	Ø90	Ø90	Ø90	Ø90
D	75	125	75	125	75	125	75	125
E IE4	215	265	209	259	215	265	209	259
F IE4	340	340	308	308	340	340	308	308
G IE4	50	100	57	107	50	100	57	107
H IE4	114	114	108	108	114	114	108	108
I IE4	111	111	93	93	111	111	93	93
E Premium/CUS	202	252	-	-	202	525	-	-
F Premium/CUS	318	318	-	-	318	318	-	-
G Premium/CUS	63	113	-	-	63	113	-	-
H Premium/CUS	105	105	-	-	105	105	-	-
I Premium/CUS	94	94	-	-	94	94	-	-
E ATEX	202	252	-	-	202	252	-	-
F ATEX	373	373	-	-	373	373	-	-
G ATEX	62	112	-	-	62	112	-	-
H ATEX	105	105	-	-	105	105	-	-
I ATEX	119	119	-	-	119	119	-	-

Model	Size WP50 - Ø100 impeller				Size WP50 - Ø150 impeller			
Configuration	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor
E LV Explosion Proof	223	273	-	-	223	273	-	-
F LV Explosion Proof	520	520	-	-	520	520	-	-
G LV Explosion Proof	45	95	-	-	45	95	-	-
H LV Explosion Proof	123	123	-	-	123	123	-	-
I LV Explosion Proof	142	142	-	-	142	142	-	-



LeviMag WP81

Model	Size WP81 - Ø200 impeller				Size WP81 - Ø250 impeller				Size WP81 - Ø300 impeller			
Configuration	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor
A	Ø200	Ø200	Ø200	Ø200	Ø250	Ø250	Ø250	Ø250	Ø300	Ø300	Ø300	Ø300
B	98	98	98	98	98	98	98	98	98	98	98	98
C	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149
D	89	139	89	139	89	139	89	139	89	139	89	139
E IE4	243	293	243	293	243	293	243	293	243	293	243	293
F IE4	354	354	357	357	354	354	357	357	354	354	357	357
G IE4	74	124	70	120	74	124	70	120	74	124	70	120
H IE4	114	114	117	117	114	114	117	117	114	114	117	117
I IE4	111	111	98	98	111	111	98	98	111	111	98	98
E Premium/CUS	243	293	-	-	243	293	-	-	243	293	-	-
F Premium/CUS	354	354	-	-	354	354	-	-	354	354	-	-
G Premium/CUS	78	128	-	-	78	128	-	-	78	128	-	-
H Premium/CUS	110	110	-	-	110	110	-	-	110	110	-	-
I Premium/CUS	112	112	-	-	112	112	-	-	112	112	-	-
E ATEX	294	344	-	-	294	344	-	-	294	344	-	-
F ATEX	418	418	-	-	418	418	-	-	418	418	-	-
G ATEX	77	127	-	-	77	127	-	-	77	127	-	-
H ATEX	110	110	-	-	110	110	-	-	110	110	-	-
I ATEX	144	144	-	-	144	144	-	-	144	144	-	-
E LV Explosion Proof	248	298	-	-	248	298	-	-	248	298	-	-
F LV Explosion Proof	534	534	-	-	534	534	-	-	534	534	-	-

Model	Size WP81 - Ø200 impeller				Size WP81 - Ø250 impeller				Size WP81 - Ø300 impeller			
Configuration	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor
G LV Explosion Proof	69	119	-	-	69	119	-	-	69	119	-	-
H LV Explosion Proof	123	123	-	-	123	123	-	-	123	123	-	-
I LV Explosion Proof	142	142	-	-	142	142	-	-	142	142	-	-

Machine Selection

LeviMag can be sized and configurated in Alfa Laval configurator. Selection of size can also be done by use of the below selection charts.

Needed information for selection of size:

- Media Viscosity
- Tank Volume
- Tank diameter and tank bottom shape
- Duty (see below Duty Levels)

Duty Level	Duty	Description
1	Keep media homogenous	Keeping fluids homogenous & low gradient heat transfer
2	Mild blending	Simple blending of miscible fluids & high gradient heat transfer, no specific request to mixing time, create suspension if deposit velocity is below 0.015 m/s
3	Mixing	Mixing of fluids, relative low mixing time, create suspension if deposit velocity is below 0.03 m/s
4	Powerful mixing	Dissolving solids, very low mixing time, create suspension if deposit velocity is below 0.06 m/s

Preconditions for using the selection charts

- Liquid height must be equal to or lower than 2½ times the tank diameter
- Specific gravity of the media must be less than or equal to 1.1
- If duty involves suspension of particles (see deposit velocity limits in the duty levels), the tank diameter D must be:

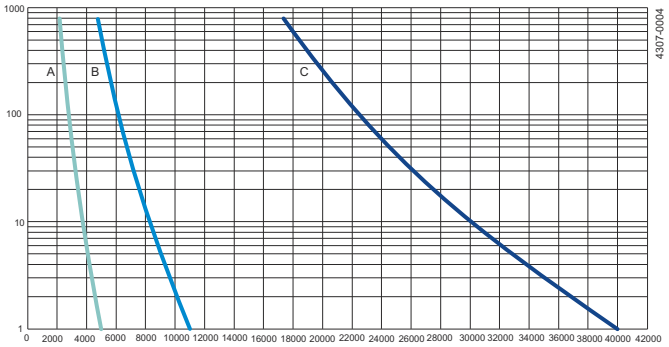
$$D \leq \sqrt[3]{\frac{V \times 4}{\pi}}$$

  where V is the Net Volume
- If preconditions are not fulfilled please contact Alfa Laval Global Technical Support

How to select

1. Select duty
2. Check preconditions
3. Go to the chart for the chosen duty
4. Read out the point for the requested tank volume (X-axis) and viscosity (Y-axis)
5. Choose the curve to the right from the point
6. If physically possible a larger impeller size can always be chosen - eg. to obtain a gentler product treatment (operating at lower speed)

Viscosity [CP]

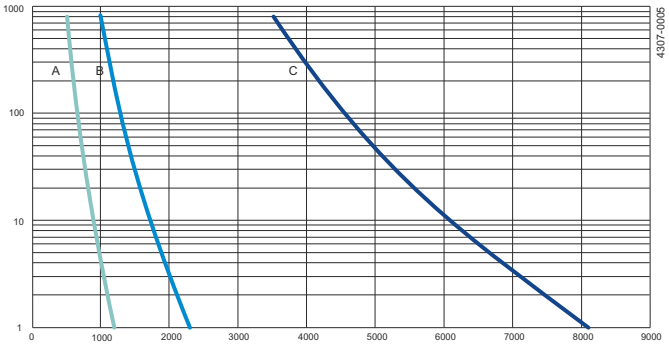


Net Volume [liter]

A = LeviMag size 100 mm
B = LeviMag size 150 mm
C = LeviMag size 200, 250 and 300 mm

Figure 3. Duty Level 1: Keep media homogenous Volume vs. Vicosity

Viscosity [CP]

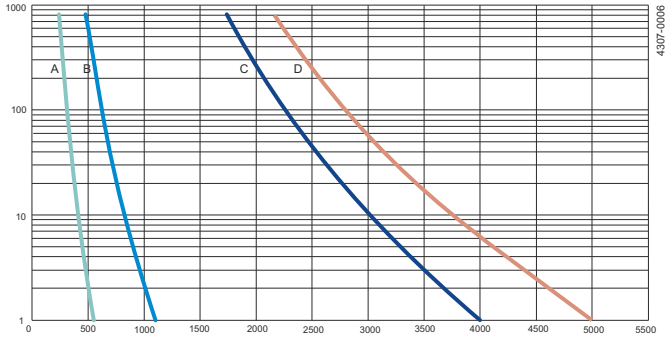


Net Volume [liter]

A = LeviMag size 100 mm
B = LeviMag size 150 mm
C = LeviMag size 200, 250 and 300 mm

Figure 4. Duty Level 2: Mild blending Volume vs. Vicosity

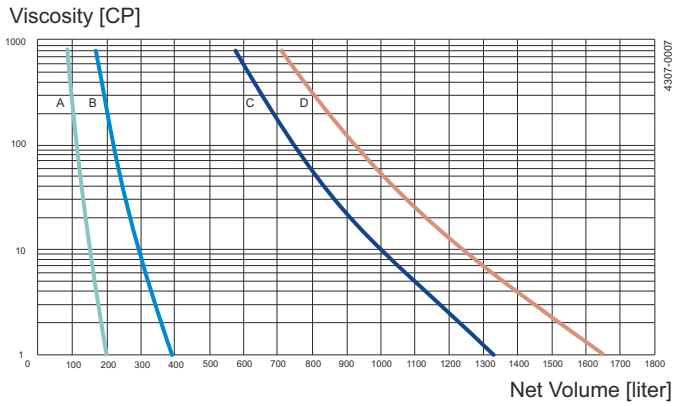
Viscosity [CP]



Net Volume [liter]

A = LeviMag size 100 mm
B = LeviMag size 150 mm
C = LeviMag size 200, 250 mm
D = LeviMag size 300 mm

Figure 5. Duty Level 3: Mixing Volume vs. Vicosity



A = LeviMag size 100 mm
B = LeviMag size 150 mm
C = LeviMag size 200, 250 mm
D = LeviMag size 300 mm

Figure 6. Duty Level 4: Powerfull mixing Volume vs. Vicosity

Alfa Laval LeviMag® UltraPure

Mixers

Introduction

The Alfa Laval LeviMag® UltraPure is an aseptic magnetic mixer that uses a patented levitating impeller and advanced design to mix down to the last drop and maximize product yield.

Compact, energy-efficient and easy to maintain, it provides dry-running capabilities and efficient mixing at low speeds, which ensures gentle product treatment, as well as at high speeds for high-intensity mixing. This provides greater process flexibility to handle a wide range of fluid types and mixing duties.

Its open design and low-speed rotation during cleaning contribute to no dead zones, effective residue removal and minimize contamination risks from wear particles. All this contributes to fast return on investment and maximum product yield in tanks ranging in size between 30 litres and 40,000 litres.

It is supplied with Alfa Laval Q-doc, a comprehensive documentation package that provides full transparency of the entire supply chain and helps make the validation process easy.

Applications

Alfa Laval LeviMag UltraPure offers effective mixing for multiple processes, such as those involving serums, vaccines, plasma fractions, bacteria and cell cultures, and APIs, in the biotechnology, pharmaceutical and other industries with demanding sterile or high-purity applications.

Benefits

- Maximum process efficiency, minimal product loss
- Optimal flow with higher efficiency and less energy consumption
- Mixing down to the last drop for maximum yield due to low agitation and dry-running capability
- Optimized Cleaning-in-Place (CIP) due to full drainability
- Minimized downtime due to ease of maintenance

Standard design

The Alfa Laval LeviMag UltraPure consists of a detachable drive unit, levitating impeller unit with radial blades, seals, ceramic bearings and magnetic coupling, weld plate and connections. It is available in five sizes, with mixing speeds ranging from 10 rpm up to 800 rpm.

Working principle

An impeller with radial blades installed inside the tank rotates due to the torque from the magnetic coupling. The rotation of the impeller mixes the fluid inside the tank. The unique design of the Alfa Laval magnetic coupling ensures the levitation of the impeller at all times. This enables dry-running and complete drainability of process fluids from the tank possible. This ensures highly efficient mixing down to the last drop and, subsequently, maximum yield. It also enables the free flow of CIP liquid and steam around all parts of the mixer, thereby ensuring thorough cleaning. Impeller levitation also eliminates axial wear.

Available versions

- Impeller with male/female bearing
- Impeller complete, with drive unit
- Impeller prepared for Speed Sensor
- ATEX version (Cat. II -/2G Ex h IIC T4 -/Gb)
- SS EN 1.4435 (316L) as standard, Special Alloys EN 1.4529 or EN 2.4602 available on request

Drive unit versions

- Painted (fan ventilated)
- Clean room finish, Sealed Surface Conversion Treatment (smooth, closed, none fan ventilated)
- Extended console for insulated tanks

Motor efficiency

- IE4 (standard)
- Premium (CUS for US)

Safety class

- No requirements (IE4, Premium)
- Eex-de IIC T4 (on ATEX version)
- Class I div.I, group D T4

Accessories

- Weld plates
- Speed Sensor
- Inspection & Service tools
- Installation tools

TECHNICAL DATA

Internals	
Product Wetted Surface finish:	Ra <0.38 µm Mech. polished and Electropolished (Acc. to ASME BPE SF4)
Working pressure:	-1 to 7 bar(g)
Impeller diameters:	100, 150, 200, 250 & 300 mm Standard or prepared for speed sensor
Versions:	Standard or prepared for speed sensor

Weld Plate	
Size WP50:	For impeller size 100 & 150 mm
Size WP81:	For impeller size 200, 250 & 300 mm

Drive Unit	
Motor, IE4 (standard)	
Integrated Permanent Magnet Synchron Motor (IPMSM) which has to be operated with a frequency inverter for IE4 motors	
The frequency converter (not Alfa Laval supply) must be ordered for the voltage available at the place of operation	
Efficiency class:	IE4
Enclosure / Motor protection:	IP66
Configuration:	Blue
Nominal Power:	1.1 kW
Nominal Voltage and frequency (from frequency converter):	Output 217 VAC, connected in delta, 70 Hz, 2100 RPM
Nominal Current:	3.59 A
Configuration:	Clean room, WP50
Nominal Power:	0.75 kW
Nominal Voltage and frequency (from frequency converter):	Output 199 VAC, connected in delta, 70 Hz, 2100 RPM
Nominal Current:	2.53 A
Configuration:	Clean room, WP81
Nominal Power:	1.1 kW
Nominal Voltage and frequency (from frequency converter):	Output 195 VAC, connected in delta, 70 Hz, 2100 RPM
Nominal Current:	3.61 A
Country Code:	All (one type covers all)

Motor, option Premium/CUS	
Efficiency class:	Premium
Enclosure / Motor Protection:	IP66
Configuration:	Blue, WP50
Nominal Power:	0.37 kW
Nominal Voltage and frequency (from frequency converter):	Output 265 VAC, connected in delta, 60 Hz
Nominal Current:	1.40 A
Configuration:	Blue, WP81
Nominal Power:	0.75 kW
Nominal Voltage and frequency (from frequency converter):	Output 265 VAC, connected in delta, 60 Hz
Nominal Current:	2.72 A
Country Code:	US/CA

Motor, option ATEX	
Efficiency class:	IE3
Enclosure / Motor Protection:	IP66
Safety class:	II2G Ex de IIC T4
Configuration:	Blue, WP50
Nominal Power:	0.25 kW
Nominal Voltage and frequency (from frequency converter):	Output 230 VAC, connected in delta, 50 Hz
Nominal Current:	1.30 A
Configuration:	Blue, WP81
Nominal Power:	0.75 kW
Nominal Voltage and frequency (from frequency converter):	Output 230 VAC, connected in delta, 50 Hz
Nominal Current:	2.94 A
Country Code:	EU + Not specific

Motor, option LV Explosion Proof Motor	
Efficiency class:	Premium
Enclosure / Motor Protection:	IP66
Safety class:	Class1 Div1 Group D
Configuration:	Blue, WP50
Nominal Power:	0.37 kW
Nominal Voltage and frequency (from frequency converter):	Output 208-230 VAC, connected in delta, 60 Hz
Nominal Current:	2.1 – 2.0 A
Configuration:	Blue, WP81
Nominal Power:	1.1 kW
Nominal Voltage and frequency (from frequency converter):	Output 230 VAC, connected in delta, 60 Hz
Nominal Current:	4.4 A
Country Code:	US/CA

Gear	
High efficiency helical bevel right angle gearbox	
Lubricant:	Food compatible oil
Maximum mounting angle acc. to horizontal:	0° - 45° (Different angle intervals based on configuration - Note: Motor may not point downwards)
Surface finish drive unit, standard:	Painted Blue RAL 5010
Surface finish drive unit, Clean Room option:	Sealed Surface Conversion Treatment, Smooth Body (no fan)

Console/flange	
Standard height or option for extended height for insulated tanks	
Attachment, Size WP50:	Clamp connection
Attachment, Size WP81:	Flange-bolt connection

PHYSICAL DATA

Materials	
Impeller and Weld plate:	EN 1.4435 (316L/UNS31603), Optionally: EN 1.4529 or EN 2.4602
Drive Rotor, shaft and console/flange:	AISI304 (UNS S30400)
Gear motor, Painted:	C2 according to DIN 12944 (NSF/ANSI 51-2009e)
Gear motor, Clean room:	Permanent Bond Surface (nsd tupH) - compl. w. FDA Title 21 CFR 175.300
Male Bearing:	
Female bearing:	Silicium Carbide (EN 12756)
Seals:	FEP/FKM
Gearbox oil:	USDA H1

Temperatures	
During product Mixing, media:	Max. 90 °C
During product Mixing, media WFI:	Max. 90 °C
During CIP (max. 50 RPM):	Max. 95 °C
During SIP (max. 50 RPM):	Max. 125 °C
During SIP (max. 0 RPM):	Max. 150 °C

Max. speed	
Impeller size 100:	800 RPM (81 Hz)
Impeller size 150:	480 RPM (48.5 Hz)
Impeller size 200:	480 RPM (83 Hz)
Impeller size 250:	230 RPM (40 Hz)
Impeller size 300:	200 RPM (34.5 Hz)

Speed sensor

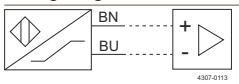
(Accessory, can only be used for impeller configuration “prepared for speed sensor”)

Alfa Laval Magnetic-Inductive Speed Sensor for LeviMag - the Magnetic inductive proximity sensor is actuated by magnetic fields and capable of detecting permanent magnets in the impeller through the non-magnetic tank material.

Technical Data	
Electrical design:	NAMUR
Approval:	ATEX category II 1G
	KEMA 02 ATEX 1090X
	SIL2 (Low Demand Mode) acc. to IEC 61508
	PL c acc. to ISO 13849-1 at HFT0
	SIL3 (All Demand Mode) acc. to IEC 61508
	PL e acc. to ISO 13849-1 with redundant
	configuration HFT1
Connection:	DC 2-wire, nom. 8.2 VDC
Output:	Acc. to DIN EN 60947-5-6 (NAMUR)
Switching frequency:	1 kHz
Current consumption non-actuated:	< 1.2 mA
Current consumption actuated:	< 2.1 mA

Physical data	
Materials:	Cable 4 mm, 2 x 0.25 mm^2, Blue, Lif9YYW, PVC, 2 m

Wiring Diagram



Enclosure:	IP67

Documentation:

As standard with UltraPure Q-Doc including:

- Compliance with Regulation (EC) No.: 1935/2004
- Compliance with (Ex/ATEX) directive 2014/34/EU (ATEX option, II -/2G Ex h IIC T4 -/Gb)
- Compliance to the EC Regulation for GMP
- 3.1 Material Certificates acc. to EN10204 (MTR) for all wetted parts
- Compliance to USP Class VI <88> and FEP/FKM seals
- Compliance to FDA CFR 21 (non-metallic parts) for elastomers, ceramics and gear oil
- TSE (Transmissible Spongiform Encephalopathy) / ADI (Animal Derivative Ingredient) Declaration
- Surface finish compliance declaration

Options:

- Surface roughness measurements included
- Weld Log included

Build up:

1. Impeller
2. Seals
3. Female Bearing
4. Male Bearing
5. Weld Plate
6. Clamp ring connection (WP50 only)
7. Flange-Bolt Connection (WP81 only)
8. Drive unit
9. Speed Sensor (Accessory)

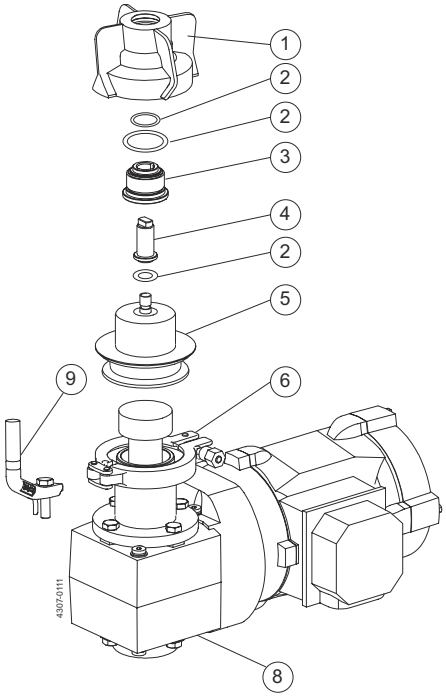


Figure 1. LeviMag WP50

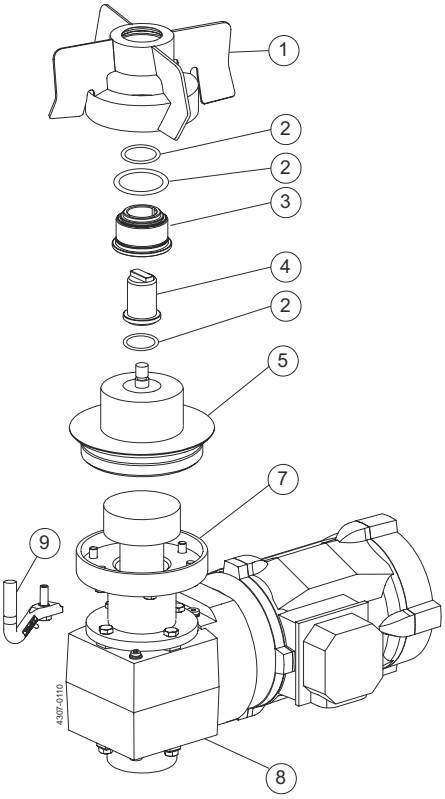


Figure 2. LeviMag WP81

Dimensions: (mm)

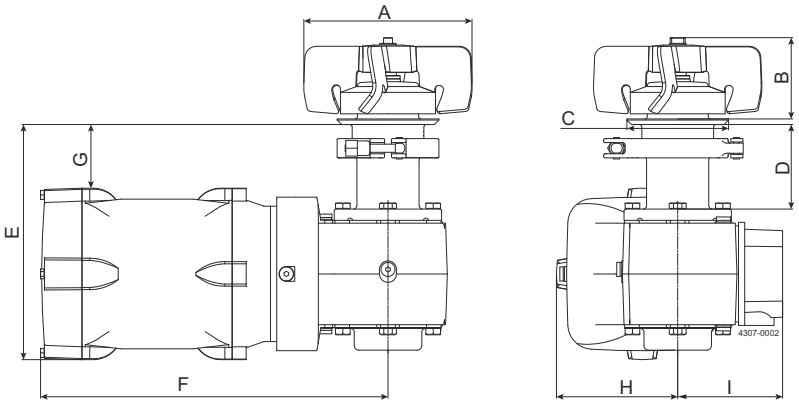


Figure 3. LeviMag WP50

Model	Size WP50 - Ø100 impeller				Size WP50 - Ø150 impeller			
Configuration	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor
A	Ø100	Ø100	Ø100	Ø100	Ø150	Ø150	Ø150	Ø150
B	72	72	72	72	72	72	72	72
C	Ø90	Ø90	Ø90	Ø90	Ø90	Ø90	Ø90	Ø90
D	75	125	75	125	75	125	75	125
E IE4	215	265	209	259	215	265	209	259
F IE4	340	340	308	308	340	340	308	308
G IE4	50	100	57	107	50	100	57	107
H IE4	114	114	108	108	114	114	108	108
I IE4	111	111	93	93	111	111	93	93
E Premium/CUS	202	252	-	-	202	252	-	-
F Premium/CUS	318	318	-	-	318	318	-	-
G Premium/CUS	63	113	-	-	63	113	-	-

Model	Size WP50 - Ø100 impeller				Size WP50 - Ø150 impeller			
Configuration	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor
H Premium/CUS	105	105	-	-	105	105	-	-
I Premium/CUS	94	94	-	-	94	94	-	-
E ATEX	202	252	-	-	202	252	-	-
F ATEX	373	373	-	-	373	373	-	-
G ATEX	62	112	-	-	62	112	-	-
H ATEX	105	105	-	-	105	105	-	-
I ATEX	119	119	-	-	119	119	-	-
E LV Explosion Proof	223	273	-	-	223	273	-	-
F LV Explosion Proof	520	520	-	-	520	520	-	-
G LV Explosion Proof	45	95	-	-	45	95	-	-
H LV Explosion Proof	123	123	-	-	123	1123	-	-
I LV Explosion Proof	142	142	-	-	142	142	-	-

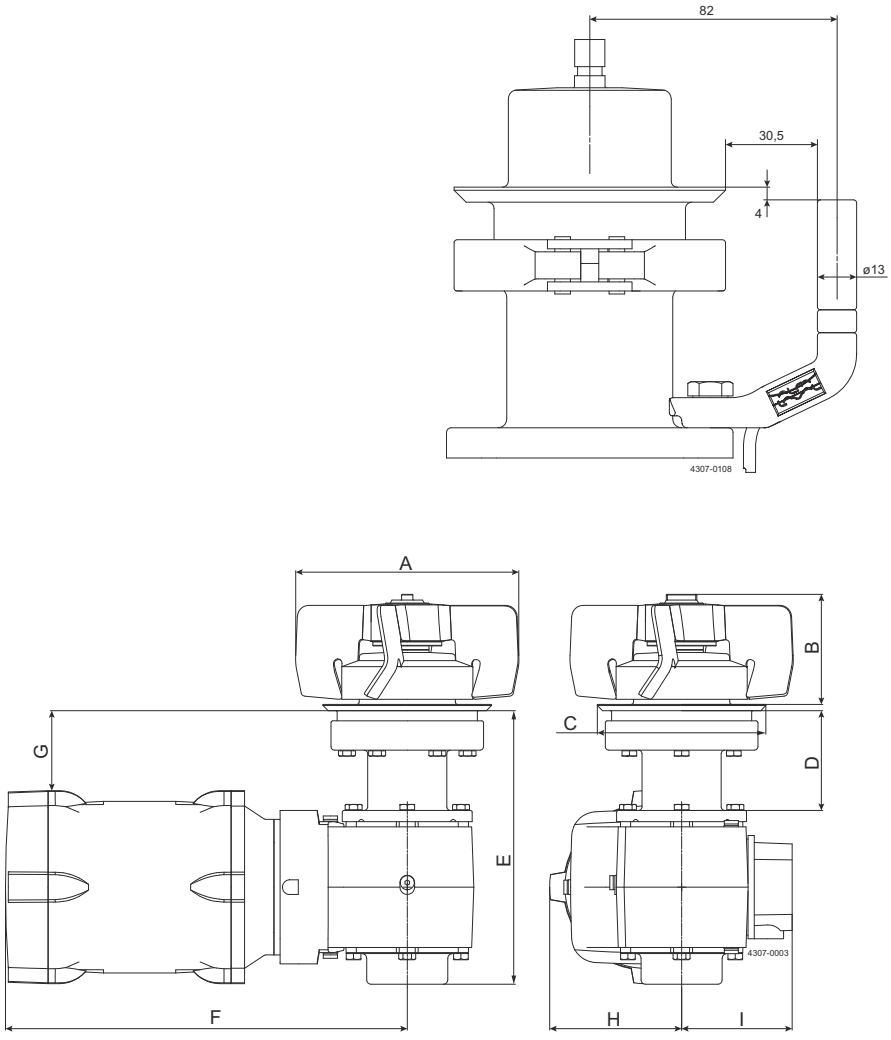
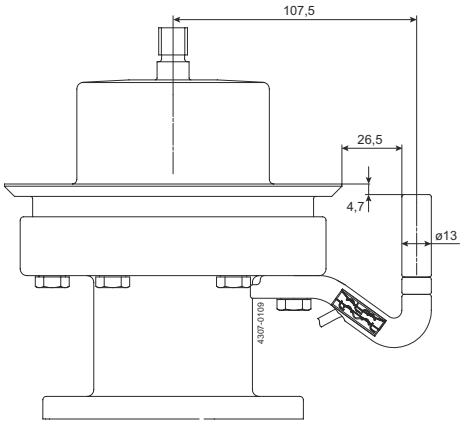


Figure 4. LeviMag WP81

Model	Size WP81 - Ø200 impeller				Size WP81 - Ø250 impeller				Size WP81 - Ø300 impeller			
Configuration	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor
A	Ø200	Ø200	Ø200	Ø200	Ø250	Ø250	Ø250	Ø250	Ø300	Ø300	Ø300	Ø300
B	98	98	98	98	98	98	98	98	98	98	98	98
C	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149	Ø149

Model	Size WP81 - Ø200 impeller				Size WP81 - Ø250 impeller				Size WP81 - Ø300 impeller			
Configuration	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor	Standard console Height + Painted Gear Motor	Extended console Height + Painted Gear Motor	Standard console Height + Clean Room Gear Motor	Extended console Height + Clean Room Gear Motor
D	89	139	89	139	89	139	89	139	89	139	89	139
E IE4	243	293	243	293	243	293	243	293	243	293	243	293
F IE4	354	354	357	357	354	354	357	357	354	354	357	357
G IE4	74	124	70	120	74	124	70	120	74	124	70	120
H IE4	114	114	117	117	114	114	117	117	114	114	117	117
I IE4	111	111	98	98	111	111	98	98	111	111	98	98
E Premium/CUS	243	293	-	-	243	293	-	-	243	293	-	-
F Premium/CUS	354	354	-	-	354	354	-	-	354	354	-	-
G Premium/CUS	78	128	-	-	78	128	-	-	78	128	-	-
H Premium/CUS	110	110	-	-	110	110	-	-	110	110	-	-
I Premium/CUS	112	112	-	-	112	112	-	-	112	112	-	-
E ATEX	294	344	-	-	294	344	-	-	294	344	-	-
F ATEX	418	418	-	-	418	418	-	-	418	418	-	-
G ATEX	77	127	-	-	77	127	-	-	77	127	-	-
H ATEX	110	110	-	-	110	110	-	-	110	110	-	-
I ATEX	144	144	-	-	144	144	-	-	144	144	-	-
E LV Explosion Proof	248	298	-	-	248	298	-	-	248	298	-	-
F LV Explosion Proof	534	534	-	-	534	534	-	-	534	534	-	-
G LV Explosion Proof	69	119	-	-	69	119	-	-	69	119	-	-
H LV Explosion Proof	123	123	-	-	123	123	-	-	123	123	-	-
I LV Explosion Proof	142	142	-	-	142	142	-	-	142	142	-	-



Machine Selection:

LeviMag UltraPure can be sized and configurated in Alfa Laval configurator. Selection of size can also be done by use of the below selection charts.

Needed information for selection of size:

- Media Viscosity
- Tank Volume
- Tank diameter and tank bottom shape
- Duty (see below Duty Levels)

Duty Level	Duty	Description
1	Keep media homogenous	Keeping fluids homogenous & low gradient heat transfer
2	Mild blending	Simple blending of miscible fluids & high gradient heat transfer, no specific request to mixing time, create suspension if deposit velocity is below 0.015 m/s
3	Mixing	Mixing of fluids, relative low mixing time, create suspension if deposit velocity is below 0.03 m/s
4	Powerful mixing	Dissolving solids, very low mixing time, create suspension if deposit velocity is below 0.06 m/s

Preconditions for using the selection charts:

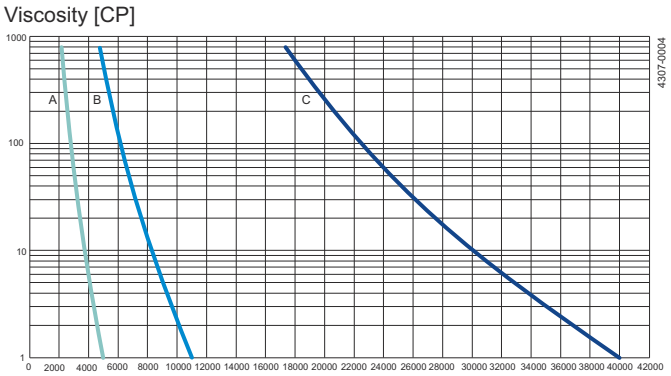
- Specific gravity of the media must be less than or equal to 1.1
- Liquid height must be equal to or lower than 2½ times the tank diameter
- If duty involves suspension of particles (see deposit velocity limits in the duty levels), the tank diameter D must be:

$$D \leq \sqrt[3]{\frac{V \cdot 4}{\pi}}$$

  where V is the Net Volume
- If preconditions are not fulfilled please contact Alfa Laval Global Technical Support

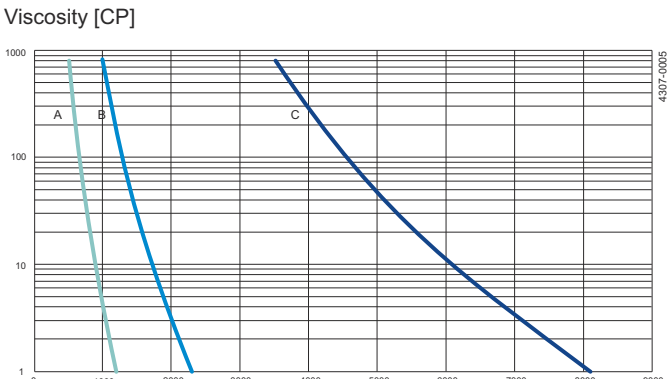
How to select:

1. Select duty
2. Check preconditions
3. Go to the chart for the chosen duty
4. Read out the point for the requested tank volume (X-axis) and viscosity (Y-axis)
5. Choose the curve to the right from the point
6. If physically possible a larger impeller size can always be chosen - eg. to obtain a gentler product treatment (operating at lower speed)



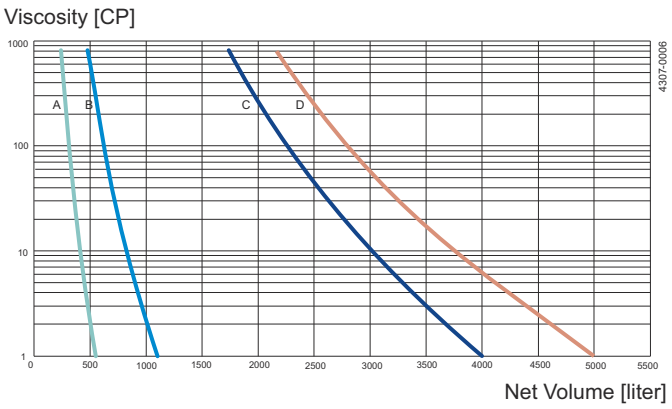
A = LeviMag size 100 mm
B = LeviMag size 150 mm
C = LeviMag size 200, 250 and 300 mm

Figure 5. Duty Level 1: Keep media homogenous Volume vs. Vicosity



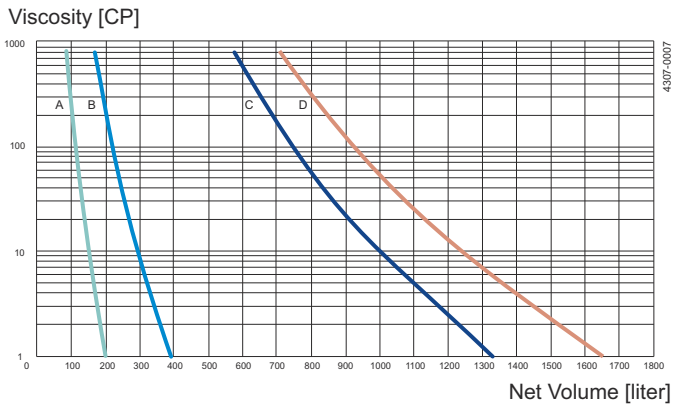
A = LeviMag size 100 mm
B = LeviMag size 150 mm
C = LeviMag size 200, 250 and 300 mm

Figure 6. Duty Level 2: Mild blending Volume vs. Vicosity



A = LeviMag size 100 mm
B = LeviMag size 150 mm
C = LeviMag size 200, 250 mm
D = LeviMag size 300 mm

Figure 7. Duty Level 3: Mixing Volume vs. Vicosity



A = LeviMag size 100 mm
B = LeviMag size 150 mm
C = LeviMag size 200, 250 mm
D = LeviMag size 300 mm

Figure 8. Duty Level 4: Powerfull mixing Volume vs. Vicosity

Alfa Laval RJ Mixer IM-10

Tank mixers

Introduction

The Alfa Laval IM 10 Rotary Jet Mixer effectively handles liquid mixing, gas dispersion, powder mixing, and tank cleaning while reducing mixing time, energy consumption and costs.

Patented technology based on proven Rotary Jet Head technology, it provides quick, efficient and uniform mixing without any batch rotation or the use of baffles. It also ensures greater process flexibility, making it easy to switch to new product formulations with diverse viscosities, densities and volumes.

Applications

The IM 10 Rotary Jet Mixer is designed for liquid mixing, gas dispersion (aeration, deaeration, carbonation), and powder mixing in process and storage vessels from 1 to 10 m^3 in size across the dairy, food, beverage, brewery, healthcare, home and personal care, and biotechnology industries.

When the tank is empty, the IM10 also acts as a superb Cleaning-in-Place (CIP) system, saving water, cleaning media and energy compared to using a spray ball CIP system.

Benefits

- Fast, effective liquid mixing performance in tanks
- Efficient gas and powder dispersion
- Can be used as tank cleaning machine
- Handles multiple applications
- Unmatched, cost-effective mixing performance
- Simplified, hygienic design, modest investment
- Optional pre-engineered skid-mounted pump unit available

Standard design

The Alfa Laval IM 10 Rotary Jet Mixer consists of a mixer body, turbine and nozzles. Compared to traditional systems using propeller mixers, there is no need for a shaft, seal or gearbox. Excellent mixing is achieved without the use of baffles or any batch rotation. Available in four different models (IM 10, IM 15, IM 20, IM 25), these mixers are designed for tank volumes from 100 litres in size and beyond, and they are capable of handling re-circulation flow rates up to 90 m^3/h.

Working principle

Before round pumping or adding any products from upstream pipe works, ensure that the IM 10 Rotary Jet Mixer is positioned at the correct level and submerged into the liquid. Four nozzles feed the liquid, gas or powder into the liquid in the tank. The nozzles rotate around both the horizontal and vertical axes in a 360° movement. This three-dimensional jet rotation enables the jets to reach the entire tank volume, providing fast, efficient mixing of the injected liquid, gas or powder without requiring batch rotation.

The complete system is built with a circulation loop, enabling liquid to be pumped from the bottom of the tank and back into the Rotary Jet Mixer. For faster mixing requirements, several rotary jet mixers can be installed in series.

TECHNICAL DATA

Lubricant:	Self-lubricating with the mixing/cleaning fluid
Standard thread:	1" BSP or NPT, female, Top cone 1" BSP with hygienic seal
Min. tank opening:	See dimension drawings

Pressure	
Working pressure:	2-8 bar
Recommended pressure during mixing:	2-6 bar
Recommended pressure during CIP:	4-8 bar

PHYSICAL DATA

Materials	
Materials:	AISI 316L, AISI 316, SAF 2205 (UNS 31803), EPDM, PEEK, PVDF, PFA, Ceramics

Weight	
Weight:	5.1 kg

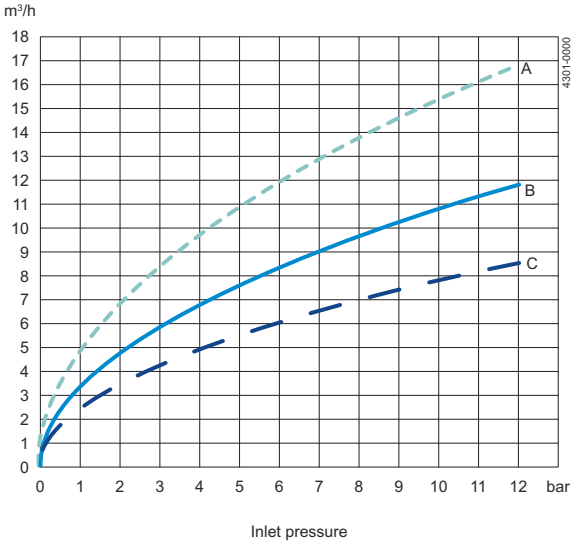
Temperature	
Max. working temperature:	95 °C
Max. ambient temperature:	140 °C

Certificates

2.1 material certificate.

Flow rate

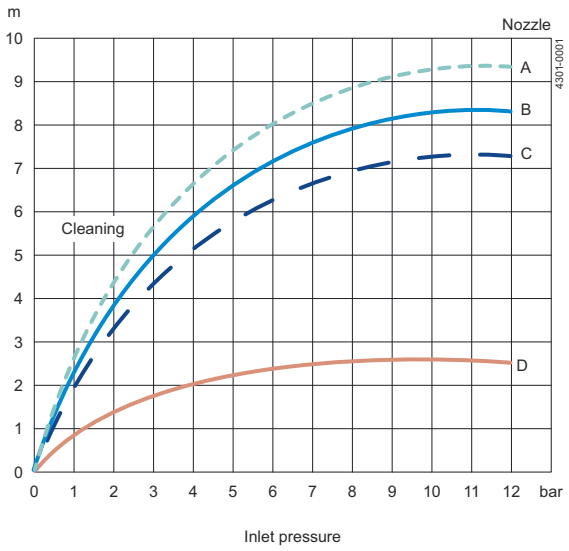
Relationship between inlet pressure and flow rate for liquids with waterlike properties for the IM 10 Rotary Jet Mixer.



A = Nozzle d = 5.5 mm
B = Nozzle d = 4.6 mm
C = Nozzle d = 3.9 mm

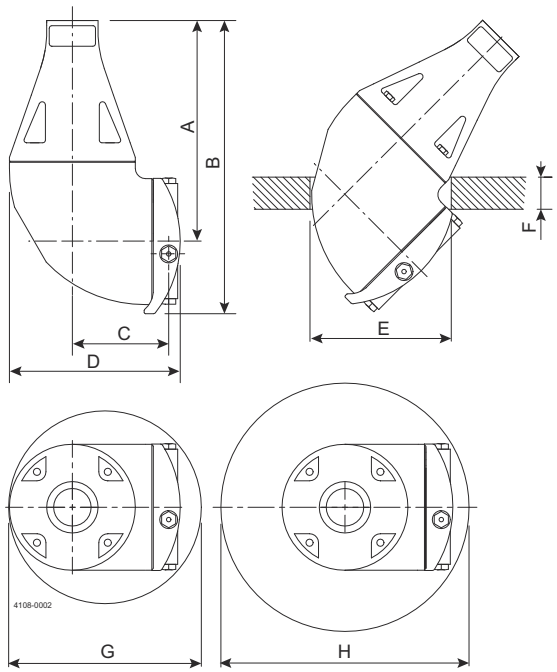
Reach of jet

Reach of jet for the IM 10 during cleaning, and indicative reach of jet for mixing of liquids with water-like properties.



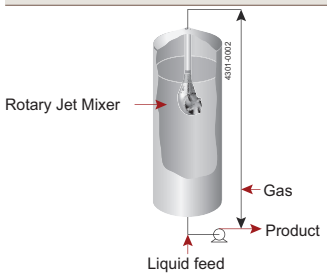
A = d = 5.5 mm
B = d = 4.6 mm
C = d = 3.9 mm
D = Mixing

Dimensions (mm)



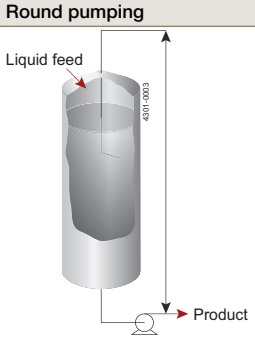
A	B	C	D	E	F	G	H
173	230	75	133	Ø110	Max. 25	Ø150	Ø200

The Rotary Jet Mixing technology

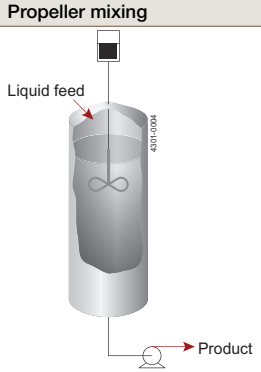


Traditional Mixing technology

Round pumping



Propeller mixing



Alfa Laval RJ Mixer IM-15

Tank mixers

Introduction

The Alfa Laval IM 15 Rotary Jet Mixer effectively handles liquid mixing, gas dispersion, powder mixing, and tank cleaning while reducing mixing time, energy consumption and costs.

Patented technology based on proven Rotary Jet Head technology, it provides quick, efficient and uniform mixing without any batch rotation or the use of baffles. It also ensures greater process flexibility, making it easy to switch to new product formulations with diverse viscosities, densities and volumes.

Applications

The IM 15 Rotary Jet Mixer is designed for liquid mixing, gas dispersion (aeration, deaeration, carbonation), and powder mixing in process and storage vessels from 2 to 100 m^3 in size across the dairy, food, beverage, brewery, healthcare, home and personal care, and biotechnology industries.

When the tank is empty, the IM 15 also acts as a superb Cleaning-in-Place (CIP) system, saving water, cleaning media and energy compared to using a spray ball CIP system.

Benefits

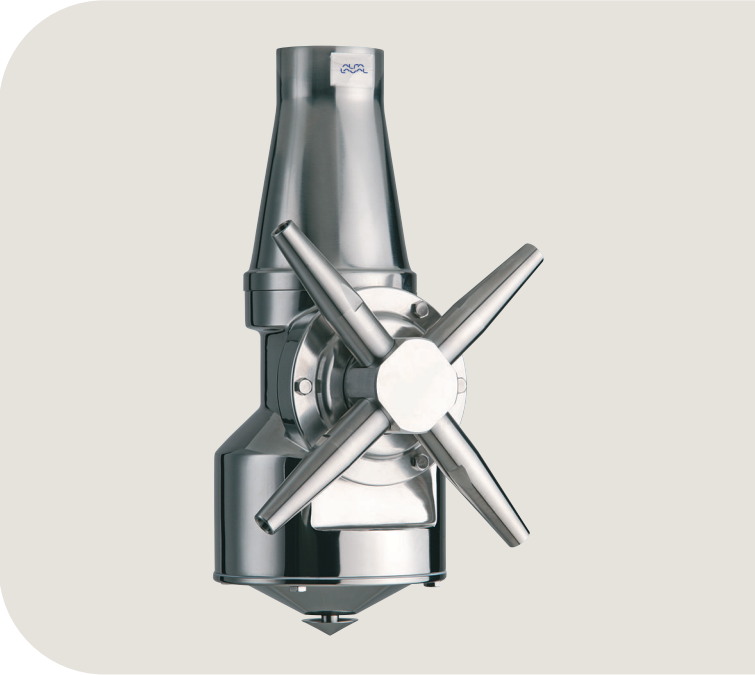
- Fast, effective liquid mixing performance in tanks
- Efficient gas and powder dispersion
- Can be used as tank cleaning machine
- Handles multiple applications
- Unmatched, cost-effective mixing performance
- Simplified, hygienic design, modest investment
- Optional pre-engineered skid-mounted pump unit available

Standard design

The Alfa Laval IM 15 Rotary Jet Mixer consists of a mixer body, turbine and nozzles. Compared to traditional systems using propeller mixers, there is no need for a shaft, seal or gearbox. Excellent mixing is achieved without the use of baffles or any batch rotation. Available in four different models (IM 10, IM 15, IM 20, IM 25), these mixers are designed for tank volumes from 100 litres in size and beyond, and they are capable of handling re-circulation flow rates up to 90 m^3/h.

Working principle

Before round pumping or adding any products from upstream pipe works, ensure that the IM 15 Rotary Jet Mixer is positioned at the correct level and submerged into the liquid. Two or four nozzles feed the liquid, gas or powder into the liquid in the tank. The nozzles rotate around both the horizontal and vertical axes in a 360° movement. This three-dimensional jet rotation enables the jets to reach the entire tank volume, providing fast, efficient mixing of the injected liquid, gas or powder without requiring batch rotation.



The complete system is built with a circulation loop, enabling liquid to be pumped from the bottom of the tank and back into the Rotary Jet Mixer. For faster mixing requirements, several rotary jet mixers can be installed in series.

Certificates

2.1 material certificate, ATEX.

TECHNICAL DATA

Lubricant:	Self-lubricating with the mixing/cleaning fluid
Connection:	Standard thread 1.5" BSP or NPT, female
Min. tank opening:	See dimension drawings

Pressure	
Working pressure:	2-12 bar
Recommended pressure during mixing:	2-6 bar
Recommended pressure during CIP:	5-6.5 bar

PHYSICAL DATA

Materials	
Materials:	AISI 316L, AISI 316, SAF 2205, PTFE, PEEK, Tefzel, Ceramics

Weight	
Weight:	6.1 kg

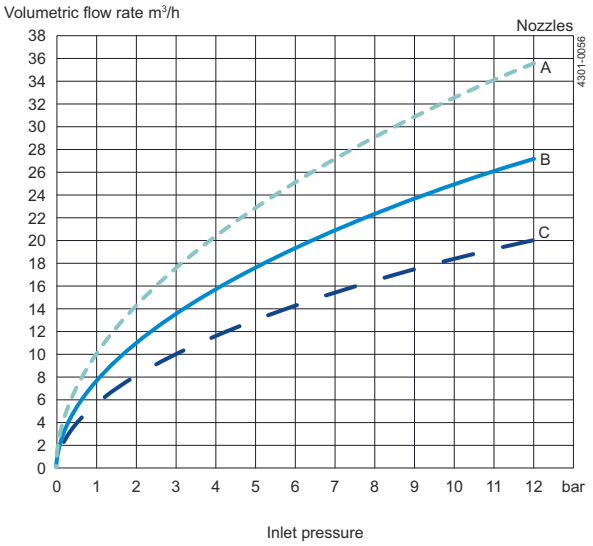
Temperature	
Max. working temperature:	95 °C
Max. ambient temperature:	140 °C

Qualification Documentation

Documentation specification	
ATEX	ATEX approved machine for use in explosive atmospheres.
	Catagory 1 for installation in zone 0/20 in accordance with Directive 2014/34/EU
	II 1G Ex h IIC 85 °C ...175 °C Ga
	II 1D Ex h IIIC T85 °C ...T140 °C Da

Flow rate

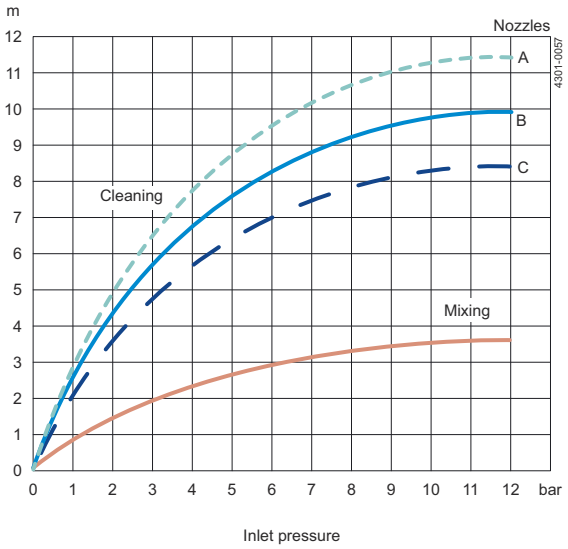
Relationship between inlet pressure and flow rate for liquids with waterlike properties for the IM 15 Rotary Jet Mixer.



A = 8 mm
B = 7 mm
C = 6 mm

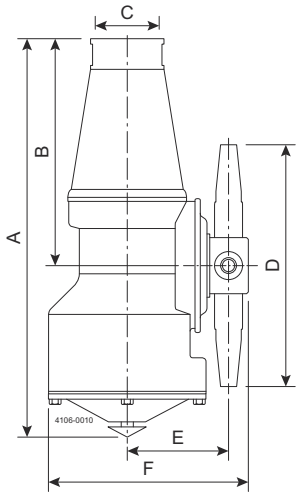
Reach of jet

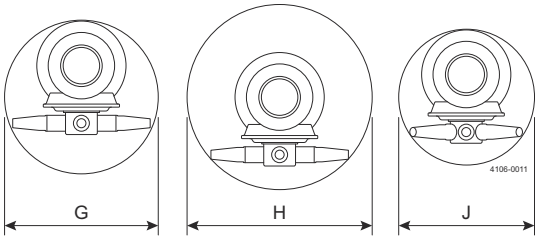
Reach of jet for the IM 15 during cleaning, and indicative reach of jet for mixing of liquids with water-like properties.



A = 8 mm
B = 7 mm
C = 6 mm

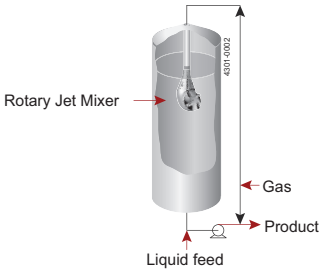
Dimensions (mm)

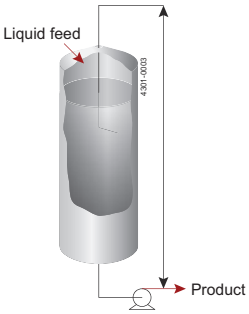


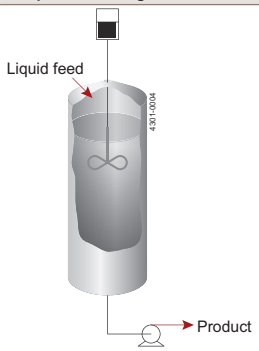


A	B	C	D	E	F	G	H	J
297	170	50	204	78	152	Ø216	Ø264	Ø180

The Rotary Jet Mixing technology	Traditional Mixing technology	
	Round pumping	Propeller mixing







Alfa Laval RJ Mixer IM-20

Tank mixers

Introduction

The Alfa Laval IM 20 Rotary Jet Mixer effectively handles liquid mixing, gas dispersion, powder mixing, and tank cleaning while reducing mixing time, energy consumption and costs.

Patented technology based on proven Rotary Jet Head technology, it provides quick, efficient and uniform mixing without any batch rotation or the use of baffles. It also ensures greater process flexibility, making it easy to switch to new product formulations with diverse viscosities, densities and volumes.

Applications

The IM 20 Rotary Jet Mixer is designed for liquid mixing, gas dispersion (aeration, deaeration, carbonation), and powder mixing in process and storage vessels from 5 to 200 m^3 in size across the dairy, food, beverage, brewery, healthcare, home and personal care, and biotechnology industries.

When the tank is empty, the IM 20 also acts as a superb Cleaning-in-Place (CIP) system, saving water, cleaning media and energy compared to using a spray ball CIP system.

Benefits

- Fast, effective liquid mixing performance in tanks
- Efficient gas and powder dispersion
- Can be used as tank cleaning machine
- Handles multiple applications
- Unmatched, cost-effective mixing performance
- Simplified, hygienic design, modest investment
- Optional pre-engineered skid-mounted pump unit available

Standard design

The Alfa Laval IM 20 Rotary Jet Mixer consists of a mixer body, turbine and nozzles. Compared to traditional systems using propeller mixers, there is no need for a shaft, seal or gearbox. Excellent mixing is achieved without the use of baffles or any batch rotation. Available in four different models (IM 10, IM 15, IM 20, IM 25), these mixers are designed for tank volumes from 100 litres in size and beyond, and they are capable of handling re-circulation flow rates up to 90 m^3/h.

Working principle

Before round pumping or adding any products from upstream pipe works, ensure that the IM 20 Rotary Jet Mixer is positioned at the correct level and submerged into the liquid. Two or four nozzles feed the liquid, gas or powder into the liquid in the tank. The nozzles rotate around both the horizontal and vertical axes in a 360° movement. This three-dimensional jet rotation enables the jets to reach the entire tank volume, providing fast, efficient mixing of the injected liquid, gas or powder without requiring batch rotation.

The complete system is built with a circulation loop, enabling liquid to be pumped from the bottom of the tank and back into the Rotary Jet Mixer. For faster mixing requirements, several rotary jet mixers can be installed in series.

Certificates

2.1 material certificate, ATEX.

TECHNICAL DATA

Lubricant:	Self-lubricating with the mixing/cleaning fluid
Connection:	Standard thread 2" BSP or NPT, female
Min. tank opening:	See dimension drawings

Pressure	
Working pressure:	2-12 bar
Recommended pressure during mixing:	2-6 bar
Recommended pressure during CIP:	5-6.5 bar

PHYSICAL DATA

Materials	
Materials:	AISI 316L, AISI 316, SAF 2205, PEEK, PVDF, Tefzel, Ceramics

Weight	
Weight:	12.2 kg

Temperature	
Max. working temperature:	95 °C
Max. ambient temperature:	140 °C

Operation

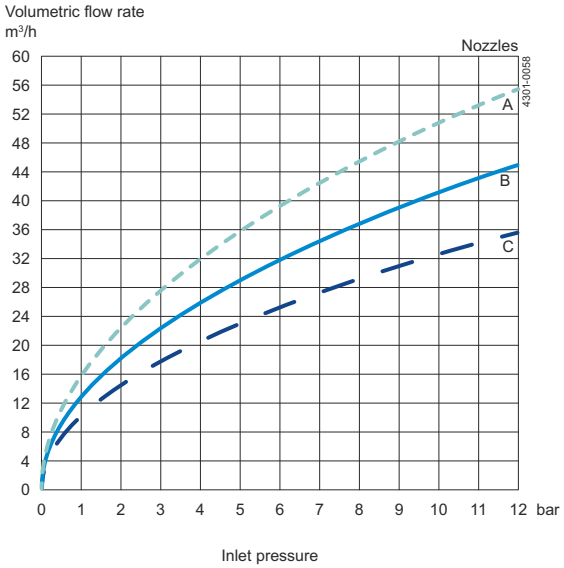
Secure that the mixer is positioned in the correct level and submerged into the liquid before round pumping or when adding any additional products from any up-stream pipe works.

Qualification Documentation

Documentation specification	
ATEX	ATEX approved machine for use in explosive atmospheres. Catagory 1 for installation in zone 0/20 in accordance with Directive 2014/34/EU II 1G Ex h IIC 85 °C ...175 °C Ga II 1D Ex h IIIC T85 °C ...T140 °C Da

Flow rate

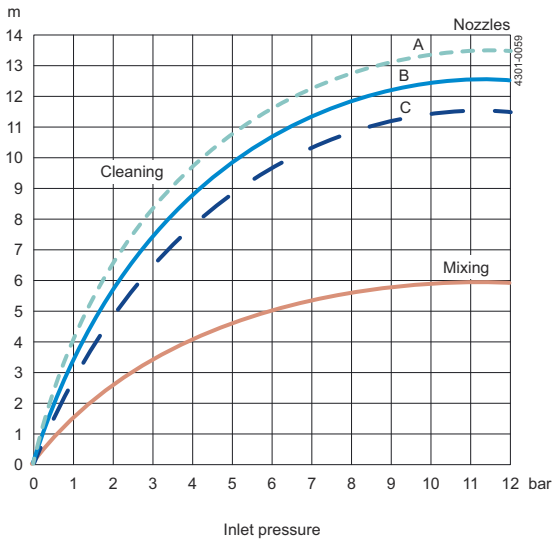
Relationship between inlet pressure and flow rate for liquids with waterlike properties for the IM 20 Rotary Jet Mixer.



A = 10 mm
B = 9 mm
C = 8 mm

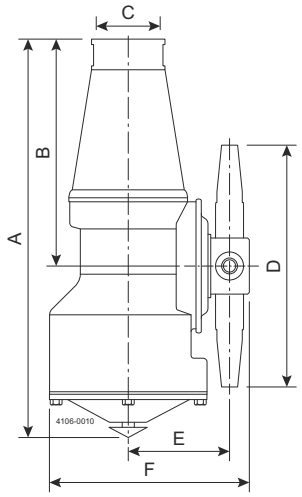
Reach of jet

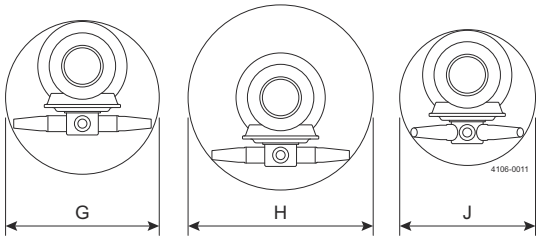
Reach of jet for the IM 20 during cleaning, and indicative reach of jet for mixing of liquids with water-like properties.



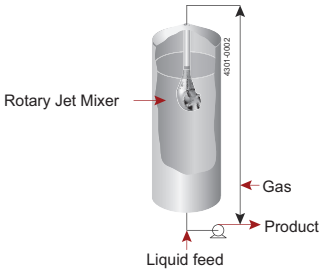
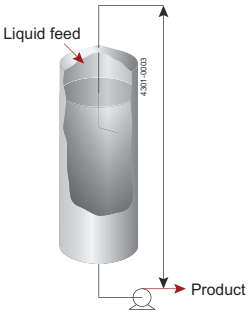
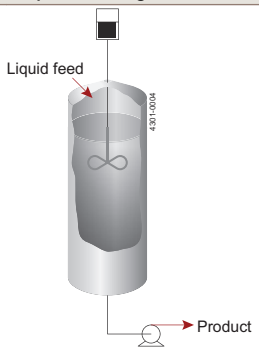
A = 10 mm
B = 9 mm
C = 8 mm

Dimensions (mm)





A	B	C	D	E	F	G	H	J
356	220	65	268	98	195	Ø280	Ø343	Ø232

The Rotary JetMixing technology	Traditional Mixing technology	
	Round pumping	Propeller mixing
		

Alfa Laval RJ mixer IM-25

Tank mixers

Introduction

The Alfa Laval IM 25 Rotary Jet Mixer effectively handles liquid mixing, gas dispersion, powder mixing, and tank cleaning while reducing mixing time, energy consumption and costs.

Patented technology based on proven Rotary Jet Head technology, it provides quick, efficient and uniform mixing without any batch rotation and the use of baffles. It also ensures greater process flexibility, making it easy to switch to new product formulations with diverse viscosities, densities and volumes.

Applications

The IM 25 Rotary Jet Mixer is designed for liquid mixing, gas dispersion (aeration, deaeration, carbonation), and powder mixing in process and storage vessels from 10 to 1000 m^3 in size across the dairy, food, beverage, brewery, healthcare, home and personal care, and biotechnology industries.

When the tank is empty, the IM 25 also acts as a superb Cleaning-in-Place (CIP) system, saving water, cleaning fluids and energy compared to using a spray ball CIP system.

Benefits

- Fast, effective liquid mixing performance in tanks
- Efficient gas and powder dispersion
- Can be used as tank cleaning machine
- Handles multiple applications
- Unmatched, cost-effective mixing performance
- Simplified, hygienic design, modest investment
- Optional pre-engineered skid-mounted pump unit available

Standard design

The Alfa Laval IM 25 Rotary Jet Mixer consists of a mixer body, turbine and nozzles. Compared to traditional systems using propeller mixers, there is no need for a shaft, seal or gearbox. Excellent mixing is achieved without the use of baffles or any batch rotation. Available in four different models (IM 10, IM 15, IM 20, IM 25), these mixers are designed for tank volumes from 100 litres in size and beyond, and they are capable of handling re-circulation flow rates up to 90 m^3/h.

Working principle

Before round pumping or adding any products from upstream pipe works, ensure that the IM 25 Rotary Jet Mixer is positioned at the correct level and submerged into the liquid. Two or four nozzles feed the liquid, gas or powder into the liquid in the tank. The nozzles rotate around both the horizontal and vertical axes in a 360° movement. This three-dimensional jet rotation enables the jets to reach the entire tank volume, providing fast, efficient mixing of the injected liquid, gas or powder without requiring any batch rotation.

The complete system is built with a circulation loop, enabling liquid to be pumped from the bottom of the tank and back into the Rotary Jet Mixer. For faster mixing requirements, several rotary jet mixers can be installed in series.

Certificates

2.1 material certificate, ATEX.

TECHNICAL DATA

Lubricant:	Self-lubricating with the mixing/cleaning fluid
Connection:	Standard thread 2.5" BSP, female
Min. tank opening:	See dimension drawings

Pressure	
Working pressure:	2 - 12 bar
Recommended pressure during mixing:	4 - 8 bar
Recommended pressure during CIP:	5 - 10 bar

PHYSICAL DATA

Materials	
Materials:	AISI 316L, AISI 316, SAF 2205, PEEK, PVDF, Carbon, Tefzel, Ceramics

Weight	
Weight:	13.2 kg

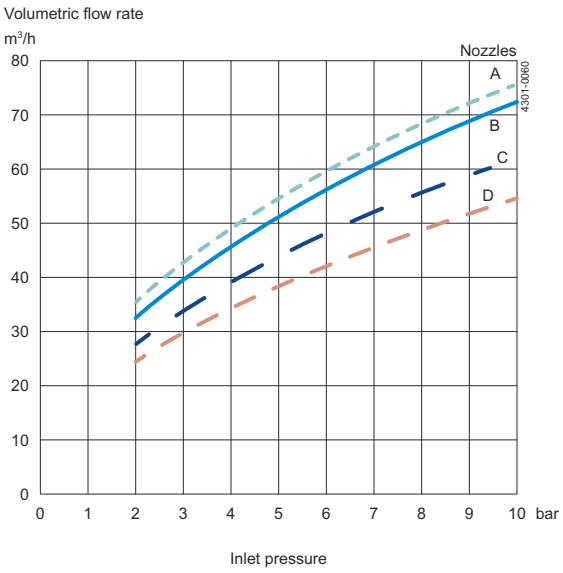
Temperature	
Working pressure:	95 °C
Recommended pressure during mixing:	140 °C

Qualification Documentation

Documentation specification	
ATEX	ATEX approved machine for use in explosive atmospheres. Catagory 1 for installation in zone 0/20 in accordance with Directive 2014/34/EU II 1G Ex h IIC 85 °C ...175 °C Ga II 1D Ex h IIIC T85 °C ...T140 °C Da

Flow rate

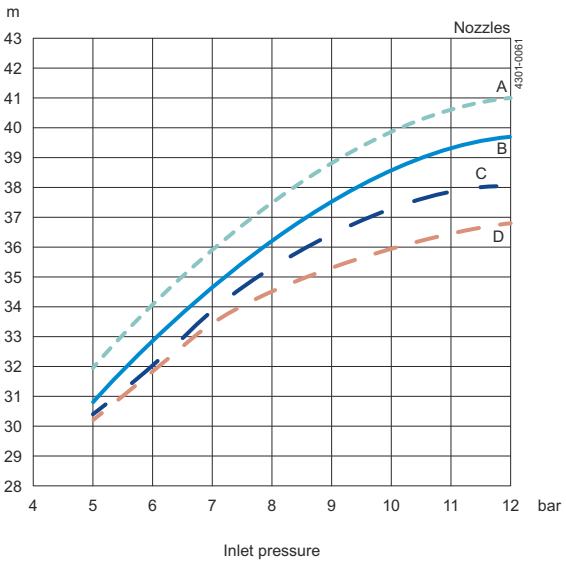
Relationship between inlet pressure and flow rate for liquids with waterlike properties for the IM 25 Rotary Jet Mixer.



A = 2 x ø21 mm
B = 2 x ø19 mm
C = 2 x ø17 mm
D = 2 x ø15 mm

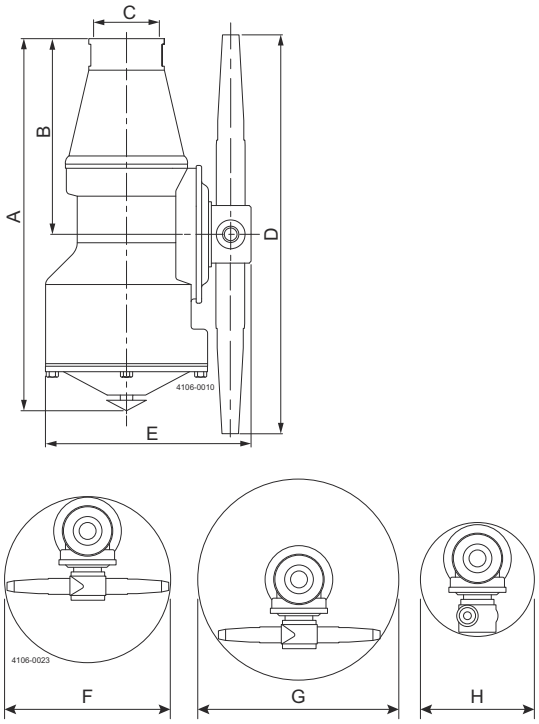
Reach of jet

Reach of jet for the IM 25 during cleaning, and indicative reach of jet for mixing of liquids with water-like properties.



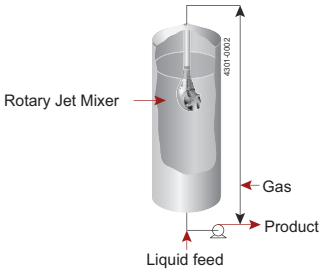
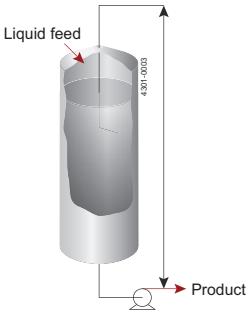
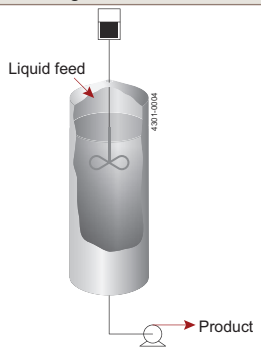
A = 2 x ø21 mm
B = 2 x ø19 mm
C = 2 x ø17 mm
D = 2 x ø15 mm

Dimensions (mm)



A = 2.5" BSP

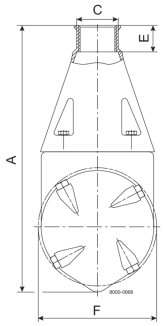
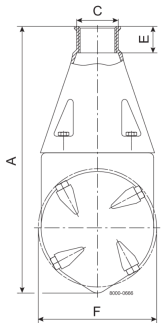
A	B	C	D	E	F	G	H
286	155	80	337	220	Ø343	Ø424	Ø223

The Rotary Jet Mixing technology	Traditional Mixing technology	
	Round pumping	Propeller mixing
		

Item no.	Description
8010004752	Speed Sensor for LeviMag WP50 standard console height
8010004753	Speed Sensor for LeviMag WP50 extended console height
8010004754	Speed Sensor for LeviMag WP81
9615460201	Heat sink for Weld Plate size WP50 (Mandatory when welding in Weld Plates)
9615460801	Heat sink for Weld Plate size WP81 (Mandatory when welding in Weld Plates)
9615468201	Weld plate external shape inspection tool for Weld Plate size WP50/WP81
9615469701	Female bearing tool incl. protection shield LeviMag size WP50 (NOTE: Included in Female Bearing Spare Part Kit)
9615469801	Female bearing tool incl. protection shield LeviMag size WP81 (NOTE: Included in Female Bearing Spare Part Kit)
9615469901	Lifting rod handle LeviMag with Lifting rod 200 mm (incl. 2 Clips)
9615470001	Lifting rod 200 mm with Connection LeviMag (incl. 2 Clips) Can be attached to the same or other lifting rod lengths in multiple numbers - maximum total length of lifting rod is 3000 mm. If an angled approch to the impeller/male bearing is necessary attach several lifting rods to meet the required length in order to obtain maximum angular flexibility. The angular flexibility per connection is 3°
9615470101	Lifting rod 700 mm with Connection LeviMag (incl. 2 Clips) Can be attached to the same or other lifting rod lengths in multiple numbers - maximum total length of lifting rod is 3000 mm. If an angled approch to the impeller/male bearing is necessary attach several lifting rods to meet the required length in order to obtain maximum angular flexibility. The angular flexibility per connection is 3°
9615471901	Male bearing tool LeviMag size WP81 (NOTE: Included in Male Bearing Spare Part Kit)
9615472101	Impeller lifting device LeviMag WP81
9615472301	MalebearingtoolLeviMagsizeWP50(NOTE:IncludedinMaleBearing Spare Part Kit)
9615472501	Impeller lifting device LeviMag WP50
9615475901	Weld plate internal shape inspection tool for Weld Plate size WP50/WP81

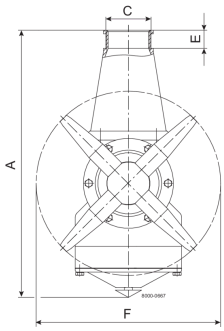
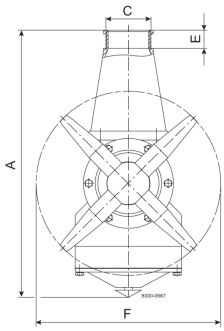
ALSIS Code: 5509

Surface finish: Bright
Product wetted steel part: AISI 316L

Item no.	Flow at 5 bar	No. of nozzles	Dimension (mm)				
	m3/h	mm	A	C	E	F	
							Thread (1” NPT-female)
TE30N030	7	4 x Ø3.9	173	75	Ø110	Max. 25	
							Thread (1” Rp-female (BSP))
TE30B030	7	4 x Ø3.9	173	75	Ø110	Max. 25	
TE30B040	9.5	4 x Ø4.6	173	75	Ø110	Max. 25	
TE30B050	12	4 x Ø5.5	173	75	Ø110	Max. 25	

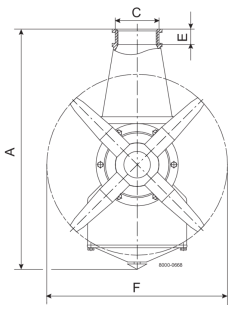
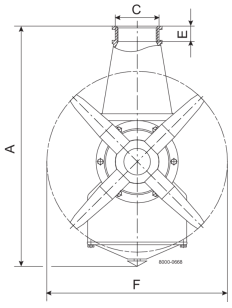
ALSIS Code: 5509

Surface finish: Bright
Product wetted steel part: AISI 316

Item no.	Flow at 5 bar	No. of nozzles	Guide	Dimension (mm)				
	m3/h	mm		A	C	E	F	
								Thread (1½" NPT-female)
TE31B166	16	4 x Ø6	100 %	297	50	78	152	
TE31B177	19	4 x Ø7	0 %	297	50	78	152	
TE31B167	22.5	4 x Ø8	100 %	297	50	78	152	
TE31B178	22.5	4 x Ø8	0 %	297	50	78	152	
								Thread (1½" Rp-female (BSP))
TE31B181	14	2 x Ø8	100 %	297	50	78	152	
TE31B061	16	4 x Ø6		297	50	78	152	
TE31B070	19	4 x Ø7	0 %	297	50	78	152	
TE31B071	19	4 x Ø7	100 %	297	50	78	152	
TE31B182	19	2 x Ø10	0 %	297	50	78	152	
TE31B183	21	2 x Ø11	0 %	297	50	78	152	
TE31B080	22.5	4 x Ø8	0 %	297	50	78	152	

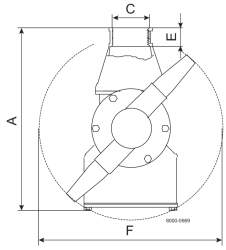
ALSIS Code: 5509

Surface finish: Bright
Product wetted steel part: AISI 316

Item no.	Flow at 5 bar	No. of nozzles	Guide	Dimension (mm)				
	m3/h	mm		A	C	E	F	
								Thread (2” NPT-female (BSP))
TE32B181	23	4 x Ø8	100 %	356	65	98	195	
TE32B191	27.5	4 x Ø9	100 %	356	65	98	195	
TE32B213	28	2 x Ø13	0 %	356	65	98	195	
TE32B200	32.5	4 x Ø10	0 %	356	65	98	195	
								Thread (2” Rp-female (BSP))
TE32B081	23	4 x Ø8	100 %	356	65	98	195	
TE32B112	24	2 x Ø12	0 %	356	65	98	195	
TE32B090	27.5	4 x Ø9	0 %	356	65	98	195	
TE32B091	27.5	4 x Ø9	100 %	356	65	98	195	
TE32B113	28	2 x Ø13	0 %	356	65	98	195	
TE32B100	32.5	4 x Ø10	0 %	356	65	98	195	
TE32B115	37	2 x Ø15	0 %	356	65	98	195	

ALSIS Code: 5509

Surface finish: Bright
Product wetted steel part: AISI 316

Item no.	Flow at 8 bar	No. of nozzles	Guide	Dimension (mm)			
	m3/h	mm		A	C	F	
							Thread (2½" Rp-female (BSP)
TE33E015	48	2 x Ø15	0 %	286	80	Ø343	
TE33E017	56	2 x Ø17	0 %	286	80	Ø343	
TE33E019	63	2 x Ø19	0 %	286	80	Ø343	
TE33E021	68	2 x Ø21	0 %	286	80	Ø343	

Powder mixers

Alfa Laval Hybrid Powder Mixer M15

Powder mixers

Introduction

The Alfa Laval Hybrid Powder Mixer M15 is a mobile dual-stage inline powder dissolution unit that quickly and efficiently disperses powders, mixing them with liquids into a homogeneous blend. Using a single-motor pump, it then transfers the resulting solution at outlet pressures of up to 5 bar. Versatile, cost effective and easy to use, this mixer efficiently produces homogeneous products at high dry matter concentrations and high yields.

Applications

The Hybrid Powder Mixer M15 is an excellent choice for blending thickeners, stabilizers and emulsifiers into concentrations required in most hygienic applications in the dairy, beverage and food industries. It is also capable of producing recombined milk with more than 50% dry matter.

Benefits

- Fast and homogenous powder dissolving
- A combination of a mobile inline powder-liquid mixer and a pump
- High dynamic shear, gentle mixing
- Reduced installation, emissions, energy and maintenance costs
- Reduced total cost of ownership combining the functions of powder mixing and pumping into a single unit

Standard design

The Alfa Laval Hybrid Powder Mixer M15 is comprised mainly of a two-stage pump with a rotor-stator as the first stage and as the second stage. It is also equipped with a funnel and an injector. The funnel is used to introduction powder through an injector system, which can be isolated using a hygienic C-ball valve. The injector pre-blends the powder and the liquid, while at the same time creating underpressure in the funnel outlet.

The unit is mounted on a stainless-steel frame. The table easily slides into position on the frame, making it easy to place bags of powder there during mixing. It also functions as a lid to cover the funnel when not in use. The liquid inlet is equipped with a sight glass and a butterfly valve.

Working principle

The two-stage inline Alfa Laval Hybrid Powder Mixer M15 is typically integrated into a circulation loop connected to a batch tank.

After adding liquid ingredients to the tank, the Hybrid Powder Mixer circulates the liquid over the tank. To provide additional high-efficiency mixing, tank with volumes larger than 1 - 2 m^3, installing an Alfa Laval Rotary Jet Mixer is highly recommended.

When adding powder to the liquid, the powder is added through the funnel. The valve under the funnel is opened. The injector positioned under the valve creates an underpressure in the funnel outlet, drawing the powder into the rotor-stator and pre-blending the products. The rotor/stator (single rings) creates the main shear, dynamically and efficiently blending powder and liquid into a homogeneous mixture.

The pump impeller in the second stage creates the final shear and transfers the powder-liquid mixture into the tank under high pressure. A portion of the powder-liquid mixture is sent through the injector back to stage one. This way, the liquid flow in the injector creates the underpressure in the funnel outlet, which enables the dynamic suction of the powder into the liquid.

When the mixing is completed, the Hybrid Powder Mixer may be used as a discharge pump, or as a Cleaning-in-Place (CIP)

recirculation pump to clean the tank when used in combination with an Alfa Laval Rotary Jet Mixer.

TECHNICAL DATA

Versions	
ROW version:	(380-480 VAC)

Materials:	
Product wetted steel parts:	W. 1.4404 (316L) and Duplex steel
Other steel parts:	W. 1.4301 (304)
Product wetted seals:	EPDM, PTFE
Other O-rings:	EPDM
Finish:	Semi-Bright
Internal surface roughness:	Pipework acc. to DIN11850 Ra < 0.8 µm (Impellers: Blasted/machined)
Shaft seal:	Single mechanical SiC/SiC, flushed version
Flush tank:	Approx. 1 ltr. incl. sight glass

Note! Flush through possible via easy connection.

Motor
ROW version (incl. SS motor shroud): Standard foot-flanged motor with a fixed ball bearing on drive side, according to IEC metric standard, 2 poles = 3000/3600 RPM at 50/60 Hz, enclosure IP55 (with drain hole with labyrinth plug), insulation class F

Power:	
Motor power:	15 kW

Frequency drive	
Type:	Danfoss VLT® AutomationDrive FC 300 series
Power rating:	18.5 kW (Normal overload 110 % / 60 s)
Input voltage:	380-480 VAC
Mains option:	Local mains disconnect
Insulation class:	IP66
RFI filter:	Class A1/B
Display:	Graphical local control panel

Connection	
Liquid inlet connection:	DIN 11851 DN 50 male union
Liquid outlet connection:	DIN 11851 DN 40 male union

Control of powder addition
Manually actuated special C-Ball valve for dry ingredient adding

Other
Funnel strainer.
Blind cover at powder inlet for use during CIP

OPERATIONAL DATA

Temperature	
Temperature range:	-10 °C to +95 °C (Max. at CIP)
Temperature, Media, Maximum:	70 °C

Pressure	
Recommended inlet pressure:	0.0 - 0.2 bar
Min. back pressure recommended:	1 barg

Dry ingredient capacity:	Dependent on powder (e.g. 3000 kg/h capacity for skimmed milk powder)
Noise level (at 1 m):	< 90 dB(A)

Dimensions/weight	
HxWxL [mm]:	1130 X 826 X 1340
Weight:	Approx. 280 kg.
Max. table load:	300 kg.

Operation of the Alfa Laval Hybrid Powder Mixer

The two-stage in-line Hybrid Powder Mixer is installed in a recirculation loop connected to a batch tank. This user-friendly mobile unit has a built-in table to facilitate handling of heavy bags of powder. The table easily slides into position for convenient placement of the bags during mixing.

After adding liquid ingredients to the tank, the Alfa Laval Hybrid Powder Mixer is used to circulate the liquid over the tank. To provide high-efficiency mixing in tanks with volumes larger than 1 - 2 m^3 it is recommended to install an Alfa Laval Rotary Jet Mixer in the tank by connecting it to the end of the circulation pipe.

After powder is introduced in the funnel, the C-Ball valve under the funnel is opened. The valve is the only component that the operator must control during introduction of the powder. The injector positioned under the valve creates an under pressure in the funnel outlet, drawing the powder into the rotor-stator stage of the pump and blending the powder and liquid into a homogeneous mixture. The impeller in the second stage of the pump transfers the powder-liquid mixture back to the tank while part of the powder-liquid mixture is sent through the injector creating the under pressure in the funnel outlet, which enables the suction of the powder into the liquid.

When mixing is complete, the Hybrid Powder Mixer may be used as a discharge pump or, when used with the Alfa Laval Rotary Jet Mixer, as a CIP forward pump – depending on the size of the tank and Rotary Jet Mixer - to clean the tank interior.

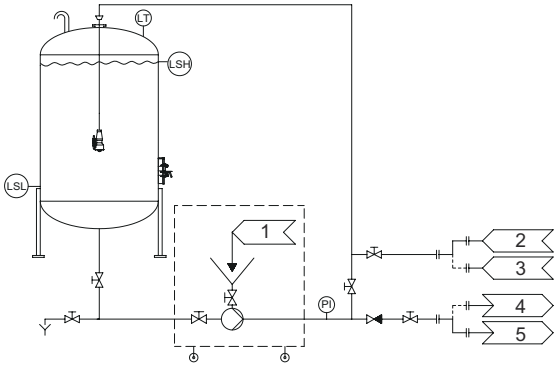


Figure 1. Example of setup with the Alfa Laval Hybrid Powder Mixer and an Alfa Laval Rotary Jet Mixer

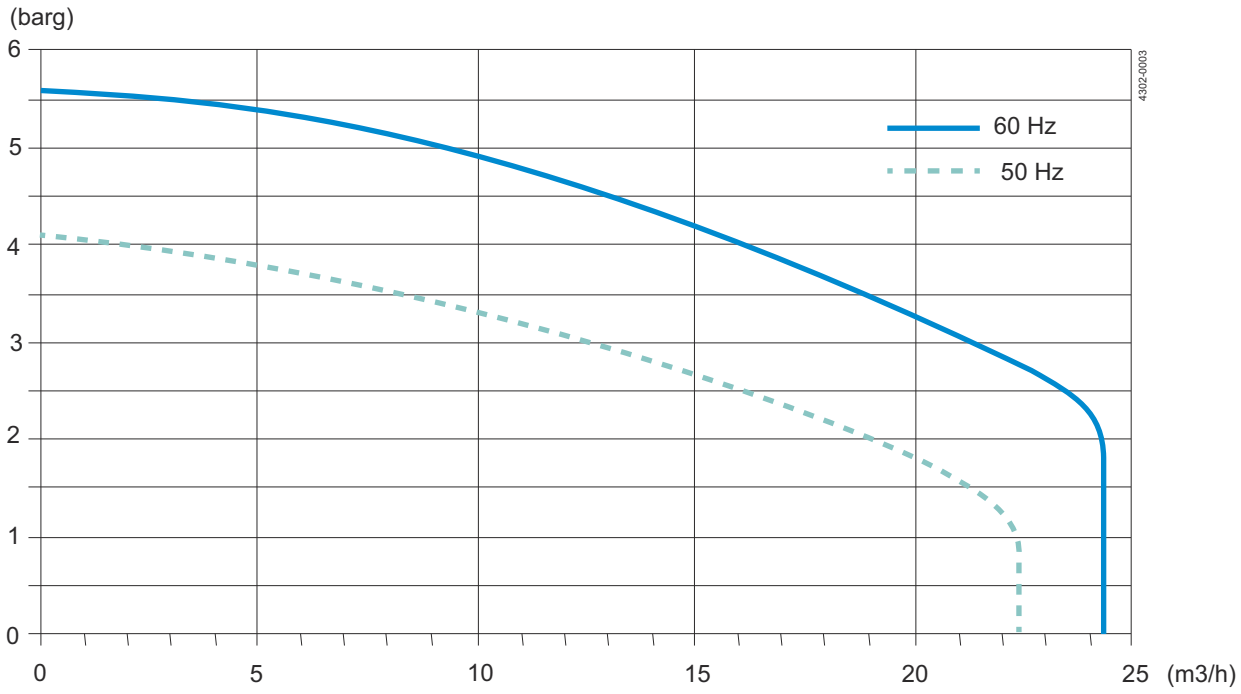


Figure 2. Pump Curve for the Alfa Laval Hybrid Powder Mixer

Pump curve with water

Alfa Laval Hybrid Powder Mixer S15

Powder mixers

Introduction

The Alfa Laval Hybrid Powder Mixer S15 is a stationary dual-stage inline powder dissolution unit that quickly and efficiently disperses powders, mixing them with liquids into a homogeneous blend. Using a single-motor pump, it then transfers the resulting solution at outlet pressures of up to 5 bar. Versatile, cost effective and easy to use, this mixer efficiently produces homogeneous products at high dry matter concentrations and high yields.

Applications

The Hybrid Powder Mixer S15 is an excellent choice for blending thickeners, stabilizers and emulsifiers into concentrations required in most hygienic applications in the dairy, beverage and food industries. It is also capable of producing recombined milk with more than 50% dry matter.

Benefits

- Fast and homogenous powder dissolving
- A combination of a stationary inline powder-liquid mixer and a pump
- High dynamic shear, gentle mixing
- Reduced installation, emissions, energy and maintenance costs
- Reduced total cost of ownership combining the functions of powder mixing and pumping into a single unit
- Reduced investment cost due to the reduction to basic functions

Standard design

The Alfa Laval Hybrid Powder Mixer S15 is comprised mainly of a two-stage pump with a rotor-stator as the first stage and as a second stage. It is also equipped with a funnel and an injector. The funnel is used to introduce powder through an injector system, which can be isolated using a hygienic C-ball valve. The injector pre-blends the powder and the liquid, while at the same time creating underpressure in the funnel outlet.

The S15 unit is reduced to basic functions, without table, frame and frequency converter and therefore has lower investment costs than the fully equipped Alfa Laval Hybrid Powder Mixer M15.

Working principle

The two-stage inline Alfa Laval Hybrid Powder Mixer S15 is typically integrated into a circulation loop connected to a batch tank.

After adding liquid ingredients to the tank, the Hybrid Powder Mixer circulates the liquid over the tank. To provide additional high-efficiency mixing for tanks with volumes larger than 1 - 2 m^3, Installing an Alfa Laval Rotary Jet Mixer is highly recommended.

When adding powder to the liquid, the powder is added through the funnel. The valve under the funnel is opened. The injector positioned under the valve creates an underpressure in the funnel outlet, drawing the powder into the rotor-stator and pre-blending the products. The rotor/stator (single rings) creates the main shear, dynamically and efficiently blending powder and liquid into a homogeneous mixture.

The pump impeller in the second stage creates the final shear and transfers the powder-liquid mixture to the tank under high pressure. A portion of the powder-liquid mixture is sent through the injector back to stage one. This way, the liquid flow in the injector creates the underpressure in the funnel outlet, which enables the dynamic suction of the powder into the liquid.

When the mixing is completed, the Hybrid Powder Mixer may be used as a discharge pump, or as a Cleaning-in-Place (CIP)

recirculation pump to clean the tank when used in combination with an Alfa Laval Rotary Jet Mixer.

TECHNICAL DATA

Version:	230 D / 400-415 Y @ 50 Hz

Materials	
Product wetted steel parts:	W. 1.4404 (316L) and Duplex steel
Other steel parts:	W. 1.4301 (304)
Product wetted seals:	EPDM, PTFE
Other O-rings:	EPDM
Finish:	Semi-Bright
Internal surface roughness:	Pipework acc. to DIN11850 Ra < 0.8 µm (Note: Impellers: Blasted/machined)
Shaft seal:	Single mechanical SiC/SiC, flushed version
Flush tank:	Approx. 1 ltr. incl. sight glass

Note! Flush through possible via easy connection.

Power	
Motor power:	15 kW

Frequency drive
The HPM S15 should always be operated by use of a frequency converter

Connections	
Liquid inlet connection:	DIN 11851 DN 50 male union
Liquid outlet connection:	DIN 11851 DN 40 male union

OPERATIONAL DATA

Recommended operation frequency:	60 Hz (specially for thickeners and stabilizers)

Temperature	
Temperature range:	-10 °C to +95 °C (max. at CIP)
Temperature, Media, Maximum:	70 °C

Pressure	
Recommended inlet pressure:	0.0 - 0.2 bar
Min. back pressure recommended:	1 barg

Dry ingredient capacity:	Dependent on powder properties (for example, 3000 kg/h capacity for skimmed milk powder)
Noise level (at 1 m):	< 90 dB(A)

Dimensions/weight	
HxWxL [mm]:	1115 X 580 X 1300
Weight:	Approx. 230 kg

Motor
Incl. SS motor shroud: Standard foot-flanged motor with a fixed ball bearing on drive side, according to IEC metric standard, 2 poles = 3000/3600 RPM at 50/60 Hz, enclosure IP55 (with drain hole with labyrinth plug), insulation class F

Other
Funnel strainer. Blind cover at powder inlet for use during CIP

Control of powder addition
Manually actuated special C-Ball valve for dry ingredient adding

Operation of the Alfa Laval Hybrid Powder Mixer S15

The two-stage inline Hybrid Powder Mixer is installed in a recirculation loop connected to a batch tank. After adding liquid ingredients to the tank, the Alfa Laval Hybrid Powder Mixer S15 is used to circulate the liquid over the tank. To provide high-efficiency mixing in tanks with volumes larger than 1 - 2 m^3 it is recommended to install an Alfa Laval Rotary Jet Mixer in the tank by connecting it to the end of the circulation pipe.

Before powder is added in to the funnel, we have to make sure that no air is in the circulation pipe and a minimum pressure of 1 bar is build up after the HPM. After powder is introduced in the funnel, the C-Ball valve under the funnel is opened. The valve is the only component that the operator must control during introduction of the powder. The injector positioned under the valve creates an under pressure in the funnel outlet, drawing the powder into the rotor-stator stage of the pump and blending the powder and liquid into a homogeneous mixture. The impeller in the second stage of the pump transfers the powder-liquid mixture back to the tank while part of the powder-liquid mixture is sent through the injector creating the under pressure in the funnel outlet, which enables the suction of the powder into the liquid.

When mixing is complete, the Hybrid Powder Mixer may be used as a discharge pump or, when used with the Alfa Laval Rotary Jet Mixer, as a CIP forward pump – depending on the size of the tank and Rotary Jet Mixer - to clean the tank interior.

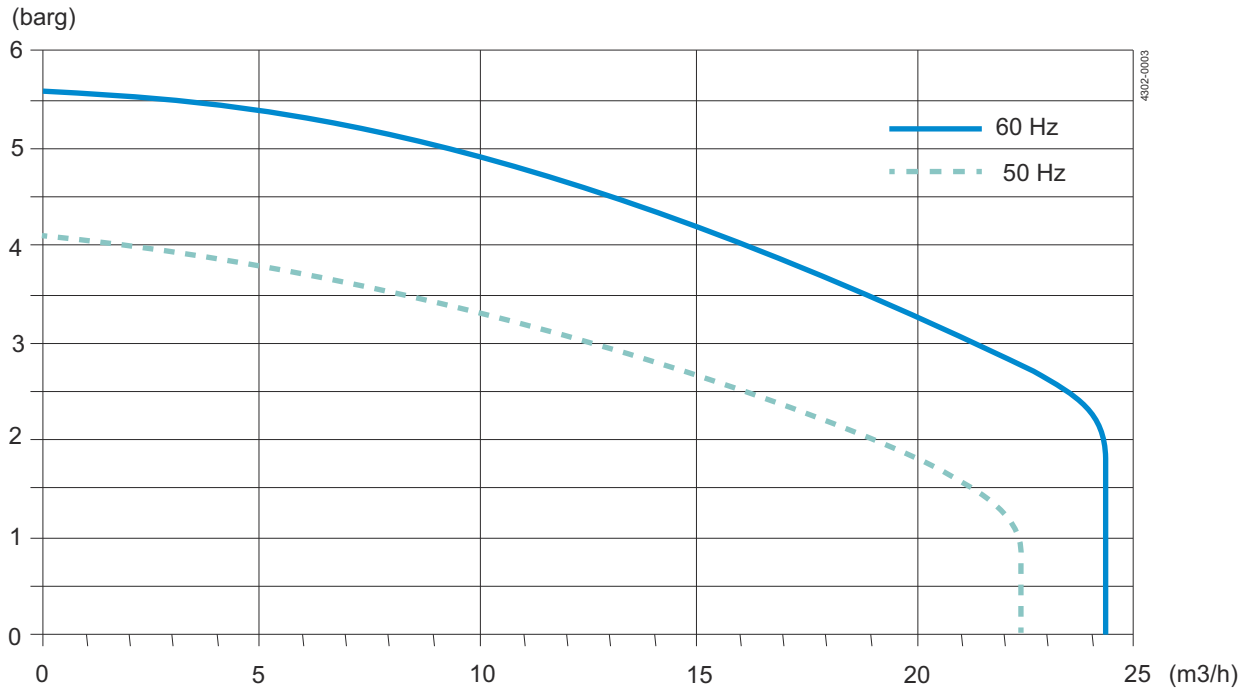
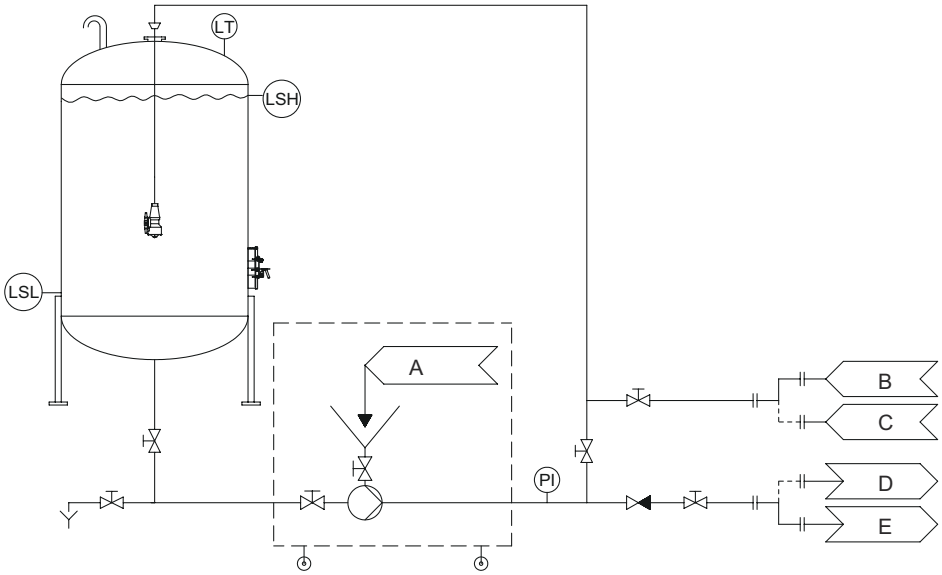


Figure 1. Pump Curve for the Alfa Laval Hybrid Powder Mixer S15

Pump curve with water

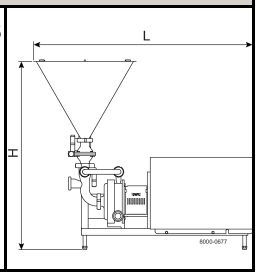


NOTE: This diagram is for illustration and guidance only

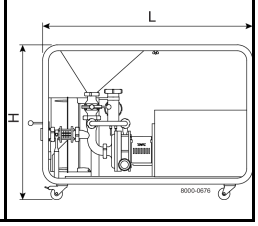
A = Powder/Crystals
B = Main media
C = CIP-F
D = CIP-R
E = Product

Figure 2. Example of setup with the Alfa Laval Hybrid Powder Mixer S15 and an Alfa Laval Rotary Jet Mixer

ALSIS Code: 5521

Item no.	Version	Motor power	Liquid inlet connection	Liquid outlet connection	Dimension (mm)			
		kW			L	W	H	
								S15
8010014180	230 D/400-415 Y @ 50 Hz	15	DIN 11851 DN 50 male union	DIN 11851 DN 40 male union	1300	590	1115	

ALSIS Code: 5521

Item no.	Version	Motor power	Liquid inlet connection	Liquid outlet connection	Dimension (mm)			
		kW			L	W	H	
								M15
8010014181	380-480 VAC	15	DIN 11851 DN 50 male union	DIN 11851 DN 40 male union	1340	826	1130	

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This is Alfa Laval

Alfa Laval is active in the areas of Energy, Marine, and Food & Water, offering its expertise, products, and service to a wide range of industries in some 100 countries. The company is committed to optimizing processes, creating responsible growth, and driving progress – always going the extra mile to support customers in achieving their business goals and sustainability targets.

Alfa Laval's innovative technologies are dedicated to purifying, refining, and reusing materials, promoting more responsible use of natural resources. They contribute to improved energy efficiency and heat recovery, better water treatment, and reduced emissions. Thereby, Alfa Laval is not only accelerating success for its customers, but also for people and the planet. Making the world better, every day. It's all about Advancing better™.

How to contact Alfa Laval

Contact details for all countries are continually updated on our web site. Please visit www.alfalaval.com to access the information.

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