Portable & Vertical Type Agitators

Models MKG · MFG · MKM · MFM · MFC

AGITATORS

ELEPON E.C.A.P. CORPORATION

MKG

Portable Type Agitator
Medium Speed by Gear Speed Reduction System

MKG Model

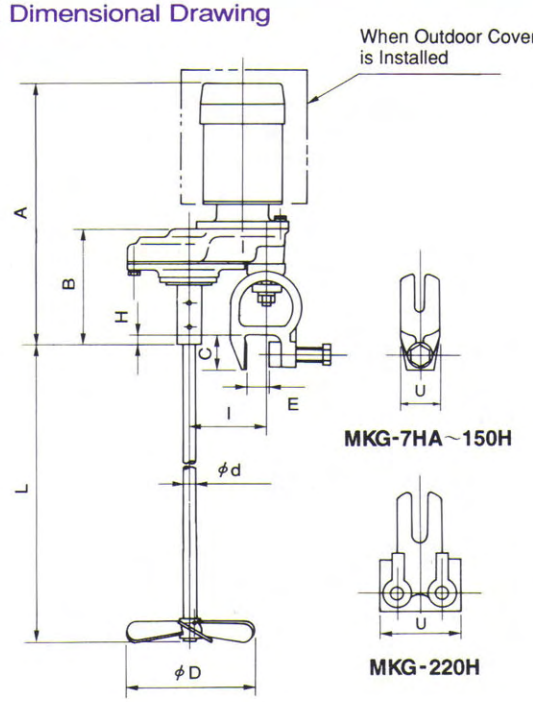
Due to the use of high precision gears, the operation is quiet. This type is more compact compared with the old MBH type and keeps the same performance with high mobility as the latter has.

Rotational Speed

r.p.m.

	50Hz	60Hz
4P-Motor	300	360
6P-Motor	200	240

Dimensional Drawing



※ The standard configuration has one 3-blade propeller.
※ Dimension A varies slightly depending on the motor maker.

Specifications and Dimensions

Model No.	Motor			Shaft		3-blade Propeller		Dimensions of Each Part							Max. Agitating Volume		Weight
						1st Level	(2nd Level)										
	Out-put	Horse-power	Voltage	Standard Length L	Dia. φd	Dia. φD	Dia. φD	A	B	C	H	I	E	U	Dilute Solution	Medium Viscosity Solution	with Motor
	kW	HP	V	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	ℓ	ℓ	kg
MKG-7HA	0.065	1/12	100	600	13	160	(120)	340	127	50	−10	101	38	47	400	100	11
MKG-10HA	0.1	1/8	100	800	13	200	(160)	334	127	50	−10	101	38	47	600	200	13
MKG-10H	0.1	1/8	200	800	13	200	(160)	314	127	50	−10	101	38	47	600	200	14
MKG-20HA	0.2	1/4	100	1000	16	250	(200)	357	127	50	−10	101	38	47	1200	400	16
MKG-20H	0.2	1/4	200	1000	16	250	(200)	336	127	50	−10	101	38	47	1200	400	16
MKG-40H	0.4	1/2	200	1200	22	300	(250)	399	168	50	17	128	38	47	2500	800	22
MKG-75H	0.75	1	200	1400	22	350	(300)	401	168	50	17	128	38	47	5000	1500	28
MKG-150H	1.5	2	200	1600	32	400	(350)	543	231	74	34	172	66	72	10000	3000	55
MKG-220H	2.2	3	200	1800	32	450	(400)	572	231	74	35	172	66	144	15000	5000	70

- The standard paint color is Munsell 7.5 GY-5/5.5. No load operation is forbidden.
- Parts which come in contact with solution are made of SUS 304 and SUS 316(Austenite stainless steel). These parts can also be lined with various types of material.
- The standard motor is a totally-enclosed, fan-cooled outdoor type.
- 6P-motors are available for the out-puts of 0.4 kw or larger. In such cases of 6P-motors, all parts other than motor itself shall be of one-rank-up from those for 4P-motors.
- The parenthesized figures are for non-standard specification.

MFG

Vertical Type Agitator
Medium Speed by Gear Speed Reduction System

MFG Model

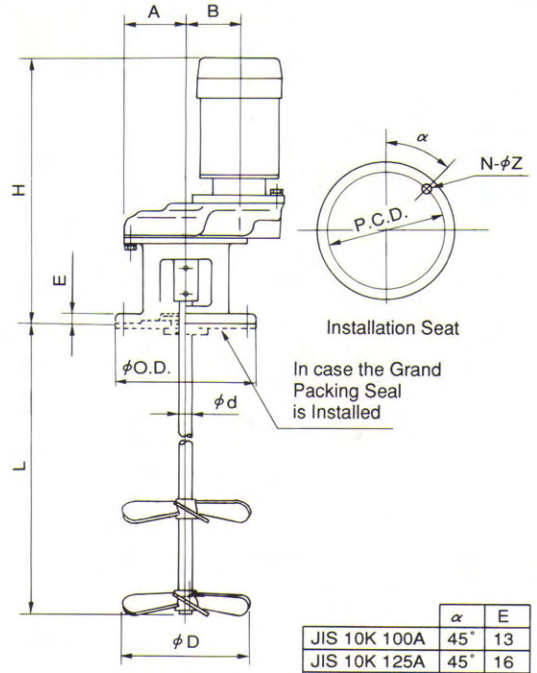
Due to the use of high precision gears, the operation is quiet. This type is more compact than the old MCS type and keeps the latter's high performance.

Rotational Speed

r.p.m.

	50Hz	60Hz
4P-Motor	300	360
6P-Motor	200	240

Dimensional Drawing



	α	E
JIS 10K 100A	45°	13
JIS 10K 125A	45°	16
JIS 10K 150A	45°	18

※ The H dimension varies slightly depending on the motor maker.

Specifications and Dimensions

Model No.	Motor		Shaft		3-blade Propeller		Main Unit			Installation Flange					Max. Agitating Volume		Weight
					(1st Level)	2nd Level							Holes				
	Out-put	Horse-power	Standard Length L	Dia. φd	Dia. φD	Dia. φD	H	A	B	Nominal Dia. JIS-10K	Outer Dia. O.D.	Pitch P.C.D.	Z	N	Dilute Solution	Medium Viscosity Solution	with Motor
	kW	HP	mm	mm	mm	mm	mm	mm	mm	(inch)	mm	mm	mm	—	ℓ	ℓ	kg
MFG-10H	0.1	1/8	800	13	(200)	160	341	73	70	100A	210	175	19	4	600	200	17
MFG-20H	0.2	1/4	1000	16	(250)	200	363	73	70	100A	210	175	19	4	1200	400	19
MFG-40H	0.4	1/2	1200	22	(300)	250	426	98	93	125A	250	210	23	4	2500	800	29
MFG-75H	0.75	1	1400	22	(350)	300	428	98	93	125A	250	210	23	4	5000	1500	35
MFG-150H	1.5	2	1600	32	(400)	350	588	126	125	150A	280	240	23	4	10000	3000	65
MFG-220H	2.2	3	1800	32	(450)	400	617	126	125	150A	280	240	23	4	15000	5000	79

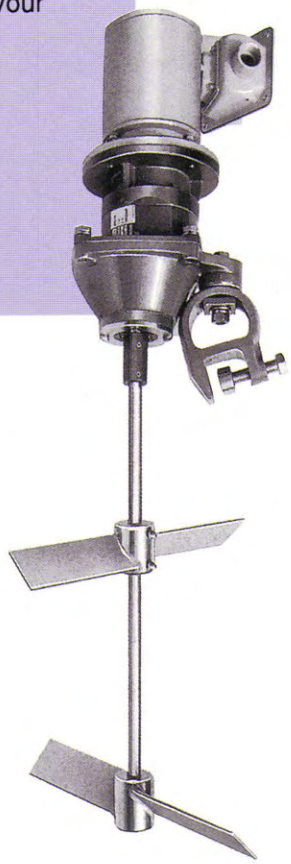
- The standard paint color is Munsell 7.5 GY-5/5.5. No load operation is forbidden.
- Parts which come in contact with solution are made of SUS 304 and SUS 316 (Anstenite stainless steel). These parts can also be lined with various types of material.
- The standard motor is a totally-enclosed, fan-cooled outdoor type.
- 6P-motors are available for the out-puts of 0.4 kw or larger. In such cases of 6P-motors, all parts other than motor itself shall be of one-rank-up from those for 4P-motors.
- The parenthesized figures are for non-standard specification.

MKM

Portable Type Agitator
Medium & Low Speed by Gear Motor • Speed Reduction System

MKM Model

Due to the use of high precision gears, the operation is quiet. This type has been made more compact, keeping the characteristics of the old TMM type whose rotations can be selected according to your various aims such as viscosity,etc.

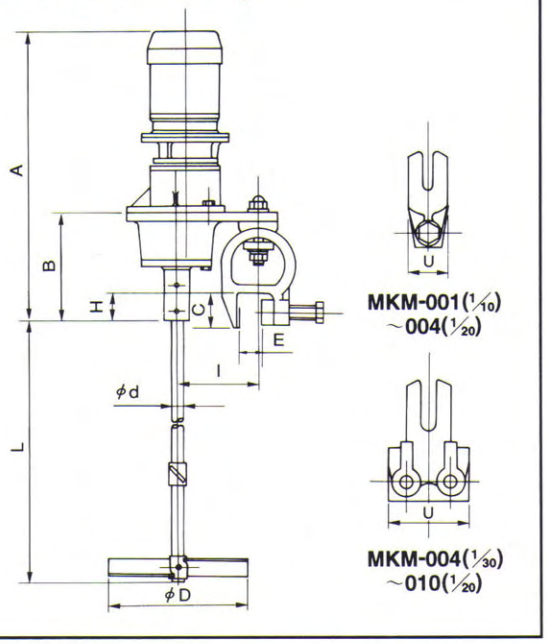


Rotational Speed

r.p.m.

Reduction Ratio	1/10	1/15	1/20	1/30	1/50
50Hz	150	100	75	50	30
60Hz	180	120	90	60	36

Dimensional Drawing



※ Dimension A varies slightly depending on the motor maker.
※ Any type of impeller such as paddle, 3-blade propeller and turbine can be manufactured.

Specifications and Dimensions

Model No.	Motor, Speed Reducer			Shaft		2-blade Propeller 2 Levels	Dimensions of Each Part							Max. Agitating Volume		Weight
	Out-put	Horse-power	Speed Reduction Ratio	Standard Length L	Dia. φd	Dia. φD	A	B	C	H	I	E	U	Dilute Solution	Medium Viscosity Solution	with Motor
	kW	HP	i	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	ℓ	ℓ	kg
MKM-001	0.1	1/8	1/10	1000	16	200	453	142	50	25	98	38	47	700	300	17
			1/15			250										
			1/20			300										
			1/30			350										18
			1/50			500										20
MKM-002	0.2	1/4	1/10			250	475							1300	600	18
			1/15			300										
			1/20			350										19
			1/30	1200	22	450	504	157	74	14	112	66	72			25
			1/50			550										
MKM-004	0.4	1/2	1/10			350	531							2500	1200	26
			1/15			400										
			1/20			450										27
			1/30	1500	32	550	574	187	74	43	123	66	144			42
			1/50			650										
MKM-010	0.75	1	1/10			400	580							5000	2500	46
			1/15			500										48
			1/20			600										49

- The standard paint color is Munsell 7.5 GY-5/5.5. No load operation is forbidden.
- Parts which come in contact with solution are made of SUS 304 and SUS 316(Austenite stainless steel). These parts can also be lined with various types of material.
- The standard motor is a totally-enclosed, fan-cooled outdoor type.
- Reduction ratios other than the listed above also can be selected, if needed.

MFM

Vertical Type Agitator
Medium & Low Speed by Gear Motor • Speed Reduction System

MFM Model

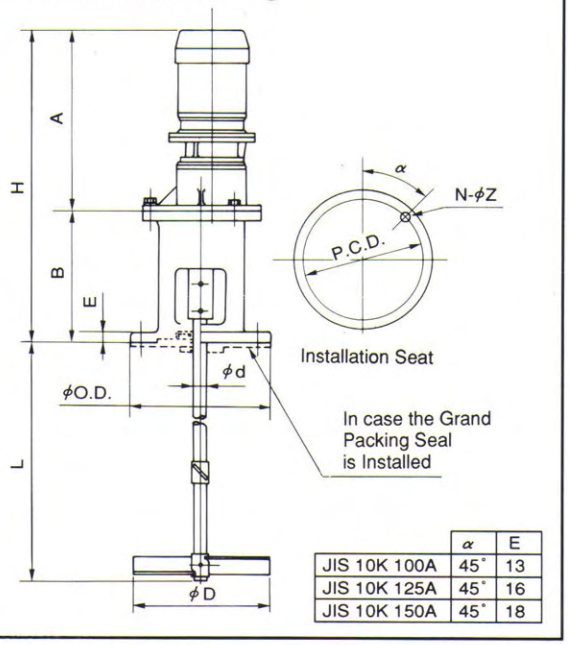
Due to the use of high precision gears, the operating is quiet.

Rotational Speed

r.p.m.

Reduction Ratio	1/10	1/15	1/20	1/30	1/50
50Hz	150	100	75	50	30
60Hz	180	120	90	60	36

Dimensional Drawing



	α	E
JIS 10K 100A	45°	13
JIS 10K 125A	45°	16
JIS 10K 150A	45°	18

※ Dimension A varies slightly depending on the motor maker.
※ Any type of impeller such as paddle, 3-blade propeller and turbine can be manufactured.

Specifications and Dimensions

Model No.	Motor, Speed Reducer			Shaft		2-blade Paddle 2 Levels	Main Unit			Installation Flange					Max. Agitating Volume		Weight
	Output	Horse-power	Speed Reduction Ratio	Standard Length L	Dia. φd	Dia. φD	H	A	B	Nominal Dia. JIS-10K	Outer Dia. O.D.	Pitch P.C.D.	Holes Z	Holes N	Dilute Solution	Medium Viscosity Solution	with Motor
	kW	HP	i	mm	mm	mm	mm	mm	mm	(inch)	mm	mm	mm	—	ℓ	ℓ	kg
MFM-001	0.1	1/8	1/10	1000	16	200	480	311	169	100A	210	175	19	4	700	300	20
			1/15			250											
			1/20			300											21
			1/30			350											
			1/50			500											23
MFM-002	0.2	1/4	1/10			250	502	333							1300	600	21
			1/15			300											22
			1/20			350											
			1/30			450	531	347									30
			1/50			550											
MFM-004	0.4	1/2	1/10	1200	22	350	558	374	184	125A	250	210	23		2500	1200	32
			1/15			400											
			1/20			450											
			1/30	1500	32	550	618	387	231	150A	280	240					49
			1/50			650											50
MFM-010	0.75	1	1/10			400	624	393							5000	2500	53
			1/15			500											55
			1/20			600											56

- The standard paint color is Munsell 7.5 GY-5/5.5. No load operation is forbidden.
- Parts which come in contact with solution are made of SUS 304 and SUS 316 (Austenite stainless steel). These parts can also be lined with various types of material.
- The standard motor is a totally-enclosed, fan-cooled outdoor type.
- Reduction ratios other than the listed above also can be selected, if needed.

MFC

Vertical Type Agitator
Medium & Low Speed by Gear Motor • Speed Reduction

Specifications and Dimension

Model No.	Motor		Speed Reducer		Shaft		2-blade Paddle 2 Levels	Installation Flange					Max. Agitating Volume		Weight
	Out-Put	Horse-Power	Frame No.	Reduction Ratio	Standard Length L	Dia. φd	Dia. φD	Nominal Dia. JIS-10K	Outer Dia. O.D.	Pitch P.C.D.	Holes Z	Holes N	Dilute Solution	Medium Viscosity Solution	with Motor
	kW	HP	#	i	mm	mm	mm	(inch)	mm	mm	mm	—	ℓ	ℓ	kg
MFC-001	0.1	1/8	4075	1/11	1000	16	200	100A	210	175	19	4	700	300	19
				1/17			250								
				1/29			350								20
				1/35			400								21
				1/43			450								29
			4085	1/59	1200	22	500	125A	250	210	23				50
			4095	1/87	1500	32	700	150A	280	240					
MFC-002	0.2	1/4	4075	1/11	1000	16	250	100A	210	175	19	4	1300	600	20
				1/17			350								21
			4085	1/29	1200	22	450	125A	250	210	23				28
				1/35			500								30
				1/43			550								
			4095	1/59	1500	32	600	150A	280	240					50
				1/87			800								59
MFC-004	0.4	1/2	4085	1/11	1200	22	350	125A	250	210	23	4	2500	1200	29
				1/17			400								
			4095	1/29	1500	32	550	150A	280	240					50
				1/35			600								51
				1/43			650								
			4105	1/59			900								60
				1/87			1150								74
MFC-010	0.75	1	4095	1/11	1500	32	400	150A	280	240	23	4	5000	2500	51
				1/17			550								54
			4105	1/29			700								58
				1/35			800								63
				1/43			900								67
			4115	1/59	2200	45	1000	200A	330	290					130
				1/87			1350								174
MFC-020	1.5	2	4105	1/11	1500	32	500	150A	280	240	23	4	10000	5000	59
				1/17			600								61
			4115	1/29	2200	45	800	200A	330	290					123
				1/35			900								127
				1/43			1000								135
			4130	1/59	2400	50	1200	250A	400	355	25	6			204
			4145	1/87			1600								267
MFC-030	2.2	3	4105	1/11	1500	32	550	150A	280	240	23	4	15000	7500	63
			4115	1/17	2200	45	700	200A	330	290					123
				1/29			950								133
				1/35			1000								137
			4130	1/43	2400	50	1100	250A	400	355	25	6			209
			4145	1/59			1350								226
			4160	1/87	2600	60	1750								338
MFC-050	3.7	5	4115	1/11	2200	45	600	200A	330	290	23	4	25000	12000	132
				1/17			750								135
			4135	1/29	2400	50	1000	250A	400	355	25	6			215
				1/35			1200								223
			4155	1/43	2600	60	1300								255
			4160	1/59			1500								308
			4170	1/87	2800	70	1950	300A	445	400		8			536
MFC-075	5.5	7.5	4130	1/11	2400	50	650	250A	400	355	25	6	35000	18000	206
				1/17			800								212
			4155	1/29	2600	60	1100								247
			4160	1/35			1300								262
				1/43	2800	70	1400	300A	445	400		8			406
			4170	1/59			1700								499
			4180	1/87	3000	80	2150								631
MFC-100	7.5	10	4135	1/11	2400	50	700	250A	400	355	25	6	50000	25000	223
			4145	1/17	2600	60	850								249
			4160	1/29			1200								300
			4165	1/35	2800	70	1400	300A	445	400		8			422
			4170	1/43			1500								478
			4180	1/59	3000	80	1850								589
			4190	1/87	3500	100	2250	350A	490	445					973
MFC-150	11	15	4155	1/11	2600	60	750	250A	400	355	25	6	75000	35000	259
			4160	1/17			900								298
			4170	1/29	2800	70	1300	300A	445	400		8			473
			4175	1/35	3000	80	1500								525
			4180	1/43			1600								579
			4190	1/59	3500	100	1950	350A	490	445					900
			4195	1/87	3800	110	2450	450A	620	565	27	10			1317
MFC-200	15	20	4160	1/11	2800	70	800	300A	445	400	25	8	100000	50000	459
			4165	1/17			1100								472
			4180	1/29	3000	80	1400								601
				1/35			1600								641
			4185	1/43	3500	100	1700	350A	490	445					875
			4195	1/59	3800	110	2050	450A	620	565	27	10			1283
			4215	1/87			2600								1543
MFC-300	22	30	4170	1/11	3000	80	850	300A	445	400	25	8	150000	75000	610
			4180	1/17			1100								649
			4190	1/29	3500	100	1500	350A	490	445					980
			4205	1/43	3800	110	1900	450A	620	565	27	10			1366

- The standard paint color is Munsell 7.5 GY-5/5.5. No load operation is forbidden.
- Parts which come in contact with solution are made of SUS 304 and SUS 316 (Austenite stainless steel). These parts can also be lined with various types of material.
- The standard motor is a totally-enclosed, fan-cooled outdoor type.
- Reduction ratios other than the listed above also can be selected, if needed.

System

MFC Model

This type has its own wide application and functional design.
A combination of the type can be selected freely according to your aims, and speed reducers made by other companies can be also used besides high precision Cyclo Drive and Bayer Variator.

JIS-10K-200A, with a shaft diameter of ϕ45 or less.

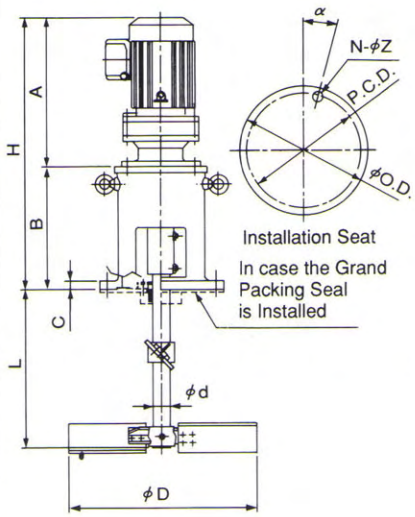
JIS-10K-250A, with a shaft diameter of ϕ50 or greater.

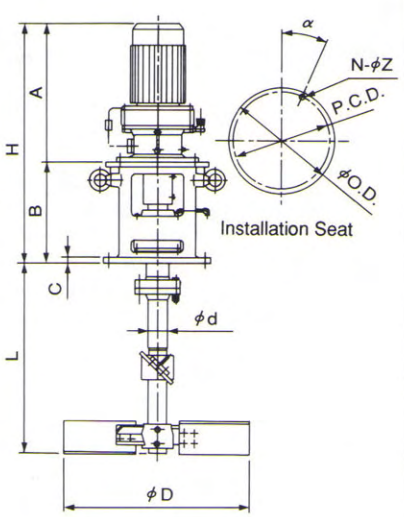
Rotational Speed

r.p.m.

Reduction Ratio	1/11	1/17	1/29	1/35	1/43	1/59	1/87
50Hz	136	88	52	43	35	25	17
60Hz	164	106	62	51	42	31	21

Dimensional Drawing





	α
JIS 10K 100A	45°
JIS 10K 125A	45°
JIS 10K 150A	45°
JIS 10K 200A	45°

	α
JIS 10K 250A	30°
JIS 10K 300A	22.5°
JIS 10K 350A	22.5°
JIS 10K 450A	18°

※ The shaft can be made longer than the standard length.
※ The shaft with diameter smaller than ϕ45 is inserted into a sleeve.
※ Some sealing for the installation size of the body over ϕ250 also can be designed and manufactured, if needed.

Dimensions of Driving Unit

Installation Flange	Speed Reducer Frame No.	Motor kW	Main Unit Dimensions A	B	C	H
10K100A	4075	0.1	192	181	13	373
		0.2	234			415
10K125A	4085	0.1	190	193	16	383
		0.2	232			425
		0.4	252			445
10K150A	4095	0.1	228	243	18	471
		0.2	270			513
		0.4	290			533
		0.75	331			574
	4105	0.4	304			547
		0.75	345			588
		1.5	378			621
		2.2	398			641
10K200A	4115	0.75	354	400	22	754
		1.5	387			787
		2.2	407			807
		3.7	430			830
10K250A	4130 4135	1.5	434	330	25	764
		2.2	454			784
		3.7	477			807
		5.5	521			851
		7.5	544			874
	4145	1.5	434			764
		2.2	454			784
		3.7	477			807
		7.5	544			874
	4155	3.7	477			807
		5.5	521			851

Installation Flange	Speed Reducer Frame No.	Motor kW	Main Unit Dimensions A	B	C	H
10K250A	4160 4165	2.2	509	330	25	839
		3.7	532			862
		5.5	576			906
		7.5	604			934
		11	664			994
10K300A	4160	5.5	576	420	30	996
		7.5	604			1024
		15	749			1169
	4165					
	4170 4175	3.7	586			1006
		5.5	630			1050
		7.5	648			1068
		11	708			1128
		22	883			1303
	4180 4185	5.5	651			1071
		7.5	669			1089
		11	729			1149
		15	809			1229
		22	904			1324
10K350A	4185	15	809	505	35	1314
	4190 4195	7.5	725			1230
		11	785			1290
		15	850			1355
		22	945			1450
10K450A	4195	11	785	710	40	1495
		15	850			1560
	4205	22	923			1633
	4215	15	863			1573

●Some combination of gear motor / speed reducer "Cyclo Drive" and agitator itself other than the listed above also can be selected, if needed.

Agitating Impellers

These deluxe impellers are designed to achieve high fluid dynamics performance.

Representative Impellers

Marine Type

Standard

4-45° Paddles

2-45° Paddles

■3-Blade Propeller

[Marine Type]

This propeller has a 3-dimensional twist in the blades. It is used to create a large circulating current with a minimum of friction loss and has extremely high efficiency from standpoint of the fluid dynamics performance.

It can be used at speeds ranging from 150～1800 r.p.m., although many are used at medium speeds of 200～350 r.p.m.

[Standard]

This propeller is widely used as the standard type. It generates a large axial flow and a large circulation volume can be achieved.

It can be used in the same speed range as the marine type.

■Paddle

[4-45° Paddles]

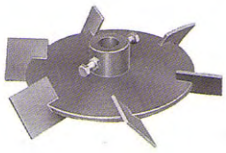
The combination of radial flow and axial flow achieved with this paddle impeller generates a high mixing effect.

It is appropriate for mixing large volumes of comparatively highly viscous solutions (500～20,000 mPa·s) at low speeds.

It is used at speeds where the rotational speed at the blades' outer circumference is 3m/sec. or lower.

[2-45° Paddles]

This impeller is used the same as the 4-45° paddle type, but it is used in cases where the blades are required to come as close to the tank walls as possible due to the nature of the solution to be mixed.



6-45° Disc Turbine Blades

Stabilizer Ring

Spiral Ribbon

■Disc Turbine

[6-45° Disc Tubine]

This impeller is used for a variety of tasks to achieve a uniform axial flow, radial flow and shear flow.

It is ideal for use in mixing uniform highly concentrated solutions with high viscosities (5,000～20,000 mPa·s). It is used at rotational speeds exceeding 8m/sec. at the outer circumference of the blades.

■Stabilizer

[Stabilizer Ring]

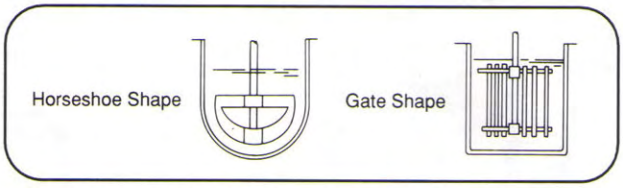
In case the shaft is longer than the standard or it's required to agitate to the bottom of the tank, this stabilizer ring is particularly effective in prevention of the shaft deflection during operation.

Ring dimensions should be selected which can keep the shaft stable with respect to the fluid resistance brought to bear on the inside and outside of the ring.

■Spiral Ribbon

The inside screw pushes the fluid upward while the outside ribbon pushes the fluid downward, creating a powerful up-and-down circulation flow.

This impeller is suitable for general uses such as mixing of highly viscous solutions, dissolution and heat transfer.



※ Various impellers other than the listed above also can be designed and manufactured, if needed.

Shaft Seals

These seals are easy to install and provide highly effective sealing. Select the type of seal that meets your needs.

Representative Seals

Vapor (Oil) seal

Grand Packing Seal

[Vapor (Oil) Seal]

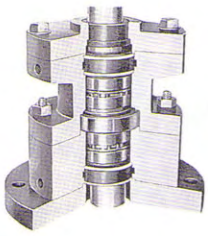
This seal is used in cases where temperatures and pressures are comparatively low as a simple means of sealing out dust from the outside of the tank and sealing in the vapor inside the tank.

Setting is accomplished easily onto the installation seat.

[Grand Packing Seal]

This seal is used in cases where the tank inside temperature is 80℃ or lower, with a pressure of 0.5kg/㎠ or lower, or where the temperature is 40℃ or lower, with a pressure of 1kg/㎠ or lower.

An asbestos graphite coil packing, or several layers of asbestos coil impregnated with teflon are used as the packing material (In case the temperature exceeds 80℃, or the shaft turns at high speed, a cooling jacket shall be installed. This packing seal can withstand 3-6 months of continuous use additionally).



Mechanical Seal

[Wilson Seal]

This seal maintains sealing performance at tank pressures up to 5kg/㎠ over long periods of time. It is an ideal seal particularly when used in vacuum conditions, since it is able to withstand a vacuum of up to 10^{-6} mm Hg abs. It can also be used even if there is slight shaft deflection.

[Mechanical Seal]

It provides good sealing performance at pressures up to 100kg/㎠ and temperatures up to 300℃.

This seal can be used for long periods of time since the loss due to wear on sliding parts is low and there is no damage to the drive shaft, etc.

Also, a double mechanical seal can be used particularly in cases where a perfect seal is necessary.

Note : Any specifications are subject to change for improvement without pre-notice.