



# MULTI MIXER SD SERIES: SD1 - SD6

Designed with utmost versatility in mind.  
The perfect match for various commercial reducers and motors.

# UNIQUE FEATURES

Our product seamlessly works with a wide range of commercial gear reducers, variable speed reducers, and motors, making it incredibly versatile and user-friendly.

## Lightweight and Compact

Our D-type top mixers stand out with a remarkable 28% reduction in height and a 20% weight decrease, surpassing conventional models.

## Locally made with Japan Design

Exclusively manufacture and assemble in Malaysia, meeting Japan's high quality standard.

## Fast Delivery

Experience the convenience of an estimated 3 weeks delivery, significantly reducing lead time and saving your valuable time.



## Technical and Installation Support

Benefit from our comprehensive technical and installation support, specially tailored for both local and South East Asia (SEA) countries, to ensure seamless setup and operation.

## Economical Pricing

Our new product line offers cost-effective solutions for the local and South East Asia markets.

## Easy Maintenance

Revolutionary mechanism for effortless bearing replacement without tank removal. Enjoy hassle-free maintenance and reduced downtime.

# MODEL CODING

**ST54 - DPR - 0.25I**

a b c d e f g h i

### a. Multi Mixer SD Series

### b. Mixer Mounting Direction

- T : Top-mount type

### c. Frame Size

- 5 : SD5 series
- SD1 – SD6 series

### d. Motor Pole Number

- 4 : 4 Poles
- 6 : 6 Poles

### e. Drive System

- D : Speed Reducer

### f. Shaft Sealing System

- O : Open Type
- P : Gland Packing Seal
- M : Mechanical Seal

### g. Flange Type

- R : Round
- S : Square

### h. Motor Capacity

- 0.25 – 30kW

### i. Inverter (Option)

# MODEL VARIATION

Presenting an extensive array of model variations, catering to the perfect agitation system for every mixing task.

## 50Hz (Cyclo® Speed Reducer)

Impeller Speed (min <sup>-1</sup> )	Motor Power (kW)												
	0.25	0.37	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30
181.0			SD1	SD1	SD1	SD2	SD3	SD3	SD4	SD4	SD5		
132.0			SD1	SD1	SD2	SD2	SD3	SD4	SD4	SD5	SD5	SD5	SD6
112.0		SD1	SD1	SD1	SD2	SD2	SD3	SD4	SD5	SD5	SD5	SD5	SD6
96.7		SD1	SD1	SD2	SD2	SD3	SD4	SD4	SD5	SD5	SD5	SD6	SD6
85.3		SD1	SD1	SD2	SD2	SD3	SD4	SD4	SD5	SD5	SD6	SD6	SD6
69.0	SD1	SD1	SD1	SD2	SD2	SD4	SD4	SD5	SD5	SD6	SD6	SD6	
58.0	SD1	SD1	SD1	SD2	SD3	SD4	SD5	SD5	SD5	SD6	SD6		
50.0	SD1	SD1	SD2	SD2	SD3	SD4	SD5	SD5	SD6	SD6	SD6		
41.4	SD1	SD1	SD2	SD2	SD4	SD4	SD5	SD5	SD6	SD6			
33.7	SD1	SD1	SD2	SD3	SD4	SD5	SD5	SD6	SD6				
28.4	SD1	SD1	SD2	SD4	SD4	SD5	SD5	SD6					
24.6	SD1	SD2	SD2	SD4	SD4	SD5	SD6	SD6					
20.4	SD1	SD2	SD2	SD4	SD5	SD5	SD6	SD6					
16.7	SD2	SD2	SD3	SD4	SD5	SD6	SD6						

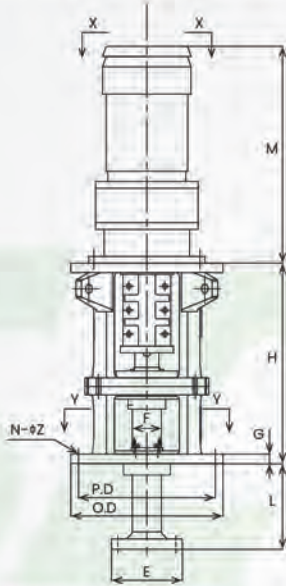
## 60Hz (Cyclo® Speed Reducer)

Impeller Speed (min <sup>-1</sup> )	Motor Power (kW)												
	0.25	0.37	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30
219.0			SD1	SD1	SD1	SD2	SD3	SD3	SD4	SD4	SD5		
159.0			SD1	SD1	SD1	SD2	SD3	SD3	SD4	SD5	SD5	SD5	SD6
135.0			SD1	SD1	SD2	SD2	SD3	SD4	SD4	SD5	SD5	SD5	SD6
117.0		SD1	SD1	SD1	SD2	SD2	SD3	SD4	SD4	SD5	SD5	SD5	SD6
103.0		SD1	SD1	SD2	SD2	SD2	SD4	SD4	SD5	SD5	SD5	SD6	SD6
83.3		SD1	SD1	SD2	SD2	SD3	SD4	SD4	SD5	SD5	SD6	SD6	SD6
70.0	SD1	SD1	SD1	SD2	SD2	SD4	SD4	SD5	SD5	SD6	SD6	SD6	
60.3	SD1	SD1	SD1	SD2	SD2	SD4	SD4	SD5	SD5	SD6	SD6	SD6	
50.0	SD1	SD1	SD2	SD2	SD3	SD4	SD5	SD5	SD6	SD6	SD6		
40.7	SD1	SD1	SD2	SD2	SD4	SD4	SD5	SD5	SD6	SD6			
34.2	SD1	SD1	SD2	SD3	SD4	SD5	SD5	SD6	SD6				
29.7	SD1	SD1	SD2	SD3	SD4	SD5	SD5	SD6	SD6				
24.6	SD1	SD2	SD2	SD4	SD4	SD5	SD6	SD6					
20.1	SD1	SD2	SD3	SD4	SD5	SD5	SD6	SD6					

- Notes**
1. The above tables are based on Cyclo® Speed Reducer. Cyclo® is a registered trademark of Sumitomo Heavy Industries, Ltd.
  2. For impeller speed other than the above table, please feel free to seek further information and advice from us.
  3. For SEW speed reducer or others commercial reducer selection, please do not hesitate to engage with us for additional details.

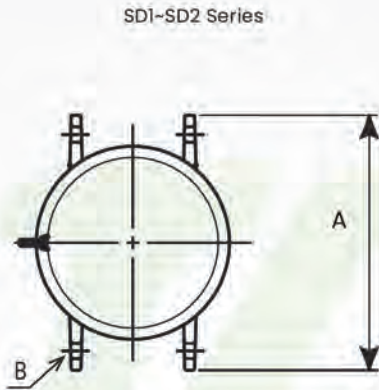
# STANDARD DIMENSION

Introducing a fresh lineup of Satake Multi Mixer featuring a compact, versatile design that aligns with both the international ASME and JIS standards seamlessly.

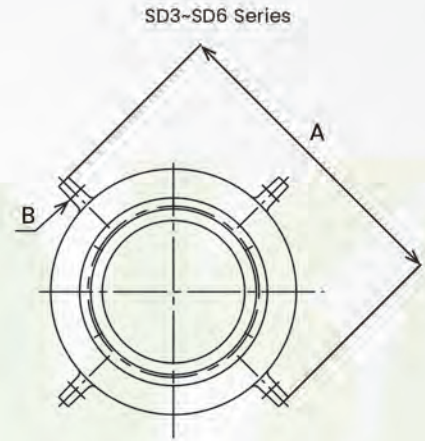


VIEW X-X

## Round Flange



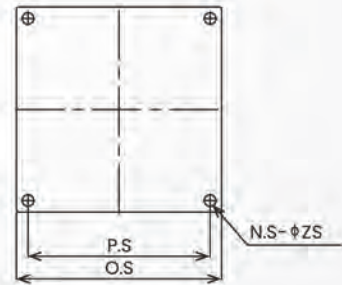
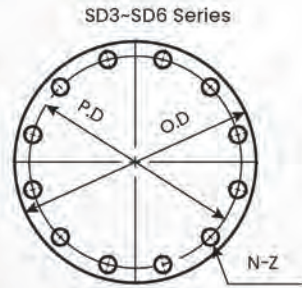
VIEW X-X



## Square Flange



VIEW Y-Y



VIEW Y-Y

Series	<sup>※2</sup> Flange Standard ASME #150	O.D	P.D	O.S	P.S	G	N	φZ	N.S	φZS	F	E	L	H	A	B	<sup>※1</sup> Main Unit Weight (kgf)
SD1	150A (6")	279	241.3	279	240	27	8	22	4	24	35	109	150	320	320	4-16	50
SD2	200A (8")	343	298.4	343	295	30	8	22	4	24	45	129	200	365	330	4-20	80
SD3	250A (10")	406	362.0	406	360	32	12	26	4	28	55	137	200	445	450	4-20	100
SD4	250A (10")	406	362.0	406	360	32	12	26	4	24	65	157	200	514	510	4-23	140
SD5	300A (12")	483	431.8	483	430	33	12	26	4	26	85	207	250	585	565	4-26	205
SD6	350A (14")	535	476.2	535	475	37	12	29	4	28	105	237	300	797	630	4-28	380

**Remarks** <sup>※1</sup> The M dimension and main unit weight shown in the above figure or table varies depending on the speed reducer or motor's brand.

<sup>※2</sup> JIS standard is also available.

# SUPERMIX® IMPELLER

For consistently successful mixing process, it is vital to accurately identify the mixing process and select the appropriate mixing equipment. Discover our collection of novel Supermix® series impellers designated to meet specific process needs.

## HS400



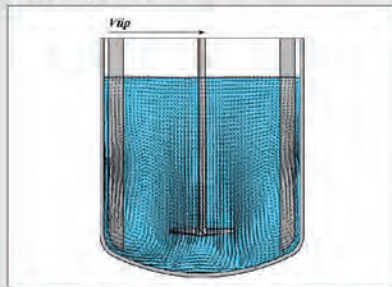
- Main Application: Liquid-liquid mixing and solid-liquid mixing, particularly for solids suspension.
- Re-design 4-bladed pitched paddle with tapered at the tip blade.
- Generate high discharge flow at low power consumption.

Performance of HS400 Impeller (Pv constant)

Impeller	Power number	Discharge flow rate	Discharge flow per unit power
	$N_p(-)$	$N_{qd}(-)$	$N_{qd}/N_p^{1/3}(-)$
4-bladed pitched paddle	1.16	0.63	0.60
HS-400 impeller	1.05	0.70	0.69

Performance UP by approx. 15%

Fluid flow pattern in a stirred tank using HS400 Impeller (P.T.V. Method)



## HR700



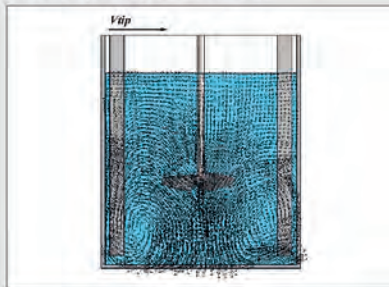
- Main Application: Liquid-liquid mixing and solid-liquid mixing, particularly for solids suspension.
- Twisted down curved blade with optimal blade surfaces shape and camber ratio to prevent flow separation.
- Generate high axial flow even at high clearance, at low power consumption.

Performance of HR700 Impeller (Pv constant)

Impeller	Power number	Discharge flow rate	Discharge flow per unit power
	$N_p(-)$	$N_{qd}(-)$	$N_{qd}/N_p^{1/3}(-)$
3-bladed propeller (s=29°)	0.36	0.51	0.72
HR700 impeller	0.50	0.70	0.88

Performance UP by approx. 22%

Fluid flow pattern in a stirred tank using HR700 impeller (P.T.V. Method)



## HR320



- Main Application: Liquid-liquid mixing and solid-liquid mixing, particularly for solids suspension.
- Features blade with advance angle and twisted down towards the tip.
- Power consumption and mixing time can be reduced by 60% and 25% respectively, compared to the 4PP.

Performance of HR320 Impeller (Pv constant)

Impeller	Energy Saving	Time Saving
	Circulation number: $Q_v$ (l/s) constant	$P_v$ (kW/m <sup>3</sup> ) constant
4-bladed pitched paddle	62 W/m <sup>3</sup>	6.4 sec
HR320 impeller	23 W/m <sup>3</sup>	4.8 sec

Reduce 62.5%

Reduce 25%

Fluid flow pattern in a stirred tank using HR320 impeller (C.F.D. Method)



## HS100



- Main Application: Gas-liquid mixing, Gas absorption.
- Generate good flow inside stirred tank with high shear and strong breaking effects, resulting in high gas absorption performance.
- Turbine impeller type with significantly low power consumption.

## HS604



- Main Application: Solid-liquid mixing.
- Superior mixing performance for solids suspension and uniform mixing.
- Focus on improving the mixing effect by "uniform distribution system".

## MR210

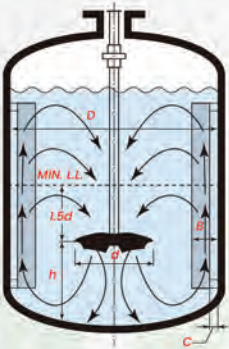


- Main Application: Reaction system, Medium to High Viscous.
- Consider vertical blade area, suction flow, and pressure distribution inside the tank.
- High-efficient impeller enhancing mixing performance at low power.

# MOUNTING POSITION & FLUID FLOW PATTERN

The success of the mixing process is determined by the optimal positioning of the mixer and impeller, which dictates the fluid flow pattern inside the stirred tank.

## Center Mounting with Baffles

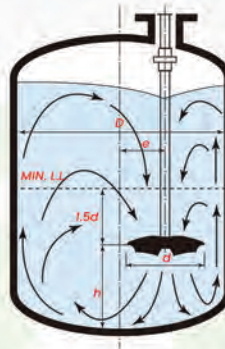


$h = 1.0 \sim 3.5d$  (Medium-speed type)  
 $h = 1 \sim 2d$  (Low-speed type)

Note: In the case of solids suspension  
 $h = 0.25 \sim 0.5d$   
 $B = 0.1D$   
 $C = 0.025D$

- To eliminate swirling flow becomes dominant, enhancing mixing effect.
- Generally, two to four baffles near the inner wall of tank.
- Baffles should be perpendicular to the rotating flow.

## Off-Center Mounting



$h = 1.0 \sim 3.5d$  (Medium-speed type)  
 $h = 1 \sim 2d$  (Low-speed type)

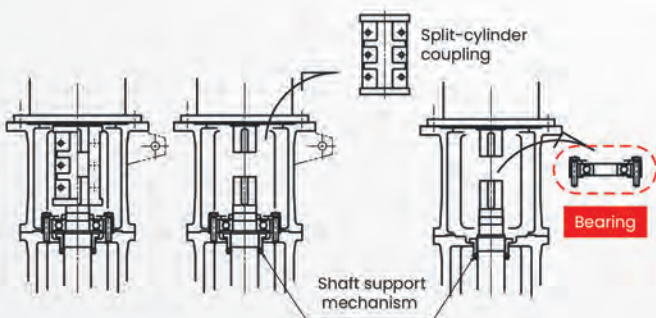
Note: In the case of solids suspension  
 $h = 0.25 \sim 0.5d$

Note: In the case of  $d > 0.35D$   
 $\epsilon = 0.5D$

Note: In the case of  $d \leq 0.35D$   
 $\epsilon = 0.25D$

- Suitable for low viscosity liquid.
- Off-center mounting without baffles eliminates swirling flow.
- Generate good flow in turbulent for efficient mixing.

# EASY MAINTENANCE



Methods of Replacing Bearing

- Mixers require periodic maintenance, repair and parts replacement.
- Complicated disassembly and assembly increase the risk of accidents.
- Innovations have been made in the replacement method for the wearable bearing.
- Improved efficiency during operation.

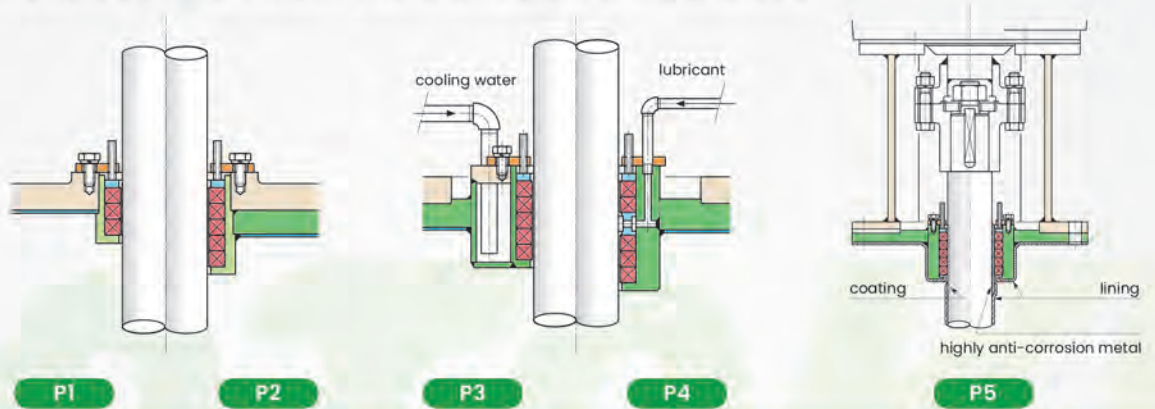
**Notes** Opting for easy maintenance is available, feel free to consult with us when making your mixer selection.

# PROCESS PHOTOS

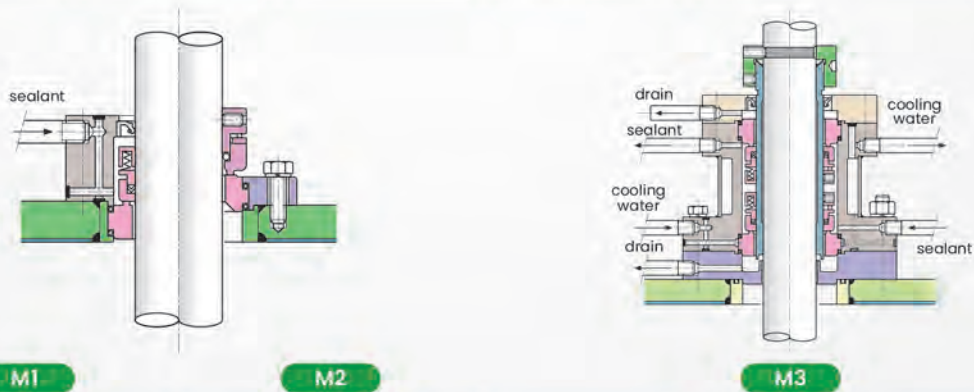


# SHAFT SEALING

We offer an extensive range of shaft sealing options to meet the agitator applications, mixing requirements, and tank designs, including tank temperature and pressure.



Seal	Gland Packing Seal		Gland Packing Seal		Gland Packing Seal
In Tank Temperature	≤ 120°C		Between 121°C and 170°C	≤ 120°C	≤ 120°C
In Tank Pressure	Atmosphere	≤ 0.03 MPaG (0.3 kgf/cm <sup>2</sup> G)	≤ 0.03 MPaG (0.3 kgf/cm <sup>2</sup> G)	≤ 0.1 MPaG (1.0 kgf/cm <sup>2</sup> G)	· Atmosphere · ≤ 0.03MPaG (0.3kgf/cm <sup>2</sup> G)
Features	It is not designed for a pressure-tight seal, but it is ideal as a simple seal.	It is used for low pressure condition in the tank.	It is ideal for inside tank temperature above 121°C.	Seal the leaking fluid with the packing at the back of the lantern ring and the lubricant with the packing at the front.	Various types of metal lining and coatings (hastelloy, stellite, colmony, hard chrome plating, ceramic) are used on the sliding parts of the gland packing.



Seal	Single Mechanical Seal	Dry Mechanical Seal	Double Mechanical Seal
In Tank Temperature	≤ 100°C	≤ 150°C	≤ 300°C
In Tank Pressure	≤ F.V. - 0.03MPaG (0.3 kgf/cm <sup>2</sup> G)	≤ F.V. - 0.19 MPaG (1.9 kgf/cm <sup>2</sup> G)	≤ F.V. - 0.99 MPaG (9.9 kgf/cm <sup>2</sup> G)
Features	Generally used for vacuum type mixing tanks that are not tolerant of leaks and demonstrate excellent sealing performance.	Does not require sealant. Used to prevent sealant from entering the tank, thereby prevent sealant from reacting with the gas or liquid in the tank.	Generally used in applications where leakage is not tolerated and provides excellent sealing performance even under high temperature, low temperature, high pressure and vacuum conditions.  The integrated seal case with shaft-sleeve system is easy to install and remove, as well also easy maintenance.

# APPLICATION INDUSTRY

Accomplishing effective agitation across diverse fields.



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