

The background of the cover features a warm, orange-toned industrial scene. In the foreground, a large, polished metal mixer component, possibly a mixing blade or shaft, is shown in detail, with a flange and bolts. The background shows a complex industrial facility with various pipes, walkways, and structures, all bathed in a golden light that creates a sense of depth and scale.

Mixer series

Mixer series product catalog

Mixer series

Nippon Gear has various options of mixers to meet diverse customer needs, and offers optimal mixing solutions.

Since the beginning of production in 1968, Nippon Gear's mixers have been widely used in such areas as flue gas desulfurization (FGD) equipment, effluent treatment equipment, and chemical plants.

Taking advantage of gear know-how which we have acquired over the years as a high precision gear manufacturer, we use high-quality, reliable reduction gears for our mixing drives. Furthermore, in terms of mixing technology, making the best use of our know-how based on our broad experience, we will provide optimum mixing solutions to satisfy your needs.

Mixers may be used in a severe environment. To operate plants and other facilities safely, it is required to maintain inherent quality, accuracy and functions of mixers for a long time.

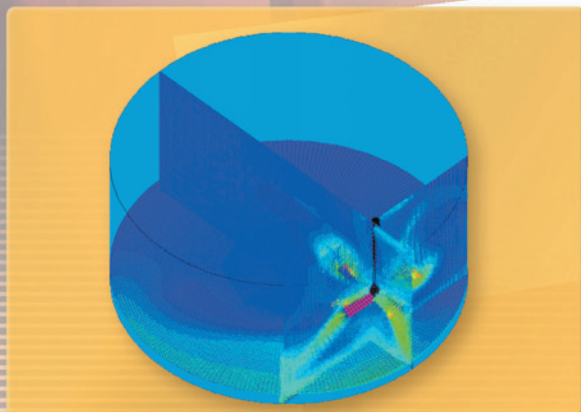
To ensure that our customers can reliably use our mixers, we have a dedicated maintenance services division to satisfy customers' requests.

Computational Fluid Dynamics ("CFD")

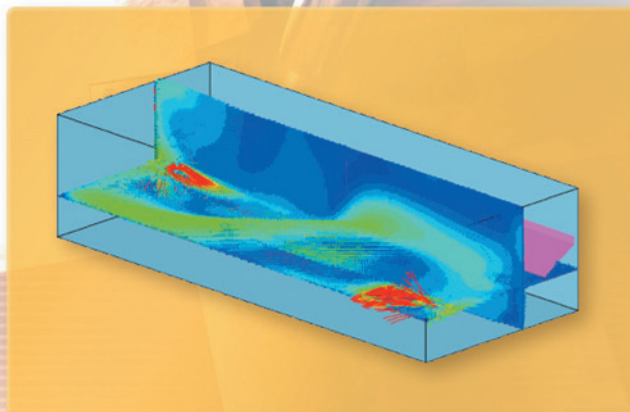
By using the method of Computational Fluid Dynamics ("CFD"), it is possible to make a simulation of flow inside a mixing tank.

By its simulation, it is also possible to confirm the capacity of agitator in advance and estimate an optimum size of agitator.

In addition to its size, it is possible to decide a best layout of agitator inside a mixing tank.



This is a figure of simulation to place an agitator vertically at an upper surface of round mixing tank.



This is a figure of simulation to place an agitator horizontally on the wall of square-shaped mixing tank.

Applications

Nippon Gear's mixers have been widely used in such areas as flue gas desulfurization (FGD) equipment, effluent treatment equipment, and chemical plants.

Reduction gears are manufactured in high-precision gear manufacturing facilities of Nippon Gear, a gear manufacturer, and therefore ensure high quality and reliability.



[Chubu Electric Power: Hekinan Thermal Power Station]

[Coal-Fired Power Plant]

Many mixers of Nippon Gear are used in its FGD equipment.

[Gear Grinding Machine]

It finishes gears of reducers for mixers with a high degree of accuracy.

[3D Measuring Instrument]

It accurately measures components of reduction gears for mixers, including housing, and ensures their quality.

[Gear Accuracy Measuring Instrument]

It accurately measures gears of reducers for mixers, and ensures their quality.

Line up

It accurately measures gears of reducers for mixers, and ensures their quality.

NT type



[NT type]

This type is a reliable and low-noise mixer, using high-strength gear materials to deliver high accuracy.

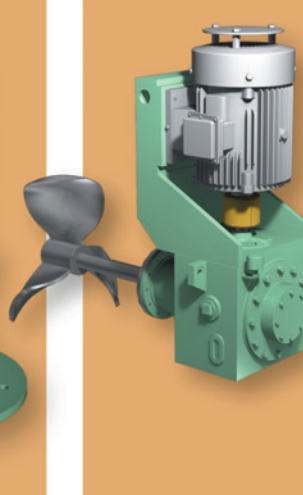
NSR type



[NSR type]

This type is designed compact, with its motor shaft and mixing shaft coaxially mounted.

GSE type



[GSE type]

This type is a reliable and low-noise mixer, and side entering exclusive design.

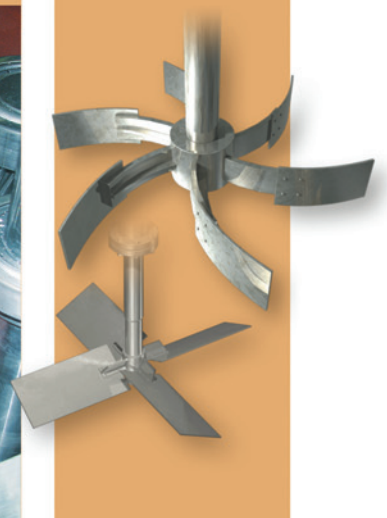
Gear Reducer



[Gear Reducer]

Making use of technologies of the gear manufacturer, we manufacture high-quality reduction gears.

Impeller



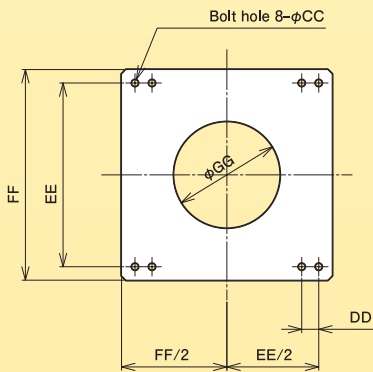
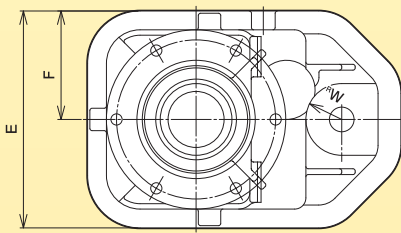
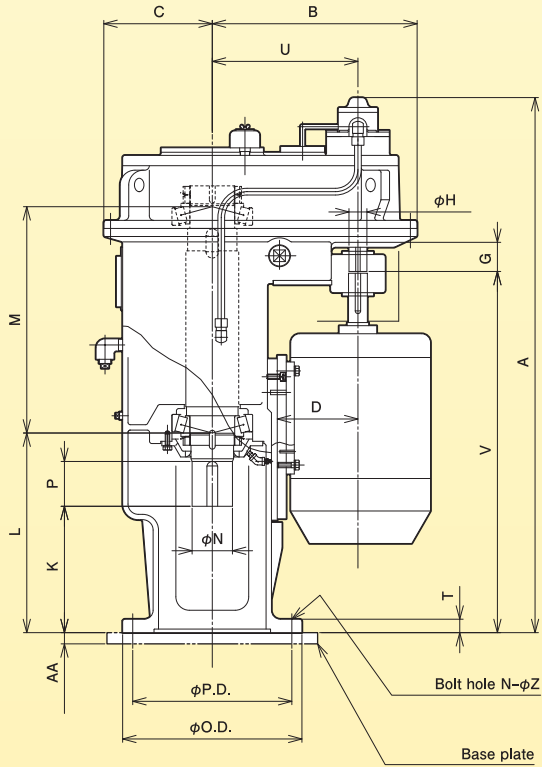
[Impeller]

We produce optimum impellers tailored to your specifications.

Mixer series Line up

Medium/Large size series **NT** type

- Low noise due to high-precision gear grinding
- Structure allowing excellent maintainability
- Optimum rotation speed is selected through a combination of the change gear and the motor
- Compact design where the motor and the reduction gear are in an optimal position



Dimensions

Series #	A	B	C	D	E	F	Input shaft		K	L	M
							G	H			
NT108	1098	394	202	160	404	202	65	30	248	384	480
NT110	1192	457	242	180	484	242	65	40	282	442	510
NT112	1334	506	269	200	538	269	65	45	314	509	560
NT116	1414	588	310	225	620	310	65	45	318	538	580
NT120	1588	651	340	225	680	340	70	45	348	608	665
NT124	1788	677	350	250	700	350	85	50	352	632	800
NT130	2097	801	420	280	840	420	110	60	387	699	985

Series #	Output shaft		T	U	V	W	Size of mounting flange				Approx. weight (kg)	Approx. oil quantity (liters)
	N	P					Nominal diameter	φO.D.	φP.D.	N-φZ		
NT108	75	80	20	268	733	60	JIS10K200A	330	290	12-φ23 On centerlines	340	12
NT110	90	100	30	325	807	80	JIS10K250A	400	355	12-φ25 On centerlines	520	16
NT112	100	130	30	365	914	80	JIS10K350A	490	445	16-φ25 Shaft centerlines	850	21
NT116	125	140	35	410	943	100	JIS10K400A	560	510	16-φ27 Shaft centerlines	1100	28
NT120	140	160	40	465	1088	100	JIS10K450A	620	565	20-φ27 On centerlines	1600	40
NT124	150	180	45	490	1212	100	JIS10K550A	745	680	20-φ33 On centerlines	2200	50
NT130	180	200	50	576	1437	115	JIS10K650A	845	780	24-φ33 Shaft centerlines	3850	90

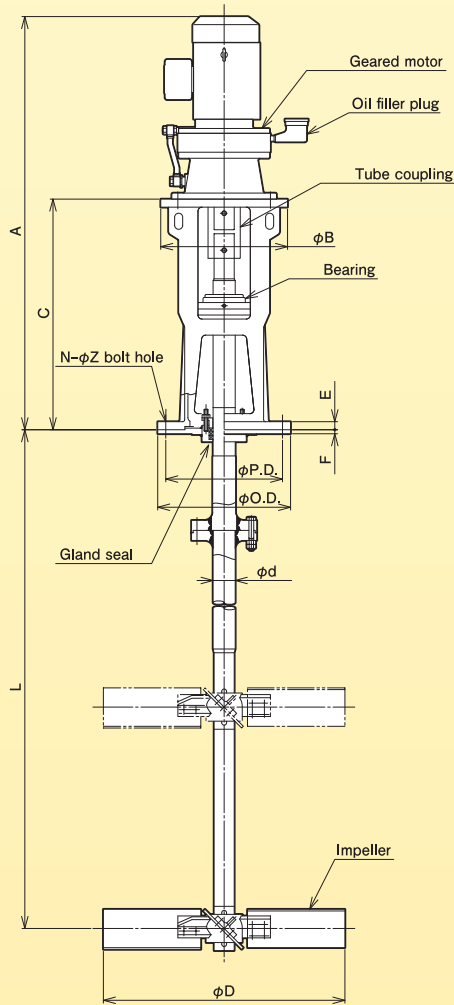
Standard Base Plate Dimensions

Series #	AA	CC	DD	EE	FF	GG
NT108	25	18	38	360	410	210
NT110	25	18	38	410	470	240
NT112	35	23	45	500	580	265
NT116	35	23	45	560	640	310
NT120	45	23	45	680	760	330
NT124	45	27	58	780	860	380
NT130	60	27	58	890	970	460

- Approx. weight does not include weights of motor and shaft seal.
- As we may change dimensions, please check our dimensional drawing for confirmation.

Small/Medium size series **NSR** type

- Compact and lightweight due to simple design
- Adaptable to a wide range of volumes and motor output
- Low noise and long life through adaptation of a reliable reduction gear
- Optimized power, rpm and impeller sizing, based on our vast experience



Dimensions

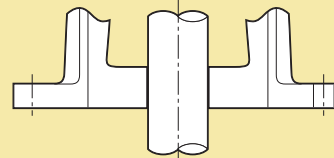
Series #	Size of mounting flange			Mixing shaft diameter ϕd	A	B	C	E	F	Approx. weight (kg)	
	Nominal diameter	$\phi O.D.$	$\phi P.D.$								
NSR-2	JIS10K 150A	280	240	8- $\phi 23$ Saddle centerlines	35	773	220	400	18	7	75
NSR-3	JIS10K 200A	330	290	12- $\phi 23$ On centerlines	45	1092	260	523	20	10	120
NSR-4	JIS10K 200A	330	290	12- $\phi 23$ On centerlines	55	1157	315	573	20	10	180
NSR-5	JIS10K 200A	400	355	12- $\phi 25$ On centerlines	75	1548	400	760	30	15	380

■ Approx. weight represents the weight of the main unit only ; the weight of impeller ASS 'Y' is not included.
 ■ As for L dimension, please consult with us.

Mixing Shaft Seal

Please select a shaft seal method appropriate for your purpose of use, application, and operating conditions. Mixing shaft seal is an important element which influences the durability of a mixer. It is also related to the easiness of maintenance/checking and running cost. We have various seals to meet your needs.

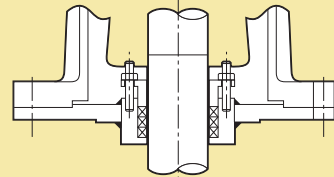
■ Open (without seal)



Applicable type

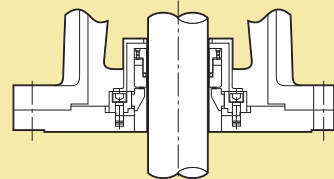
NSR
NT

■ Gland seal



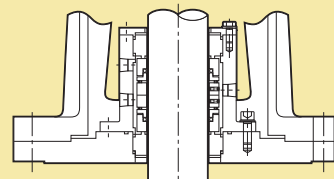
NSR
NT

■ Single dry seal



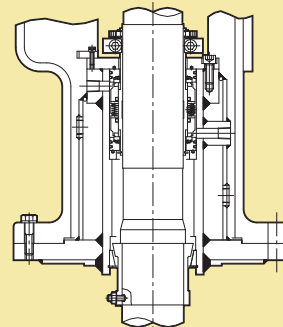
NSR

■ Double mechanical seal



NSR

■ Double mechanical seal

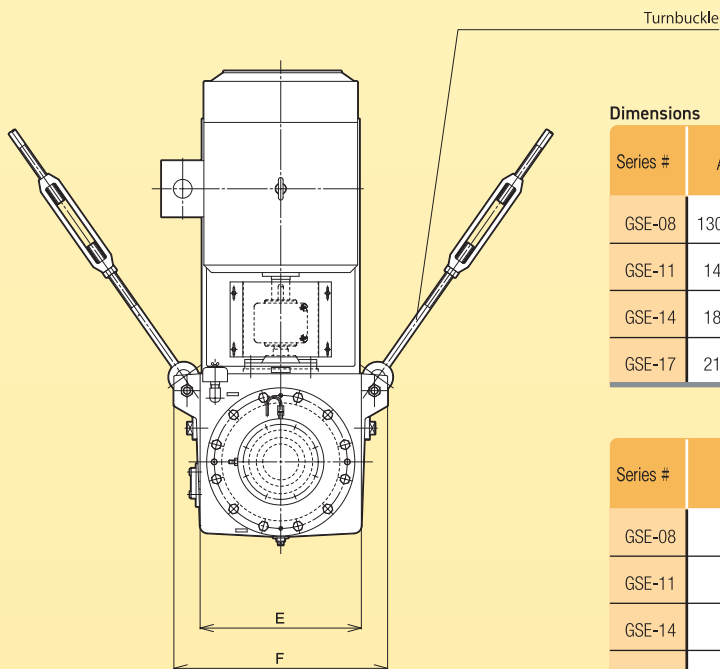
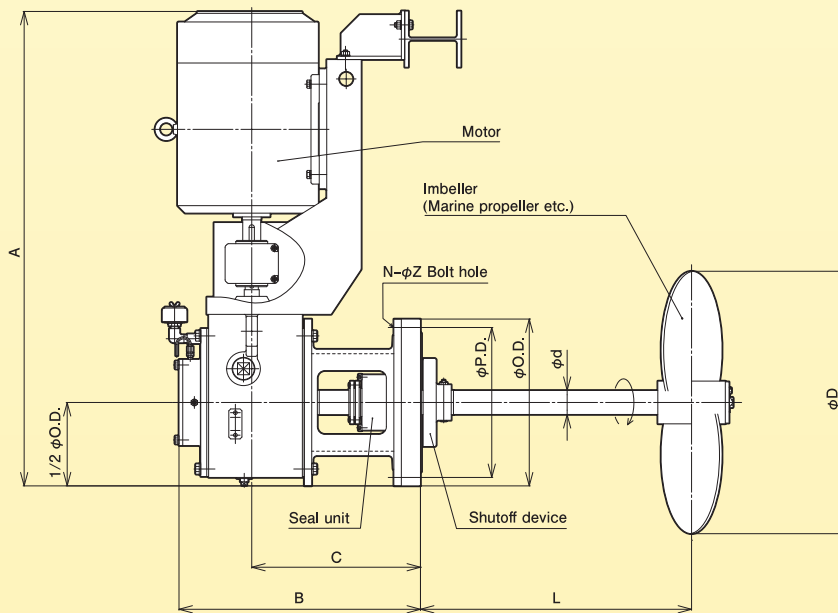


NT 108~116

Mixer series Line up

Side entry series **GSE type**

- Shutoff device shuts off the stirring liquid, allowing replacement of the seal unit.
- By fixing the turnbuckle and the tank, operation with less vibration is possible.
- A large number of deliveries have been made to FGD plants in Japan, and they have been evaluated by customers.



Dimensions

Series #	A	B	C	Mixing shaft diameter ϕd	E	F
GSE-08	1303.5	647	453	65	430	570
GSE-11	1471	716	496	75	470	610
GSE-14	1847	858	593	100	580	740
GSE-17	2126	1091	743	120	760	960

Series #	Nominal diameter	$\phi O.D.$	$\phi P.D.$	N- ϕZ	Approx. mass (kg)
GSE-08	JIS 10K 300A	445	400	16- $\phi 25$	700
GSE-11	JIS 10K 350A	490	445	16- $\phi 25$	1330
GSE-14	JIS 10K 400A	560	510	16- $\phi 27$	1630
GSE-17	JIS 10K 500A	675	620	20- $\phi 27$	2290

- Approx. mass represents the mass of the main unit only; the mass of impeller Ass'y etc. is not included.
- As for D and L dimension, please consult with us.
- As we may change dimensions, please check our dimensional drawing for confirmation.

For inquiry about our mixers, please let us know the following items.

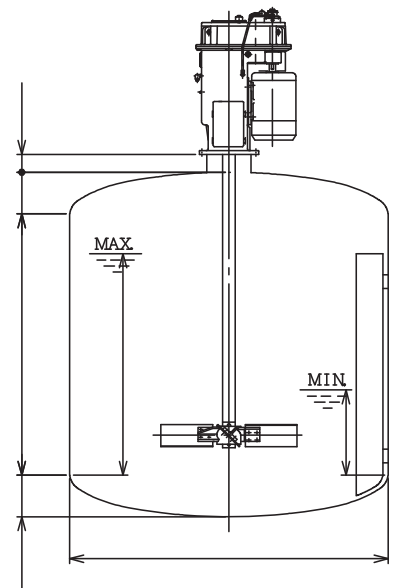
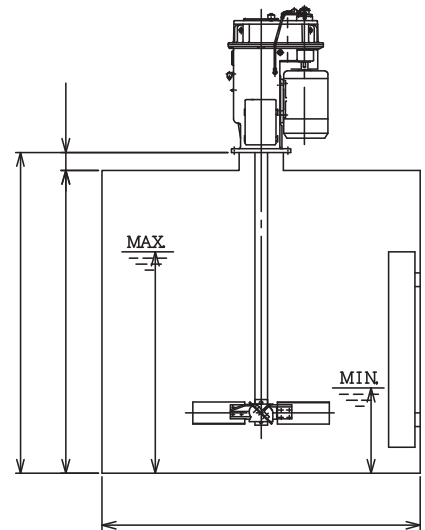
Vendor name		Customer name	
Project name		Item No.	
Quantity of mixers			
Contact	Contact person :		(e-mail address _____)
	Tel.		Fax.

■ If you don't have any mixer data sheet and/or tank drawing, please fill in the following section.

- Purpose of mixing (Preventing precipitation / Mixing / Other=_____)
- Characteristics of liquids to be mixed
 - Mixing specific gravity _____ Mixing viscosity _____cP Slurry concentration _____
 - Slurry specifications Liquid name _____ Concentration _____wt% Specific gravity _____
 - Solid name 1 _____ Concentration _____wt% Diameter of solid particles _____ True specific gravity of solid particles _____
 - Solid name 2 _____ Concentration _____wt% Diameter of solid particles _____ True specific gravity of solid particles _____
 - Gas supply quantity_____ (Describe the form of discharge and location on the following drawings)
 - Designing/operating conditions Temperature _____/_____^{°C} Pressure_____/_____

- Tank specifications (Please specify on drawings on the right)
- Mixer location (installing it at the center of tank / at an eccentric position)
- Level of liquids to be mixed (Please specify on drawings on the right)
- Baffle specifications (exist / not exist)
 - Form (Board / Special) _____pieces Width _____mm

- Conditions of Use
 - Continuous / Batch (_____hours per one time, _____times per day)
- Strength of mixing (Weak / Medium / Strong; _____kW/m³)
- Mixer specifications
 - Wetted material (CS / SUS304 / SUS316 / SUS316L, _____, Buff finish _____)
 - Seal type: Open (without seal) / Gland seal / Dry seal / Mechanical seal
 - Motor specification: IP44 indoor / IP44 outdoor / IP54 / IP55;
Non-explosion-proof / eG3 / d2G4;
Three-phase, _____V, 50 / 60Hz, Inverter (Yes / No)



[Warranty Standards for Mixer Drives]

Nippon Gear Co., Ltd. (hereinafter "the Company") set the following warranty standards for its mixer drives.

1. Warranty Period

The warranty for the mixer drive shall expire two (2) years after the date of shipment from the Company's factory, or one (1) year after the start date of operating the products at the site, whichever comes earlier.

2. Scope of Warranty

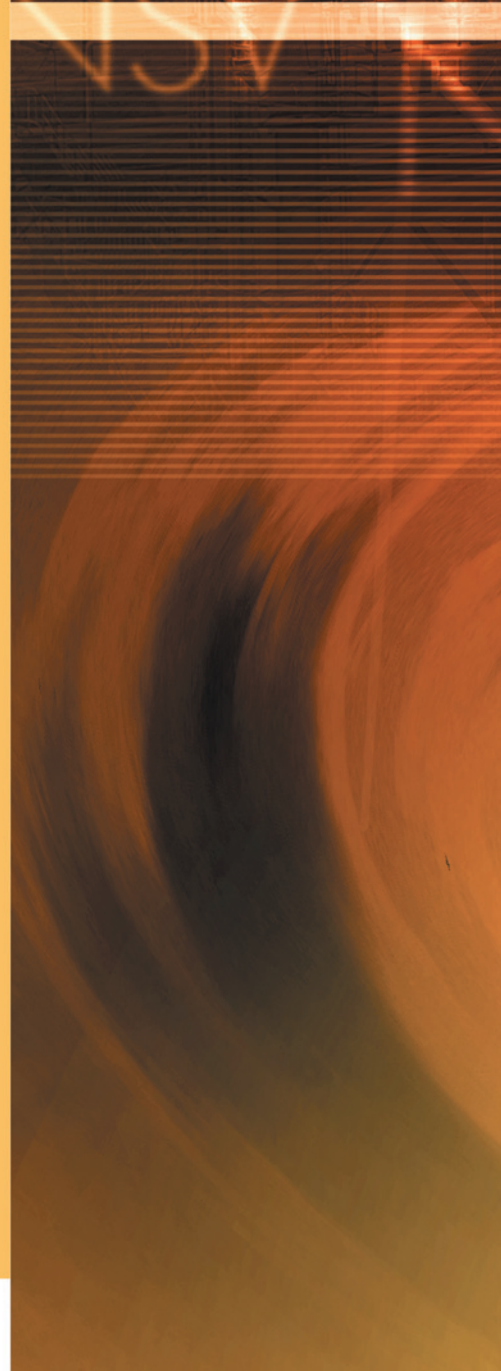
When the Company's product is used in accordance with specified rating and operating conditions, the product is warranted during the period specified at the time of concluding the contract. Accordingly, even within the warranty period, in case of any failure attributable to the following reasons, it shall be outside the scope of warranty:

- 1) Failure due to the use beyond the Company's product specifications or selection criteria;
- 2) Failure due to events not attributable to our Company's product, including fire, flood, typhoon, earthquake, or other acts of nature;
- 3) Failure attributable to modification or repair by a person(s) other than service agents designated by our Company;
- 4) Non-conformance due to changes over time (including but not limited to, natural discoloration of coating, plating, etc., rust, deterioration of grease, and oil separation);
- 5) Failure attributable to non-implementation of maintenance, checkup, care, etc. specified in the operation manual or other technical documents;
- 6) Failure attributable to inadequate operation or treatment; or
- 7) Sensuous phenomenon (sound, vibration, etc.) to the extent that is generally considered to have no impact on quality and/or performance.

3. Warranty expense

In the event any failure attributable to our Company is found during the warranty period, our Company shall replace the defective product with a comparable product, or repair the product, at our cost. The warranted area is limited to within the country. Furthermore, the warranty expense refers to the warranty for the single product which our Company delivered, and does not include the following expenses induced by any failure of the products in question:

- 1) Man-hour cost for removing/installing the product from/on your equipment, transportation expense and taxes required for re-delivery, and such extra cost as storage cost; and
- 2) Expenses for loss from suspending operation of your equipment and/or opportunity loss caused by the defect of the product in question.



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