

**ShinMaywa**

**TP** 天保發展國際有限公司  
Tin Po Development International Limited

# Submersible Mixer

## SM Series



# Creating Comfort and Convenience for the Living Environment.

ShinMaywa has long history and experiences as a pump manufacture since we started manufacturing of Pumps in 1955.

And we enjoy reputation of high quality water treatment equipments until today.

Therefore, all products are in operation not only in Japan, but also in many countries.

Our variety of products help and satisfy your requests to solve waste water treatment.

Many applications such as in public facilities and waste water treatment plants prove our confidence and durability.

Here, you can find a number of features of our products.

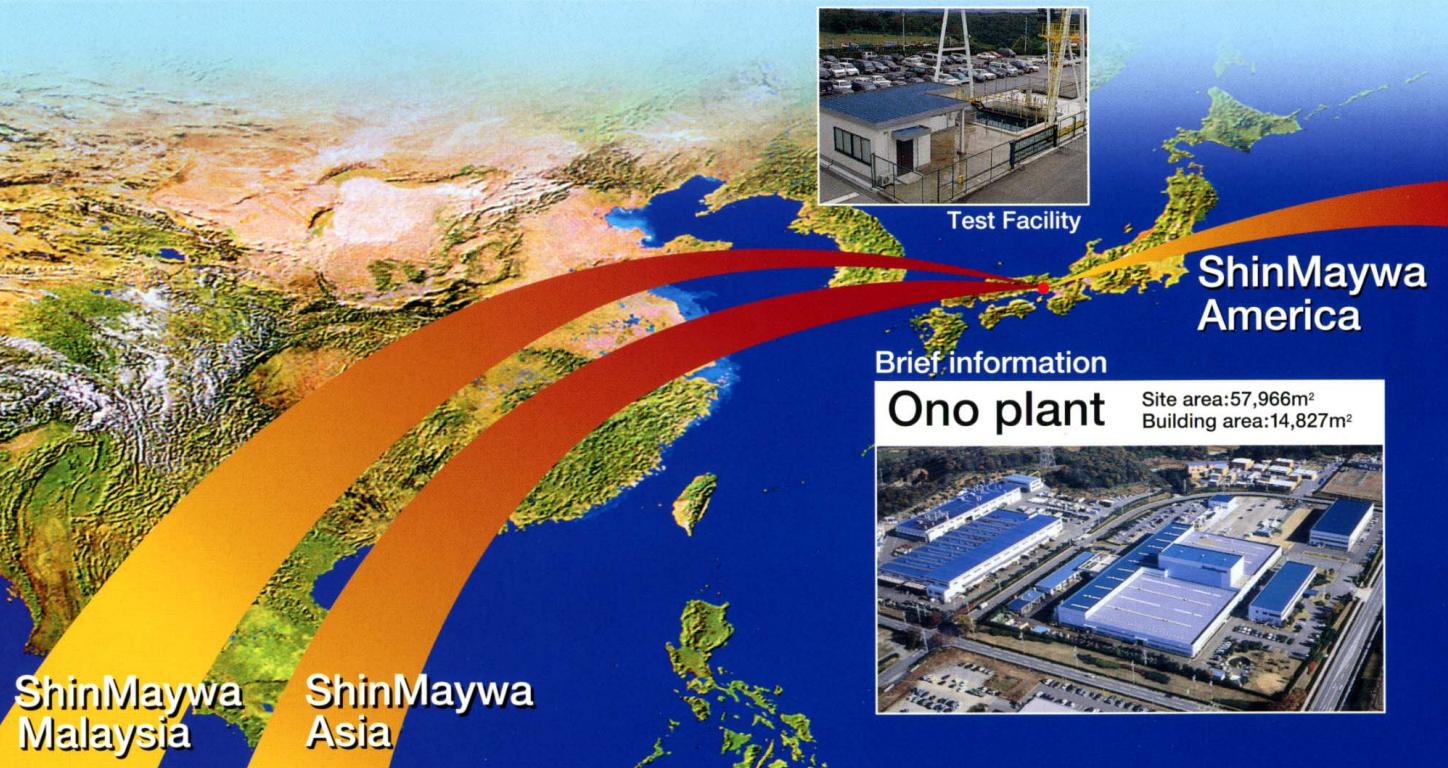
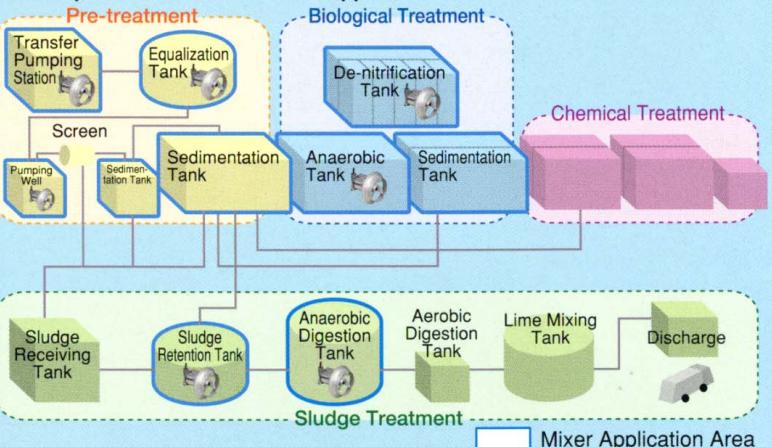
Submersible Mixer is inevitable to use at Waste Water Treatment Facility, such as Pump Well, Equalization Tank, Sludge Retention Tank, etc., for the purpose of prevention of sludge sedimentation, equalize water quality and scum destruction.

ShinMaywa's Submersible Mixer has superior energy efficiency and strong flow power, also has good maintainability without limitation of place of usage. Our series of Mixer provides high performance of mixing, blending and flow generation at any Industrial and Environmental applications.

## ■ Application of Submersible Mixer

Sewerage	Waste Water Treatment Plant, Small Size Sewage Treatment Plant Transfer Pumping Station, Excrement Treatment Plant, Solid Waste Treatment Plant, Leachate Treatment Plant, Various Pumping Station Water Purification Plant, Water Intake Facility, Building Facility
Industry	Livestock Treatment Facility, Fish-Raising Facility, Pulp Mixing, Painting Waste Water Facility, Lime Mixing, Brewery, Distillery, Other Industrial Waste Water Facility
Water Preservation Environment	Pond, Agricultural Reservoir, Lakes, Golf Course, Leisure Facility Various Preservation Facility, Dam
Others	De-icing chemical mixing, Anti-frozen purpose for rivers

## ■ Example of Submersible Mixer Application at Waste Water Treatment Plant



**Suitable for Various Applications with Strong Jet Flow**  
**High Durability with Good Maintainability**

## Features

### Improved Reliability

Equipped with Leakage Water Chamber as standard (More than 1.5kW Model). Cable core sealer, Support Coil to prevent suctioning, SUS316 Motor shaft are employed so that high durability and reliability are achieved.

### Superior Durability

Employed newly developed submersible motor. Double mechanical seal with 4 face SiC is employed. Also, durability is improved by using large size bearing.

### Strong Jet Flow

Strong jet flow is generated by its unique propeller shape through computer analysis. Also, wear resistance of propeller is improved by special hardening treatment.

### Improved Maintainability

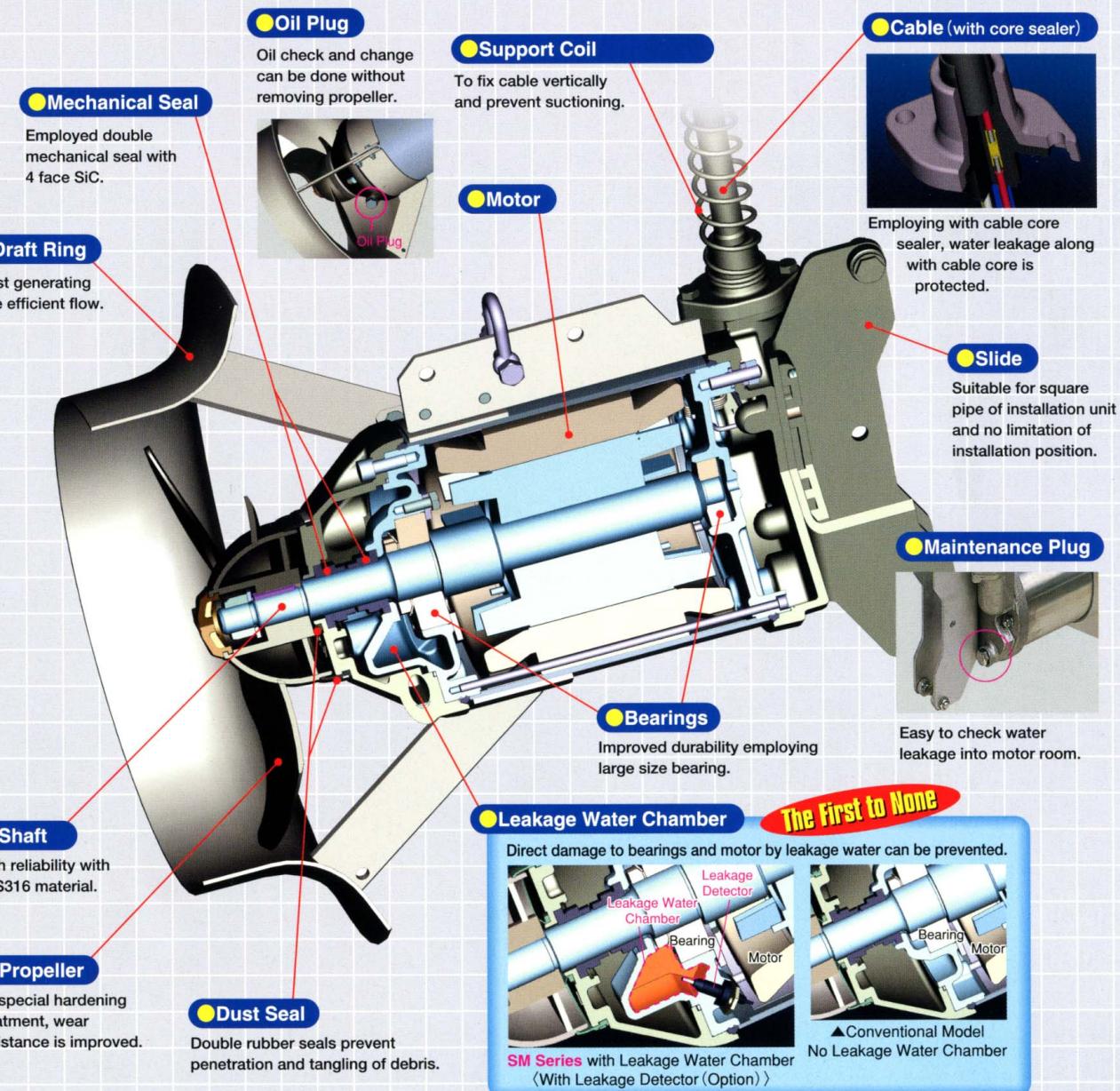
Easy to handle due to its light-weight, compact in size and simple structure. Easy to check leaked water into motor through maintenance plug at head cover side. Oil change can be done at oil plug without removing propeller.

### Applicable for Low Water Level (Option)

By installing Flow Stabilizer, operation level can be lowered than normal. Therefore, it enables to operate even water level variation is wide.

### Efficient Mixing by Simple Adjustment

As position and angle(left/right and up/down)can be easily adjusted to the most efficient location, efficient mixing can be realized in accordance with shape, size and depth of tank, liquid characters and mixing purpose.



# Submersible Mixer SM Series



## Products Line Up

**SM250  
SM400  
SM750**



SM750

**SM15JA  
SM15JB**



SM15JA



SM15JB

**SM15A・B**



SM15A



SM15B

**SM28A・B**



SM28A



SM28B

**SM30A・B  
SM40A・B**

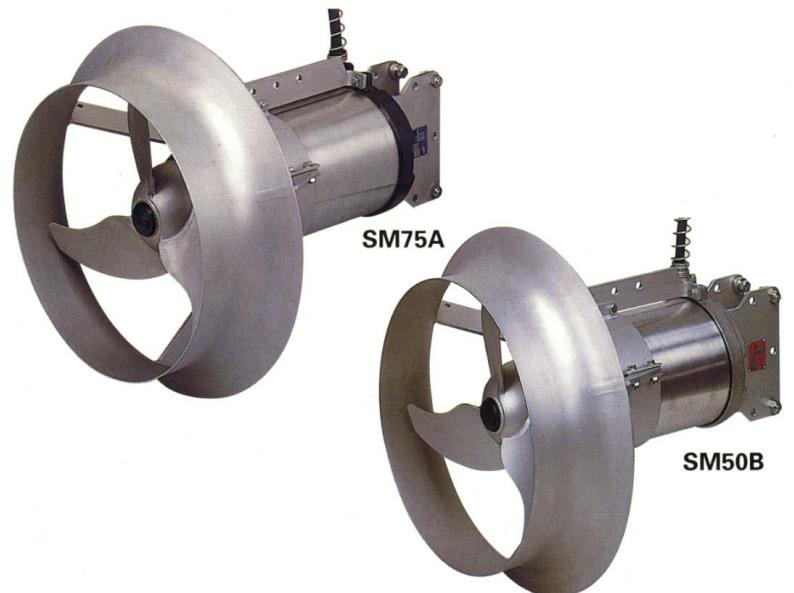


SM40A

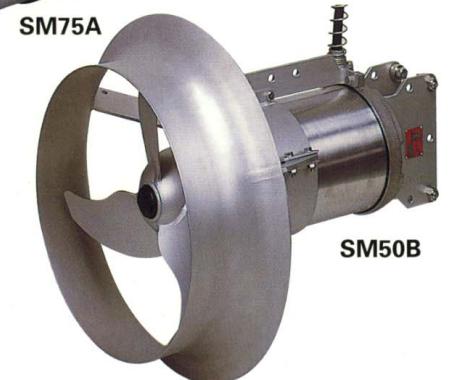


SM40B

**SM50A・B  
SM75A・B**



SM75A



SM50B

## Applicable Range

Kinds of Liquid	Liquid Specific Gravity	Viscosity	Temperature	Chlorine Ion	Sludge Density	Water Depth	P H
Waste Water, Sludge	Less than 1.1	Less than 1,000mPa·s	0°C~40°C	Less than 1,000mg/l	Less than 5%	Less than 10m	6~9

●Applicable range of liquid specific gravity and viscosity is varied by model. ●Please consult us, even if applicable range exceeds on the above table.

## Specifications

### 50Hz Specifications

Model	Motor		Rated Current (A)	Simultaneous Rotation Speed (min <sup>-1</sup> )	Propeller Code	Propeller Dia. (mm)	Output at pure water mixing (kW)	Flow Volume (m <sup>3</sup> /min)	Reaction Force (N)	Weight (kg)
	Output (kW)	Pole (P)								
SM250	0.25	4	1.7	1,500	—	150	0.21	1.8	53	20
SM400	0.4	4	2.8	1,500	—	180	0.33	2.7	80	23
SM750	0.75	4	4.4	1,500	—	180	0.55	3.5	140	25
SM15JA・JB	0.9	6	5.8	1,000	112 113 110 111 112 113	254	0.8 0.7 1.2 0.9 0.8 0.7	5.6 4.9 7.4 6.5 5.6 4.9	175 130 300 230 175 130	47
SM15A・B	1.5	6	7.8	1,000	*210 211	300	1.4 1.2	10.5 9.8	430 380	49
SM24JA・JB	2	4	8.4	1,500	610 611	220	1.7 1.0	6.4 5.1	300 190	47
SM28A・B	2.8	6	15.3	1,000	*310 311 312 313	300	2.5 2.2 1.9 1.5	12.9 12.0 11.2 8.7	650 570 490 300	57
SM30A・B	3	6	15.8	1,000	412 413 414	350	2.6 2.4 2.3	15.0 14.0 13.0	650 570 490	66
SM40A・B	4	6	19	1,000	*410 411 412	350	3.3 3.0 2.6	17.2 16.1 15.0	850 750 650	66
SM50A・B	5	10	25.8	600	*512 513 514 515	525	4.5 4.0 3.6 2.8	35.5 34.2 30.6 26.5	1,620 1,500 1,200 900	145
SM75A・B	7.5	10	39.6	600	*510 511 512	525	6.8 6.0 5.3	43.0 40.0 35.5	2,370 2,050 1,620	160

### 60Hz Specifications

Model	Motor		Rated Current (A)	Simultaneous Rotation Speed (min <sup>-1</sup> )	Propeller Code	Propeller Dia. (mm)	Output at pure water mixing (kW)	Flow Volume (m <sup>3</sup> /min)	Reaction Force (N)	Weight (kg)
	Output (kW)	Pole (P)								
SM250	0.25	4	1.6	1,800	—	136	0.22	1.5	44	20
SM400	0.4	4	2.5	1,800	—	150	0.32	2.0	60	23
SM750	0.75	4	4.2	1,800	—	180	0.6	3.4	125	25
SM15JA・JB	1.1	6	5.7	1,200	115 116 117 114 115 116 117	254	0.9 0.8 0.7 1.2 0.9 0.8 0.7	6.5 5.6 4.9 7.4 6.5 5.6 4.9	230 175 130 300 230 175 130	47
SM15A・B	1.5	6	7.4	1,200	*212 213	300	1.5 1.4	10.5 9.8	430 380	49
SM24JA・JB	2.4	4	9.7	1,800	612	220	1.6	5.8	250	47
SM28A・B	2.8	6	14.9	1,200	*314 315 316 317	300	2.6 2.3 2.0 1.6	12.9 12.0 11.2 8.7	650 570 490 300	57
SM30A・B	3	6	14.1	1,200	*417 418 419	350	2.9 2.8 2.7	15.0 14.0 13.0	650 570 490	66
SM40A・B	4	6	18	1,200	*415 416 417	350	3.3 3.2 2.9	17.2 16.1 15.0	850 750 650	66
SM50A・B	5	12	29.9	600	*512 513 514 515	525	4.5 4.0 3.6 2.8	35.5 34.2 30.6 26.5	1,620 1,500 1,200 900	145
SM75A・B	7.5	12	44.6	600	*510 511 512	525	6.8 6.0 5.3	43.0 40.0 35.5	2,370 2,050 1,620	160

Note) Propeller Code marked with \* cannot be used for the application which water contains much of debris and high specific gravity (more than 1.03).

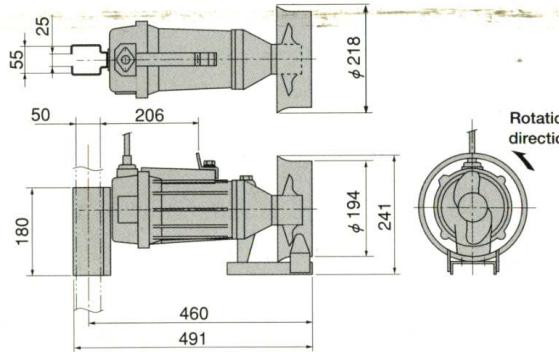
●Please consult us in case of motor output is not indicated in the above mentioned specification.

# Submersible Mixer SM Series

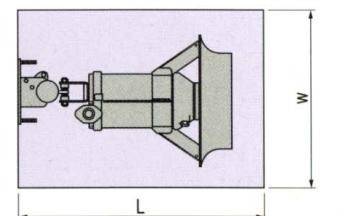
## Dimensions

Unit:mm

### SM250·SM400·SM750

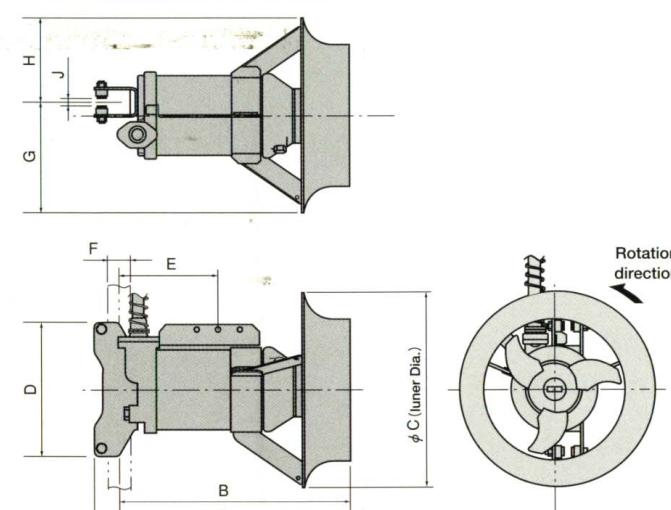


### Opening Slot Dimension



Model	W	L
SM250, SM400, SM750	400	700
SM15JA·JB, SM24JA·JB	500	800
SM15A·B, SM24A·B	600	800
SM30A·B, SM40A·B	600	900
SM50A·B, SM75A·B	800	1,200

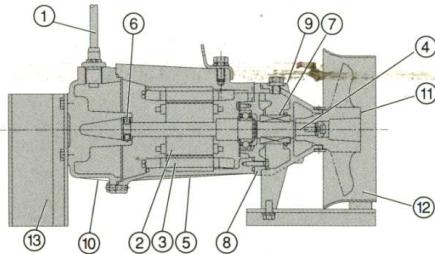
### SM15·SM15·SM24·SM28·SM30·SM40·SM50·SM75



Model	A	B	C	D	E	F	G	H	J
SM15JA·JB	543	486	360	308	215	50	211	150	19
SM15A·B	559	502	440	308	215	50	251	190	19
SM24JA·JB	543	486	360	308	215	50	211	150	19
SM28A·B	582	525	440	308	228	50	251	190	19
SM30A·B	598	541	510	308	236	50	259	251	19
SM40A·B	598	541	510	308	236	50	259	251	19
SM50A·B	836	746	705	280	328	100	353	353	43
SM75A·B	888	798	705	280	350	100	353	353	43

## Cross Sections

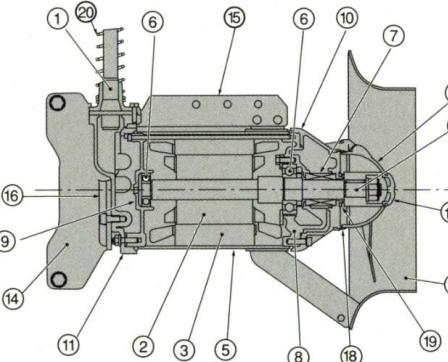
### SM250·SM400·SM750



### Material

Number	Name	Material	Number	Name	Material
1	Cable	VCT	8	Mechanical Seal Bracket	FC200
2	Rotor	—	9	Oil Casing	FC200
3	Stator	—	10	Head Cover	FC200
4	Shaft	SUS420J2	11	Propeller	FCD500
5	Stator Casing	FC200	12	Draft Ring	SUS304
6	Bearing	—	13	Slide	SUS304
7	Mechanical Seal	SiC/SiC			

### SM15JA(JB)·SM15A(B)·SM24JA(JB)·SM28A(B)·SM30A(B)·SM40A(B)·SM50A(B)·SM75A(B)



### Material

Number	Name	Material	Number	Name	Material
1	Cable	2PNCTS	11	Head Cover	FC200 (SCS14)
2	Rotor	—	12	Propeller	SUS316L
3	Stator	—	13	Draft Ring	SUS304
4	Shaft	SUS316	14	Slide	SUS304
5	Stator Casing	SUS316	15	Lifting Plate	SUS304
6	Bearing	—	16	Sliding Plate	Polyethylene
7	Mechanical Seal	SiC/SiC	17	Propeller Cap	CR
8	Mechanical Seal Bracket	FC200	18	Sealed Rubber	NBR
9	Bearing Bracket	FC200	19	Oil Seal	NBR
10	Oil Casing	FC200 (SCS14)	20	Support Coil	SUS304

## Installation Device

### Features

#### Efficient Mixing with Simple Adjustment

Position and angle(left/right and up/down)is easy to adjust to the most efficient mixing location. Desirable mixing can be realized in accordance with shape, size and depth of tank, liquid characters and mixing purpose.

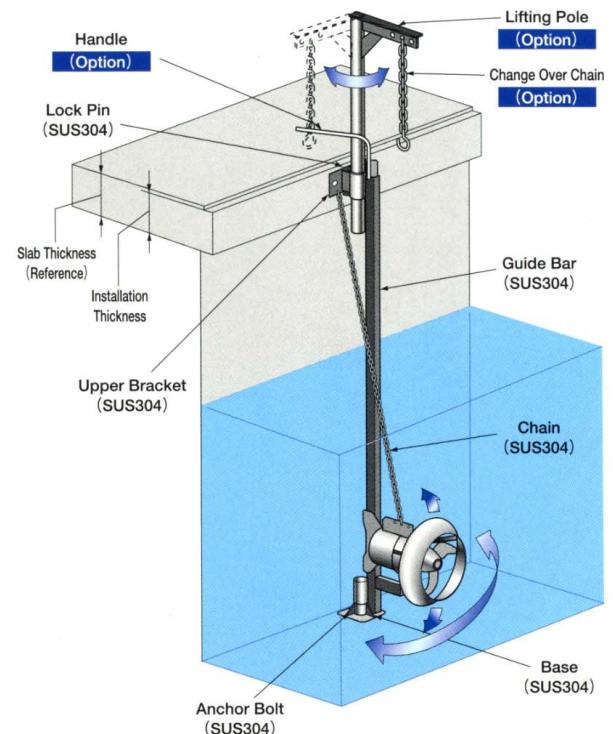
#### Easy Mixer Lifting Work

By separate installation of lifting pole and guide bar, mixer can be easy to install on guide bar. Also, together with rotation mechanism on lifting pole, lifted mixer can be easily taken out from the tank.

#### Possible to Install Slab Opening Slot

Installation Thickness 150mm (□50)  
200mm (□100)

Guide Bar	Installation Thickness	Slab Thickness (Reference)
□50pipe	150mm	200mm
□100pipe	200mm	250mm



## Installation Device Standard Specification

Applicable Mixer	□50(mm)		□50(mm)		□100(mm)	
	SM250/SM400/SM750		SM15JA·JB/SM15A·B SM24JA·JB/SM28A·B SM30A·B/SM40A·B		SM50A·B/SM75A·B	
Upper Guide Bar (With Lock Screw)	3m×1pc	16	3m×1pc	16	3m×1pc	53
Lower Guide Bar	3m×1pc	15	3m×1pc	15.5	3m×1pc	54
Upper Bracket	1pc	3.2	1pc	3.2	1pc	12
Lock Pin	1set	0.5	1set	0.5	1set	0.5
Joint Pipe	1pc	1.3	1pc	1.3	1pc	3.1
Base	1pc	1.9	1pc	1.9	1pc	4.2
Chain (with Shackle)	6m×1set	6	6m×1set	7.8	6m×1set	18
Intermediate Bracket	(*1)	—	(*1)	—	1pc	7.6
Hinge	(*1)	—	(*1)	—	1pc	4.2

(\*1) In case of guide bar length exceeds 6m, intermediate bracket and hinge are required.

(\*2) Handle, Lifting Pole, Change over Chain and Chain Block are optionally available.

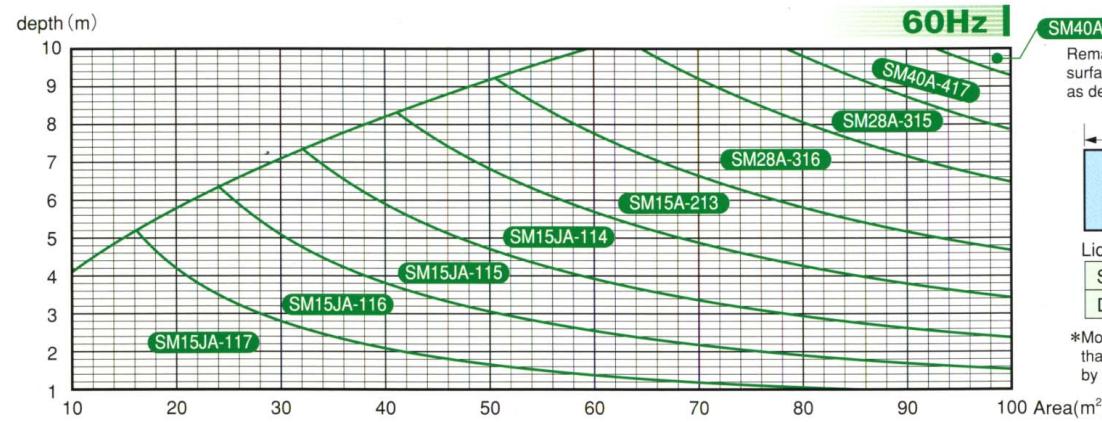
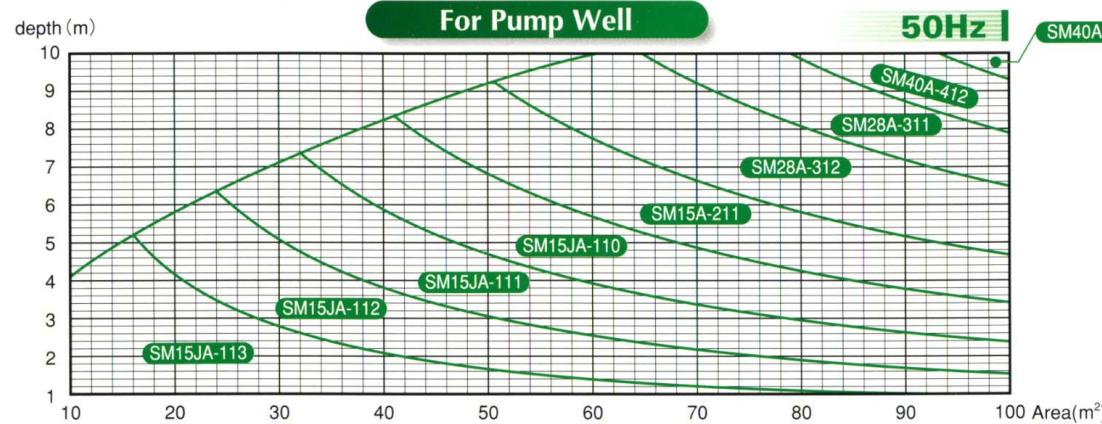
## Standard Cable Specification

Model	Material	Cross Sectional Areas	No. of Cores	Purpose	Length	Outer Dia.	Model	Material	Cross Sectional Areas	No. of Cores	Purpose	Length	Outer Dia.
SM250	VCT	1.25mm <sup>2</sup>	4 cores	Power	10m	ø11.5	SM30A·B	2PNCTS	3.5mm <sup>2</sup>	4 cores	Power	10m	ø18
SM400	—	—	—	—	—	—	SM40A·B	2PNCTS	2.0mm <sup>2</sup>	2 cores	Control	—	—
SM750	—	—	—	—	—	—	SM15JA·JB	2PNCTS	1.25mm <sup>2</sup>	4 cores	Power	10m	ø15
SM15JA·JB	2PNCTS	1.25mm <sup>2</sup>	4 cores	Power	10m	ø15	SM15A·B	2PNCTS	1.25mm <sup>2</sup>	2 cores	Control	10m	ø20
SM15A·B	2PNCTS	1.25mm <sup>2</sup>	2 cores	Control	—	—	SM24JA·JB	2PNCTS	1.25mm <sup>2</sup>	4 cores	Power	10m	ø20
SM24JA·JB	2PNCTS	1.25mm <sup>2</sup>	2 cores	Control	—	—	SM28A·B	2PNCTS	2.0 mm <sup>2</sup>	4 cores	Power	10m	ø22
SM30A·B	2PNCTS	5.5mm <sup>2</sup>	4 cores	Power	—	—	SM30A·B	2PNCTS	8.0mm <sup>2</sup>	4 cores	Power	10m	ø22
SM40A·B	2PNCTS	2.0mm <sup>2</sup>	2 cores	Control	—	—	SM40A·B	2PNCTS	2.0mm <sup>2</sup>	2 cores	Control	—	—

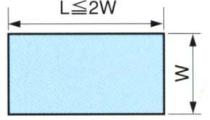
# Submersible Mixer SM Series



## Selection Chart



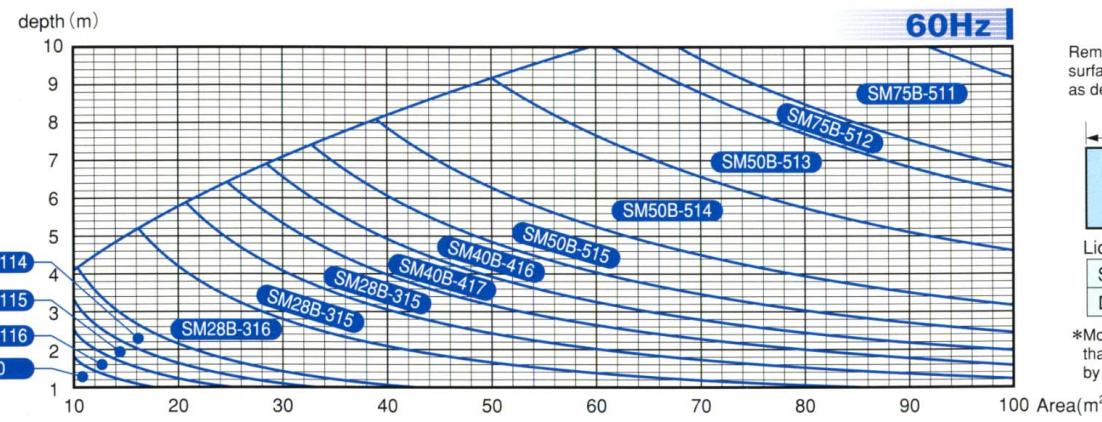
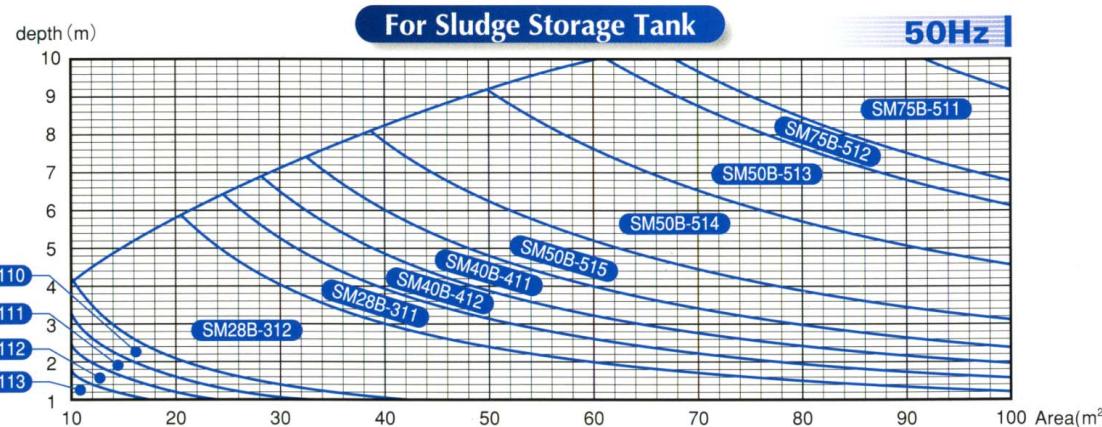
Remarks) Length/Width ratio of plain surface of tank shall be less than 2:1 as described below.



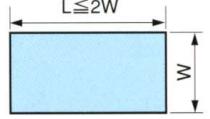
Liquid condition

Specific gravity	1.01
Density	0.1%

\*Model selection is just for reference so that correct model shall be determined by formal calculation chart.



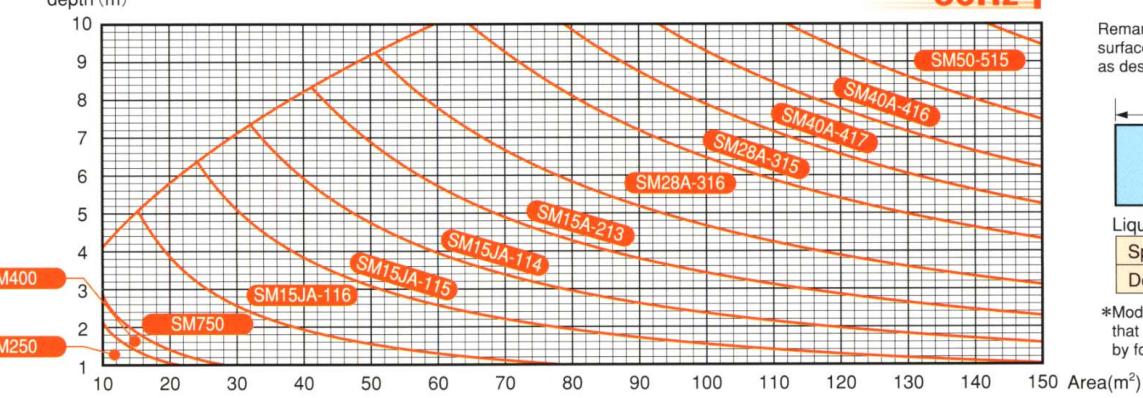
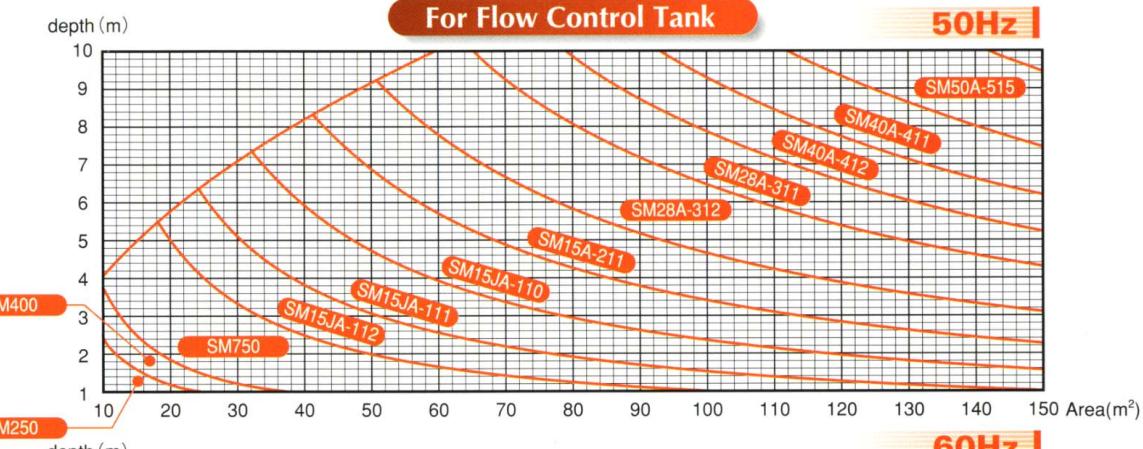
Remarks) Length/Width ratio of plain surface of tank shall be less than 2:1 as described below.



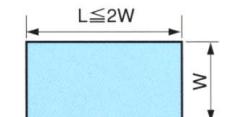
Liquid condition

Specific gravity	1.05
Density	Less than 2%

\*Model selection is just for reference so that correct model shall be determined by formal calculation chart.



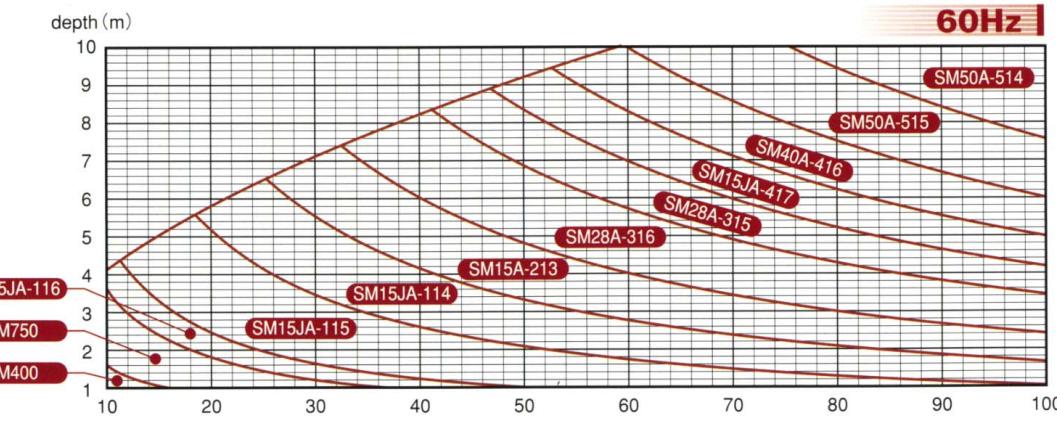
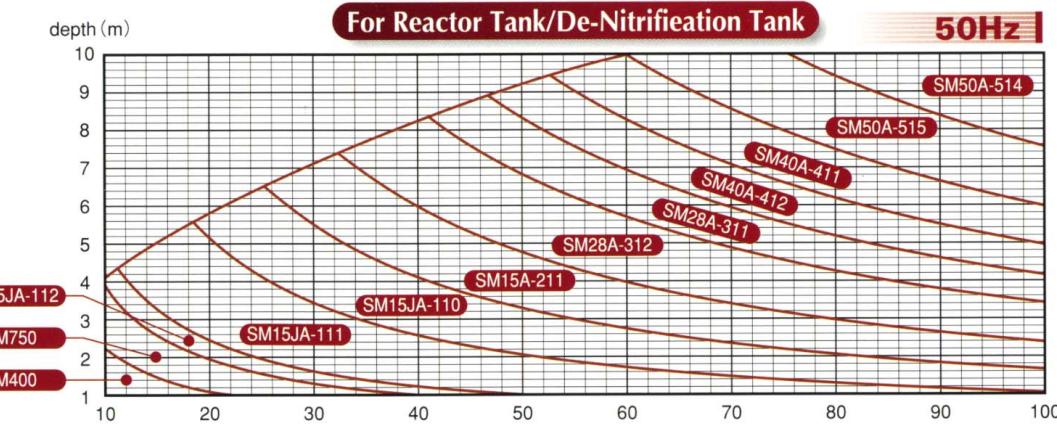
Remarks) Length/Width ratio of plain surface of tank shall be less than 2:1 as described below.



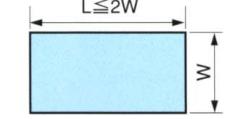
Liquid condition

Specific gravity	1.01
Density	0.1%

\*Model selection is just for reference so that correct model shall be determined by formal calculation chart.



Remarks) Length/Width ratio of plain surface of tank shall be less than 2:1 as described below.



Liquid condition

Specific gravity	1.03
Density	0.5%

\*Model selection is just for reference so that correct model shall be determined by formal calculation chart.

## DIAGONAL FLOW PUMP/AXIAL FLOW PUMP

### SD/SA

It can be set up minimal space within a short period with very little installation restriction. It is also a very economical pumping station as water is siphoned from the lower part of the discharge pipe and up through it for draining.



## FLOAT PUMP

### FP

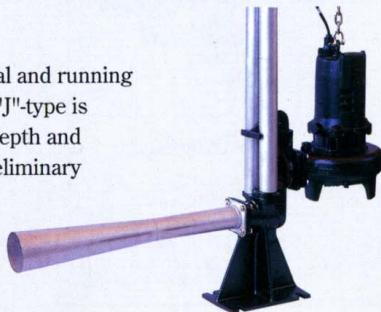
Pump floats and vacuum the top water effectively.



## SUBMERSIBLE EJECTOR

### J/JA

Aeration with low initial and running costs can be realized. "J"-type is applicable for 2~5m depth and from 20m<sup>3</sup>~300m<sup>3</sup> preliminary Aeration tank.



## SUBMERSIBLE AERATOR

### SJ

Both mixing and aeration are available. SJ type has a high Oxygen transfer efficiency and easy maintenance due to motor direct linkage system. Strong downward flow provides efficient mixing.



## AIR BLOWER

### ARH-S/ARH-SP

#### Land TYPE

Helical rotor type air blower realized reducing noise dramatically.



## LIGHTWEIGHT SUBMERSIBLE PUMP (Engineering Plastic Type)

### CR/CRS/CRC

The "NORUS" series that is made of engineering plastic and stainless steel is the submersible pumps that feature durability, lightweight and excellent corrosion resistance.



## PUMP-RELATED PRODUCT

### LC



LC is quite reliable and durable float switch. It doesn't cause chattering.

### MS



MS11 can control one level, and MS21 can control two levels.

### FV



FV can control on and off with 1unit (1m length) more than 1m length requires 2 units. This switch is suitable for waste water.

Specifications and dimensions are subject to change without notice.

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### ShinMaywa ONO PLANT

ISO 9001 (No. 956445) / ISO 14001 (No. 771888)



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