4.3 Tank Agitators and Mixers

For mixing or stirring your products.



PD Sheets

Alfa Laval MM UltraPure, Magnetic Mixer	
Side mounted agitators Type ALS	
Top mounted agitators, type ALT	
Top mounted agitators, type ALTB	
Bottom mounted agitators Type ALB	
IM 10 Rotary Jet Mixer	
IM 15 Rotary Jet Mixer	4.3.1047
IM 20 Rotary Jet Mixer	
IM 25 Rotary Jet Mixer	

Ordering Leaflets

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ools and spare parts for Alfa Laval MM UltraPure, Magnetic Mixer4.	.3.1054
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Levitated Magnetic Mixer

Alfa Laval MM UltraPure, Magnetic Mixer

Application

Alfa Laval magnetic mixers offer effective mixing for applications with high demands on hygienic and aseptic design.

Working principle

The patented levitated bearing makes the mixer fully drainable and able to run dry without wear or particle generation. The performance ranges from low shear mixing at around 10 rpm to high intensity mixing with vortex at up to 600 rpm. For mixing tasks the range covers from 30 liters to 25000 liters of nominal batch size.

Standard design

The Alfa Laval MM UltraPure mixer consists of a weld plate and a mixer unit incl. gear drive. The weld plate is ordered and delivered separately to enable early preparation of the mixer installation. The mixer must be controlled by a VFD unit matched perfectly with the mixer as available in the ordering leaflet. The VFD is pre-programmed for optimum performance.

TECHNICAL DATA

Product wetted surface finish: Ra Option: Ra poli	<0.5 µm Mech. polish <0.5 µm and Electro ished
Working pressure:	o 7 bar (g)
Voltage and frequency	
AC motors	205/355V, 50Hz)/120 V, 48-62Hz
Protection class	
AC motors: IP6	6
AC VFD stand alone: IP6	6
AC VFD enclosure unit: IP2	0
Motor sizes	
MM 338-4/6: 0.3	7 kW
MM 434-8/10/12: 1.1	kW
Certificates	

Standard delivery includes:

- 3.1 Materials Certificates, EN10204 for all product wetted parts
- USP Class VI <88> certificates for Zirconia YTZP and ISOLAST 9501
- FDA Declaration of conformity for elastomers and ceramics
- USDA-H1 conformity statement (FDA) for gear drive oil
- TSE declaration (Transmissible Spongiform Encephalopathy) / ADI declaration (Animal Derived Ingredients)
- USP Class VI <88> certificates on request for Silicon Carbide parts



PHYSICAL DATA

Materials

Impeller and Weld Plate: AISI 316L (UNS S31603)
Drive rotor and distance piece: AISI 316L (UNS S31603)
Motor and Gearbox: ANSI / NSF 51 compliant
paint
Male Bearing:Zirconia YTZP
Male Bearing Gasket: ISOLAST 9501 (Perfluro
Elastomer)
Female Bearing: Silicone Carbide
Gearbox oil: USDA-H1
Temperature
Product mixing (10 – 600 rpm): max. 90°C
CIP (max 50 rpm):
SIP (0 rpm):max. 150°C
Weight
MM 338:
MM 434:



6

- Impeller
 Male bearing
 Gasket
 Weld plate

- 5. Clamp ring (only MM338)
 6. Bolt connection (only MM434)
- 7. Drive unit



MM338



Dimensions (mm)	MM 338-4	MM 338-6	MM 434-8	MM 434-10	MM 434-12
А	102	155	203	254	305
В	89	89	118	183	183
С	90	90	149	149	149
D	64	64	88	88	88
E	203	203	275.1	275.1	275.1
F	268	268	338	338	338
G	62.5	62.5	96.6	96.6	96.6
Н	103.5	103.5	141.5	141.5	141.5
	93	93	97	97	97

С

Machine Selection

This chart is valid for machine selection under the following conditions:

- Liquid / liquid mixing
- Mixture viscosity less than 500 cP
- Tank height to diameter ratio (h/d) between 1 and 1.5



Batch Size (liters / gallons)

*Gentle product treatment

** Very gentle product treatment

Α	В	С
MM 338-4 600 RPM	MM 338-6 550 RPM	MM 434-12 125 RPM
		MM 434-10 185 RPM
		MM 434-8 390 RPM



Side mounted agitators Type ALS

Application

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



TECHNICAL DATA

Motor

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

Voltage and frequency

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

Gears

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

Ordering

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

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

PHYSICAL DATA

Materials

Available materials:	
Steel parts:	AISI 316L (standard) AISI 304 AISI 904L SAF 2205 Other materials on request.
Seal rubber parts (O-rings or bellows):	EPDM FPM/FEP (only for stationary o-rings) FPM Other materials on request.
Mechanical seal parts:	Carbon Carbon (FDA) Silicon carbide

Certificates

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

Dimensions

Propeller standard diameter range: ø125 mm to 1900 mm. Specific dimensions on the drive unit and propeller(s) will depend on the actual configuration selected.



The Alfa Laval range of side mounted propeller agitators is designed to meet almost every customer requirement. Due to their modular build, the agitators can be designed for every kind of application within the sanitary industry. The modular construction is designed with the aim to meet both European and American standards and regulations, such as EHEDG, USDA, FDA, 3A etc.

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

Sanitary features	Due to
Easy external cleaning	stainless steel bearing frame design
	with O-ring seal (for wash down)
Connections inside the tank (risk	bearing frame drives with drive
zones) can be avoided	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	bearing frame drives with
wear parts such as shaft seals,	detachable shaft which can
bearings etc.) can be done from	be dismounted from outside of the
outside of the tank	tank
Easy dismantling	use of spider type coupling and
	stainless steel parts (no corrosion)





Tank Agitators and Mixers

Side mounted agitators Type ALS

Type ALS	Configuration	T			T	Side n	nounted agitators
Drives							
Bearing frame size = xx							
Shaft diameter = yy							
(not used if xx = yy)	8-8-9-9 TD 528-028	d e e e TD 528-029	E E E E TD 528-019		TD 528-032		
Description	-ME-GR-Bxx(/yy)	-ME-GC-Bxx(/yy)	-ME-Bxx(/yy)	-ME-GR-yy	-ME-GP-yy		
(nower speed and shaft	frame and right angle	frame and coavial	frame and direct motor	shaft mounted in hollow	shaft mounted in hollow		
diameter depending	gearbox	gearbox	drive	shaft of gearbox	shaft of gearbox		
on application)	gourbox	gourbox	dive	share of gearbox	shart of gearbox		
Seal							
arrangements							
	4 H TD 528-035	TD 528-036	H ID 528-037	9 Ptd 528-038	TD 528-012	HTD 528-013	TD 528-033
Description	F-S1- Seal flance with O-ring	F-S2- Seal flance with O-ring	LF-S1-	LF-S2- Lantern (spacer), seal	LF-D-	LF-DT-	-ME-yyLF-S1- Direct motor drive, shaft
(lower flange and seal	seal against tank flange,	seal against tank flange,	flange with O-ring seal	flange with O-ring seal	flange with O-ring seal	flange with O-ring seal	connected directly to
material depending on	drain, oil trap (only geared	drain, oil trap (only geared	against tank flange, drain,	against tank flange, drain,	against tank flange.	against tank flange, drain,	motor, lantern (spacer),
application)	versions) and shaft	versions) and shaft	oil trap (only geared	oil trap (only geared	drain, oil trap and	oil trap and shaft seal:	seal flange with O-ring
	seal: single mechanical	seal: single mechanical	versions) and shaft	versions) and shaft	shaft seal: double	double mechanical seal	seal against tank flange,
	bellow seal	non-bellow seal	seal: single mechanical	seal: single mechanical	mechanical seal for high	(tandem) for low pressure	drain and shaft seal:
			bellow seal	non-bellow seal	pressure applications	applications	single mechanical
					and aseptic use		bellow seal
Shaft							
Length = III	TD 528-034						
Description	SS shaft, length						
(material depending on	according to application						
application)							
Energy Saving							
Foils							
to 1000 mm)	()	-()	-()				
10 1300 mini	TD 528-001	TD 528-001	TD 528-001a				
Description	-PvvvD3P	-PvvvD3PE	-PvvvD3G				
(material depending on	finish: polished Standard:	finish: polished and	finish: shot neened				
application)	$Ba < 0.8 \mu m$	electro polished	initiani. Sher peeried				
approation		Standard: Ba < 0.8 µm					
Optional							
		\mathcal{O}					
	TD 528-005	TD 528-006	TD 528-007	S			
	Welding flange	Blind flange	Cover for Motor /	Spare part kit			
Description	Incl. mounting his	Incl. Orring and	gear motor)	Standard spore port Lit			
Description	holts and nuts	ind. O-ning sear	comes in different shapes	Granuaru opare part Kit			
			according to drive type				

4.3



Top mounted agitators, type ALT

Applications

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



TECHNICAL DATA

Motor

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

Voltage and frequency

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

Gears

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

ATEX - option

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

Ordering

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

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

PHYSICAL DATA

Materials

Available materials	
Steel parts:	AISI 316L (standard) AISI 304 AISI 904L SAF 2205 Other materials on request.
Seal rubber parts (O-rings or bellows):	EPDM FPM/FEP (only for stationary o-rings) FPM Other materials on request.
Mechanical seal parts:	Carbon Carbon (FDA) Silicon carbide

Material certificate - option

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

Dimensions

Standard propeller diameter range: ø125 mm to 1900 mm. Specific dimensions on the drive unit and propeller(s) will depend on the actual configuration selected.



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

- Type ALTB, top mounted agitators with bottom steady bearing
- Type ALS, side mounted agitators
- Type ALB, bottom mounted agitators
- For more information please see separate Product Data Sheets.

Advantageous and profitable design

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

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

Sanitary features	Due to
Easy external cleaning	stainless steel bearing frame
	design with seal O-rings (for wash
	down)
Connections inside the tank (risk	bearing frame drives with drive
zones) can be avoided	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	bearing frame drives with
parts such as shaft seals, bearings	detachable shaft which can be
etc.) can be done from out side	dismounted from outside the tank
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

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Seal arrangements Image: I						room applications)		
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Description 3 - bladed propeller, finish: 3 - bladed propeller, finish: 3 - bladed propeller, finish: 2 - blad		-nPvvvD3P	-nPvvvD3PE	-nPvvvD3G	-nPvvvD2P	-nPvvvD2PE	-nPvvvD2G	
(material depending on application) polished Standard: Ra polished and electro polished shot peened polished Standard: Ra polished and electro polished glass shot peened Optional 	Description	3 - bladed propeller, finish:	3 - bladed propeller, finish:	3 - bladed propeller, finish:	2 - bladed propeller, finish:	2 - bladed propeller, finish:	2 - bladed propeller, finish:	
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Description Incl. mounting pin nuts and bolts Incl. seal O-ring Stainless steel cover - stainless steel cover - according to drive type Standard spare part kit	Optional				_			
Welding flange Blind flange Cover for Motor / gear motor Spare part kit Description Incl. mounting pin nuts Incl. seal O-ring Stainless steel cover - stainless steel cover - and bolts Stainless steel cover - comes in different shapes according to drive type		TD 528-005	TD 528-006	TD 528-007	S			
Welding flange Blind flange Blind flange Spare part kit Description Incl. mounting pin nuts Incl. seal O-ring Stainless steel cover - Standard spare part kit and bolts comes in different shapes according to drive type Stainless steel cover - Stainless steel cover -		10 320-003	10 320000	Cover for Motor / gear	•			
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and bolts comes in different shapes according to drive type	Description	Incl. mounting pin nuts	Incl. seal O-ring	Stainless steel cover -	Standard spare part kit			
according to drive type		and bolts		comes in different shapes				
				according to drive type				



Top mounted agitators, type ALTB

Applications

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



TECHNICAL DATA

Motor

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

Voltage and frequency

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

Gears

Different gear types available according to configuration.

As standard filled with normal synthetic or mineral oil, optional: Food approved oil. As standard painted RAL5010.

ATEX - option

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

Ordering

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

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

PHYSICAL DESIGN

Materials

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

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.



The Alfa Laval range of top mounted propeller agitators with bottom steady bearing is designed to meet almost every customer requirement. Type ALTB agitators are characterised by having a shaft support inside the tank called a bottom steady bearing. Standard type ALTB agitators are less costly than agitators without internal shaft support. Due to their modular build, the agitators can be designed to suit every kind of application within sanitary industry. The modular construction is designed with the aim to meet both European and American standards and regulations, such as EHEDG, USDA, FDA, 3A etc.

Please note that Alfa Laval also offer other agitator solutions:

- Type ALT, top mounted agitators
- Type ALS, side mounted agitators
- Type ALB, bottom mounted agitators

For more information please see separate Product Data Sheets.

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

Sanitary features	Due to
Connections inside the tank (risk	propellers can be welded onto the
zones) can be avoided	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	wear bushings can be replaced
replacement	without dismantling the agitator
	drive







BS1P

BS2P

Type ALTB	Configuration			Top mounted	d agitators with bot	tom steady bearing
Drives						
			TD 528-015			
Shaft diameter = yy	-ME-GR-yy	-ME-GW-yy	-ME-GP-yy			
Description	Right angle gear drive, shaft	Worm gear drive, shaft	Parallel shaft gearbox,			
(power, speed and shaft diameter	mounted in hollow shaft of	mounted in hollow shaft of	shaft mounted in hollow			
depending on application)	gearbox (for very low head	gearbox (for very low head	shaft of gearbox			
	room applications)	room applications)				
Seal arrangements						
	TD 528-009	TD 528-010	TD 528-011	DTD 528-012	TD 528-013	
Description	F-R-	LF-R-	LF-S-	LF-D-	LF-DT-	
(lower flance and seal material	against tank flange, drain	with O-ring seal against	with O-ring seal against	flange with O-ring seal	flance with O-ring seal	
(lower hange and sear material	against taint nange, urann,	tenti floran droin eil tren	tenti flance drein eil tren	against tools flange, drain	against taply flange, drain	
depending on application)	on trap and shart seal: radia	tarik ilange, drain, oli trap	tarik liange, drain, oli trap	against tank hange, drain,	against tank liange, drain,	
	sear for atmospheric tanks	anu snan seal: radial seal	anu snatt seal: single	on trap and shaft seal:	on trap and shaft seal:	
		tor atmospheric tanks	mechanical dry running	double mechanical seal for	double mechanical seal	
			seal for high/low pressure	high pressure applications	(tandem) for low pressure	
Shoft			applications	and aseptic use	applications	
Shan						
	Ų					
Length = IIII	-SIII-					
Energy Saving Foils						
Number =n				~	~	~
Diameter =vvv		\square	\square			
(125 mm to 1900 mm)				roh	roh	roh
	59	59]])]	17
	TD 528-001	TD 528-001	TD 528-001a	TD 528-002	TD 528-002	TD 528-0028
Description	-nPvvvD3P	-nPvvvD3PE	-nPvvvD3G	-nPvvvD2P	-nPvvvD2PE	-nPvvvD2G
(material depending on application)	3 - bladed propeller,	3 - bladed propeller,	3 - bladed propeller,	2 - bladed propeller,	2 - bladed propeller,	2 - bladed propeller,
	finish: polished	finish: polished and	finish: shot peened	finish: polished	finish: polished and	finish: glass shot peened
	Otender-I: D- 0.0	electro polished		Otender-I: D- 0.0	electro polished	
Bottom steady bearing	Stariuaro: ∺a < 0.8 µm	- Stanuard: Ha < 0.8 μm		Standard: Ha < 0.8 μm	зтапиата: на < 0.8 µm	
_ strent eready boaring	P.	P)	<u>Ô</u> R			
	\square	\square				
	TD 528-003	TD 528-003a	TD 528-004			
	-BS1P	-BS1G	-BS2P			
Description	Bottom steady bearing	Bottom steady bearing	Sanitary bottom steady			
(material depending on application)	with PTFE bushing	with PTFE bushing	bearing with PVDF bushings			
	finish: polished	finish: shot peened	finish: polished			
Ontional	Standard: Ra < 0.8 µm		Standard: Ra < 0.8 µm			
Optional						
		(°C)		C		
	TD 528-005	TD 528-006	TD 528-007	3		
	Welding flange	Blind flange	Cover for	Spare part kit		
Description	Incl. mounting pin pute	Incl. seal O-ring	Stainless steel cover -	Standard spare part kit		
Boonpion	and holte	and code of mig	comes in different chance			
	and DUITS		apparenting to this to			
	1	1	according to drive type	1		



Bottom mounted agitators Type ALB

Applications

Application	Typical examples
Maintain media	Milk storage tanks, mixed product tanks,
homogeneous	UHT storage tanks etc.
Mixing and Solutions	Fluid and fluid mixing, i.e. drinking yoghurt
(dissolves)	and fruit mix tanks, flavoured milk mix tanks,
	syrup mix tanks, etc.
Solid Dispersion	Powder + fluid mix tanks, etc.
Suspension	Fluids with particles, i.e. juice tanks
Heat transmission	Circulation of media in tanks with dimple
	iacket (cooling or heating)



TECHNICAL DATA

Motor

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

Voltage and frequency

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

Gears

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

ATEX - option

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

Ordering

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

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

PHYSICAL DATA

Materials

List the range of materials available for wetted parts:

 AISI 316L (standard)
AISI 304
AISI 904L
SAF 2205
Other materials on request.
 EPDM
FPM/FEP (only for stationary
o-rings)
FPM
Other materials on request.

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

Material certificate - option

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

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.



The Alfa Laval range of bottom mounted propeller agitators is designed to meet almost every customer requirement. Due to their modular build the agitators can be designed for every type of application with the sanitary industry. The modular construction is designed with the aim to meet both European and American standards and regulations, such as EHEDG, USDA, FDA, 3A etc.

Configurable design

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

- Drives (drive + shaft support + shaft diameter) ٠
- Seal arrangements (oil trap + shaft seal type) ٠
- Shaft (length) ٠
- Energy Saving Foils (propeller type + surface finish) ٠ ٠ 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

Sanitary features	Due to
Easy external cleaning	stainless steel bearing frame design
	with seal O-rings (for washing)
Connections inside the tank	bearing frame drives with drive shaft
(risk zones) can be minimised	and special internal shaft connection
	without having a flange coupling
	inside the tank
All seals both stationary and	the unique cone shaped seal
rotating seals are sterilised	arrangement with flushed sterile seal
during running	system
Good drip off properties	no plane surfaces or grooves on
	internal parts
Easy cleaning	no interior shadow sides between the
	blades and smooth surfaces
L	

Maintenance features	Due to
All service (replacement of	bearing frame drives with detachable
wearing parts such as shaft	shaft which can be dismounted from
seals, bearings etc.) can be	outside the tank
done from outside the tank	
Easy dismantling	use of spider type coupling and
	stainless steel parts











Bottom mounted agitators Type ALB



Superior mixing - Liquid, Gas and Powder

IM 10 Rotary Jet Mixer

The patented IM 10 Rotary Jet Mixer (RJM) does not only mix fast, efficient and uniform but creates also the necessary process flexibility that makes it easy to switch to new product formulations with diverse viscosities, densities and volumes. Besides classic liquid to liquid mixing the RJM is excellent for gas and powder dispersion plus a superb tank cleaning machine.

Applications

Process and storage vessels between 1-10 m^3 used in a wide range of industries such as: beer & beverage, food & ingredients, home & personal care, health care, biotech and chemical industry etc.

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.

TECHNICAL DATA

Lubricant:	Self-lubricating with the mixing/cleaning fluid
Standard thread:	1" BSP or NPT, female, Top cone 1" BSP with sanitary seal
Min. tank opening:	See dimension drawings
Pressure	
Working pressure:	2-8 bar
during mixing:	2-6 bar
during CIP:	4-8 bar



PHYSICAL DATA

Materials	
Materials:	 . AISI 316L, AISI 316, SAF 2205 (UNS 31803), EPDM, PEEK, PVDF, PFA, Ceramics
Weight:	 . 5.1 kg
Temperature	
Max. working temperature:	 . 95°C
Max. ambient temperature:	 . 140°C
Cortificatos	

Certificates

2.1 material certificate ATEX.

Benefits

Using the IM 10 Rotary Jet Mixer makes it possible, at a modest investment, to perform fast and efficient mixing in a sanitary system. In traditional systems, using propeller mixers, a rotating shaft penetrates the tank wall, and a mechanical seal and a gear box are installed. With the Rotary Jet Mixer technology the shaft, seal and gearbox are eliminated, and a more sanitary design is obtained. With the Rotary Jet Mixing technology good mixing is achieved without the use of baffles. The Rotary Jet Mixer can also be used for gas dispersion. The IM 10 can furthermore be used for efficient CIP when the tank is empty, saving liquid, chemicals and energy compared to a fixed spray ball CIP system.



4.3

Flow rate

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

Volumetric flow rate [m3/h]



Nozzles B) d = 4.6 mmC) d = 3.9 mm

Dimensions (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.



в С D Е G F Н А 173 230 75 133 ø110 Max. 25 **ø**150 ø200

Superior Mixing - Liquid, Gas and Powder

IM 15 Rotary Jet Mixer

The patented IM 15 Rotary Jet Mixer (RJM) does not only mix fast, efficient and uniform but creates also the necessary process flexibility that makes it easy to switch to new product formulations with diverse viscosities, densities and volumes. Besides classic liquid to liquid mixing the RJM is excellent for gas and powder dispersion plus a superb tank cleaning machine.

Applications

Process and storage vessels between 2-100 m³ used in a wide range of industries such as: beer & beverage, food & ingredients, home & personal care, health care, biotech and chemical industry etc.

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.

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

Benefits

Using the IM 15 Rotary Jet Mixer makes it possible, at a modest investment, to perform fast and efficient mixing in a sanitary system. In traditional systems, using propeller mixers, a rotating shaft penetrates the tank wall, and a mechanical seal and a gear box are installed. With the Rotary Jet Mixing technology the shaft, seal and gearbox are eliminated, and a more sanitary design is obtained. With the Rotary Jet Mixing technology good mixing is achieved without the use of baffles. The Rotary Jet Mixer can also be used for gas dispersion and for dispersion and dissolving of powder. The IM 15 can furthermore be used for efficient CIP when the tank is empty, saving liquid, chemicals and energy compared to a fixed spray ball CIP system

4.3

