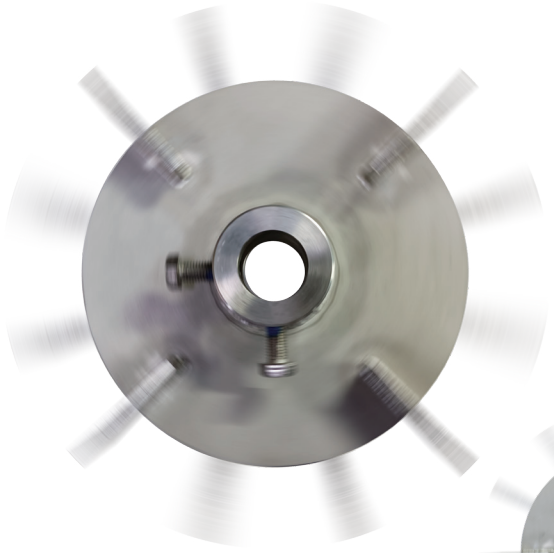
TOHKEMY CORPORATION

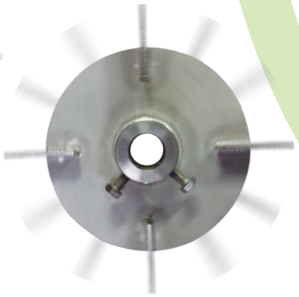
AGITATOR
GENERAL CATALOG

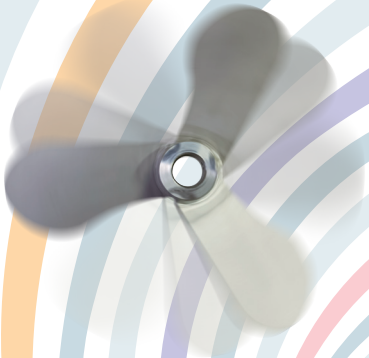
Agitator / Submersible agitator / Line mixer

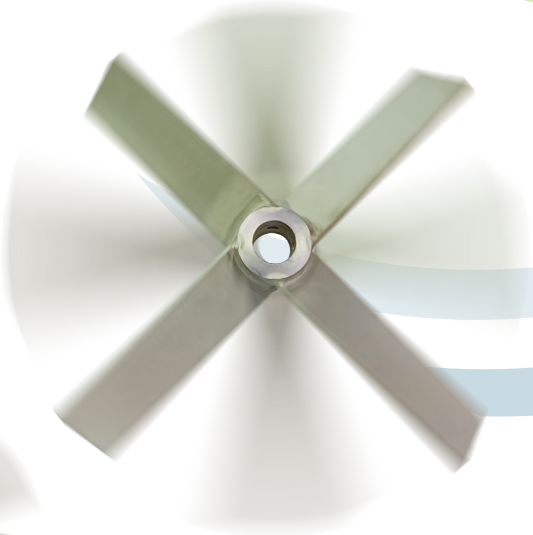
株式会社トーケミ

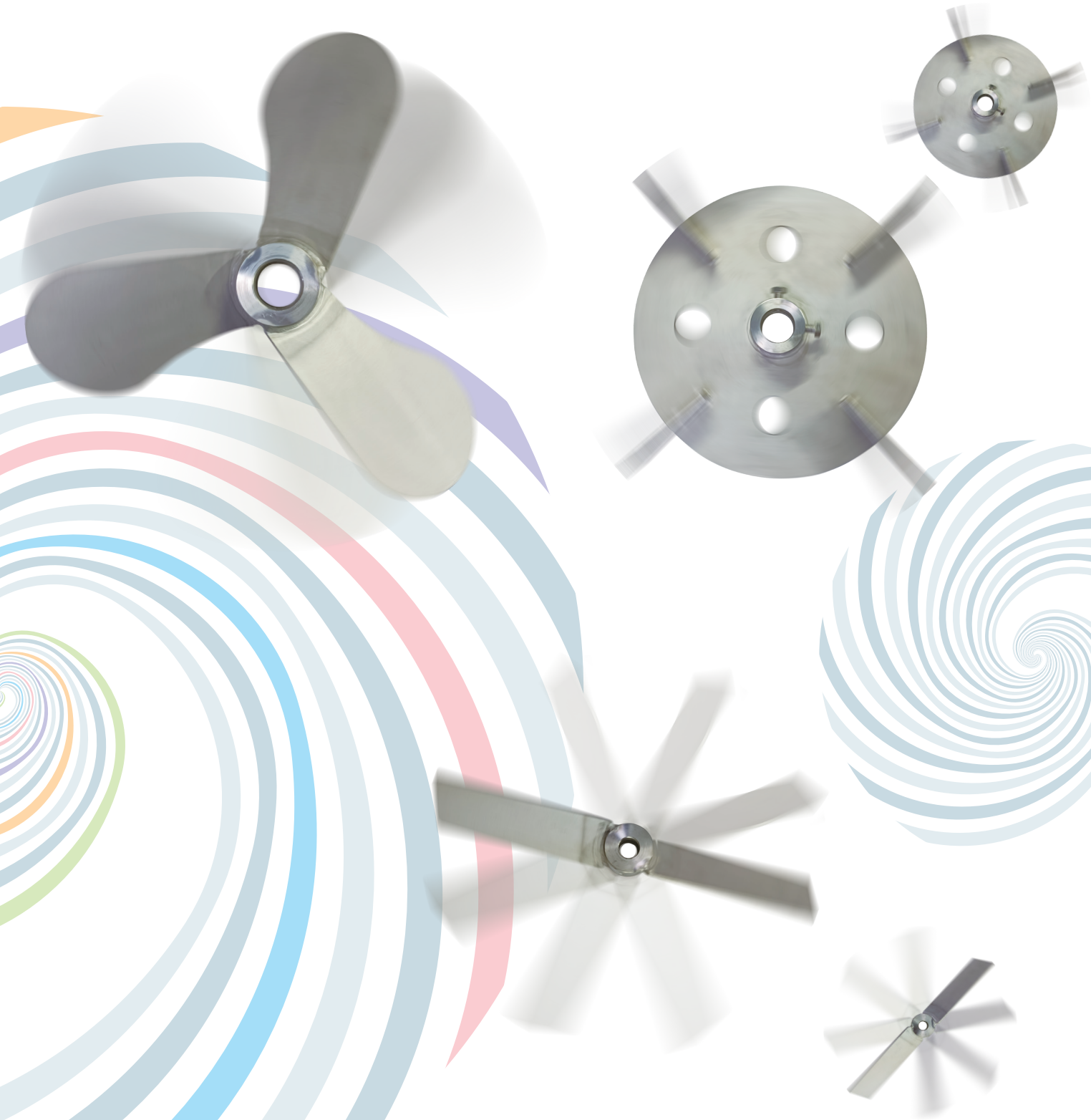
Mix it!











Foods, beverages, chemicals, medicines, paints, and water treatments,
products in various fields are
created by mixing different substances.

Indispensable for mixing

"Agitators"

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AGITATOR GENERAL CATALOG

Agitator / Submersible agitator / Line mixer

Agitator

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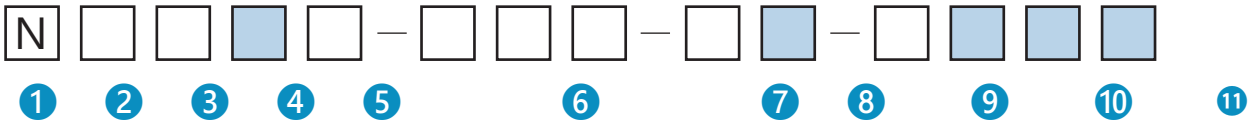
Description of model code.



If there is no applicable item, this code will be blank.

1 Generic term for Tohkemy "N-series"	All current products are prefixed with (N). * Models without (N) at the beginning are old types.
2 Type and mounting	K: Portable type ... Clamp mounting T: Vertical type ... Flange mounting S: Side type (bottom type) ... Flange mounting
3 Speed reduction method	A: Gear reduction (medium speed type) B: V-belt reduction (medium speed type) C: Directly connected to the reducer (low speed type) D: Directly connected to the motor (high-speed type) G: Directly connected to gear motor (low speed type) R: Directly connected to variable speed reducer (ring cone ... variable speed type) V: Directly connected to variable speed reducer (Beier ... variable speed type) X: Special transmission
4 Shaft seal method	P: Gland packing seal M: Mechanical seal N: Oil seal W: Water seal * Shaft seal can only be installed on vertical type agitators.
5 Number of motor poles	2: 2-pole (2P) motor 4: 4-pole (4P) motor 6: 6-pole (6P) motor
6 Motor power	001: 0.1kW output motor 007: 0.75kW output motor 150: 15kW output motor
7 Material of Liquid-end parts and gas contact parts	2:SS400 (CS) 4:SUS304 6:SUS316 8:SUS316L X: Special material (Titanium, Hastelloy, etc.)
8 Coating and/or lining material for liquid-end and gas contact parts	L: Hard rubber (natural hard rubber) S: Soft rubber (natural soft rubber) I: Butyl rubber F: FRP (glass fiber reinforced resin) V: PVC (polyvinyl chloride resin) P: PE (polyethylene resin) X: Other special materials
9 Motor specifications	A: 100V single-phase indoor type CA: 100V single-phase outdoor type B: 3-phase indoor type C: 3-phase outdoor type D: Safety explosion-proof indoor type E: Safety explosion-proof outdoor type Z: Other special specifications
10 Reduction ratio of gear motor	* If not displayed, the reduction ratio is approximately 1/5.
11 Accessories when installed	X: Tank bottom bearing (foot bearing) W: Cooling device (with water cooling jacket) Z: Stabilizer ring

Model code explanation (NTC type)

N T C P 4 - 0 1 5 - 2 L - C 4 3 W

- 1 N-series agitator
- 2 Vertical
- 3 Directly connected to cyclo reducer
- 4 Gland packing seal
- 5 4P
- 6 1.5kW output motor
- 7 SS400 (CS)
- 8 Rubber lining (H.R.L)
- 9 3-phase totally-enclosed fan-cooled outdoor motor
- 10 Reduction ratio
- 11 Water cooling jacket

Medium-speed agitator

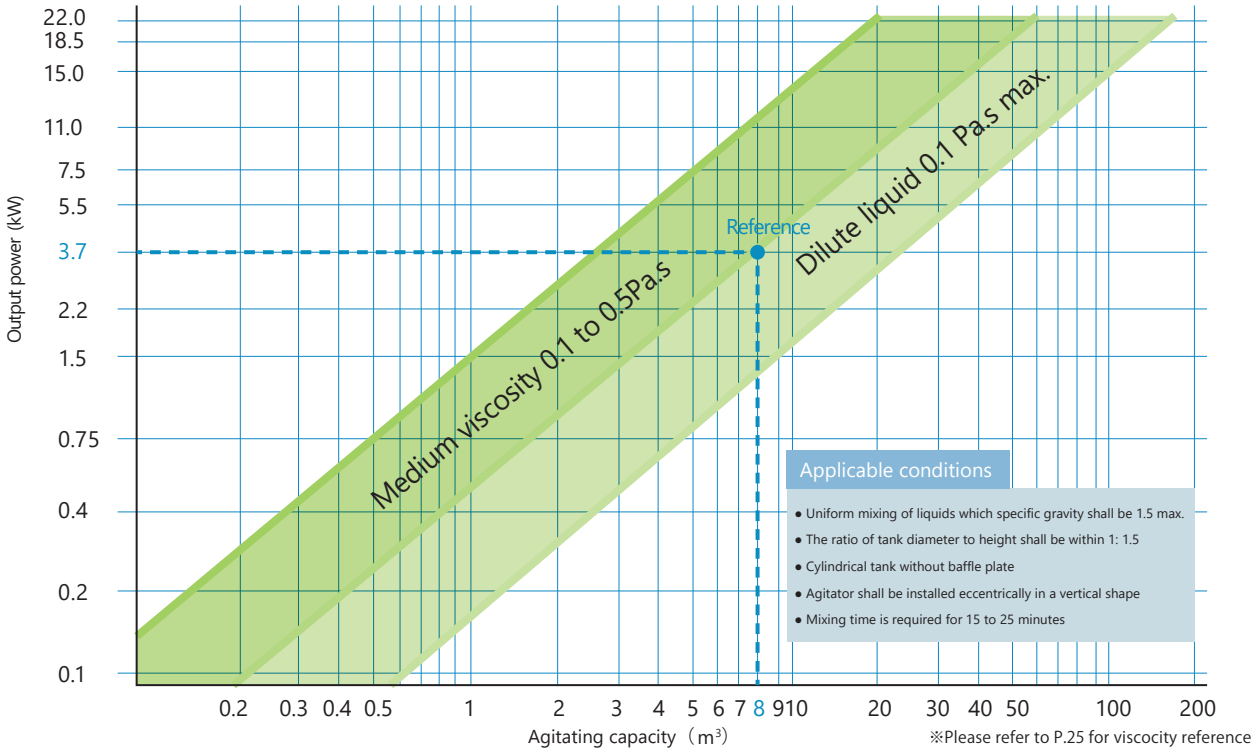
Model
NKA
Portable type gear-reduction
Medium speed agitator

Model
NTA
Vertical type gear-reduction
Medium-speed agitator

Model
NTB
Vertical type belt-reduction
Medium-speed agitator

How to select motor power (for reference)

The power of agitator can be simply selected from the tank size (Agitating capacity) and the viscosity of liquid.



※Please refer to P.25 for viscocity reference

Example

Agitating capacity : 8m3
Liquid viscosity: Approx. 0.1 Pa・s
(Example: 100% glycerin, 50 ℃, 0.18 Pa・s)

▶ 3.7kW agitator ▶

Select **NTB4-037**
- Mounting: Flange
- Impeller shape: Propeller type

* Please note that the viscosity of liquid changes depending on the temperature.
(It is recommended to select based on the lowest liquid temperature .)

Model

NKA

Portable type gear-reduction medium-speed agitatorr

Medium speed

Portable type Gear reduction

0.1kW to 1.5kW

Features

- Compact and lightweight model that supports small capacity agitation
- The angle can be adjusted with a special clamp for the optimum mixing effect
- Maintenance-free for the reduction parts having a sealed structure filled with grease.

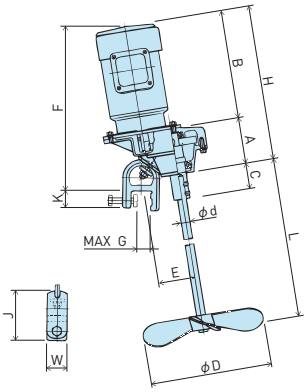
Standard specifications (gear-reduction)

Model No.	Power		Rated speed (min^{-1})		3-blade propeller		Shaft (mm)		Maximum agitating capacity (m^3)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Impeller diameter φD	Number of stages S	Shaft diameter φd	Standard length L	Dilute liquid	Medium viscosity liquid
NKA4-001	0.1	4	300	360	200	1	16	800	0.6	0.2
NKA4-002	0.2				250	1	19	1,000	1.2	0.4
NKA4-004	0.4				300	1	22	1,200	2.4	0.8
NKA4-007	0.75				350	1	25	1,400	4.5	1.5
NKA4-015	1.5				350	2	30	1,500	8.5	3.0

- A totally-enclosed fan-cooled outdoor motor made by Hitachi is used as standard. (Totally-enclosed non-ventilated outdoor type for 0.1kW)
- For 100V specifications, only 0.1kW outdoor specifications are manufactured.
- Racing (no-load operation) is strictly prohibited.
- The viscosity of dilute liquid is less than 0.1 Pa · s (100 cP), and medium-viscosity liquid is about 0.1 to 0.5 Pa · s (100 to 500 cP).

Dimension table

Model No.	Approximate main dimensions (mm)										Approximate equipment weight (kg)
	H	A	B	C	E	F	G	K	J	W	
NKA4-001	289	94	195	52	76	295	32	35	105	42	13
NKA4-002	316	94	222	52	76	336	32	35	105	42	15
NKA4-004	368	112	256	62	87	395	35	42	130	50	20
NKA4-007	419	136	283	83	109	460	45	50	158	60	33
NKA4-015	462	160	302	95	132	513	55	60	195	70	50



Common specification items

Motor	3-phase 200V 50Hz, 200 / 220V 60Hz 0.1kW: Totally-enclosed non-ventilated , 0.2kW ~: Totally-enclosed fan-cooled Single-phase 100V 50 / 60Hz: 0.1kW outdoor type only
Standard accessories	Simple tools, instruction manual
Painting	Munsell 2.5G6 / 3 (motor : manufacturer's standard color)

* Different voltages such as 380/400/440V are also available.

Model

NTA

Vertical type gear-reduction medium-speed agitator

Medium speed

Vertical type Gear reduction

0.1kW to 2.2kW

Features

- Compact and lightweight model that supports small capacity agitation
- Smooth operation with the helical gear made of MC nylon.
- Maintenance-free for the reduction parts having a sealed structure filled with grease.

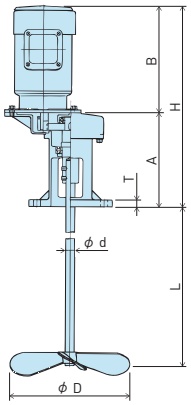
■Standard specifications (gear-reduction)

Model No.	Power		Rated speed (min^{-1})		3-blade propeller		Shaft (mm)		Maximum capacity (m^3)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Impeller diameter φD	Number of stages S	Shaft diameter φd	Standard length L	Dilute liquid	Medium viscosity liquid
NTA4-001	0.1	4	300	360	200	1	16	800	0.6	0.2
NTA4-002	0.2				250	1	19	1,000	1.2	0.4
NTA4-004	0.4				300	1	22	1,200	2.4	0.8
NTA4-007	0.75				350	1	25	1,500	4.5	1.5
NTA4-015	1.5				350	2	30	1,650	8.5	3.0
NTA4-022	2.2				400	2	35	1,800	13	5.0

- Totally-enclosed fan-cooled outdoor motor made by Hitachi is used as standard. (Totally-enclosed non-ventilated outdoor type for 0.1kW)
- For 100V , only 0.1kW outdoor specifications are manufactured.
- Possible to assemble the propellers with 2 stages for the models of 1 stage. (The diameter of propellers shall be smaller in case of 2 stages than the standard 1 stage.)
- Possible to assemble the shaft seal for 0.2kW or larger models.
- Possible to assemble the 6P motor for 0.4kW or larger models. Please contact us for further information.
- Racing (no-load operation) is strictly prohibited.
- The viscosity of dilute liquid is less than 0.1 Pa · s (100 cP), and medium-viscosity liquid is about 0.1 to 0.5 Pa · s (100 to 500 cP).

■Dimension table

Model No.	Mounting flange dimensions (mm)					Approximate main dimensions (mm)			Approximate equipment weight (kg)
	Similary JIS 10K	Outer diameter OD	Pitch Circle Diameter PCD	Number of mounting bolts x hole diameter n×φh	Flange thickness T	H	A	B	
NTA4-001	65A	175	140	4-φ15	14	390	195	195	13
NTA4-002	65A	175	140	4-φ15	14	417	195	222	15
NTA4-004	100A	210	175	4-φ19	16	478	222	256	20
NTA4-007	125A	250	210	4-φ19	18	563	280	283	33
NTA4-015	125A	250	210	4-φ19	18	609	307	302	45
NTA4-022	200A	330	290	6-φ23	20	809	476	333	95



■Common specification items

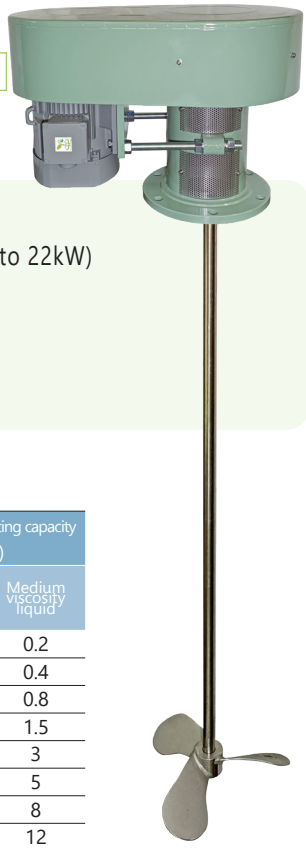
Motor	3-phase 200V 50Hz, 200 / 220V 60Hz 0.1kW: Totally-enclosed non-ventilated ,0.2kW ~: Totally-enclosed fan-cooled Single-phase 100V 50 / 60Hz: 0.1kW outdoor type only
Standard accessories	Simple tools, instruction manual
Painting	Munsell 2.5G6 / 3 (motor : manufacturer's standard color)

* Different voltages such as 380/400/440V are also available.

Model

NTB

Vertical type belt-reduction medium-speed agitator



Medium speed

Vertical type Belt

0.1kW to 22kW

Features

- Availble on a wide range of capacities from small to large (power: 0.1 to 22kW)
- Smooth and low vibration with V-belt drive
- Simple structure makes maintenance easy

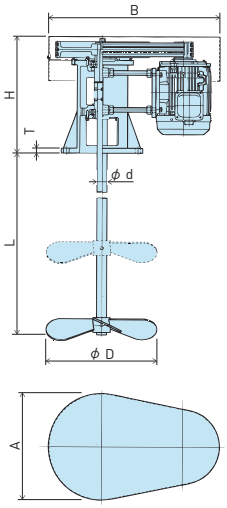
Standard specifications (V-belt reduction)

Model No.	Power		Rated speed (min^{-1})		3-blade propeller		Shaft (mm)		Maximum agitating capacity (m^3)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Propeller diameter φD	Number of stages S	Shaft diameter φd	Standard length L	Dilute liquid	Medium viscosity liquid
NTB4-001	0.1	4	300	360	200	1	16	800	0.6	0.2
NTB4-002	0.2				250	1	19	1,000	1.2	0.4
NTB4-004	0.4				300	1	22	1,200	2.4	0.8
NTB4-007	0.75				350	1	25	1,500	4.5	1.5
NTB4-015	1.5				350	2	30	1,650	8.5	3
NTB4-022	2.2				400	2	35	1,800	13	5
NTB4-037	3.7				450	2	40	2,000	20	8
NTB4-055	5.5				500	2	50	2,200	30	12
NTB4-075	7.5				550	2	60	2,500	45	16
NTB4-110	11				600	2	70	2,700	65	22
NTB4-150	15				650	2	80	2,800	90	30
NTB4-185	18.5				700	2	90	3,000	115	38
NTB4-220	22				750	2	100	3,000	140	50

- A totally-enclosed fan-cooling outdoor motor made by Hitachi is used as standard.
- Possible to assemble the propellers with 2 stages for the models of 1 stage. (The diameter of propellers shall be smaller in case of 2 stages than the standard 1 stage.)
- Possible to assemble the shaft seal for 0.2kW or larger models.
- Possible to assemble the 6P motor for 0.4kW or larger models. Please contact us for further information.
- Racing (no-load operation) is strictly prohibited.
- Dilute liquids have a viscosity of about 0.1 Pa · s (100 cP), and medium-viscosity liquids have a viscosity of about 0.1 to 0.5 Pa · s (100 to 500 cP).

Dimension table

Model No.	Mounting flange dimensions (mm)					Approximate main dimensions(mm)			Approximate equipment weight (kg)
	Similary JIS 10K	Outer diameter OD	Pitch Circle Diameter PCD	Number of mounting bolts x hole diameter n×φh	Flange thickness T	H	A	B	
NTB4-001	100A	210	175	4-φ19	16	276	290	425	18
NTB4-002	100A	210	175	4-φ19	16	276	290	425	20
NTB4-004	125A	250	210	4-φ19	18	353	300	490	30
NTB4-007	125A	250	210	4-φ19	18	353	300	490	38
NTB4-015	150A	280	240	4-φ23	18	396	340	550	55
NTB4-022	200A	330	290	6-φ23	20	472	430	695	115
NTB4-037	200A	330	290	6-φ23	20	472	430	695	130
NTB4-055	250A	400	355	6-φ25	22	620	510	835	200
NTB4-075	250A	400	355	6-φ25	24	700	560	870	230
NTB4-110	300A	445	400	8-φ25	26	830	700	1,050	430
NTB4-150	300A	445	400	8-φ25	26	830	700	1,050	450
NTB4-185	350A	490	455	8-φ25	32	910	760	1,080	520
NTB4-220	350A	490	455	8-φ25	32	910	760	1,080	550



Common specification items

Motor	3-phase 200V 50Hz, 200 / 220V 60Hz 0.1kW ~ : Totally-enclosed fan-cooled
Standard accessories	Simple tools (Excluding large models), instruction manual
Painting	Munsell 2.5G6 / 3 (motor : manufacturer's standard color)

* Different voltages such as 380/400/440V are also available.

Low-speed agitator

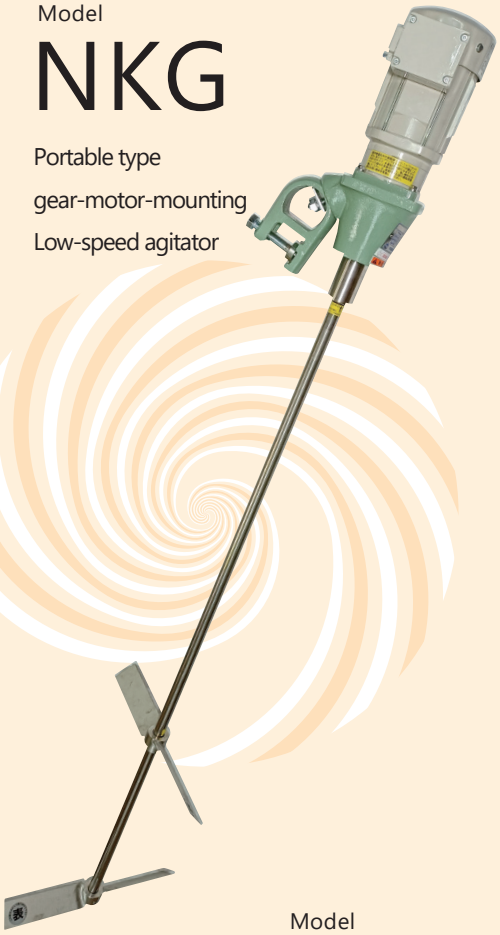
Model

NKG

Portable type

gear-motor-mounting

Low-speed agitator



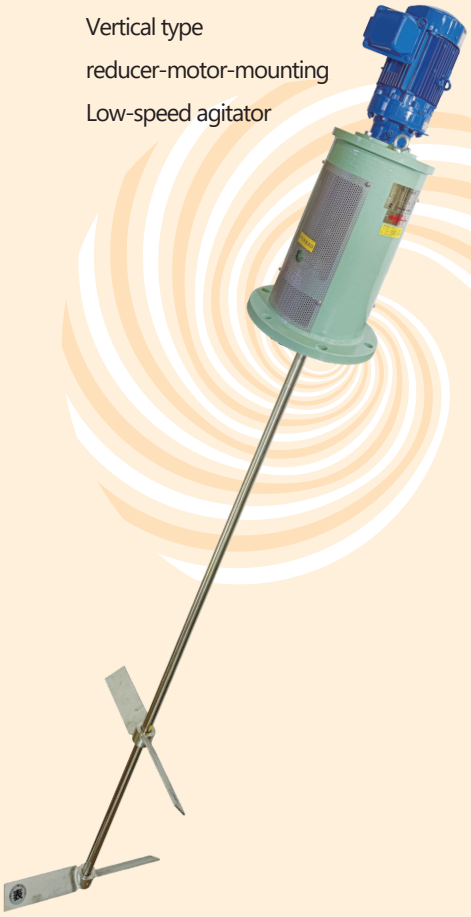
Model

NTC

Vertical type

reducer-motor-mounting

Low-speed agitator



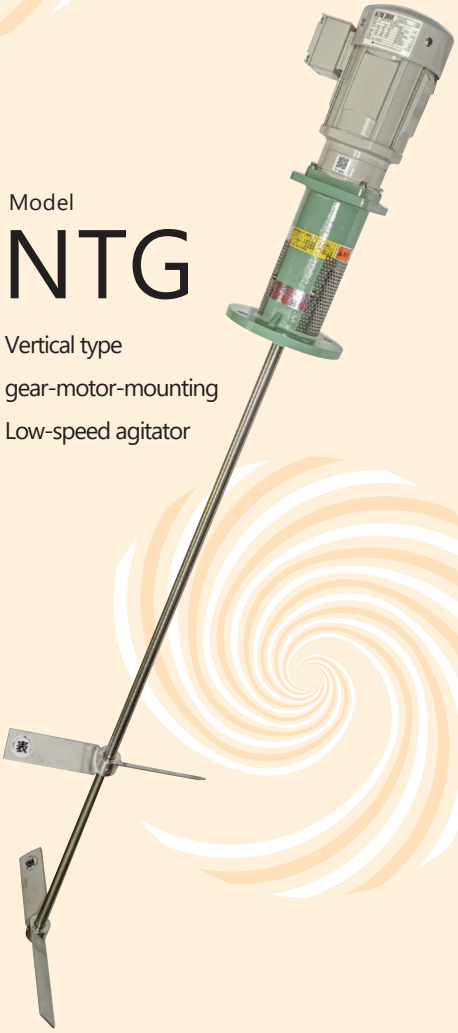
Model

NTG

Vertical type

gear-motor-mounting

Low-speed agitator



Model

NKG

Portable type gear-motor-mounting low-speed agitator

Low speed

Portable type

0.1kW to 0.4kW

Features

- Maintenance-free due to the sealed gear motor
- The angle can be adjusted with a special clamp for the optimum agitating effect
- Floc formation, sedimentation prevention, agitation of viscous liquid

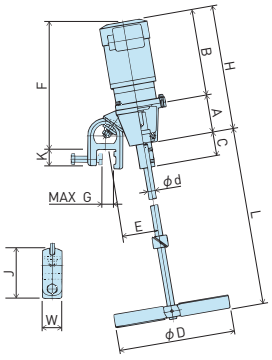
Standard specifications (Gear motor reduction)

Model No.	Power		Rotation speed (min^{-1})		2-Blade Paddle diameter	Shaft (mm)		Maximum agitating capacity (m^3)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Blade diameter φD	Shaft diameter φd	Standard length L	Dilute liquid	Medium viscosity liquid
NKG4-001-15	0.1	4	96.7	117	300	20	1,200	0.7	0.24
-001-21			69.0	83.3	350				
-001-29			50.0	60.3	450			0.9	0.32
-001-35			41.4	50.0	550			1.2	0.4
NKG4-002-15	0.2	4	96.7	117	350	20	1,200	1.3	0.44
-002-21			69.0	83.3	450		1,300		
-002-29			50.0	60.3	550	25	1,500	1.4	0.48
NKG4-004-15	0.4	4	96.7	117	400	25	1,300	2.4	0.8
-004-21			69.0	83.3	500		1,500		

- A cyclo speed reducer (SUMITOMO ALTAX) is used for the gear motor, and reduction ratios other than those in the above table can also be selected.
- The standard motor is Sumitomo's totally-enclosed fan-cooled outdoor motor with 3-phase 200V 50Hz, 200/220V 60Hz. A single-phase 100V is also available.
- The standard impeller is a 2 stages of 2-blade pitched paddle, but the blade shape may be changed depending on mixing purpose and specifications.
- The viscosity of dilute liquid is less than 0.1 Pa · s (100 cP), and medium-viscosity liquid is about 0.1 to 0.5 Pa · s (100 to 500 cP).

Dimension table

Model No.	Approximate main dimensions (mm)										Approximate equipment weight (kg)
	H	A	B	C	E	F	G	K	J	W	
NKG4-001-15	260	96	164	62	93	271	35	42	130	50	15
-001-21											
-001-29											
-001-35											
NKG4-002-15	312	96	216	62	93	287	35	42	130	50	17
-002-21											
-002-29	338	118	220	83	104	348	45	50	158	60	21
NKG4-004-15	358	118	240	83	104	367	45	50	158	60	25
-004-21	363		245			372					



Common specification items

Motor	3-phase 200V 50Hz, 200/220V 60Hz 0.1kW: Totally-enclosed non-ventilated, 0.2kW ~: Totally-enclosed fan-cooled Single-phase 100V 50/60Hz: 0.1kW ~ 0.4kW
Standard accessories	Simple tools, instruction manual
Painting	Munsell 2.5G6 / 3 (motor : manufacturer's standard color)

* Different voltages such as 380/400/440V are also available.

Low speed

Vertical type

0.1kW to 0.4kW

Model

NTG

Vertical type gear-motor-mounting low-speed agitator

Features

- Maintenance-free due to the sealed gear motor
- Compact and lightweight with gear motor
- Ideal for floc formation, sedimentation prevention, agitation of viscous liquid

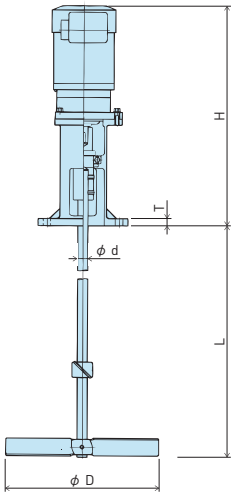
Standard specifications (gear motor reduction)

Model No.	Power		Rotation speed (min^{-1})		2-Blade pitched paddle	Shaft (mm)		Maximum agitating capacity (m^3)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Paddle diameter φD	Shaft diameter φd	Standard length L	Dilute liquid	Medium viscosity liquid
NTG4-001-15	0.1	4	96.7	117	300	20	1,200	0.7	0.24
-001-21			69.0	83.3	350				
-001-29			50.0	60.3	450			0.9	0.32
-001-35			41.4	50.0	550			1.2	0.4
-001-43			33.7	40.7	600				
-001-51			28.4	34.3	650				
NTG4-002-15	0.2	4	96.7	117	350	20	1,200	1.3	0.44
-002-21			69.0	83.3	450		1,300		
-002-29			50.0	60.3	550	25	1,500	1.4	0.48
-002-35			41.4	50.0	600			1.8	0.64
-002-43			33.7	40.7	700				
-002-51			28.4	34.3	750				
NTG4-004-15	0.4	4	96.7	117	400	25	1,300	2.4	0.8
-004-21			69.0	83.3	500		1,500		

- Cyclo reducer (SUMITOMO ALTAX) is used for the gear motor, and reduction ratios other than those in the above table can also be selected.
- The standard motor is Sumitomo's totally-enclosed fan-cooled outdoor motor with 3-phase 200V 50Hz, 200 / 220V 60Hz. A single-phase 100V is also available.
- The standard impeller is a 2 stages of 2-blade pitched paddle, but the blade shape may be changed depending on the purpose and specifications.
- The viscosity of dilute liquid is less than 0.1 Pa · s (100 cP), and medium-viscosity liquid is about 0.1 to 0.5 Pa · s (100 to 500 cP).
- Please select NTC model for 0.75kW or larger.

Dimension table

Model No.	Approximate main dimensions(mm)						Approximate equipment weight (kg)
	Mounting flange dimensions					H	
	Similary JIS 10K	Outer diameter OD	Pitch Circle Diameter PCD	Number of mounting bolts x hole diameter n×φh	Flange thickness T		
NTG4-001-15	65A	175	140	4-φ15	14	372	15
-001-21							
-001-29							
-001-35							
-001-43							
-001-51							
NTG4-002-15	65A	175	140	4-φ15	14	424	17
-002-21							
-002-29	125A	250	210	4-φ19	18	482	21
-002-35							
-002-43							
-002-51						487	
NTG4-004-15	125A	250	210	4-φ19	18	502	27
-004-21						507	



Common specification items

Motor	3-phase 200V 50Hz, 200/220V 60Hz 0.1kW: Totally-enclosed non-ventilated, 0.2kW ~: Totally-enclosed fan-cooled Single-phase 100V 50/60Hz: 0.1kW ~ 0.4kW
Standard accessories	Simple tools, instruction manual
Painting	Munsell 2.5G6 / 3 (motor : manufacturer's standard color)

* Different voltages such as 380/400/440V are also available.

Model

NTC

Vertical type reducer-motor-mounting low-speed agitator

Low speed

Vertical type

0.1kW to 30kW

Features

- Supports a wide range of capacities from small to large (power: 0.1 to 30 kW)
- Covers a large number of reduction ratios and easy to select the optimum rotation speed
- Ideal for floc formation, sedimentation prevention, agitation of viscous liquid

Standard specifications (Cyclo reducer, 0.1-2.2kW)

Model No.	Power		Rotation speed (min^{-1})		2-Blade pitched paddle	Shaft (mm)		Maximum agitating capacity (m^3)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Paddle diameter φD	Shaft diameter φd	Standard length L	Dilute liquid	Medium viscosity liquid
NTC4-001-15	0.1	4	96.7	117	300	20	1,200	0.7	0.24
-21			69.0	83.3	350		1,500		
-25			58.0	70.0	400			0.9	0.32
-29			50.0	60.3	450				
-35			41.4	50.0	550			1.2	0.4
-43			33.7	40.7	600				
-59			24.6	29.7	800				
NTC4-002-15	0.2	4	96.7	117	350	20	1,200	1.3	0.44
-21			69.0	83.3	450		1,300		
-25			58.0	70.0	500		1,400	1.4	0.46
-29			50.0	60.3	550		1,500		
-35			41.4	50.0	600			1.8	0.64
-43			33.7	40.7	700				
-59			24.6	29.7	850	25			
NTC4-004-15	0.4	4	96.7	117	400	25	1,300	2.4	0.8
-21			69.0	83.3	500		1,500		
-25			58.0	70.0	550			2.8	0.96
-29			50.0	60.3	650				
-35			41.4	50.0	750	30	1,800	3.8	1.2
-43			33.7	40.7	800				
-59			24.6	29.7	1,000				
NTC4-007-15	0.75	4	96.7	117	450	30	1,500	4.5	1.5
-21			69.0	83.3	600		1,800		
-25			58.0	70.0	650			5.4	1.8
-29			50.0	60.3	750				
-35			41.4	50.0	800			7	2.4
-43			33.7	40.7	900				
-59			24.6	29.7	1,150	40	2,000		
NTC4-015-15	1.5	4	96.7	117	550	40	1,800	8.5	3
-21			69.0	83.3	700				
-25			58.0	70.0	750			10	3.6
-29			50.0	60.3	850				
-35			41.4	50.0	950			13	4.8
-43			33.7	40.7	1,050				
-59			24.6	29.7	1,350	45	2,200		
NTC4-022-15	2.2	4	96.7	117	600	40	1,800	14	5.5
-21			69.0	83.3	750		2,000		
-25			58.0	70.0	850			15	6
-29			50.0	60.3	950	45	2,200		
-35			41.4	50.0	1,050			20	8
-43			33.7	40.7	1,200	50	2,500		
-59			24.6	29.7	1,450				

- Reduction ratios (for one stage) that can be selected other than this table are 1/6, 1/8, 1/11, 1/13, 1/17, 1/51, 1/71, and 1/87.
- The standard motor is totally-enclosed fan-cooled outdoor motor made by Sumitomo.
- The standard impeller is 2 stages of 2-blade pitched paddle, but the blade shape may be changed depending on mixing purpose and specifications.
- When shaft is φ50 mm or more, flange coupling is used as standard.
- When blade diameter is φ1,100 mm or more, the separate type is used as standard.
- Please contact us for non-standard specifications.
- The viscosity of dilute liquid is less than 0.1 Pa·s (100 cP), and medium-viscosity liquid is about 0.1 to 0.5 Pa·s (100 to 500 cP).).

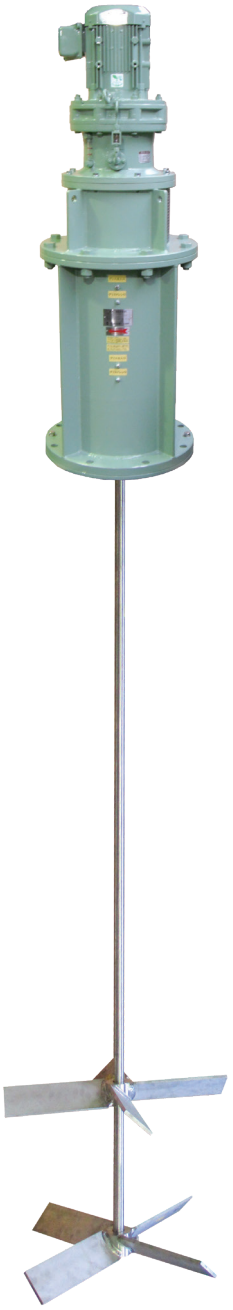
Common specification items

Motor	3-phase 200V 50Hz, 200/220V 60Hz 0.1kW: Totally-enclosed non-ventilated, 0.2kW ~: Totally-enclosed fan-cooled
Standard accessories	Simple tools (excluding large models), instruction manual
Painting	Munsell 2.5G6 / 3 (motor : manufacturer's standard color)

* Different voltages such as 380/400/440V are also available.

Standard specifications (Cyclo reducer, 3.7-30kW)

Model No.	Power		Rotation speed (min^{-1})		2-Blade pitched paddle	Shaft (mm)		Maximum agitating capacity (m^3)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Paddle diameter φD	Shaft diameter φd	Standard length L	Dilute liquid	Medium viscosity liquid*
NTC4-037 -15	3.7	4	96.7	117	700	45	2,000	22	8.5
-21			69.0	83.3	850		2,200		
-25			58.0	70.0	950	50	2,500	25	9
-29			50.0	60.3	1,050				
-35			41.4	50.0	1,200			30	12
-43			33.7	40.7	1,350	60			
-59			24.6	29.7	1,650	70			
NTC4-055 -15	5.5	4	96.7	117	750	50	2,200	33	13
-21			69.0	83.3	900	60	2,500		
-25			58.0	70.0	1,050			36	14
-29			50.0	60.3	1,150				
-35			41.4	50.0	1,300	70		48	19
-43			33.7	40.7	1,450				
-59			24.6	29.7	1,750	80	2,700		
NTC4-075 -15	7.5	4	96.7	117	800	60	2,400	45	16
-21			69.0	83.3	1,000	70	2,500		
-25			58.0	70.0	1,100			54	19
-29			50.0	60.3	1,250				
-35			41.4	50.0	1,400			70	25
-43			33.7	40.7	1,550	80			
-59			24.6	29.7	1,900		2,800		
NTC4-110 -15	11	4	96.7	117	850	70	2,500	65	22
-21			69.0	83.3	1,100				
-25			58.0	70.0	1,250	80		80	26
-29			50.0	60.3	1,350				
-35			41.4	50.0	1,500		2,800	100	35
-43			33.7	40.7	1,650	90			
-59			24.6	29.7	2,000		3,000		
NTC4-150 -15	15	4	96.7	117	900	70	2,500	90	30
-21			69.0	83.3	1,150	80	2,800		
-25			58.0	70.0	1,300			110	36
-29			50.0	60.3	1,400	90			
-35			41.4	50.0	1,600		3,000	140	45
-43			33.7	40.7	1,750				
-59			24.6	29.7	2,200	100	3,200		
NTC4-185 -15	18.5	4	96.7	117	950	80	2,700	115	38
-21			69.0	83.3	1,200	90	2,800		
-25			58.0	70.0	1,350			140	45
-29			50.0	60.3	1,450		3,000		
-35			41.4	50.0	1,650			180	60
-43			33.7	40.7	1,850	100	3,200		
-59			24.6	29.7	2,300	110	3,500		
NTC4-220 -15	22	4	96.7	117	1,000	80	2,700	140	50
-21			69.0	83.3	1,250	90	2,800		
-25			58.0	70.0	1,400		3,000	160	60
-29			50.0	60.3	1,500	100	3,200		
-35			41.4	50.0	1,750			220	80
-43			33.7	40.7	1,950	110	3,500		
-59			24.6	29.7	2,400	120	3,800		
NTC4-300 -15	30	4	96.7	117	1,100	90	2,900	180	65
-21			69.0	83.3	1,350	100	3,000		
-25			58.0	70.0	1,450		3,200	210	75
-29			50.0	60.3	1,600				
-43			33.7	40.7	2,100	120	3,500	280	100
-59			24.6	29.7	2,450		3,800		

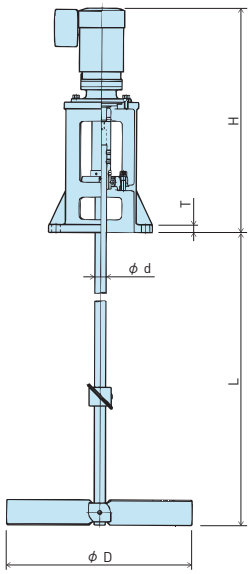


- Reduction ratios (for one stage) that can be selected other than this table are 1/6, 1/8, 1/11, 1/13, 1/17, 1/51, 1/71, and 1/87.
- The standard motor is a totally-enclosed fan-cooled outdoor motor made by Sumitomo.
- The standard impeller is a 2 stages of 2-blade pitched paddle, but the blade shape may be changed depending on mixing purpose and specifications.
- When shaft is φ50 mm or more, flange coupling is used as standard.
- When blade diameter is φ1,100 mm or more, the separate type is used as standard.
- Please contact us for non-standard specifications.
- The viscosity of dilute liquid is less than 0.1 Pa · s (100 cP), and medium-viscosity liquid is about 0.1 to 0.5 Pa · s (100 to 500 cP).

Dimension table (Cyclo reducer, 0.1-2.2kW)

Model No.	Similarly JIS 10K	H	Approximate equipment weight (kg)
NTC4-001-15	125A	439	29
-21			30
-25			31
-29			32
-35			33
-43			34
-59		437	41
NTC4-002-15	125A	464	30
-21			32
-25		462	34
-29			35
-35			36
-43			38
-59		482	53
NTC4-004-15	125A	502	40
-21			42
-25			43
-29			45
-35	150A	640	60
-43			64
-59		654	73

Model No.	Similarly JIS 10K	H	Approximate equipment weight (kg)
NTC4-007-15	150A	725	58
-21			62
-25			62
-29		739	62
-35			66
-43			71
-59	200A	859	129
NTC4-015-15	200A	886	98
-21			101
-25			102
-29			110
-35			112
-43		895	129
-59			159
NTC4-022-15	200A	907	104
-21		883	108
-25		880	128
-29			140
-35			145
-43		927	206
-59			235

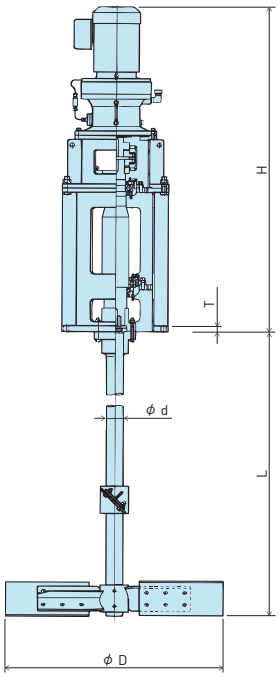


The insert coupling method is used to install a shaft with diameter of 45 or smaller.

Dimension table (Cyclo reducer, 3.7-30kW)

Model No.	Similarly JIS 10K	H	Approximate equipment weight (kg)
NTC4-037 -15	200A	917	139
-21			152
-25		959	200
-29			205
-35			219
-43	250A	1,029	291
-59	300A	1,133	436
NTC4-055 -15	200A	960	162
-21	250A	1,072	272
-25			279
-29			294
-35	300A	1,116	376
-43		1,242	435
-59	300A	1,286	582
NTC4-075 -15	250A	1,110	278
-21	300A	1,220	369
-25		1,279	415
-29			418
-35			443
-43	300A	1,307	529
-59			638
NTC4-110 -15	300A	1,282	379
-21		1,341	429
-25	300A	1,341	469
-29		1,369	515
-35			556
-43	400A	1,768	818
-59			929

Model No.	Similarly JIS 10K	H	Approximate equipment weight (kg)
NTC4-150 -15	300A	1,401	470
-21		1,440	582
-25			585
-29	400A	1,815	848
-35		1,836	892
-43			944
-59		1,902	1,186
NTC4-185 -15	300A	1,505	592
-21	400A	1,919	896
-25		1,940	930
-29			967
-35			974
-43		2,006	1,206
-59	450A	2,284	1,656
NTC4-220 -15	300A	1,544	634
-21	400A	1,940	915
-25			952
-29		1,965	1,052
-35		2,006	1,206
-43	450A	2,306	1,557
-59		2,309	1,843
NTC4-300 -15	400A	2,064	934
-21		2,089	1,028
-25		2,130	1,148
-29			1,154
-43	450A	2,433	1,760
-59			1,860



The flange coupling method is used to install a shaft with a diameter of 50 or lager.

Mounting flange dimensions(mm)				
Similary JIS 10K	Outer diameter OD	Pitch PCD	Number of mounting bolts x hole diameter n×φh	Flange thickness T
125A	250	210	4-φ19	17
150A	280	240	4-φ23	22
200A	330	290	6-φ23	22
250A	400	355	6-φ25	24
300A	445	400	8-φ25	26
400A	560	510	8-φ27	32
450A	620	565	10-φ27	32

Model

NKR

Portable type variable-speed agitator

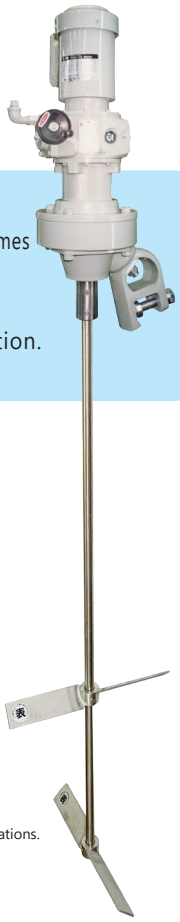
Variable speed

Portable type

60W to 0.4kW

Features

- Corresponds to changes in the purpose of agitation such as viscosity fluctuations in small volumes
- The angle can be adjusted with special clamp for the optimum agitating effect
- By using the ring cone variable speed reducer, it is possible to shift from 0 rotation.



■Standard specifications (ring cone variable speed reducer)

Model No.	Power		Rotation speed (min⁻¹)		2-Blade Paddle diameter	Shaft(mm)		Approximate equipment mass (kg)	Maximum agitating capacity (m³)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Blade diameter φD	Shaft diameter φd	Standard length L		Dilute liquid	Medium viscosity liquid
NKR4-001-3	0.1kW 200V	4	0～160	0～192	200	20	1,200	27	0.6	0.2
NKR4-001-5			0～104	0～125	250					
NKR4-002-3	0.2kW 200V		0～166	0～200	250	25	1,300	35	1.25	0.4
NKR4-002-5			0～100	0～120	300					
NKR4-004-3	0.4kW 200V		0～166	0～200	300	25	1,500	40	2.5	0.8
NKR4-004-5			0～100	0～120	400					

- A ring cone variable speed reducer is used, and models with other rotation speeds can be selected.
- Since a manufacturer-specific motor is used, motor of other manufacturer can not be selected.
- The standard impeller is a 2 stages of 2-blade pitched paddle, but the blade shape may be changed depending on mixing purpose and specifications.
- Please contact us for detailed specifications and dimensions.

Model

NTR

Vertical type variable-speed agitator

Variable speed

Vertical type

0.1kW to 0.4kW

Features

- Corresponds to changes in the purpose of agitation such as viscosity fluctuations in small volumes
- The rotation speed can be changed manually at the site while checking the agitating status.
- By using the ring cone variable speed reducer, it is possible to shift from 0 rotation.

■Standard specifications (ring cone variable speed reducer)

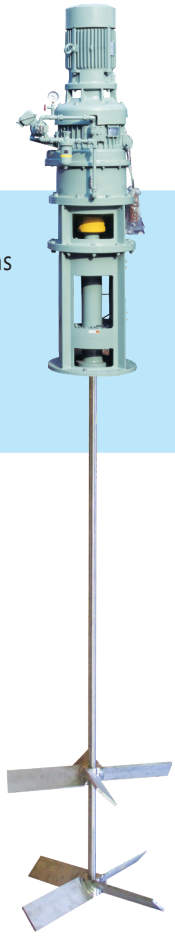
Model No.	Power		Rotation speed (min⁻¹)		2-Blade Paddle diameter	Shaft(mm)		Approximate equipment mass (kg)	Maximum agitation capacity (m³)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Blade diameter φD	Shaft diameter φd	Standard length L		Dilute liquid	Medium viscosity liquid
NTR4-001-1	0.1	4	0～267	0～321	170	20	1,000	35	0.65	0.2
NTR4-001-3			0～160	0～192	220	25	1,200			
NTR4-001-5			0～104	0～125	250					
NTR4-001-11			0～45	0～54	400	25	1,300	40		
NTR4-001-17			0～29	0～35	500					
NTR4-002-1	0.2	4	0～277	0～333	200	30	1,500	51	1.25	0.4
NTR4-002-3			0～166	0～200	250					
NTR4-002-5			0～100	0～120	350					
NTR4-002-11			0～45	0～54	500	30	1,800	62		
NTR4-002-17			0～29	0～35	550					
NTR4-004-1	0.4	4	0～279	0～335	220	30	1,500	74	2.5	0.6
NTR4-004-3			0～166	0～200	300	30	1,800	58		
NTR4-004-5			0～100	0～120	400					
NTR4-004-11			0～45	0～54	600	40	2,000	138		
NTR4-004-17			0～29	0～35	700					

- A ring cone variable speed reducer is used, and models with other rotation speeds can also be selected.
- The motor is a totally-enclosed outdoor motor made by Mitsubishi or a manufacturer-specific motor.
- The standard impeller is a 2 stages of 2-blade pitched paddle, but the blade shape may be changed depending on mixing purpose and specifications.
- Please contact us for detailed specifications and dimensions.

Model

NTV

Vertical type variable-speed agitator



Variable speed

Vertical type

0.4kW to 11kW

Features

- Corresponds to changes in the purpose of agitation such as viscosity fluctuations
- Supports a wide range of capacities from small to large (output: 0.4k~11 kW)
- Due to use a Beier cyclo variator, an optimum rotation speed can be adjusted.

Standard specifications (Beier cyclo variator)

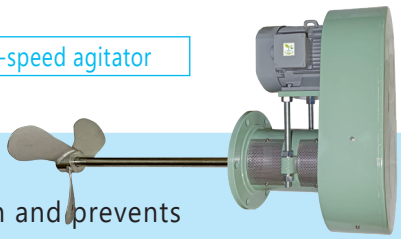
Rotation speed(min^{-1})		Power(kW)				
50Hz	60Hz	0.4	0.75	1.5	2.2	3.7
50～200	60～240	○	○	○	○	—
37～150	45～180	○	○	○	○	○
23～92	28～111	○	○	○	○	○
14～57	17～69	○	○	○	○	○
10～41	12～50	○	○	○	○	○
7～28	8～33	○	○	○	○	○
5～20	6～24	○	○	○	○	○
Maximum agitating capacity(m^3)	Dilute liquid	2.5	5	10	15	25
	Medium viscosity liquid	0.6	1.3	3	6	10

- In addition, model from a wide range up to 11kW, 3.4~360min-1 can be selected.
- The standard blade is 2 stages of 2-blade pitched paddle , but the blade shape may be changed depending on mixing purpose and specifications.
- Please contact us for detailed specifications and dimensions.

Model

NSB

Bottom type / Side type belt-driving medium-speed agitator



Medium speed

Bottom type Side type

0.4kW to 22kW

Features

- Supports large-capacity homogeneous agitation and prevents sedimentation of low-concentration slurry with minimum power
- Multiple units of side type agitators can be installed in one tank
- Smooth and low vibration with V-belt drive

Standard specifications (belt reduction)

Model No.	Power		Rotation speed (min^{-1})		3-blade propeller	Shaft(mm)		Approximate equipment mass (kg)	Maximum agitating capacity(m^3)	
	Output (kW)	Number of poles (P)	50Hz	60Hz	Impeller diameter φD	Shaft diameter φd	Standard length L		Homogeneous / uniform heat agitation	Uniform / diluted agitation
NSBM4 / NSBP4-004	0.4	4	300	360	250	30	400	48	6	1.5
NSBM4 / NSBP4-007	0.75				300	30	450	50	10	3
NSBM4 / NSBP4-015	1.5				350	35	500	70	20	6
NSBM4 / NSBP4-022	2.2				400	40	500	120	30	9
NSBM4 / NSBP4-037	3.7				450	45	550	130	50	14
NSBM4 / NSBP4-055	5.5				500	50	700	240	75	20
NSBM4 / NSBP4-075	7.5				550	60	700	250	100	30
NSBM4 / NSBP4-110	11				600	65	800	360	150	45
NSBM4 / NSBP4-150	15				650	70	800	380	200	60
NSBM4 / NSBP4-220	22				700	80	850	450	300	80

- Various shaft sealing methods and materials are available for different applications and liquid properties.
- Impeller: Propeller, 1 stage
- We select shaft sealing according to the agitating application and liquid properties.
- Possible to assemble the 6P motor.
- Please contact us for detailed specifications and dimensions.

Medium-speed
Low-speed

Vertical type

60W

Model

TFN

Small type agitator for chemical tank

Features

- Standard lineup of SUS304 and rubber lining for both impellers and shafts
- Selectable from two types, medium-speed and low-speed rotation
- Excellent agitating effect by the impeller shape that can be selected according to the rotation speed

■Specifications

Model	Motor	Reduction ratio	Impeller				Maximum agitating capacity (m^3)		Approximate product weight (kg)
			Rotation speed (min^{-1})		Impeller shape and stages	Impeller diameter φA	Dilute liquid	Medium viscosity liquid	
			50Hz	60Hz					
TFN-5	60W	1:5	300	360	3-blade propeller 1stage	120	0.1	—	8
						160	0.2	—	8
TFN-20		1:20	75	90	2-Blade pitched paddle 1stage	250	—	0.1	9
					2-Blade pitched paddle 2stage		—	0.2	10

●Max. agitating capacity (L) is reference only, varies according to agitation purpose, tank shape, agitation time and liquid properties.

■Common specification items

Motor	Standard	3-phase, 4P, Insulation class B, 50Hz (200/220V), 60Hz (200/220/230V) Totally-enclosed fan cooled indoor flange type
	Semi-standard	3-phase, 4P, Insulation class B, 50Hz (380/400/415/440V), 60Hz (380/400/415/440V) Totally-enclosed fan cooled indoor flange type
Reducer		Spur gear multi-stage combination
Painting		Motor/reducer: Astero Silver ; Agitator Body: Silver
Standard material of liquid end parts		SUS304 or SUS304 + rubber lining
Standard accessories		Mounting bolts (M12 x 30L-SUS304, with flat Washer)×4 sets Hex wrench for set screw 2.5/4.0 1pc each , Instruction manual

■Model explanation

TFN — ① 5 — ② P1 — ③ 2 — ④ 4 — ⑤

①: Reduction ratio

5	1:5
20	1:20

②: Impeller shape

P1	3-blade propeller 1stage(φ120)
P2	3-blade propeller 1stage(φ160)
D1	2-Blade pitched paddle 1stage
D2	2-Blade pitched paddle 2stage

③: Voltage, number of poles, insulation class classification

2	200/200V three-phase 4P class B
4	400/440V three-phase 4P class B

④: Material of liquid end part

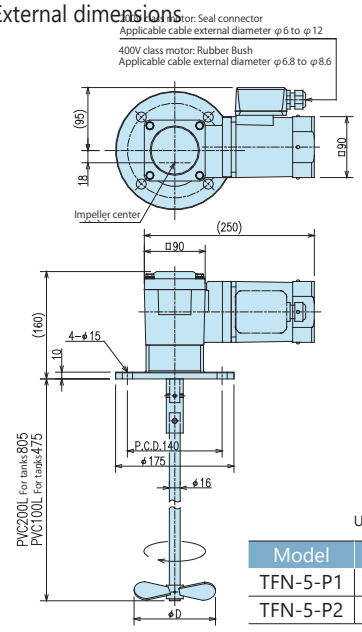
4	SUS304
4L	SUS304 + rubber lining

⑤: Optional

Nil	With standard oil seal
O	With outdoor cover
S	Anti-rust specifications

④Liquid end part material: When 4L (SUS304 + rubber lining) is selected,
⑤Option: S (Anti-rust specification) is applied.

■External dimensions



Unit(mm)

Model	φD
TFN-5-P1	120
TFN-5-P2	160

Submersible agitator

Model

THU

Motor direct connection
upper-flow type
(upward injection type)
Submersible agitator

Model

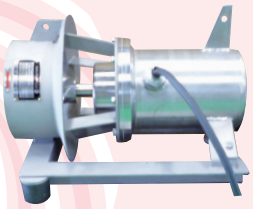
TLU

Gear-reduction upper-flow type
(upward injection type)
Submersible agitator

Model

THS

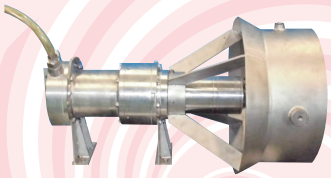
Motor direct connection
side-flow type
(lateral injection type)
Submersible agitator



Model

TLS

Gear-reduction
side-flow type
(lateral injection type)
Submersible agitator



Model

THD

Motor direct connection
down-flow type
(downward injection type)
Submersible agitator

Model

TLD

Gear-reduction
down-flow type
(downward injection type)
Submersible agitator

Features of submersible agitator

1 Large agitating effect with small power.

2 Since it is installed underwater, problems of noise and vibration are solved.

3 Compact and space-saving.

4 Possible to uninstall the agitator without draining liquid in the tank.

5 In addition to chain suspension, guide pole method and guide pipe method are also available for installation.

Motor output and maximum agitation capacity of the submersible agitator

Model / Motor Output(kW)	Motor direct connnetion(m^3)			Gear direct connection(m^3)		
	Upper-flow	Side-flow	Down-flow	Upper-flow	Side-flow	Down-flow
	THU	THS	THD	TLU	TLS	TLD
0.4	10	6	3	—	—	—
0.75	30	15	8	50	50	25
1.5	60	35	15	90	90	50
2.2	80	50	24	150	150	80
3.7	175	100	30	200	200	100

- The maximum agitating capacity indicates the capacity for weak mixing with a liquid specific gravity of 1.02 and a viscosity of 0.02 Pa · s (20 cP).
- The agitating capacity changes depending on the shape of the tank.

■Submersible agitator model code explanation

T	H	U	—	0	1	5	4	—	4	
	①	②		③			④		⑤	⑥※

* Special type and ancillary equipment.

①：Drive system

H	Motor direct connection type
L	Gear reduction type

②：Discharge direction and installation method

U	Upper-flow type (upward injection method)
S	Side-flow type (lateral injection method)
D	Down-flow type (downward injection method)

③：Power (Output) Example

004	0.4 kW
015	1.5 kW
037	3.7 kW

④：Number of motor poles

4	4P (4-pole motor)
6	6P (6-pole motor)

⑤：Material

4	SUS304
6	SUS316
8	SUS316L

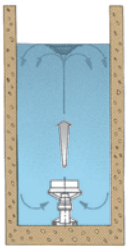
⑥：Special items

Nil	No applicable item
G	Guide pole lifting method
W	Shaft seal part water flushing method
Z	Other special equipment

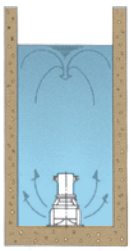
■About how to select the submersible agitator

Agitating type		Agitating purpose	Rotation mechanism	Output(P/m³) Gentle…Powerful agitation (kW/m³)	Agitating features	Applicable model	Operation	Notes
Liquid—Liquid	Low viscosity liquid Soluble	Uniform mixing Reaction Neutralization Dissolving Dilution	Direct connection high speed	0.05～0.12	For uniform mixing in a narrow diameter and deep tank for reaction etc,or low mater level.	THU THS TLU	Vertical circulation flow (Powerful agitating) Discharge injection flow velocity	Consider for corrosion resistance Consider the number of power according to the reaction time
	Low viscosity liquid Fine particles	Homogeneous mixing Circulation Sediment prevention	Direct connection high speed Gear reduction	0.03～0.1	HHomogenization of raw water receiving tank	THS TLS THU	Formation of gentle circulation flow	Agitating effect at the stopping liquid level
				0.15～0.3	Destruction of floating scum, prevention of scum forming		Injection circulation by powerful agitation	Consider the length of draft tube
		Circulation in tank Contact reaction	Direct connection high speed Gear reduction	0.08～0.1	Circulation of anaerobic and aerobic sludge treatment tanks and circulation contact of biological denitrification and dephosphorization treatment	THU TLU	Circulating flow in tank (Securing the necessary cycles) Downward injection method circulation	Set a draft pipe to forcibly circulate in vertical direction to promote contact.
		Temperature uniform	Direct connection high speed	0.05～0.1	Equalization of liquid temperature below 50 ℃ Prevention of algae growth in reservoirs, etc.	THU TLU	Circular convection Formation of vertical circulation flow (Gentle)	Consider the draft tube installation method
	High concentration liquid	Uniform mixing Reaction	Gear reduction	0.15～0.2	Sludge storage tank, slaked lime emulsion storage tank where scum is likely to occur	THU TLU	Upward injection discharge flow Vertical circulation flow (powerful agitation)	Destroy the floating scum into the discharge flow and mix it in the liquid
Liquid—Solid	Low viscosity liquid Fine particles	Dissolving Uniform mixing Sediment prevention	Direct connection high speed Gear reduction	0.08～0.1	Prevention of sedimentation ,homogenization ,accumulation ,in raw water receiving tank	THD TLS THS	Formation of circulating convection Agitating by fluctuation of liquid level	Create a flow in tank and agitate the volume at the stopping liquid level
	Low concentration Fine particles	Dissolving Homogeneous mixing	Direct connection high speed Gear reduction	0.05～0.15	Uniformity of slurry sludge storage tank, chemical dissolution	TLS TLD	Slurry floating Vertical circulation flow	Eliminate agitating dead space in consideration of flow velocity
	High concentration Fine particles	Sediment prevention Homogeneous mixing Dissolving	Gear reduction	0.2～0.3	Uniformity of slurry storage tank, prevention of accumulation of mixed solids	TLD TLS	Powerful agitation of vertical circulation convection is required	Consider the number of power according to liquid concentration

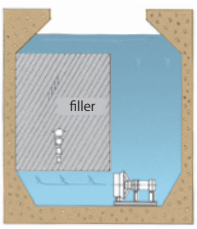
■Submersible agitator installation examples



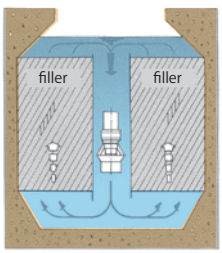
Tank bottom installation method
Upper-flow type



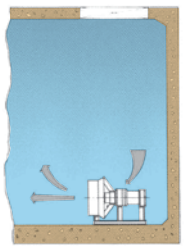
Tank bottom installation method
Down-flow type



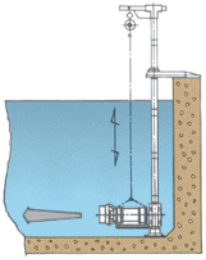
Tank bottom installation method
Side-flow type



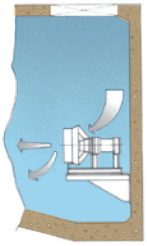
Draft tube method
Down-flow type



Tank bottom installation method
Side-flow type



Guide pole method
Side-flow type

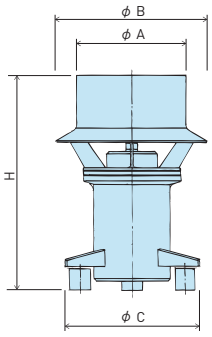


Stand installation method
Side-flow type

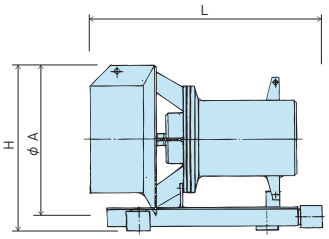
Model

TH

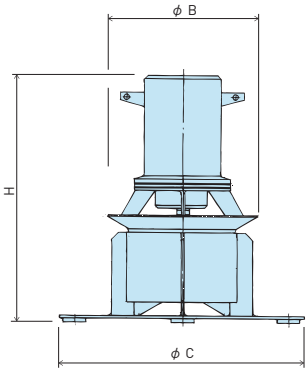
Motor direct connection submersible agitator



THU type



THS type



THD type

Submersible

Motor direct connection

0.4kW to 7.5kW

THU Motor direct connection upper-flow type Standard specifications

Model No.	Power		Rotation speed	Impeller diameter	Agitating capacity		Approximate main dimensions (mm)				Minimum operating liquid level (mm) LW.L from the installation surface	Approximate equipment weight (kg)	Maximum agitating capacity (m^3)
	Output (kW)	Number of poles (P)	50Hz/60Hz (min^{-1})	φd (mm)	Discharge flow rate (m^3/min)	Discharge flow velocity (m/sec)	H	A φ	B φ	C φ			
THU-004	0.4	4	1,420/1,750	132	1.0	0.9	441.5	154	235	280	600	20	10
THU-007	0.75			174	3.0	1.6	475.5	200	304	280	650	25	30
THU-015	1.5			176	6.0	2.4	455	200	304	345	750	47	60
THU-022	2.2			180	8.0	2.5	515	240	342	384	850	50	80
THU-037	3.7			230	17.5	2.7	545	256	392	450	900	88	175

THS Motor direct connection side-flow type Standard specifications

Model No.	Power		Rotation speed	Impeller diameter	Agitating capacity		Approximate main dimensions (mm)			Minimum operating liquid level (mm) LW.L from the installation surface	Approximate equipment weight (kg)	Maximum agitating capacity (m^3)
	Output (kW)	Number of poles (P)	50Hz/60Hz (min^{-1})	φd (mm)	Discharge flow rate (m^3/min)	Discharge flow velocity (m/sec)	H	A φ	L			
THS-004	0.4	4	1,420/1,750	132	0.8	0.5	298	232	432	400	22	6
THS-007	0.75			174	2.4	1.2	335	304	477	500	28	15
THS-015	1.5			176	4.8	2.0	322	342	480	500	50	35
THS-022	2.2			180	6.5	2.1	402	384	540	550	55	50
THS-037	3.7			230	13.9	2.2	420	392	590	600	95	100

THD Motor direct connection down-flow type Standard specifications

Model No.	Power		Rotation speed	Impeller diameter	Agitating capacity		Approximate main dimensions (mm)			Minimum operating liquid level (mm) LW.L from the installation surface	Approximate equipment weight (kg)	Maximum agitating capacity (m^3)
	Output (kW)	Number of poles (P)	50Hz/60Hz (min^{-1})	φd (mm)	Discharge flow rate (m^3/min)	Discharge flow velocity (m/sec)	H	A φ	L			
THD-004	0.4	4	1,420/1,750	132	0.8	0.5	495	235	375	550	25	3
THD-007	0.75			174	2.4	1.2	523	304	450	600	37	8
THD-015	1.5			176	4.8	2.0	549	304	480	650	59	15
THD-022	2.2			180	6.5	2.1	583	342	520	700	64	24
THD-037	3.7			230	13.9	2.2	623	392	710	750	119	30

- The standard material is SUS. Lining is not available.
- The insulation class of the motor is standard E type, and H type can also be selected. The permissible water temperature is 40℃ for class E insulation and 75 ℃ for class H insulation.
- Explosion-proof structure cannot be manufactured.
- The maximum allowable water depth for operation is 10 m.
- The permissible liquid concentration is 30% or less, and the permissible liquid viscosity is 2Pa•s (2,000cP).

Model

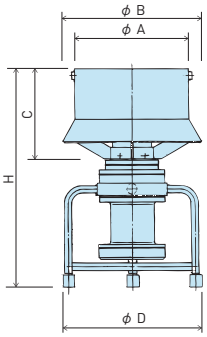
TL

Gear-reduction submersible agitator

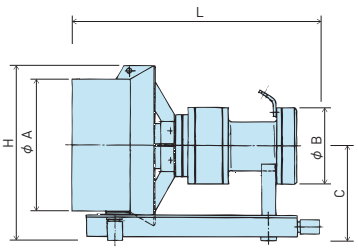
Submersible

Gear reduction

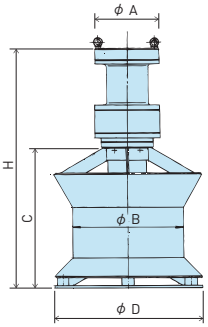
0.75kW to 3.7kW



TLU type



TLS type



TLD type

TLU Gear-reduction upper-flow type Standard specifications

Model No.	Power		Rotation speed	Impeller diameter	Agitating capacity		Approximate main dimensions(mm)					Minimum operating liquid level (mm) LW.L from the installation surface	Approximate equipment weight (kg)	Maximum agitating capacity (m^3)
	Output (kW)	Number of poles (P)	50Hz/60Hz (min^{-1})	φd (mm)	Discharge flow rate (m^3/min)	Discharge flow velocity (m/sec)	H	A φ	B φ	C	D φ			
TLU-007	0.75	4	237/292	350	15	2.4	765	330	410	335	491	+1,050	84	50
TLU-015	1.5			400	23	2.8	860	450	550	349	687	+1,200	125	90
TLU-022	2.2			520	27	2.9	920	580	680	410	750	+1,250	173	150
TLU-037	3.7			600	32	3.1	1,235	672	814	625	850	+1,550	337	200

TLS Gear-reduction side-flow type Standard specifications

Model No.	Power		Rotation speed	Impeller diameter	Agitating capacity		Approximate main dimensions(mm)					Minimum operating liquid level (mm) LW.L from the installation surface	Approximate equipment weight (kg)	Maximum agitating capacity (m^3)
	Output (kW)	Number of poles (P)	50Hz/60Hz (min^{-1})	φd (mm)	Discharge flow rate (m^3/min)	Discharge flow velocity (m/sec)	H	A φ	B φ	C	D φ			
TLS-007	0.75	4	237/292	350	15.0	2.4	487	400	195	250	705	+650	81	50
TLS-015	1.5			400	23.0	2.8	575	450	255	300	795	+800	122	90
TLS-022	2.2			520	27.0	2.9	710	580	255	370	855	+1,000	171	150
TLS-037	3.7			600	32.0	3.1	857	672	320	450	1,170	+1,100	333	200

TLD Gear-reduction down-flow type Standard specifications

Model No.	Power		Rotation speed	Impeller diameter	Agitating capacity		Approximate main dimensions(mm)					Minimum operating liquid level (mm) LW.L from the installation surface	Approximate equipment weight (kg)	Maximum agitating capacity (m^3)
	Output (kW)	Number of poles (P)	50Hz/60Hz (min^{-1})	φd (mm)	Discharge flow rate (m^3/min)	Discharge flow velocity (m/sec)	H	A φ	B φ	C	D φ			
TLD-007	0.75	4	237/292	350	12.0	1.7	767	195	400	435	560	+900	83	25
TLD-015	1.5			400	18.0	2.2	955	255	450	570	600	+1,050	129	50
TLD-022	2.2			520	21.0	2.3	965	255	580	575	750	+1,100	185	80
TLD-037	3.7			600	25.0	2.4	1,170	320	660	680	850	+1,350	350	100

- The standard material is SUS. Lining is not available.
- The insulation class of the motor is standard E type, and H type can also be selected. The permissible water temperature is 40℃ for class E insulation and 75 ℃ for class H insulation.
- Explosion-proof structure cannot be manufactured.
- The maximum allowable water depth for operation is less than 10 m.
- The permissible liquid concentration is 30% or less, and the permissible liquid viscosity is 2Pa•s (2,000cP).

Model

SPT

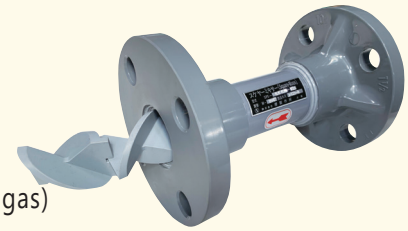
Square mixer (static mixer)

Static type

4・6・8 element

10A to 150A

Features



- Compact and reasonable (no power required)
- Low pressure drop and large mixing effect (can be installed in existing piping)
- Possible to be used for various fluids (various liquids, gas)
- Easy to clean (element can be pulled out)
- Wide variety (4, 6, 8 elements, sanitary specifications, etc.)

Model code explanation

SPT —	80	4	—	1	S	R	J	X
	①	②		③	④	⑤	⑥	⑦

① : Nominal diameter

Number with connection diameter of 10 ~150A (It may not be available depending on diameter)

② : Number of elements per unit

4	1 unit 4 elements
6	1 unit 6 elements
8	1 unit 8 elements

③ : Material

1	SUS304
2	SUS316
3	PVC
4	SS
5	STPG + PTFE lining

④ : Connection

Nil	JIS10k flange connection
S	Sanitary type clamp joint

⑤ : Disassembly of the element

Nil	Element can be disassembled
R	Element can not be disassembled

⑥ : Jacket

Nil	No jacket
J	With jacket

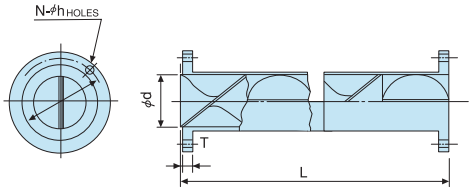
⑦ : Special specifications

X	For other special specifications

Specially manufacturing

We also accept orders for large diameter products of 200A or larger, titanium/Hastelloy materials, various lining products, and various joint shape products.
Please contact us.for further information

Dimensional drawing



● The dimention drawing shows the case of JIS 10k flange joint.

Dimension table

Model	Nominal diameter	Housing body				Flange thickness		Length (L) per unit (mm)					
		Inner diameterφ, d(mm)		Channel cross-sectional area (cm²)		T(mm)		4 elements		6 elements		8 elements	
		Material 1・2・4	Material3	Material 1・2・4	Material3	Material 1・2・4	Material3	Material 1・2・4	Material3	Material 1・2・4	Material3	Material 1・2・4	Material3
		SUS/SS	PVC	SUS/SS	PVC	SUS/SS	PVC	SUS/SS	PVC	SUS/SS	PVC	SUS/SS	PVC
SPT- 10□	10A	12.7	—	1.01	—	12	—	90	—	140	—	180	—
SPT- 15□	15A	16.1	—	1.79	—	12	—	90	—	140	—	180	—
SPT- 20□	20A	22.2	—	3.53	—	14	—	120	—	180	—	240	—
SPT- 25□	25A	27.2	—	5.40	5.67	14	—	140	—	210	—	280	—
SPT- 40□	40A	41.2	40.0	12.7	10.9	16	16	210	211	315	311	420	411
SPT- 50□	50A	52.7	51.0	21.0	18.3	16	20	265	271	398	401	530	531
SPT- 65□	65A	65.9	67.0	33.1	31.9	18	22	330	336	495	496	660	656
SPT- 80□	80A	78.1	77.0	46.3	41.9	18	22	395	416	593	616	790	816
SPT-100□	100A	102.3	100.0	80.1	72.5	18	22	505	518	758	768	1,010	1,018
SPT-125□	125A	126.6	125.0	122.0	112.7	20	24	640	658	960	978	1,280	1,298
SPT-150□	150A	151.0	146.0	174.5	155.7	22	26	770	778	1,155	1,158	1,540	1,538

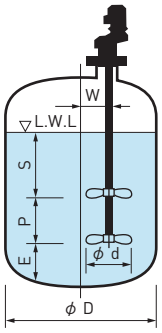
● The dimension table shows the case of JIS 10k flange connection.
● Please contact us for the dimension of dimenter 200A or lager, PTFE lining, sanitary type (clamp joint).

About the installation position of the agitator

When installing on a square tank, the tank corner parts act as baffle plates, so in principle, agitator is mounted in the center, but in the case of a cylindrical tank, agitator should be mounted eccentrically or install in the tank with baffle plate.

■For eccentric mounting

Medium speed range operation(200～360min^{-1})

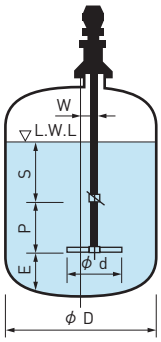


W=0.5～1d

S=1.5d～
P=1～2d
E=1～1.5d

Low speed range operation (200min-1 or lower)

(Including variable speed operation)

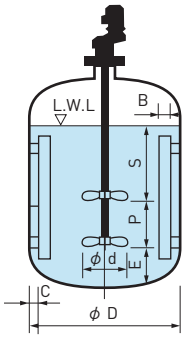


d≦0.35D...W=0.5d
d≧0.35D...W=0.1～0.2d

S=1d～
P=0.5～2d
E=～1d

■For mounting with baffle plate

Medium speed range operation (200-360min^{-1})

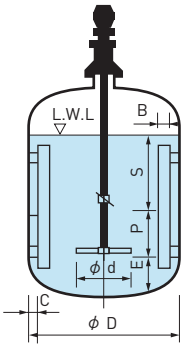


S=1.5d～
P=1～2d
E=1～1.5d

B=0.08～0.1D
C=0.25B

Low speed range operation (200min^{-1} or lower)

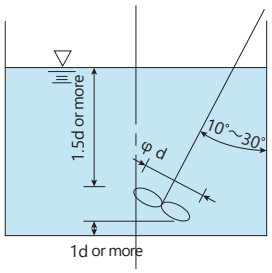
(Including variable speed operation)

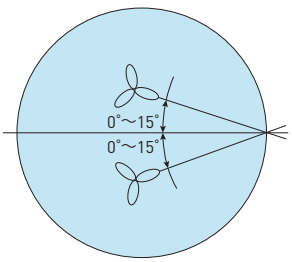


S=1d～
P=0.5～2d
E=～1d

B=0.08～0.1D
C=0.25B

■For portable type agitators

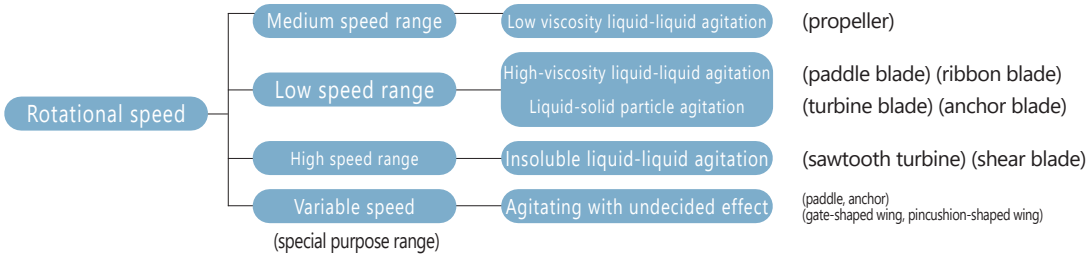




* Never install an agitator in the center of a cylindrical tank.
  If the impellers are too close to the tank wall by eccentric installation,the counter flow may affect the agitator and make the shaft vibrate.
  If it is difficult to install an agitator in the proper position due to a manhole being in the center of top plate in a PE molded tank or others, please contact us for the mounting position.
* It is strictly prohibited for the liquid level to pass through the impeller position during operetion, or to operate without liquid.
  Be sure to operate the agitator with the minimum liquid level secured. Please contact us if a pass through of liquid level or no load operation is necessary.

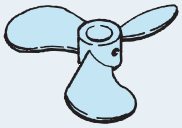
Agitator rotation speed and impeller shape

The selection of rotation speed depends on the liquid properties, the purpose of agitation, and the operating conditions.
Select an optimum rotation speed in the medium speed range, low speed range, and high speed range according to the liquid properties and the purpose of agitation.



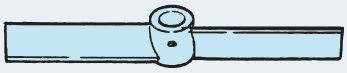
3-blade propeller

The most versatile shape to be used in the medium and high speed rotation ranges. A turbulent area by a strong axial flow and a vertical circulation flow are efficiently generated to form the best circulation flow.
Widely used as a standard and the most economical impeller shape.



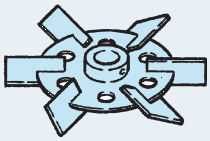
Pitched paddle

The impeller diameter and shape can be selected at will, and the combined flow of laminar and axial flow produces a strong agitating effect in the vertical circulation. The pitched paddle is very economical and the most suitable for agitating medium and high viscosity liquids in the low speed range. It is widely used for agitating in the low speed range, and there are also 2~4 blades and separate types.



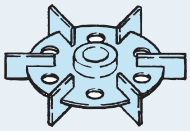
Pitched turbine

An angled blade on the circumference of the disk, where laminar and axial flows create a complex turbulent area up and down across the disk. With strong discharge flow velocity and shearing effect, it is suitable for dissolving solids, dispersing slurries and mixing medium-viscosity liquids, and small-diameter blades are also useful in the medium and high speed rotation ranges.



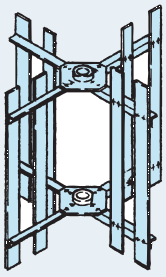
Disc turbine (flat)

The blades are installed at right angle on the circumference of the disk, and a stronger laminar flow is generated from the tip of the blades, and a convection area is generated in the vertical direction across the disk. It is used for uniform / dispersion / dissolution of medium and high viscosity liquids and prevention of slurry settling, and the shape with blades attached only in the lower direction of the disk is also useful for preventing settling.



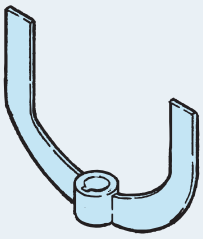
Gate-shaped wings

Used in floc formation in water treatment equipment and when gentle agitating is required in the tank.
It tends to be installed vertically in small scale and installed horizontally with multiple units in large scale. The rotation speed is determined by the blade peripheral speed, and variable speed type is often used.



Anchor wings (anchor-shaped, horseshoe-shaped)

Used in the low speed rotation range for high-viscosity, high-concentration slurry liquids. A strong agitating effect can be obtained by having an impeller diameter close to the tank diameter to prevent the agitated material from adhering to the side and bottom of the tank and forcibly moving the liquid in the tank. It is often used for agitation with a relatively small capacity.



Various blade shapes used for many other purposes have been reported in a wide variety of ways, but considering the cost, agitating effect, operation, installation location, and agitating purpose, we will select the most suitable and efficient impeller shape.

Viscosity of familiar liquids (Reference)

Liquid name		Temperature (℃)	Viscosity (Pa･s)
Water		0	0.0018
		20	0.001
		90	0.0003
Acetone		20	0.0003
		50	0.0002
Butyl acetate		20	0.0007
Toluene		20	0.0006
Hydrochloric acid	5%	20	0.0011
	30%	20	0.0017
Caustic soda	5%	20	0.0013
	20%	20	0.0045
	20%	40	0.0025
Sulfuric acid	20%	20	0.0016
	90%	20	0.024
	90%	50	0.009
Mercury		20	0.0016
Methanol	40%	20	0.0018
Sucrose	20%	20	0.002
	70%	20	0.46
	70%	80	0.017
Glycerin	50%	20	0.006
	100%	20	1.5
	100%	50	0.18

Liquid name	Temperature (℃)	Viscosity (Pa･s)
Machine oil	20	0.17
	50	0.02
V-700 diesel oil	20	1.0
	50	0.17
Kerosene	20	0.01
Olive oil	20	0.085
Castor oil	20	0.9
	50	0.14
Crude oil	20	2.5
Honey	20	1.3
Ketchup	25	1.8
Condensed milk	22	2.0
Enamel	20	4.5
Mayonnaise sauce	23	8.0
Jam	23	6.0
Shoe cream	20	12
Edible seaweed	23	13
Office glue	22	29
Tooth paste	20	30

* Since the viscosity of polymer flocculants used in water treatment varies depending on types. Please contact us if you have any problems in selecting an agitator.

Application reference

NKA type agitator

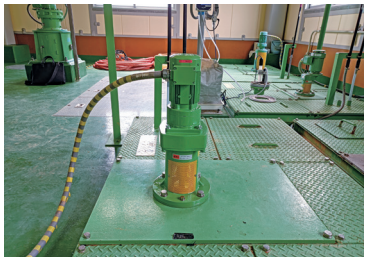
Private wastewater treatment

NTA type agitator

Private factory

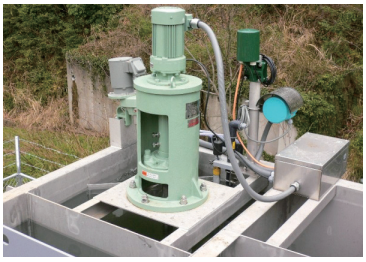
NTB type agitator

Power plant



NTG type agitator

Garbage disposal site



NTC type agitator

Water purification plant

NTC type agitator

Paper mill

Warranty and service regulations

We would like to regulate the warranty and service for the products (hereinafter called as Applicable product) to be sold by us Tohkemy as follows. It is subject to applying to the special conditions that would be separately agreed on the sales contract respectively.

1. Warranty period

Warranty period of the Applicable product shall be one year from the date of shipment from our factories and/or subcontractor's factories.

2. Scope of warranty

1) If during the warranty period the Applicable product fails or gets damaged while using under proper conditions, Tohkemy will repair the product or replace the affected part(s) free of charge.
2) If we dispatch our technical staff to the designated site on your request, you will be charged for dispatching fee.
3) The warranty liability is our responsibility to repair our product or replace the affected part(s) on basis of these articles, and the warranty scope shall be within the contracted amount with you for the Applicable product in all cases.
4) We would basically ask you to bear the costs for returning the Applicable product to us and/or the disassembling and assembling work. If the failure or damage is due to our defects found after inspection, Tohkemy will bear the returning fee.
5) If the Applicable product fails or gets damaged for any of the following reasons, Tohkemy will repair the product or replace the affected or consumable part(s). You will be charged for parts and labor.
   ①Failure or damage due to the user's poor handling, misuse or wrong storage.
   ②Consumable part(s) such as gear, bearing, etc.
   ③Failure or damage due to use of any part(s) other than Tohkemy genuine parts or specified by Tohkemy.
   ④Failure or damage due to repaired or tampered by other person(s) than Tohkemy or the appointed person(s).
   ⑤Failure or damage resulting from external factors being other than the Applicable product.
   ⑥Failure or damage due to falling, transportation, etc. after starting operation.
   ⑦Failure or damage due to fire, earthquake and other natural disasters.
6) These warranty and service regulations are basically applicable to the use in Japan.

3. Limitations of liability

In no event shall Tohkemy be liable for any warranty, unlawful act including product liability, etc. if it comes under the following events.

①Warranty scope shall be within the contract amount with you for the Applicable product in all cases.
②Tohkemy shall not compensate the customer for losses resulting from any trouble of failure due to the deterioration or the use of an improper liquid.

If both cannot agree to each other, we will entrust the judgement to a proper third-party organization.

4. Dispatching fee of our technical staff

If we dispatch our technical staff for technical assistance, commissioning, repair, fault diagnosis and other technical investigation on your request, you will be charged for dispatching fee as follows.

① Technical fees: Depend on the working items and days (including the traveling days).
   * In case of working more than eight (8) hours per day, on holiday and in the midnight, you will be charged additionally.
②Transportation expenses: Actual expenses (to the designated site by means of transportation with the most suitable time)
③Accommodation expenses: Actual expenses (by use of reasonable accommodation)

https://www.tohkemy.co.jp/english/

TOHKEMY CORPORATION

ISO 9001
JQA-2766

Head Office

1-12-11 Tagawakita, Yodogawa-ku,Osaka

532-0021

Overseas Business Departent

TEL +81-6-6301-6460

FAX +81-6-6308-3022

CT No.EX-16 202109