

# NEW SIDE MIXER



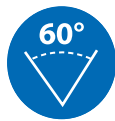
Acquired "Type Approval for Safety Product"



Compact, lightweight product



High efficiency gear /  
Enhanced durability



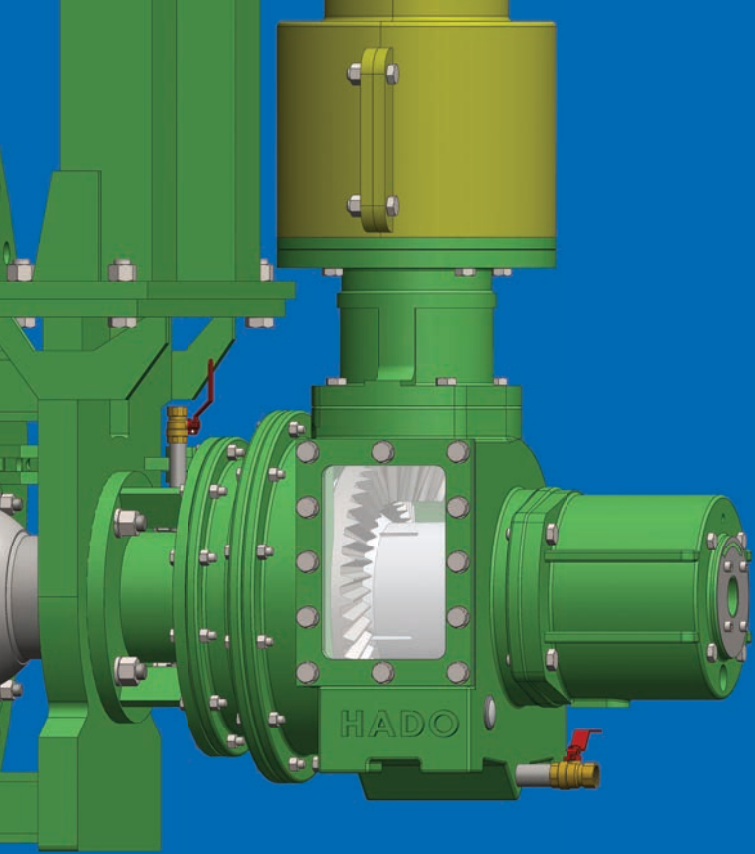
Swivel type  
Adjustable discharge direction



Applied an impeller  
with high discharge



HADO Co.,Ltd



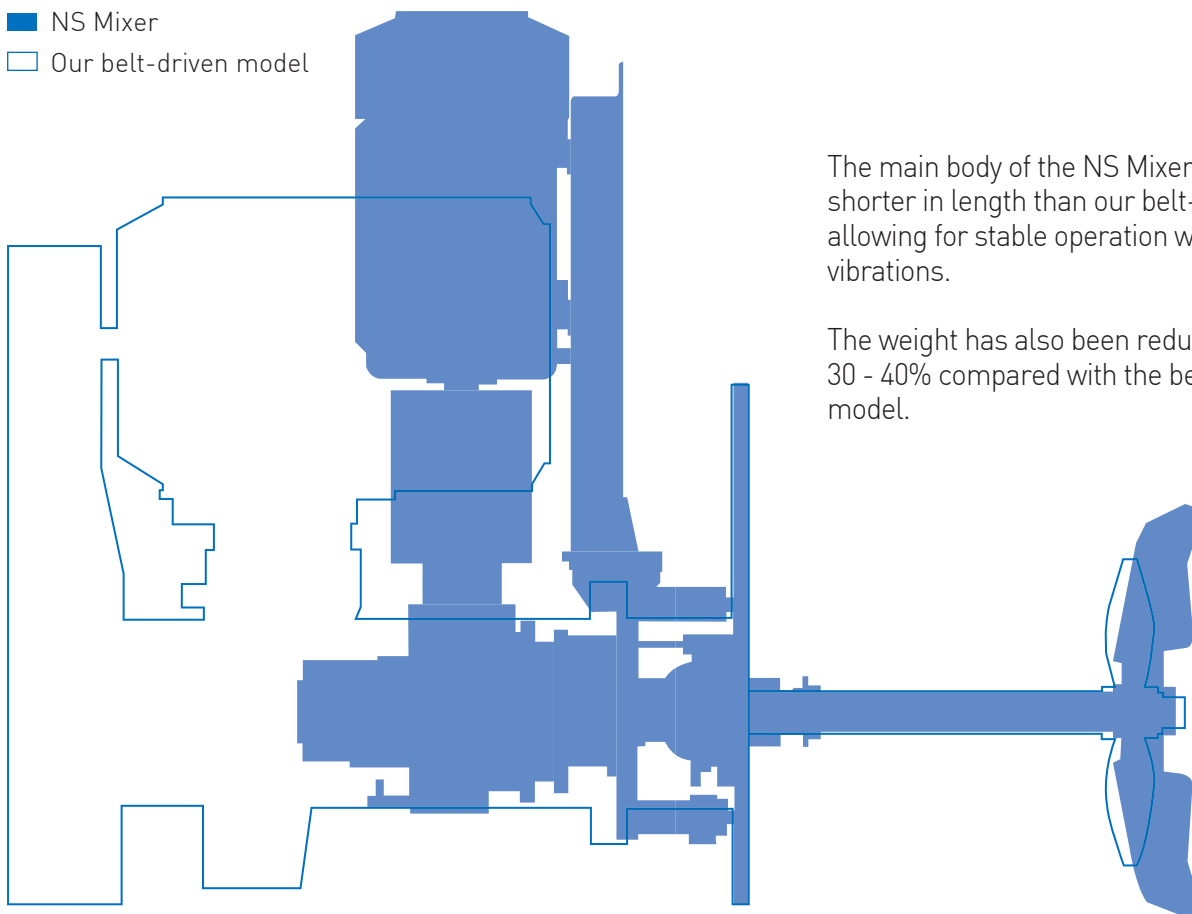
# New Side Mixer

Simplified design allows for easy handling and maintenance.

We developed this New Side (NS) Mixer with technical support from SATAKE Chemical Equipment Mfg., Ltd.

## Comparing the NS Mixer with Our Belt-driven Mixer

- NS Mixer
- Our belt-driven model



The main body of the NS Mixer is 20 - 30% shorter in length than our belt-driven model, allowing for stable operation with little vibrations.

The weight has also been reduced by 30 - 40% compared with the belt-driven model.

# High quality, convenient handling, easy maintenance

Spiral bevel gears have been applied to improve durability, which produce less noise and have a wider engagement area than spur gears or hypoid gears. Spiral bevel gears, in particular, transmit power more efficiently than other gears.

We increased the rigidity of the main body of the NS Mixer, suppressing vibrations in the motor. We designed a sight glass for inspection so you can look inside, making inspection and maintenance easy. The NS Mixer acquired the "Type Approval for Safety Product" from the Korea Fire Institute.



NS44-GMR-45\_CERTIFICATE OF TYPE APPROVAL FOR SAFETY PRODUCT



Compact, lightweight product



High efficiency gear / Enhanced durability



Swivel type Adjustable discharge direction



Applied an impeller with high discharge



Acquired "Type Approval for Safety Product"

## Swivel Type

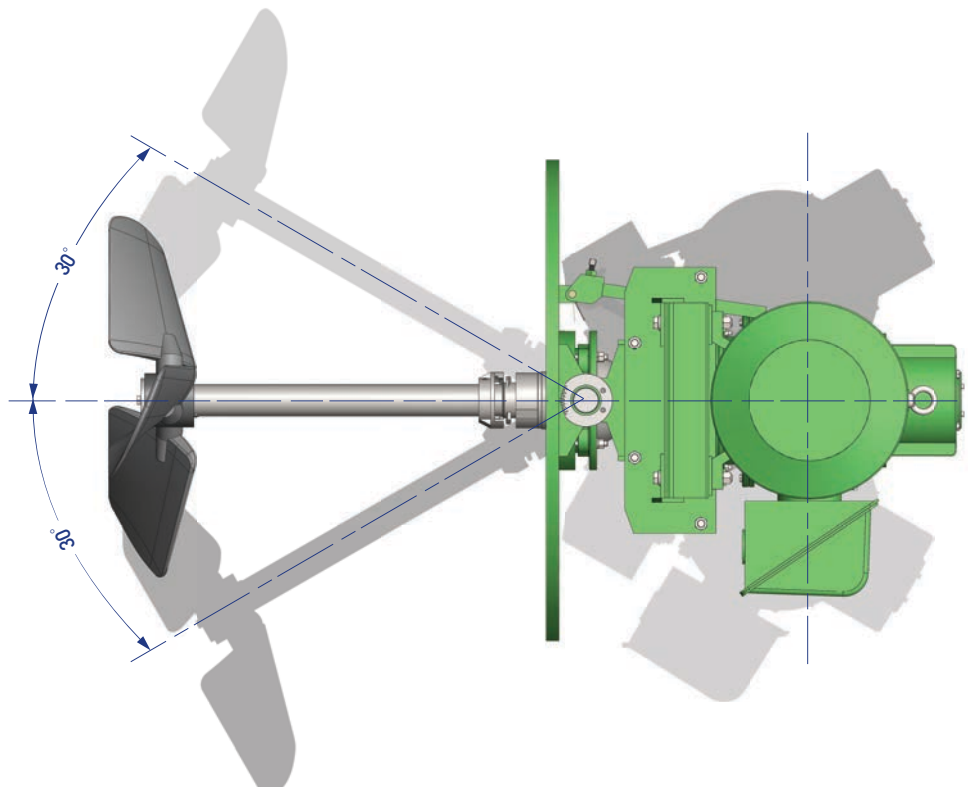
The NS Mixer uses a high rigidity hinge, which allows the impeller to move to the left or right up to 30°. This can effectively prevent slurry from accumulating. The product offers 24-inch and 30-inch flanges as the standard sizes. (It is possible to use non-standard sized flanges.) In addition to the swivel-angle product, we also offer fixed-angle mixers.



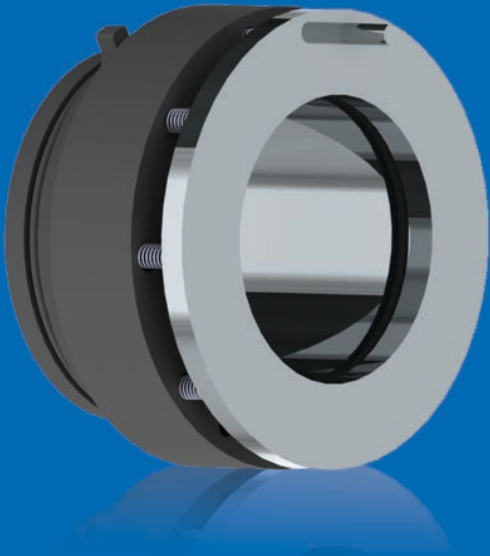
Standard size flange



High rigidity hinge (Swivel-angle model)



## Mechanical Seal



The design and material used for the NS Mixer's mechanical seal comply with API standards.

- Product can be applied to fluids with low specific gravity, such as Xylene, as well as flammable gases and remnants of crude oil purification
- Reduced leakage of fluids with low specific gravity
- Material and design that enhance the durability of the seal
- Simple replacement of consumable parts
- Compliance with API 682 standards

## Impeller



### Design and Reliability

The Super-Mix AK100®, an energy-efficient impeller, suppresses flow separation from the backside and accomplishes a large discharge amount with low power.

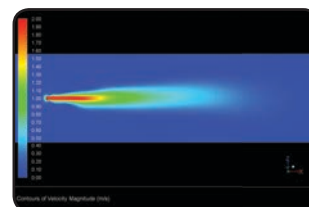
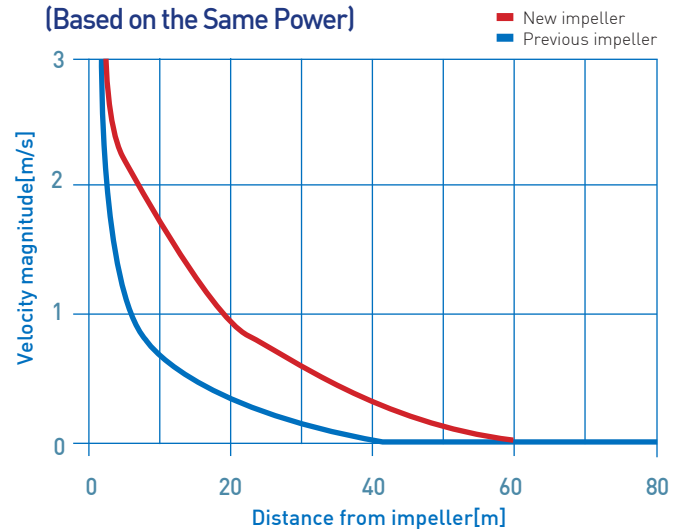
The impeller applied to the NS Mixer has increased discharge power, allowing the discharge flow to reach further and mix the contents of the tank more efficiently as shown in the discharge flow analysis below.



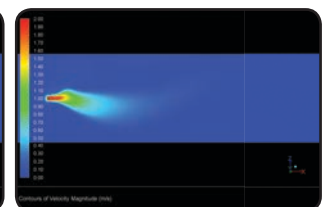
### Performance Comparison (Based on the Same Power)

Specifications / Category	New Impeller	Previous impeller
Rotational speed [ $\text{min}^{-1}$ ]	430	400
Impeller diameter [mm]	780	700
Discharge amount [%]	100	84

### Comparison of Discharging Flow Speed (Based on the Same Power)



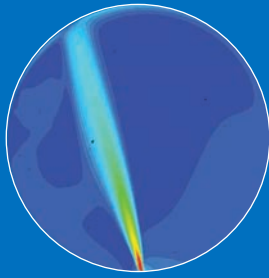
[New impeller]



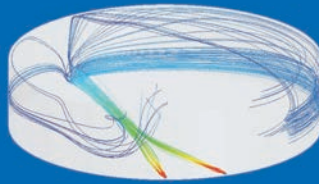
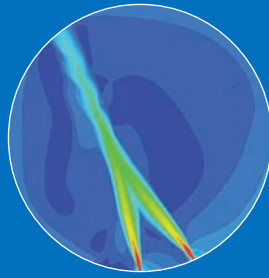
[Previous impeller]

## Flow Analysis Based on the Number of NS Mixers Installed

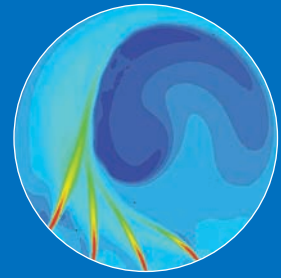
1 mixer



2 mixers

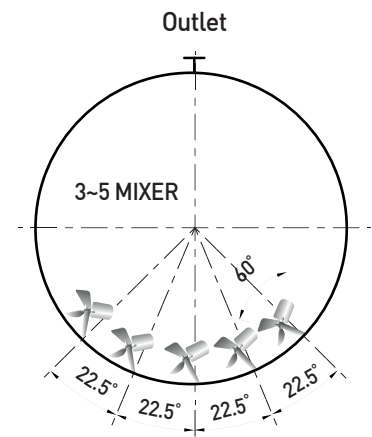
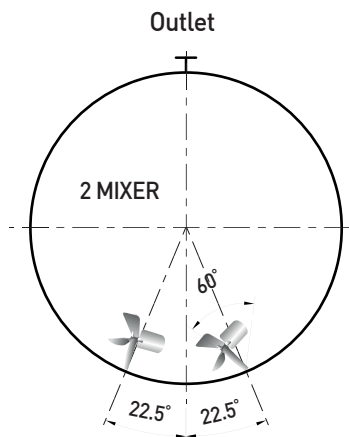
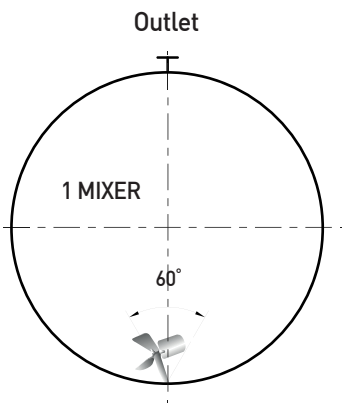


4 mixers

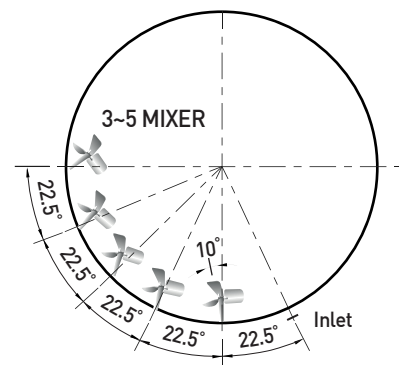
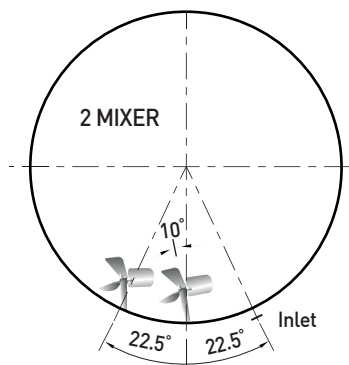
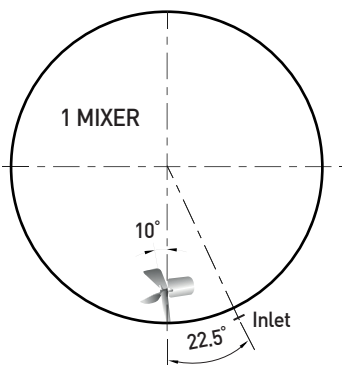


## Recommended Installation Location

### Swivel-angle Model

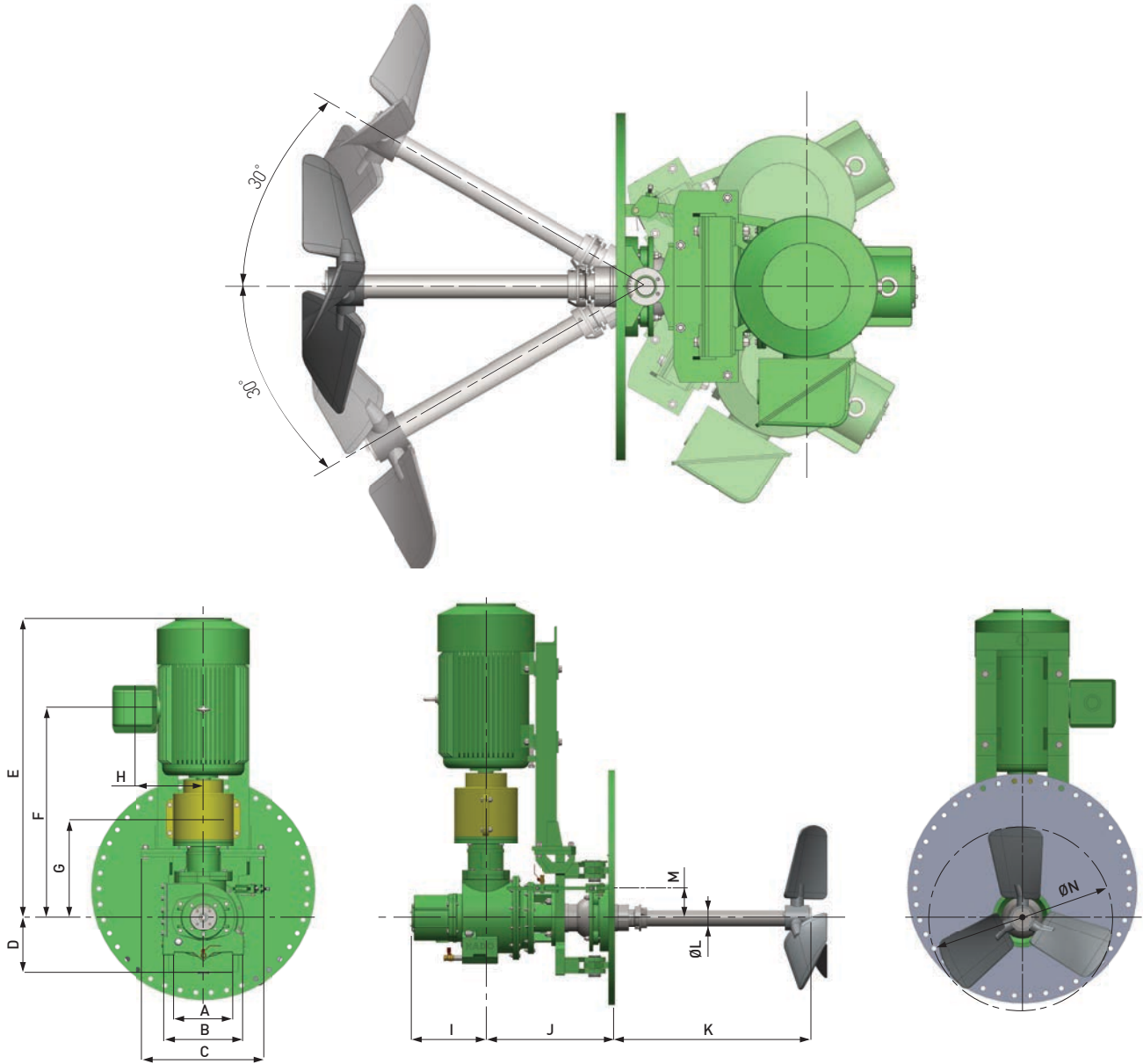


### Fixed-angle Model





## Dimensions of the Mixer



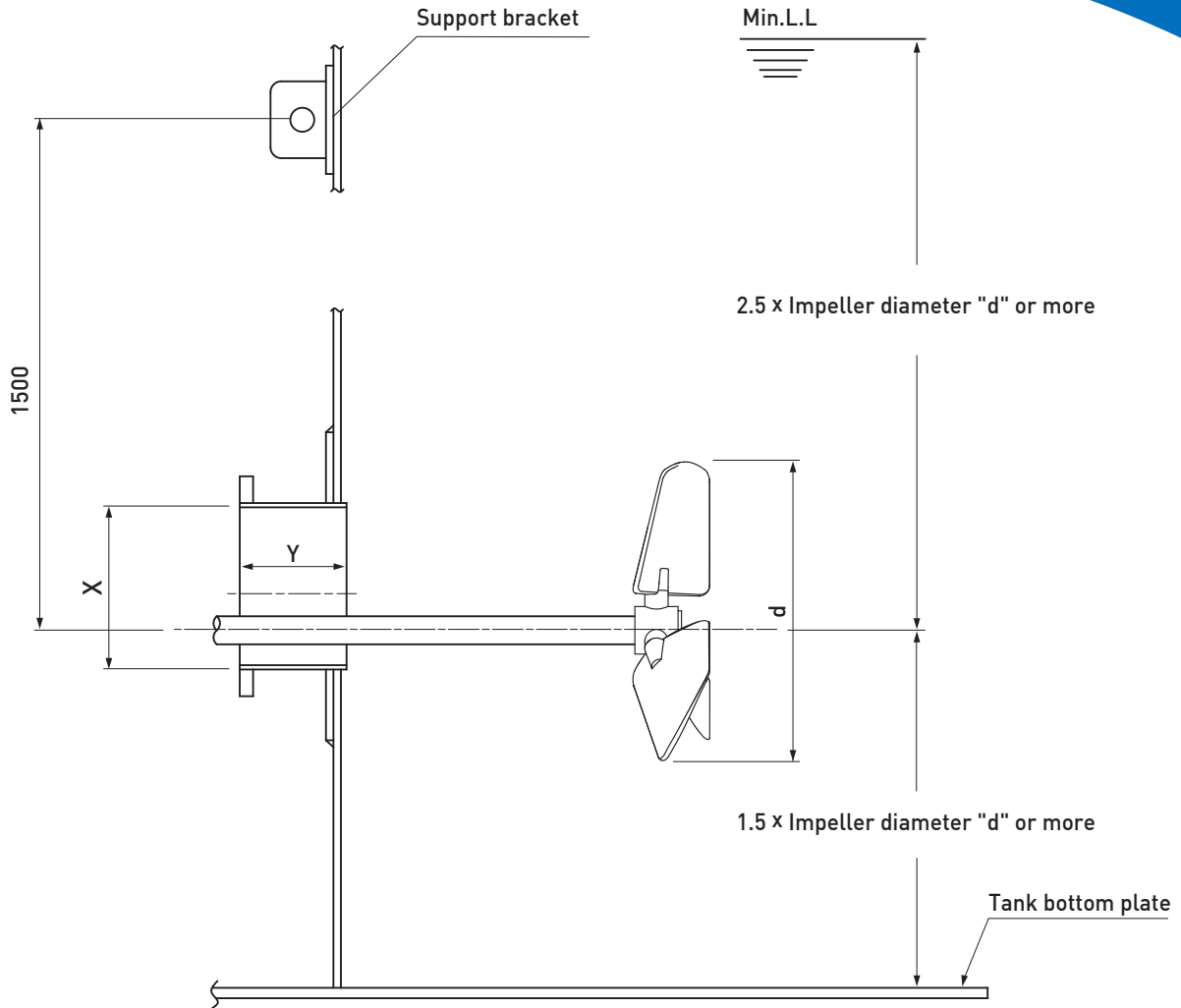
[Unit : mm]

kW	A	B	C	D	E	F	G	H	I	J	K	L	M	N	kg
37	306	355	545	195	1270	880	450	300	310	546	800	80	*	780	830
45	306	355	545	195	1320	930	450	300	310	546	800	80	*	780	850
55	306	355	545	195	1323	933	450	335	310	546	800	80	*	780	900

※ The dimensions may change without prior notice. The displayed weight of the mixer is the weight when the standard motor is installed.  
The area that comes in contact with the fluid is made of SS400 or STS304.

## Manhole Size

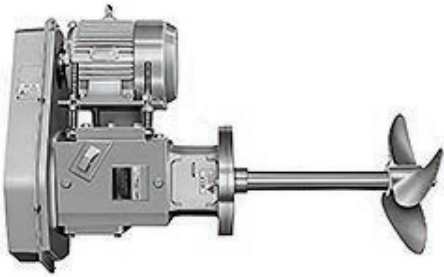
You can choose from the manhole sizes listed below.  
Depending on your needs, you can choose ANSI #150lb (18", 20", 24", 30") or API 650 (20", 24", 30"). For flange dimensions, refer to the related code.  
We can provide manholes in other sizes as well.  
If you have another manhole size in mind, please ask us.



[Unit : mm]

Manhole size	Manhole I.D. "X"	Manhole Length "Y"(mm)									
		150	175	200	225	250	275	300	325	350	375
		Maximum Impeller Diameter(mm)									
ANSI #150lb 18"	430	560	510	510	480	480	480	480	480	480	480
ANSI #150lb 20"	480	660	610	610	580	580	580	530	530	530	530
API 650 20"	508	700	660	660	610	610	610	530	530	530	530
ANSI #150lb 24"	580	780	780	730	730	700	660	660	660	660	610
API 650 24"	610	780	780	780	780	730	730	700	700	700	660
ANSI #150lb 30"	720	780	780	780	780	780	780	780	780	780	780
API 650 30"	762	780	780	780	780	780	780	780	780	780	780

※ The impeller sizes listed above are for an area that uses a frequency of 60 Hz.  
If you use a frequency of 50 Hz, please contact us.



Fixed-Angle Belt-Driven Side Mixer (MS 3,4)



Swivel-Angle Gear-Driven Side Mixer (NS 44)



Address : , 95 Gajaeul-ro, Seo-gu, Incheon, 22830 South Korea

Number : +82-32-583-6321

Fax : +82-32-583-6329

Website : <http://www.hado.co.kr>

Email Address : [hado@hado.co.kr](mailto:hado@hado.co.kr)

Co-developers : **SATAKE** 佐竹化学機械工業株式会社  
SATAKE CHEMICAL EQUIPMENT MFG, LTD

