

# SMT

BALL BEARINGS



# “**S**peed **M**akes **T**rust”

Nankai Seiko continues to flourish based on our principles of

“**Originality**” “**Development Power**”, and “**Speed**”  
with an attitude unchanged since our founding.

We continue to be a pioneer in stainless steel bearings,  
taking on challenges others will not or cannot.

We always strive to increase customer satisfaction and earn trust.

*Since 1946*



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Bearing Selection	6
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## Product Series

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SS Series	AISI 440C Stainless Steel Bearings	10
6S Series	AISI 304 Stainless Steel Bearings	14
4S Series	AISI 630 Stainless Steel Bearings	18
1T Series	Pure Titanium Bearings	22
2C Series	Ceramic Bearings	24
Heat-Resistant Series	Heat-Resistant Stainless Bearings Heat-Resistant Hybrid Bearings	26
TC Series	Grease-Free Bearings	32
LF Series	Special Low Torque Lubricant Bearings	36
SG Series	Solid Grease Bearings	40
SSXC Series	Stainless Bearings with Set Screw	44
SH Series	Stainless Bearings with Aligning Ring	48
SB Series	Stainless Bearings with Aligning Ring (for outer ring rotation)	54
SF Series	Flanged Bearing Units	56
GW Series	Guide Wheel Bearings	60
6800 / 6900	Thin-Wall Bearings	62
SS5200 / 5200 Series	Double Row Angular Contact Bearings	64
5800 Series	Double Row Angular Contact Bearings	66

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## **Support for special environments and applications**

Whether corrosive, chemical, vacuum, high-temperature, or clean, we manufacture the optimal product whatever your environment.

▶Page 6

## **Support for specified grease and clearance**

We will fill with suitable grease for food, high-temperature, vacuum, clean, or other equipment.

We will also select the most suitable clearance based on the operating conditions.

▶Page 70

## **Support for special designs and various material types**

We manufacture bearings with the most suitable designs and materials for the facility and equipment, such as grooving on the outer ring, wide, thin-walled, or non-standard size.

▶Page 71



SMT

SS

# Use our well-established small lot, quick delivery system.

In the quantity you need when you need it -  
we deliver special products and small lots in short delivery times.  
Use our service with confidence.

# We offer support for bearing improvement.
















We offer free diagnosis of bearings.  
We will suggest the best fixes for bearing failures  
in all special environments.





**SMT**  
BALL BEARINGS

# SMT Bearing Adaptations & Applications Quick Reference

Bearing selection  Products Series	Series Name	Main Applications														
		Corrosion resistance	Chemicals	High temperature	Low temperature	Dust	Clean	Vacuum	Non-magnetic	High-speed rotation	High-load environment	Insulation	Conductive (electrified)	Non-grease	Transportation	General
																
AISI 440C	AISI 440C Stainless Steel Bearings	●								●	●			●	●	
AISI 304	AISI 304 Stainless Steel Bearings	●	●													
AISI 630	AISI 630 Stainless Steel Bearings	●	●	●												
Pure Titanium	Pure Titanium Bearings	●	●									●				
Ceramic	Ceramic Bearings	●	●	●				●	●			●		●		
Heat Resistance	Heat-Resistant Stainless Bearings	●		●				●								
Grease Free	Heat-Resistant Hybrid Bearings	●		●				●				●				
Low Torque	Grease-Free Bearings	●		●				●					●			
Solid Grease	Special Low Torque Lubricant Bearings	●							●				●			
Set Screw	Solid Grease Bearings	●				●										
Alignment Function	Stainless Bearings with Set Screw	●									●			●		
Flange Unit	Stainless Bearings with Aligning Ring	●									●			●		
Guide Wheel	Flanged Bearing Units	●									●			●		
6800	Guide Wheel Bearings										●			●		
6900	Thin-Wall Bearings 6800 / 6900									●				●	●	
SS5200	Double Row Angular Contact Bearings SS5200	●									●				●	
5200	Double Row Angular Contact Bearings 5200										●				●	
5800	Double Row Angular Contact Bearings 5800														●	
Customization	Customization: Specified Grease			●	●		●	●				●		●		
Examples of Use	Customization: Various Materials	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

● Chemicals may affect materials depending on the material type and usage conditions.  
 ● The table above shows the values for the ZZ-type (double-sided steel plate shield).  
 \* dn: bearing inner diameter (mm) × rotation speed (min<sup>-1</sup>)



	Usage Environment			Price	Series Name	Page
	Allowable rotational speed	Temperature (°C)	Degree of vacuum (Pa)			
	dn value*	0 150 200 250 300	Air 10 <sup>5</sup> 10 <sup>10</sup>	Low High		
	<440,000				AISI 440C Stainless Steel Bearings	10
	<26,000				AISI 304 Stainless Steel Bearings	14
	<100,000				AISI 630 Stainless Steel Bearings	18
	—	—			Pure Titanium Bearings	22
	<39,000				Ceramic Bearings	24
	<55,000				Heat-Resistant Stainless Bearings	26
	<55,000				Heat-Resistant Hybrid Bearings	28
	<14,000				Grease-Free Bearings	32
	<27,000	—			Special Low Torque Lubricant Bearings	36
	<68,000	—			Solid Grease Bearings	40
	<120,000				Stainless Bearings with Set Screw	44
	—				Stainless Bearings with Aligning Ring	48
	—				Flanged Bearing Units	56
	<160,000	—			Guide Wheel Bearings	60
	<440,000	—			Thin-Wall Bearings 6800 / 6900	62
	<200,000				Double Row Angular Contact Bearings SS5200	64
	<200,000	—			Double Row Angular Contact Bearings 5200	64
	<260,000	—			Double Row Angular Contact Bearings 5800	66
	—				Customization: Specified Grease	70
	—				Customization: Various Materials	71

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800 6900

SS5200 5200

5800

Customization

Examples of Use

# SMT Bearing Specifications Quick Reference

	Series Name	Inner Ring	Outer Ring	Ball	Retainer
Bearing selection	AISI 440C Stainless Steel Bearings	AISI 440C	AISI 440C	AISI 440C	AISI 304
Products Series	AISI 304 Stainless Steel Bearings	AISI 304	AISI 304	AISI 304	AISI 304
AISI 440C	AISI 630 Stainless Steel Bearings	AISI 630	AISI 630	Si <sub>3</sub> N <sub>4</sub>	AISI 304
AISI 304	Pure Titanium Bearings	Pure titanium class 2	Pure titanium class 2	Si <sub>3</sub> N <sub>4</sub>	Fluorine resin
AISI 630	Ceramic Bearings	ZrO <sub>2</sub>	ZrO <sub>2</sub>	Si <sub>3</sub> N <sub>4</sub>	Fluorine resin
Pure Titanium	Heat-Resistant Stainless Steel Bearings	AISI 440C	AISI 440C	AISI 440C	AISI 304
Ceramic	Heat-Resistant Hybrid Bearings	AISI 440C	AISI 440C	Si <sub>3</sub> N <sub>4</sub>	AISI 304
Heat Resistance	Grease-Free Bearings	AISI 440C	AISI 440C	AISI 440C	AISI 304+ special coating
Grease Free	Special Low Torque Lubricant Bearings	AISI 440C	AISI 440C	AISI 440C	AISI 304
Low Torque	Solid Grease Bearings	AISI 440C	AISI 440C	AISI 440C	AISI 304
Solid Grease	Stainless Bearings with Set Screw	AISI 440C	AISI 440C	AISI 440C	AISI 304
Set Screw	Stainless Bearings with Aligning Ring	AISI 440C	AISI 440C	AISI 440C	AISI 304
Alignment Function	Flanged Bearing Units	AISI 440C	AISI 440C	AISI 440C	AISI 304
Flange Unit	Guide Wheel Bearings	AISI 440C	AISI 440C	AISI 440C	Polyamide resin
Guide Wheel		SAE 52100	SAE 52100	SAE 52100	
6800 6900	Thin-Wall Bearings 6800 / 6900	SAE 52100	SAE 52100	SAE 52100	SPCC (some AISI 304)
SS5200 5200	Double Row Angular Contact Bearings SS5200	AISI 440C	AISI 440C	AISI 440C	AISI 304
5800	Double Row Angular Contact Bearings 5200	SAE 52100	SAE 52100	SAE 52100	S55C
Customization	Double Row Angular Contact Bearings 5800	SAE 52100	SAE 52100	SAE 52100	Polyamide resin
Examples of Use	Customization: Specified Grease	AISI 440C, AISI 304, and others	AISI 440C, AISI 304, and others	AISI 440C, AISI 304, and others	AISI 304 and others
	Customization: Various Materials	Compatible with various materials	Compatible with various materials	Compatible with various materials	Compatible with various materials

\*Lubricants show for ZZ type (double-sided steel plate shield) and 2RS type (double-sided contact rubber seal).

<b>AISI 440C</b> : Martensitic stainless steel	<b>AISI 304</b> : Austenitic stainless steel
<b>AISI 630</b> : Precipitation hardening stainless steel	<b>SAE 52100</b> : High carbon chromium bearing steel
<b>Si<sub>3</sub>N<sub>4</sub></b> : Silicon nitride ceramics	<b>ZrO<sub>2</sub></b> : Zirconia ceramics

	Steel Plate Shield	Rubber Seal	Lubricant*	Series Name	Page
	AISI 304	Nitrile	Heat-resistant grease	AISI 440C Stainless Steel Bearings	10
	AISI 304	Nitrile	Heat-resistant grease	AISI 304 Stainless Steel Bearings	14
	AISI 304	Nitrile	Heat- and chemical-resistant fluorine grease	AISI 630 Stainless Steel Bearings	18
	-	-	-	Pure Titanium Bearings	22
	-	-	-	Ceramic Bearings	24
	AISI 304	Fluorine	Heat-resistant fluorine grease	Heat-Resistant Stainless Bearings	26
	AISI 304	Fluorine	Heat-resistant fluorine grease	Heat-Resistant Hybrid Bearings	28
	AISI 304	Nitrile	-	Grease-Free Bearings	32
	AISI 304	-	Lubricating film	Special Low Torque Lubricant Bearings	36
	AISI 304	Nitrile	Solid grease	Solid Grease Bearings	40
	AISI 304	-	Heat-resistant grease	Stainless Bearings with Set Screw	44
	AISI 304	Nitrile	Heat-resistant grease	Stainless Bearings with Aligning Ring	48
	AISI 304	Nitrile	Heat-resistant grease	Flanged Bearing Units	56
	-	Nitrile	Grease	Guide Wheel Bearings	60
	SECC	Nitrile	Grease		
	SECC	Nitrile	Grease	Thin-Wall Bearings 6800 / 6900	62
	AISI 304	Nitrile	Heat-resistant grease	Double Row Angular Contact Bearings SS5200	64
	SECC	Nitrile	Grease	Double Row Angular Contact Bearings 5200	64
	SECC	Nitrile	Grease	Double Row Angular Contact Bearings 5800	66
	AISI 304 and others	Nitrile	Specified grease Supplied grease	Customization: Specified Grease	70
	Compatible with various materials	Compatible with various materials	Compatible with various types	Customization: Various Materials	71

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# SS Series AISI 440C Stainless Steel Bearings



Corrosion resistance



High-speed rotation



High-load environment



Transportation



General



AISI 440C stainless steel bearings have resistance to rust, corrosion, and high temperatures.

The 6800, 6900, 6000, 6200 and 6300 ranges are available from stock.

## Features

1. Usable in environments of higher temperatures than SAE 52100 chrome bearing steel

Specifications	Temperature
ZZ Type	-40 to 150 °C / -40 to 302 °F
2RS Type	-30 to 110 °C / -22 to 230 °F
Open Type	Subject to lubrication

2. Available with snap ring

## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 440C
Balls*1	AISI 440C
Retainer	AISI 304
Shield	AISI 304
Seal*2	Nitrile rubber
Snap Ring	AISI 304
Lubricant*3	Heat-resistant grease
ISO Tolerance Class	Normal

The following special specifications are also available.

\*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)

\*2 Fluorine rubber seal

\*3 Heat- and chemical-resistant fluorine grease, food grade grease, and other special greases

\*Other C3 or C4 radial clearance

## Applications

Food processing machinery, cleaning equipment, carrier device in a watery environment, LCD and semiconductor manufacturing equipment, other equipment used in high temperature and humidity environments.

## Corrosion Resistance

Chemicals	Conditions	Temperature	Material	
		°C/°F	AISI 440C	SAE 52100
Carbon Tetrachloride	dry / wet	normal	○	×
Acetone		normal	○	—
Naphtha		normal	○	—
Natural Water		normal	○	×
Sea Water		normal	△	×
Air		normal	○	△
Sea Breeze		normal	○	×
Water vapor		100°C/212°F	○	×
Chlorine gas	dry	normal	△	△
	wet	100°C/212°F	×	×
Hydrogen Sulfide Gas	dry		○	△
	wet		○	△
Sulfurous Acid Gas	dry		○	×
	wet		○	×
Carbonic Acid Gas			○	×
Hydrochloric Acid	75% solution		×	×
	50% solution	normal, boiling	×	×
Sulfuric Acid	90% to 100% solution	normal	○	△
	90% to 100% solution	boiling	×	×
Nitric Acid	95% to 100% solution	normal	○	×
	95% to 100% solution	boiling	×	×
Hydrogen Peroxide			○	△
Acetic Acid			○	×

\* ○ No effects

△ Slightly affected

× Affected

— No data

\* Results may differ from the data on the left depending on the environments and conditions.

## Precautions

1. AISI 440C stainless steel is magnetizable.

2. AISI 440C stainless steel may corrode depending on the environments and conditions.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

## Composition of bearing number

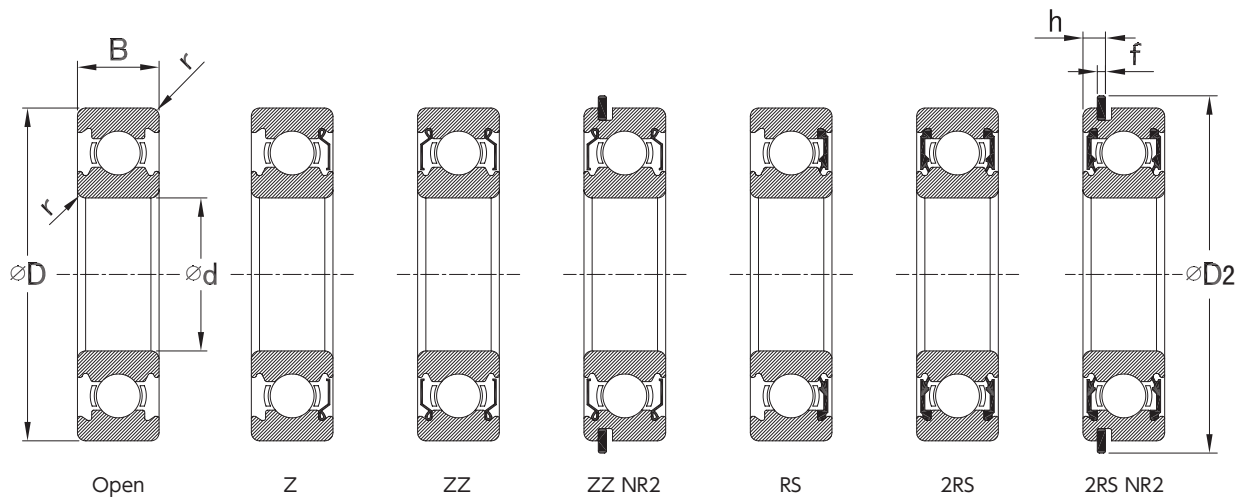
**SS 6000 ZZ NR2**

1      2      3      4

- 1 SS : Material AISI 440C
- 2 Basic number
- 3 Blank : Open  
Z : Single steel plate shield  
ZZ : Double steel plate shields  
RS : Single contact rubber seal  
2RS : Double contact rubber seals
- 4 Blank : No snap ring  
NR2 : Stainless steel snap ring

## Table of Dimensions

Bearing Numbers	d mm	D mm	B mm	r min. mm	Basic Load Ratings		Limiting Speed (min <sup>-1</sup> )			Size of Snap Ring			Mass g
					C <sub>r</sub> N	C <sub>or</sub> N	Grease		Oil Open-Z	D2 max. mm	f max. mm	h max. mm	
							Open-Z-ZZ	RS-2RS					
SS 6800	10	19	5	0.3	2120	985	34000	24000	41000	—	—	—	5
SS 6900	10	22	6	0.3	2700	1270	31000	22000	38000	24.8	0.70	1.75	9
SS 6000	10	26	8	0.3	4600	1970	28000	22000	33000	28.8	0.84	2.19	18
SS 6200	10	30	9	0.6	5100	2390	24000	18000	29000	34.7	1.12	3.18	31
SS 6300	10	35	11	0.6	8100	3450	22000	18000	27000	39.7	1.12	3.18	52
SS 6801	12	21	5	0.3	1920	1040	30000	20000	36000	—	—	—	6
SS 6901	12	24	6	0.3	2890	1460	28000	19000	33000	26.8	0.70	1.75	10
SS 6001	12	28	8	0.3	5100	2390	24000	18000	29000	30.8	0.85	2.20	20
SS 6201	12	32	10	0.6	6800	3050	23000	17000	27000	36.7	1.12	3.18	36
SS 6301	12	37	12	1.0	9700	4200	20000	17000	24000	41.3	1.12	3.18	59
SS 6802	15	24	5	0.3	2080	1260	26000	17000	31000	—	—	—	7
SS 6902	15	28	7	0.3	4300	2250	23000	16000	28000	30.8	0.85	2.15	16
SS 6002	15	32	9	0.3	5600	2840	21000	15000	26000	36.7	1.12	3.18	30
SS 6202	15	35	11	0.6	7650	3750	20000	14000	24000	39.7	1.12	3.18	45
SS 6302	15	42	13	1.0	11400	5450	17000	13000	20000	46.3	1.12	3.18	81
SS 6803	17	26	5	0.3	2630	1570	23000	15000	28000	—	—	—	7
SS 6903	17	30	7	0.3	4600	2550	21000	14000	26000	32.8	0.85	2.15	17
SS 6003	17	35	10	0.3	6000	3250	19000	14000	23000	39.7	1.12	3.18	39
SS 6203	17	40	12	0.6	9600	4800	17000	13000	21000	44.6	1.12	3.18	63
SS 6303	17	47	14	1.0	13600	6600	15000	12000	18000	52.7	1.12	3.58	110
SS 6804	20	32	7	0.3	4000	2460	20000	13000	24000	—	—	—	17
SS 6904	20	37	9	0.3	6400	3700	18000	12000	21000	39.8	0.85	2.55	36
SS 6004	20	42	12	0.6	9400	5050	16000	12000	19000	46.3	1.12	3.18	65
SS 6204	20	47	14	1.0	12800	6650	14000	11000	17000	52.7	1.12	3.58	101
SS 6304	20	52	15	1.1	15900	7850	14000	11000	17000	57.9	1.12	3.58	142
SS 6805	25	37	7	0.3	4300	2940	16000	10000	20000	—	—	—	21
SS 6905	25	42	9	0.3	7000	4550	15000	9700	18000	44.8	0.85	2.55	42
SS 6005	25	47	12	0.6	10100	5850	14000	9600	17000	52.7	1.12	3.18	77
SS 6205	25	52	15	1.0	14000	7900	13000	8800	15000	57.9	1.12	3.58	127
SS 6305	25	62	17	1.1	20600	11200	11000	8100	13000	67.7	1.70	4.98	225
SS 6806	30	42	7	0.3	4550	3400	14000	8800	17000	—	—	—	24
SS 6906	30	47	9	0.3	7250	5000	13000	8500	16000	49.8	0.85	2.55	49
SS 6006	30	55	13	1.0	13200	8300	12000	8100	14000	60.7	1.12	3.20	114
SS 6206	30	62	16	1.0	19500	11300	11000	7500	13000	67.7	1.70	4.98	192
SS 6306	30	72	19	1.1	26700	15000	9600	6900	12000	78.6	1.70	4.98	342
SS 6807	35	47	7	0.3	4750	3800	12000	7600	15000	—	—	—	27
SS 6907	35	55	10	0.6	10400	7200	11000	7300	13000	—	—	—	74
SS 6007	35	62	14	1.0	16000	10300	10000	6900	12000	67.7	1.70	3.78	148
SS 6207	35	72	17	1.1	25700	15400	9200	6400	11000	78.6	1.70	4.98	276
SS 6307	35	80	21	1.5	33300	19100	8600	6200	10000	—	—	—	446



Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

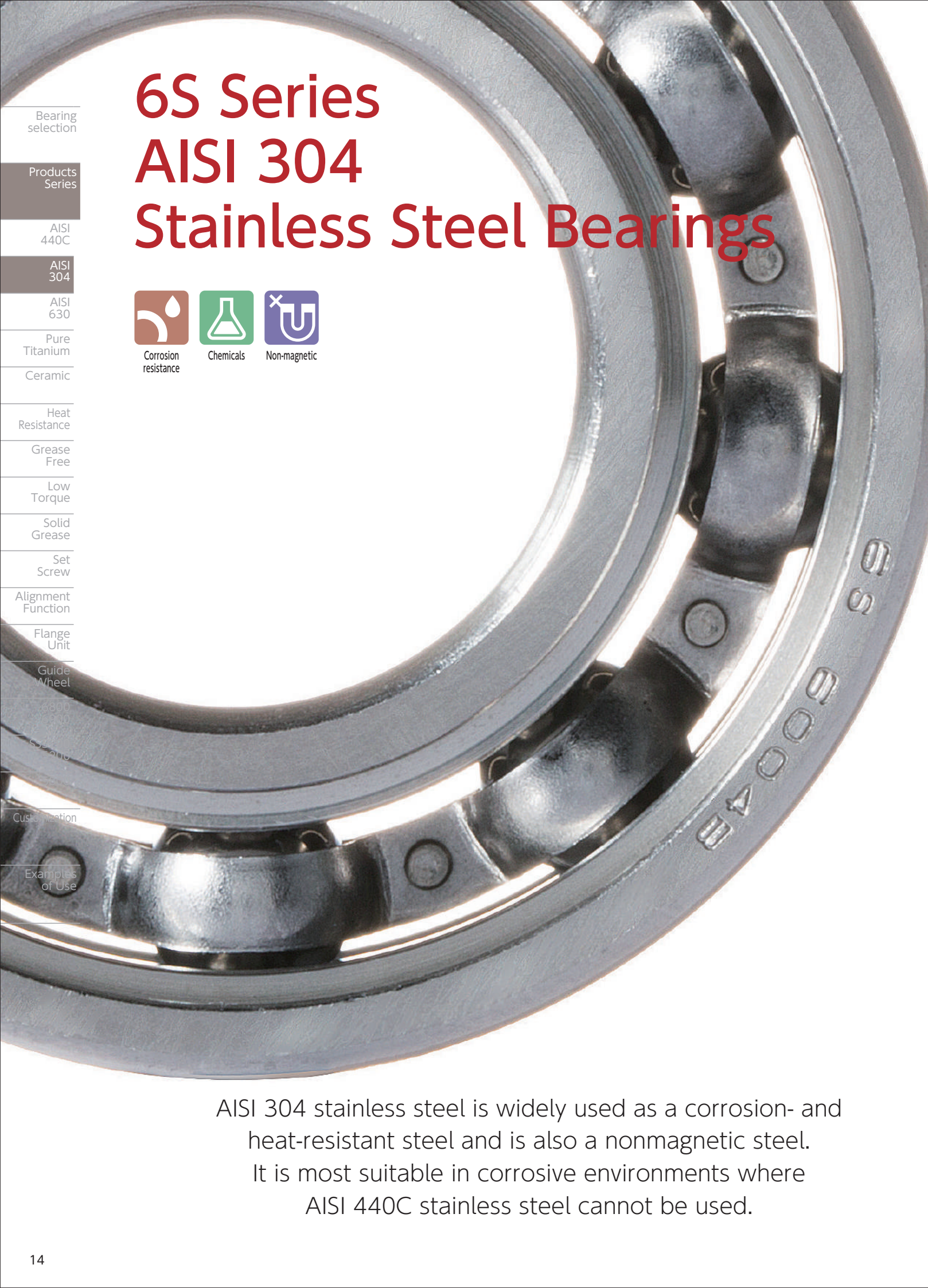
SS5200  
5200

5800

Customization

Examples of Use

Bearing Numbers	d mm	D mm	B mm	r min. mm	Basic Load Ratings		Limiting Speed (min <sup>-1</sup> )			Size of Snap Ring			Mass g
					C <sub>r</sub> N	C <sub>or</sub> N	Grease		Oil	D2 max. mm	f max. mm	h max. mm	
							Open-Z-ZZ	RS-2RS					
SS 6808	40	52	7	0.3	4950	4200	11000	6700	13000	—	—	—	30
SS 6908	40	62	12	0.6	13700	9900	9800	6400	12000	—	—	—	109
SS 6008	40	68	15	1.0	16800	11600	9200	6100	11000	74.6	1.70	4.19	186
SS 6208	40	80	18	1.1	29100	17900	8300	5700	10000	—	—	—	364
SS 6308	40	90	23	1.5	40700	24000	7700	5500	9200	—	—	—	616
SS 6909	45	68	12	0.6	14100	10900	8900	5700	11000	—	—	—	128
SS 6009	45	75	16	1.0	21000	15100	8300	5500	10000	—	—	—	237
SS 6209	45	85	19	1.1	32700	20500	7700	5300	9200	—	—	—	401
SS 6309	45	100	25	1.5	53000	32000	6800	4800	8200	—	—	—	811
SS 6910	50	72	12	0.6	14500	11700	8200	5200	9800	—	—	—	130
SS 6010	50	80	16	1.0	21800	16600	7600	5000	9200	—	—	—	254
SS 6210	50	90	20	1.1	35100	23200	7100	4800	8500	—	—	—	452
SS 6310	50	110	27	2.0	62000	38200	6100	4300	7300	—	—	—	1044
SS 6911	55	80	13	1.0	16600	14100	7400	4700	8900	—	—	—	184
SS 6011	55	90	18	1.1	28300	21300	6900	4500	8300	—	—	—	376
SS 6211	55	100	21	1.5	43400	29400	6300	4300	7600	—	—	—	584
SS 6311	55	120	29	2.0	71600	44800	5600	4000	6700	—	—	—	1336
SS 6912	60	85	13	1.0	20200	17300	6800	4400	8200	—	—	—	192
SS 6012	60	95	18	1.1	29400	23200	6500	4200	7700	—	—	—	405
SS 6212	60	110	22	1.5	52400	36100	5800	3900	6900	—	—	—	764
SS 6312	60	130	31	2.1	81800	52000	5200	3700	6300	—	—	—	1676
SS 6913	65	90	13	1.0	17400	16000	6500	4000	7700	—	—	—	209
SS 6013	65	100	18	1.1	30500	25200	6100	3900	7300	—	—	—	428
SS 6213	65	120	23	1.5	57200	40000	5400	3700	6500	—	—	—	975
SS 6914	70	100	16	1.0	23700	21100	5900	3700	7100	—	—	—	334
SS 6014	70	110	20	1.1	38000	30900	5600	3600	6700	—	—	—	596
SS 6214	70	125	24	1.5	62200	44000	5100	3500	6200	—	—	—	1049
SS 6915	75	105	16	1.0	24300	22600	5600	3500	6700	—	—	—	351
SS 6015	75	115	20	1.1	39500	33500	5300	3400	6300	—	—	—	622
SS 6916	80	110	16	1.0	25000	23900	5300	3300	6300	—	—	—	369
SS 6016	80	125	22	1.1	47700	39700	4900	3200	5900	—	—	—	833



# 6S Series AISI 304 Stainless Steel Bearings

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6890

6900

6910

6920

6930

6940

6950

6960

6970

6980

6990

Customization

Examples of Use



Corrosion resistance



Chemicals



Non-magnetic

AISI 304 stainless steel is widely used as a corrosion- and heat-resistant steel and is also a nonmagnetic steel. It is most suitable in corrosive environments where AISI 440C stainless steel cannot be used.



## Features

1. Higher corrosion resistance than AISI 440C stainless steel bearings.
2. Non-magnetic \*.
3. Heat-resistant temperature of standard specifications is the same as SS series.

[Difference in properties by the material used]

	Unit	AISI 304	AISI 440C	SAE 52100
Density	g/cm <sup>3</sup>	7.93	7.8	7.8
Tensile Strength	N/mm <sup>2</sup>	520 - 600	1900 - 2000	1680
Elongation	%	45 - 60	—	—
Elastic Modulus	N/mm <sup>2</sup>	193000	203000	212000
Hardness	HV	170	700	740
	HRC	3.0	60.1	61.8
Magnetism	—	Non magnetic *	Magnetic	Magnetic

\* AISI 304 stainless steel may be magnetized depending on manufacturing process.

## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 304
Balls*1	AISI 304
Retainer	AISI 304
Shield	AISI 304
Seal*2	Nitrile rubber
Lubricant*3	Heat-resistant grease
Precision Grade	See "Dimensions"

The following special specifications are also available.

\*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)

\*2 Fluorine rubber seal

\*3 Heat- and chemical-resistant fluorine grease, food grade grease, and other special greases

## Applications

Food processing machinery, cleaning equipment, LCD and semiconductor manufacturing equipment, metal plating equipment, other equipment used in environments where the bearings come into contact with acid or alkaline chemicals.

## Corrosion Resistance

Chemicals	Conditions	Temperature	Material
		°C/°F	AISI 304
Chlorine	dry	dry ≤ 30°C/86°F	○
	wet		×
Methylene Chloride	dry		○
	wet		○
Ammonium Chloride	50% solution		△
Sodium Chloride	saturation	100°C/212°F	○
Lithium Chloride	saturation	boiling point	○
Sulfuric Acid	solution up to 50%	60°C/140°F	○
	95% - 100% solution	149°C/300°F	○
Sulfurous Acid Gas	dry		×
	wet		○
Nitric Acid	0.5% - 40% solution	up to boiling point	○
	40% - 95% solution	70°C/158°F	○
Acetic Acid	solution up to 100%	up to boiling point	○
Citric Acid	solution up to 100%	≤ 30°C/86°F	○
	solution up to 15%	65°C/149°F	△
Phosphoric Acid	≤ 65%	≤ 30°C/86°F	○
Ethanol(Ethyl Alcohol)		≤ 30°C/86°F	○
Cresol(Cresylic Acid)	dry		○
Sea Water			△
Caustic Soda	10% solution		○
Ammonium Sulfate	50.4% solution	120°C/248°F	○
Carbon Tetrachloride	dry		△

\* ○ No effects  
△ Slightly affected  
× Affected  
— No data

\* Results may differ from the data on the left depending on the environments and conditions.

## Precautions

For light load and low rotation, AISI 304 stainless steel is not suitable for use under heavy load or at medium to high rotation where SAE 52100 chrome steel and AISI 440C stainless steel are usable, due to the characteristics of the material.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

## Composition of bearing number

# 6S 6800 B 2RS

1

2

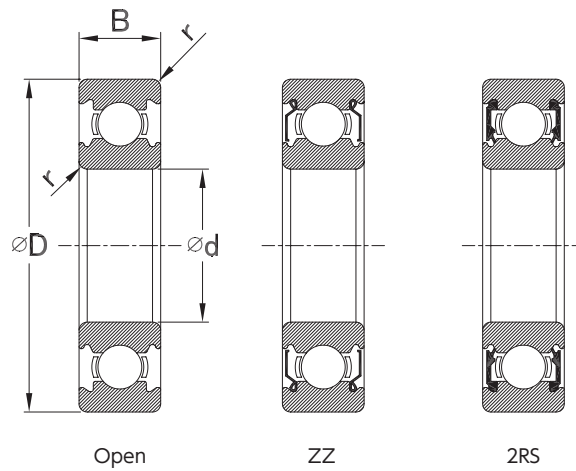
3

4

- 1 6S : Material AISI 304
- 2 Basic number
- 3 B : Raceway turning finish
- 4 Blank : Open  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals

## Table of Dimensions

Bearing Numbers	d		D		B		r min.	Limiting Radial Load	Limiting Speed	Mass	
	Dimensions	Tolerance	Dimensions	Tolerance	Dimensions	Tolerance					
	mm		mm		mm		mm	N	min <sup>-1</sup>	g	
6S 696B	6	+0.050 0	15	<sup>0</sup> -0.025	5	-0.120	0.2	60	2300	4	
6S 626B <sup>*)</sup>	6		19	<sup>0</sup> -0.030	6		0.3	130	2100	8	
6S 698B <sup>*)</sup>	8		19		6		0.3	110	2100	7	
6S 608B <sup>*)</sup>	8		22		7		0.3	165	2000	12	
6S 628B	8		24		8		0.3	165	2000	18	
6S 6800B	10		19		5		0.3	105	2200	5	
6S 6900B	10		22		6		0.3	135	2000	10	
6S 6000B	10		26		8		0.3	230	1800	19	
6S 6200B	10		30		9		0.6	255	1600	31	
6S 6300B	10		35		<sup>0</sup> -0.035		11	0.6	405	1400	53
6S 6801B	12		21		5		0.3	95	1900	6	
6S 6901B	12		24		<sup>0</sup> -0.030		6	0.3	145	1800	11
6S 6001B	12		28		8		0.3	255	1600	21	
6S 6201B	12		32		<sup>0</sup> -0.035		10	0.6	340	1500	37
6S 6802B	15		24		<sup>0</sup> -0.030		5	0.3	105	1600	7
6S 6902B	15	28	7		0.3	215	1500	16			
6S 6002B	15	32	9	0.3	280	1400	31				
6S 6202B	15	35	<sup>0</sup> -0.035	11	0.6	380	1300	46			
6S 6302B	15	42	13	1.0	570	1100	83				



Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

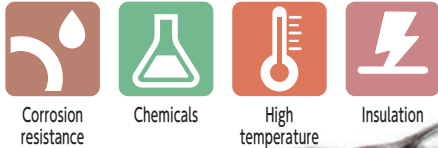
Customization

Examples of Use

Bearing Numbers	d		D		B		r min.	Limiting Radial Load	Limiting Speed	Mass	
	Dimensions	Tolerance	Dimensions	Tolerance	Dimensions	Tolerance					
	mm		mm		mm						
6S 6903B	17	$\begin{matrix} +0.050 \\ 0 \end{matrix}$	30	$\begin{matrix} 0 \\ -0.030 \end{matrix}$	7	$\begin{matrix} 0 \\ -0.120 \end{matrix}$	0.3	230	1300	17	
6S 6003B	17		35	$\begin{matrix} 0 \\ -0.035 \end{matrix}$	10		$\begin{matrix} 0 \\ -0.120 \end{matrix}$	0.3	300	1200	40
6S 6203B	17		40		12			0.6	475	1100	65
6S 6804B	20		32		7			0.3	200	1200	18
6S 6904B	20		37		9			0.3	320	1100	38
6S 6004B	20		42		12			0.6	470	1000	67
6S 6204B	20		47		14			1.0	640	930	104
6S 6805B	25		37		7			0.3	215	1000	21
6S 6905B	25		42		9			0.3	350	940	43
6S 6005B	25		47		12			0.6	500	890	79
6S 6205B	25		52		15			1.0	700	820	131
6S 6006B	30		55		13			1.0	660	750	116
6S 6206B	30		62		16			1.0	975	690	196
6S 6007B	35		62		14			1.0	800	650	152
6S 6207B	35		72		17			1.1	1285	590	283
6S 6008B	40		68		15			1.0	835	590	191
6S 6208B	40		80		18			1.1	1450	530	374

\* Limiting radial load and limiting speed are provided for reference only.  
 Limiting radial load is estimated to have a total rotation speed of 1 million revolutions.  
 \* 1) Open & ZZ types only.

# 4S Series AISI 630 Stainless Steel Bearings



AISI 630 stainless steel is excellent in corrosion resistance and can be hardened by heat treatment. These bearings can offer longer operation life under various corrosive environments with the excellent corrosion resistance and hardness.

## Features

1. Higher corrosion resistance than AISI 440C stainless steel bearings.
2. Can be used for heavy-load and high-rotation applications for which AISI 304 stainless steel ball bearings would be unsuitable.
3. Available for various types of applications with its heat- and chemical-resistant fluorine grease pre-packed as standard lubricant.
4. Hybrid type with silicon nitride ceramic balls ( $\text{Si}_3\text{N}_4$ ).

[Difference in properties by the material used]

	Unit	AISI 630	AISI 304	AISI 440C
Density	$\text{g/cm}^3$	7.8	7.93	7.8
Tensile Strength	$\text{N/mm}^2$	approx.1379	520 – 600	1900 – 2000
Elongation	%	approx.14	45 – 60	—
Elastic Modulus	$\text{N/mm}^2$	196000	193000	203000
Hardness	HV	434	170	700
	HRC	44.0	3.0	60.1
Magnetism	—	Magnetic	Non magnetic*	Magnetic

\* AISI 304 stainless steel may be magnetized depending on manufacturing process.

## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 630
Balls	Silicon nitride ceramics ( $\text{Si}_3\text{N}_4$ )
Retainer	AISI 304
Shield	AISI 304
Seal*1	Nitrile rubber
Lubricant*2	Fluorine grease
ISO Tolerance Class	Normal

The following special specifications are also available.

\*1 Fluorine rubber seals

\*2 Food grade grease and other special greases

## Applications

LCD and semiconductor manufacturing equipment, film manufacturing equipment, metal plating equipment, other equipment used in acid or alkaline environment.

## Corrosion Resistance

Materials	Conditions	Corrosion Weight Loss (mm / Year)								
		Sulfuric Acid			Hydrochloric Acid		Nitric Acid	Acetic Acid	Phosphoric Acid	
		5% 35 °C /95 °F	1% 80 °C /176 °F	2% 80 °C /176 °F	0.5% 35 °C /95 °F	1% Boiling	66% Boiling	33% Boiling	20% Boiling	70% Boiling
AISI 630	Aging Heat Treatment	0.1	<0.1	0.2	<0.1	0.9	0.7	1.5	<0.1	3.0
AISI 304	Solution Heat Treatment	<0.1	0.6	2.0	0.2	0.4	0.2	<0.1	<0.1	1.0

\* Note that results may differ from the data listed, depending on the environment and conditions under which the bearings are used.

## Precautions

Due to the properties of AISI 630 stainless steel, bearings made of this material are not suitable for applications used under heavy loads or at high rotation that AISI 440C stainless steel ball bearings can carry.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

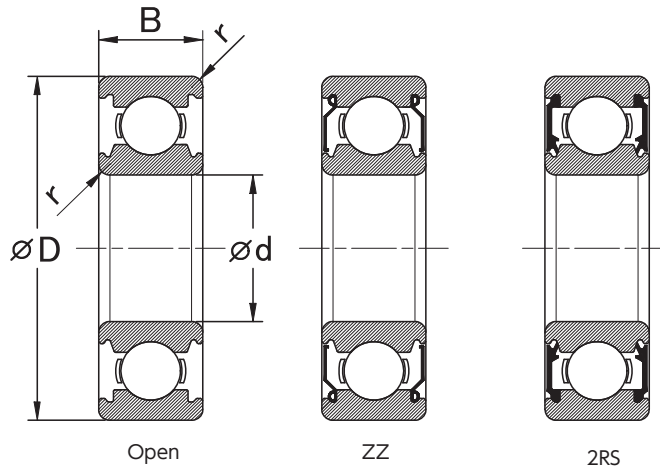
Examples of Use

## Composition of bearing number

**4S 6200 ZZ CB**

1      2      3      4

- 1 4S : Material AISI 630
- 2 Basic number
- 3 Blank : Open  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals
- 4 CB : Silicon nitride ceramic balls



## Table of Dimensions

Bearing Numbers	d mm	D mm	B mm	r min. mm	Basic Load Ratings		Limiting Speed (min <sup>-1</sup> )		
					C <sub>r</sub> N	C <sub>0r</sub> N	Grease		Oil Open
							Open·ZZ	2RS	
4S 6000 CB	10	26	8	0.3	1420	610	8400	8400	10000
4S 6200 CB	10	30	9	0.6	1590	740	7300	7300	8800
4S 6001 CB	12	28	8	0.3	1590	740	7300	7300	8800
4S 6201 CB	12	32	10	0.6	2110	945	6800	6800	8200
4S 6002 CB	15	32	9	0.3	1730	880	6400	6400	7700
4S 6202 CB	15	35	11	0.6	2370	1150	5900	5900	7100
4S 6003 CB	17	35	10	0.3	1860	1010	5800	5800	6900
4S 6203 CB	17	40	12	0.6	2970	1480	5200	5200	6200
4S 6004 CB	20	42	12	0.6	2910	1570	4800	4800	5700
4S 6204 CB	20	47	14	1.0	4000	2060	4300	4300	5200
4S 6005 CB	25	47	12	0.6	3100	1810	4200	4200	5000
4S 6205 CB	25	52	15	1.0	4350	2440	3800	3800	4600
4S 6006 CB	30	55	13	1.0	4100	2570	3500	3500	4200
4S 6206 CB	30	62	16	1.0	6050	3500	3200	3200	3900

Bearing selection

Products Series

AISI 440C

AISI 304

**AISI 630**

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

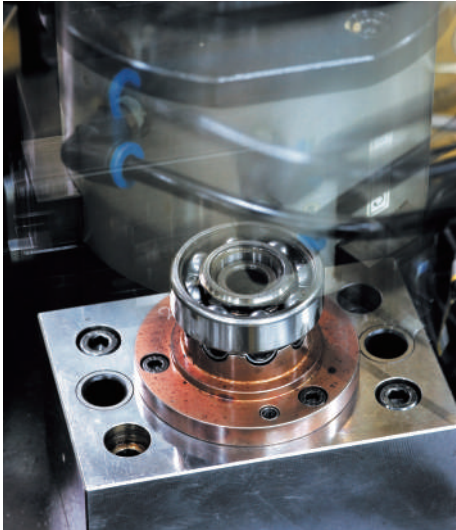
6800  
6900

SS5200  
5200

5800

Customization

Examples of Use



# 1T Series Pure Titanium Bearings

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use



Corrosion resistance



Chemicals



Non-magnetic



Insulation



“Rustproof and Human-friendly”  
Pure titanium bearings can be used for many special environment applications.



## Features

1. Corrosion resistance usable in severer corrosive environment than AISI 304 stainless steel bearing, by using high corrosion resistant pure titanium class 2 for outer and inner rings.
2. Human-friendly without allergen reactions, as usable as in artificial joints.
3. Non-magnetic bearing made of pure titanium rings and ceramic balls.  
By using ceramic balls allow insulation as well.
4. Usable in low temperature environment by good low temperature toughness.
5. Lower specific gravity: pure titanium 4.5 < SAE 52100 7.8

## Product Specifications

Standard Specifications	
Inner and Outer Rings	Pure titanium class 2
Balls	Silicon nitride ceramics (Si <sub>3</sub> N <sub>4</sub> )
Retainer	Fluorine resin

## Applications

Metal plating machine, seawater-related equipment, electronic device, equipment used in low temperature, etching equipment, developing machine, medical equipment.

## Sizes Available

Please contact SMT for the available sizes.

## Corrosion Resistance

Chemicals	Conditions	Temperature	Materials	
		°C/°F	Titanium	AISI 304
Hydrochloric Acid	10%	24°C/75°F	△	×
	30%	24°C/75°F	×	×
Aluminum Chloride	25%	Room	○	—
		Boiling	△	—
Nitric Acid	10%	Room	○	○
	50%	Boiling	○	△
Sulfurous Gas	Dry	30-60°C/86-140°F	○	×
Aqua Regalis	IHNO <sub>3</sub> +3HCl	Room	○	×
		Boiling	○	×
Lactic Acid	10%	100°C/212°F	○	△
	50%	100°C/212°F	○	×
Ferric Chloride	10%	24°C/75°F	○	×
	30%	24°C/75°F	○	×
Ferrous Sulfate	10%	24°C/75°F	○	△
	50%	24°C/75°F	○	△
Formic Acid	10%	100°C/212°F	△	×
	30%	100°C/212°F	×	×

\* ○ No effects  
 △ Slightly affected  
 × Affected  
 — No data

\* Results may differ from the data on the left depending on the environments and conditions.

## Comparison

	Unit	Pure titanium class 2	AISI 304	AISI 440C
Density	g/cm <sup>3</sup>	4.5	7.93	7.8
Tensile Strength	N/mm <sup>2</sup>	340 - 510	520 - 600	1900 - 2000
Elastic Modulus	N/mm <sup>2</sup>	106400	193000	203000
Hardness	HV	160	170	700
Magnetism	—	Non-magnetic	Non-magnetic*	Magnetic

\* AISI 304 stainless steel may be magnetized depending on manufacturing process.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# 2C Series Ceramic Bearings



Corrosion  
resistance



Chemicals



High  
temperature



Vacuum



Non-magnetic



Insulation



Non-grease

Bearing  
selection

Products  
Series

AISI  
440C

AISI  
304

AISI  
630

Pure  
Titanium

Ceramic

Heat  
Resistance

Grease  
Free

Low  
Torque

Solid  
Grease

Set  
Screw

Alignment  
Function

Flange  
Unit

Guide  
Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples  
of Use

Ideal for extremely corrosive environment, the 2C series uses ceramics for the inner and outer rings, balls, and fluorine resin for retainer.

## Features

1. Completely non-magnetic, by using ceramics.
2. Usable without grease, even in environment where greases can not be used, by using fluorine resin for retainer.
3. The operating temperature is up to 300°C/572°F.

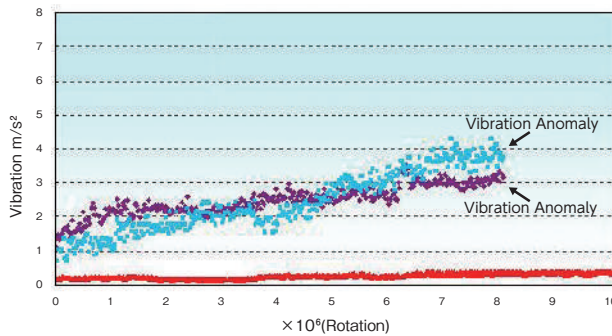
## Product Specifications

Standard Specifications	
Inner and Outer Rings	Zirconia ceramics (ZrO <sub>2</sub> )
Balls	Silicon nitride ceramics (Si <sub>3</sub> N <sub>4</sub> )
Retainer	Fluorine resin

## Applications

Seawater-related equipment, metal plating machine, electronic device, equipment used in low temperature, etching equipment, etc.

## Performance



### Test Conditions

Bearing : 6004  
 Temperature : 300°C/572°F  
 Radial Load : 400N  
 Rotation speed : 1000min<sup>-1</sup>

- ▲ SMT Ceramic Bearing
- ◆ Other brand, Japanese
- Other brand, abroad

## Precautions

- Ceramics are extremely brittle to impact of dropping and others. Please handle with care.
- Fit is class H tolerance range.

## Composition of bearing number

<b>2C 6000 CB CN3</b>	<table border="1"> <tr><td style="text-align: center;">1</td><td>2C : Material Zirconia ceramics</td></tr> <tr><td style="text-align: center;">2</td><td>Basic number</td></tr> <tr><td style="text-align: center;">3</td><td>CB : Silicon nitride ceramic balls</td></tr> <tr><td style="text-align: center;">4</td><td>CN3 : Fluorine resin retainer</td></tr> </table>	1	2C : Material Zirconia ceramics	2	Basic number	3	CB : Silicon nitride ceramic balls	4	CN3 : Fluorine resin retainer
1	2C : Material Zirconia ceramics								
2	Basic number								
3	CB : Silicon nitride ceramic balls								
4	CN3 : Fluorine resin retainer								
<table border="1"> <tr><td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td></tr> </table>	1	2	3	4					
1	2	3	4						

## Table of Dimensions

Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed
	mm	mm	mm	mm		
2C 6000 CB CN3	10	26	8	0.3	290	3150
2C 6200 CB CN3	10	30	9	0.6	325	2760
2C 6001 CB CN3	12	28	8	0.3	325	2760
2C 6201 CB CN3	12	32	10	0.6	430	2570
2C 6002 CB CN3	15	32	9	0.3	355	2410
2C 6202 CB CN3	15	35	11	0.6	485	2220
2C 6003 CB CN3	17	35	10	0.3	380	2180
2C 6203 CB CN3	17	40	12	0.6	610	1950
2C 6004 CB CN3	20	42	12	0.6	600	1800
2C 6204 CB CN3	20	47	14	1.0	815	1640
2C 6005 CB CN3	25	47	12	0.6	640	1570
2C 6205 CB CN3	25	52	15	1.0	890	1450
2C 6006 CB CN3	30	55	13	1.0	840	1330
2C 6206 CB CN3	30	62	16	1.0	1240	1210

\* Limiting radial load and limiting speed are figures when using the bearings without lubricants. Limiting radial load is estimated to have a total rotation speed of 1 million revolutions. The bearings are only available as open type.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# Heat-Resistant Series Heat-Resistant Stainless Bearings



Corrosion  
resistance

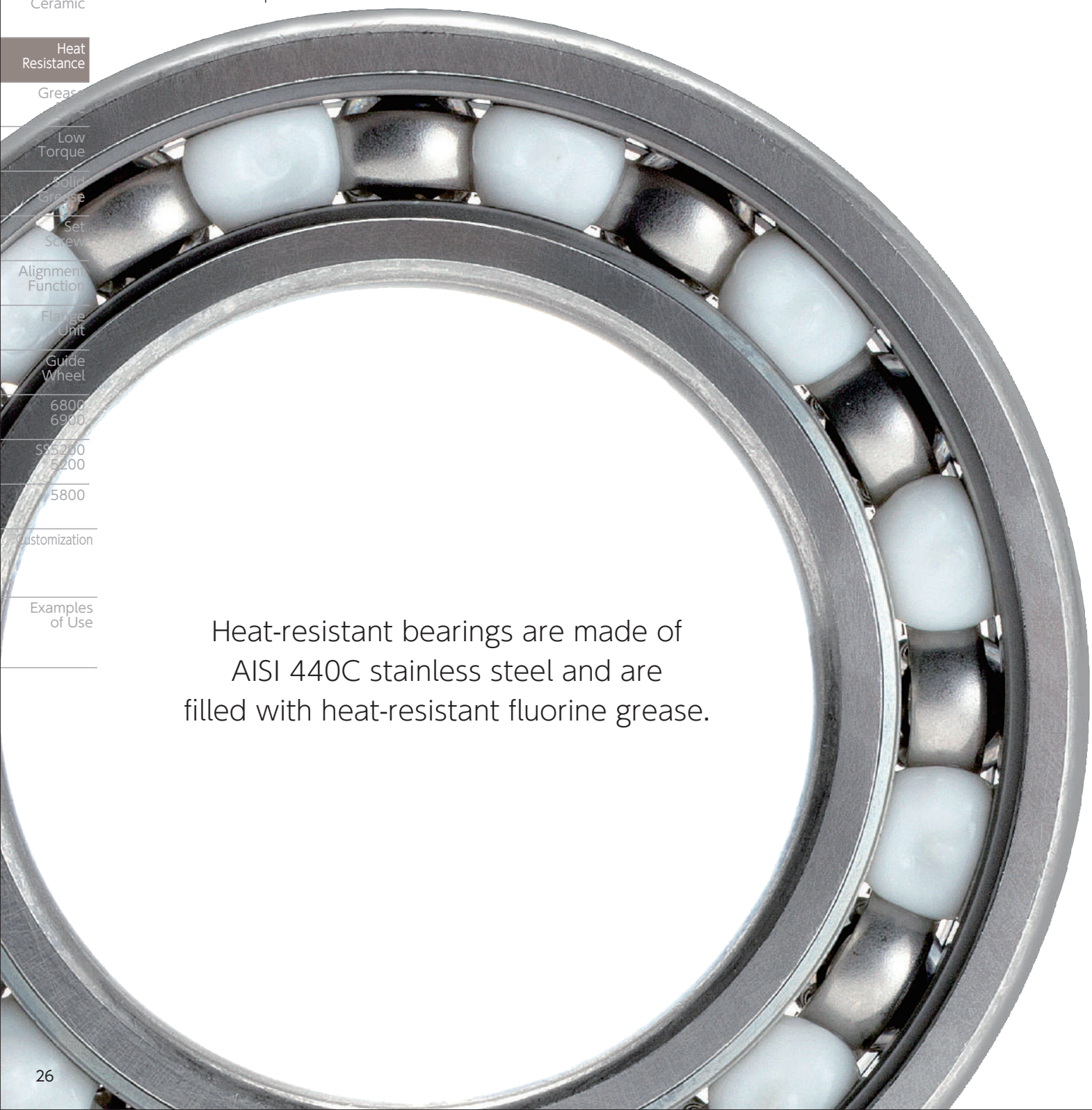


High  
temperature



Vacuum

- Bearing selection
- Products Series
  - AISI 440C
  - AISI 304
  - AISI 630
  - Pure Titanium
  - Ceramic
- Heat Resistance
  - Grease
  - Low Torque
  - Solid Grease
  - Set Screw
  - Alignment Function
  - Flange Unit
  - Guide Wheel
  - 6800
  - 6900
  - SS5200
  - 5200
  - 5800
- Customization
- Examples of Use



Heat-resistant bearings are made of  
AISI 440C stainless steel and are  
filled with heat-resistant fluorine grease.

## Features

1. Operating temperature is up to 250°C/482°F, except sealed type.
2. AISI 440C stainless steel has lower hardness decrease ratio and smaller dimension changes than SAE 52100 bearing steel in high temperature environment.
3. AISI 440C stainless steel is superior to SAE 52100 bearing steel in oxidation resistance in high temperature environment.
4. Filling heat-resistant fluorine grease enables lubrication in high temperature environment.

## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 440C
Balls	AISI 440C
Retainer	AISI 304
Shield	AISI 304
Seal	Fluorine rubber*
Lubricant	Heat-resistant fluorine grease
Radial clearance*1	C4

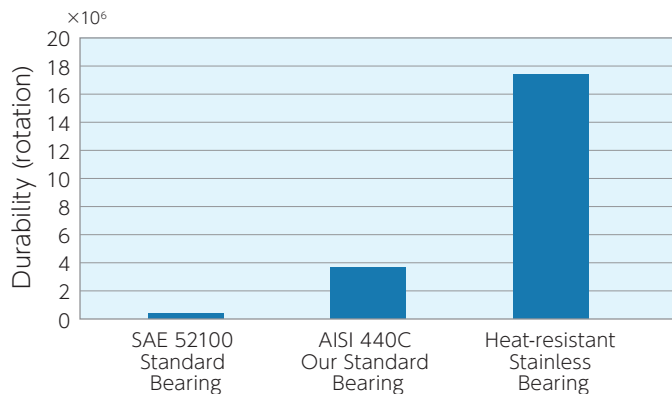
\*Sealed type is usable up to 200°C/392°F

The following special specifications are also available.

\*1 Special clearance, such as C3 or C5.

## Performance

### Durability in high temperature environment



#### ◎Test Conditions

Bearing : 6004  
 Temperature : 250°C/482°F  
 Radial load : 1000N  
 Rotation speed : 2000min<sup>-1</sup>

\*The above performance values are our test results and are not guaranteed values.

## Applications

Device around furnace, oven, heater, drying equipment, vacuum apparatus and other high temperature area.

## Precautions

Under high temperature environment, radial internal clearance is decreased depending on the difference of materials used for shaft, i.e. linear expansion coefficient, which may interfere with the rotation of the bearing. Please consider the thermal expansion sufficiently and select fitting and material of the shaft. Please contact us for further information.

Dimensions of heat-resistant stainless bearings and heat-resistant hybrid bearings are shown on pages 30 and 31.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# Heat-Resistant Series Heat-Resistant Hybrid Bearings

Bearing  
selection

Products  
Series

AISI  
440C

AISI  
304

AISI  
630

Pure  
Titanium

Ceramic



Corrosion  
resistance



High  
temperature



Vacuum



Insulation

Heat  
Resistance

Grease  
Free

Low  
Torque

Solid  
Grease

Set  
Screw

Alignment  
Function

Flange  
Unit

Guide  
Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples  
of Use

Heat-resistant Hybrid Bearings offer a longer lifetime, by incorporating ceramic balls, compared to Heat-resistant Stainless Bearings.

## Features

1. Operating temperature is up to 250°C/482°F, except sealed type.
2. Hybrid type incorporating ceramic balls into the outer and inner rings of AISI 440C stainless steel.
3. Longer grease life, by lower heat generation with ceramic balls.
4. Less running cost by longer lifetime.

Items	Unit	Silicon nitride Si <sub>3</sub> N <sub>4</sub>	Stainless steel AISI 440C	Bearing steel SAE 52100	Superiority of ceramic ball
Density	g/cm <sup>3</sup>	3.2	7.8	7.8	Lowering centrifugal force of balls
Heat expansion coefficient	×10 <sup>-6</sup> /°C	3.2	10.5	12.5	Small variation of internal clearance by temperature rise
Hardness	HV	1400	700	740	Less deformation and high rigidity
Young's modulus	GPa	320	200	210	Reducing friction by high rigidity
Heat resistance	°C (°F)	800 (1472)	400 (752)	180 (356)	Maintaining rigidity in high temperature
Conductivity	—	No	Yes	Yes	Preventing electric corrosion

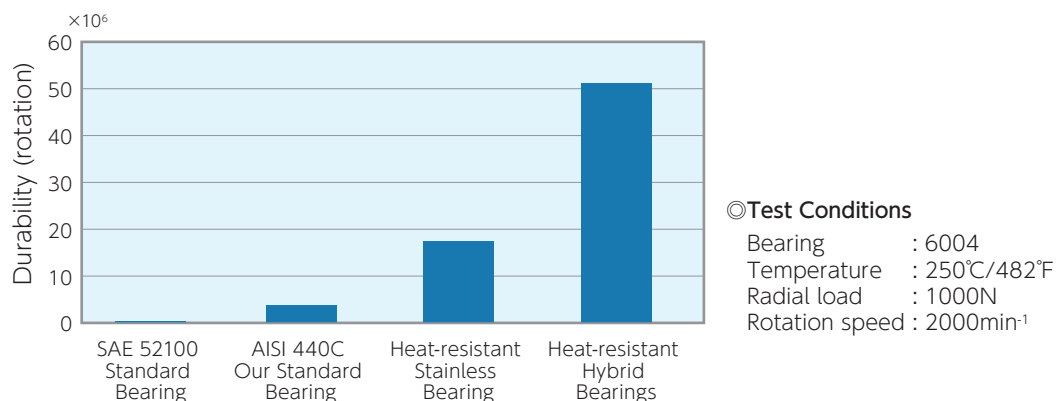
## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 440C
Balls	Silicon nitride ceramics (Si <sub>3</sub> N <sub>4</sub> )
Retainer	AISI 304
Shield	AISI 304
Seal	Fluorine rubber*
Lubricant	Heat-resistant fluorine grease
Radial clearance	C4

\*Sealed type available up to 200°C/392°F

## Performance

### Durability in high temperature environment



\*The above performance values are our test results and are not guaranteed values.

## Precautions

Under high temperature environment, radial internal clearance is decreased depending on the difference of materials used for shaft, i.e. linear expansion coefficient, which may interfere with the rotation of the bearing. Please consider the thermal expansion sufficiently and select fitting and material of the shaft. Please contact us for further information.

Dimensions of heat-resistant stainless bearings and heat-resistant hybrid bearings are shown on pages 30 to 31.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

## Composition of bearing number

**SS 6900 ZZ CB C4 KP**

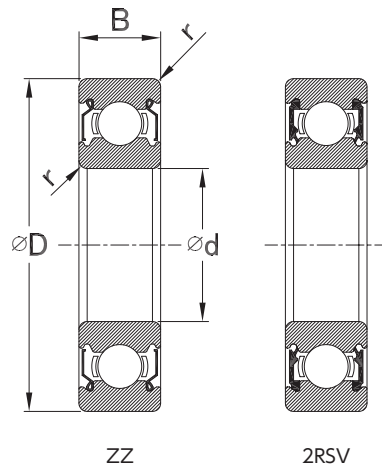
1 2 3 4 5 6

- 1 SS : Material AISI 440C
- 2 Basic number
- 3 ZZ : Double steel plate shields  
2RSV : Double fluorine contact rubber seals
- 4 Blank : AISI 440C stainless steel balls  
CB : Silicon nitride ceramic balls
- 5 C4 : C4 clearance
- 6 KP : Heat-resistant fluorine grease

## Table of Dimensions

Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed	Mass
	mm	mm	mm	mm	N	min <sup>-1</sup>	g
SS 6800	10	19	5	0.3	170	2000	5
SS 6900	10	22	6	0.3	215	2000	9
SS 6000	10	26	8	0.3	370	2000	18
SS 6200	10	30	9	0.6	410	2000	31
SS 6300	10	35	11	0.6	650	2000	52
SS 6801	12	21	5	0.3	155	2000	6
SS 6901	12	24	6	0.3	230	2000	10
SS 6001	12	28	8	0.3	410	2000	20
SS 6201	12	32	10	0.6	545	2000	36
SS 6301	12	37	12	1.0	775	2000	59
SS 6802	15	24	5	0.3	165	2000	7
SS 6902	15	28	7	0.3	345	2000	16
SS 6002	15	32	9	0.3	450	2000	30
SS 6202	15	35	11	0.6	610	2000	45
SS 6302	15	42	13	1.0	910	2000	81
SS 6803	17	26	5	0.3	210	2000	7
SS 6903	17	30	7	0.3	370	2000	17
SS 6003	17	35	10	0.3	480	2000	39
SS 6203	17	40	12	0.6	770	2000	63
SS 6303	17	47	14	1.0	1090	1880	110
SS 6804	20	32	7	0.3	320	2000	17
SS 6904	20	37	9	0.3	510	2000	36
SS 6004	20	42	12	0.6	750	2000	65
SS 6204	20	47	14	1.0	1020	1750	101
SS 6304	20	52	15	1.1	1270	1750	142
SS 6805	25	37	7	0.3	345	2000	21
SS 6905	25	42	9	0.3	560	1880	42
SS 6005	25	47	12	0.6	810	1750	77
SS 6205	25	52	15	1.0	1120	1630	127
SS 6305	25	62	17	1.1	1650	1380	225
SS 6806	30	42	7	0.3	365	1750	24
SS 6906	30	47	9	0.3	580	1630	49
SS 6006	30	55	13	1.0	1060	1500	114
SS 6206	30	62	16	1.0	1560	1380	192
SS 6306	30	72	19	1.1	2140	1200	342
SS 6807	35	47	7	0.3	380	1500	27
SS 6907	35	55	10	0.6	830	1380	74
SS 6007	35	62	14	1.0	1280	1250	148
SS 6207	35	72	17	1.1	2060	1150	276
SS 6307	35	80	21	1.5	2660	1080	446





Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800 6900

SS5200 5200

5800

Customization

Examples of Use

Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed	Mass
	mm	mm	mm	mm	N	min <sup>-1</sup>	g
SS 6808	40	52	7	0.3	395	1380	30
SS 6908	40	62	12	0.6	1100	1230	109
SS 6008	40	68	15	1.0	1340	1150	186
SS 6208	40	80	18	1.1	2330	1040	364
SS 6308	40	90	23	1.5	3250	960	616
SS 6909	45	68	12	0.6	1130	1110	128
SS 6009	45	75	16	1.0	1680	1040	237
SS 6209	45	85	19	1.1	2620	960	401
SS 6309	45	100	25	1.5	4250	850	811
SS 6910	50	72	12	0.6	1160	1030	130
SS 6010	50	80	16	1.0	1740	950	254
SS 6210	50	90	20	1.1	2810	890	452
SS 6310	50	110	27	2.0	4950	760	1044
SS 6911	55	80	13	1.0	1330	930	184
SS 6011	55	90	18	1.1	2260	860	376
SS 6211	55	100	21	1.5	3470	790	584
SS 6311	55	120	29	2.0	5750	500	1336
SS 6912	60	85	13	1.0	1620	850	192
SS 6012	60	95	18	1.1	2350	810	405
SS 6212	60	110	22	1.5	4200	730	764
SS 6312	60	130	31	2.1	6540	650	1676
SS 6913	65	90	13	1.0	1390	810	209
SS 6013	65	100	18	1.1	2440	760	428
SS 6213	65	120	23	1.5	4570	670	975
SS 6914	70	100	16	1.0	1890	730	334
SS 6014	70	110	20	1.1	3040	700	596
SS 6214	70	125	24	1.5	4970	630	1049
SS 6915	75	105	16	1.0	1940	700	351
SS 6015	75	115	20	1.1	3160	660	622
SS 6916	80	110	16	1.0	2000	660	369
SS 6016	80	125	22	1.1	3810	610	833

\* Limiting radial load is estimated to have a total rotation speed of 1 million revolutions.

# TC Series Grease-Free Bearings

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

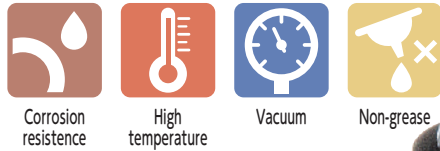
6800  
6900

SS5200  
5200

5800

Customization

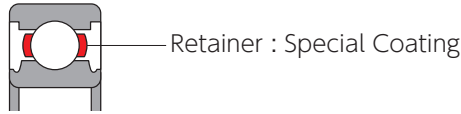
Examples of Use



The TC series is suitable for environments where the grease can not be used, such as a vacuum or high temperature application.

## Features

1. Operating temperature is up to 300°C/572°F, except sealed type.
2. Smooth rotation by low torque, except 2RS type.
3. Usable in environments where grease can not be used, by special coating on retainer.



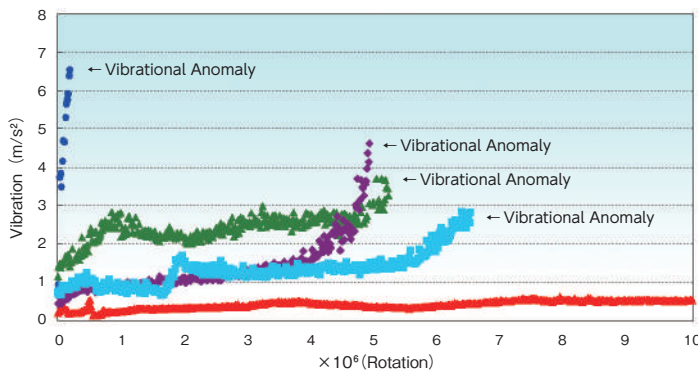
## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 440C
Balls*1	AISI 440C
Retainer	AISI 304 + Special coating
Shield	AISI 304
Seal*2	Nitrile rubber
Radial clearance	C4

The following special specifications are also available.

- \*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)
- \*2 Fluorine rubber seal

## Performance

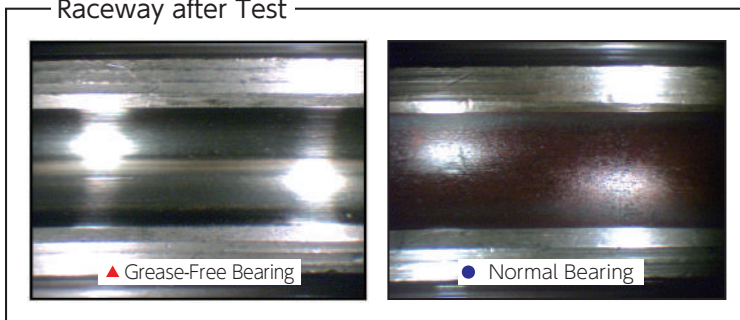


### ©Test Conditions

Bearing : 6004  
 Temperature : 300°C/572°F  
 Radial load : 400N  
 Rotation : 500min<sup>-1</sup>



### Raceway after Test



## Applications

Vacuum apparatus, LCD and semiconductor manufacturing equipment, film manufacturing equipment, other equipment used in high temperature.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

## Composition of bearing number

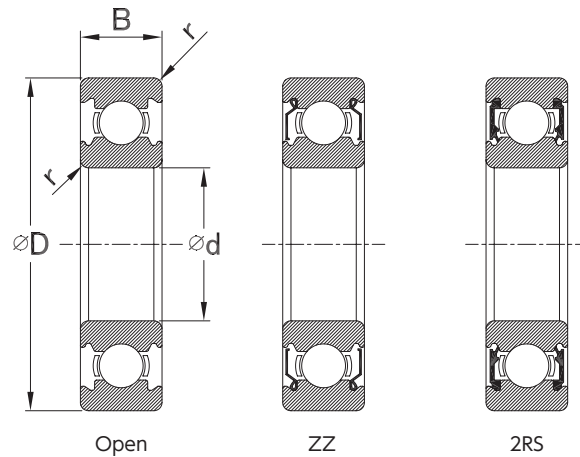
# SS 6300 ZZ C4 TC2

1      2      3      4      5

- 1 SS : Material AISI 440C
- 2 Basic number
- 3 Blank : Open  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals
- 4 C4 : C4 clearance
- 5 TC2 : Special coating retainer

## Table of Dimensions

Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed	Mass
	mm	mm	mm	mm	N	min <sup>-1</sup>	g
SS 6800 TC2	10	19	5	0.3	90	1090	5
SS 6900 TC2	10	22	6	0.3	115	980	9
SS 6000 TC2	10	26	8	0.3	195	880	18
SS 6200 TC2	10	30	9	0.6	215	770	31
SS 6300 TC2	10	35	11	0.6	345	700	52
SS 6801 TC2	12	21	5	0.3	80	950	6
SS 6901 TC2	12	24	6	0.3	125	880	10
SS 6001 TC2	12	28	8	0.3	215	770	20
SS 6201 TC2	12	32	10	0.6	290	720	36
SS 6301 TC2	12	37	12	1.0	415	640	59
SS 6802 TC2	15	24	5	0.3	90	810	7
SS 6902 TC2	15	28	7	0.3	185	730	16
SS 6002 TC2	15	32	9	0.3	240	670	30
SS 6202 TC2	15	35	11	0.6	325	620	45
SS 6302 TC2	15	42	13	1.0	485	530	81
SS 6803 TC2	17	26	5	0.3	110	730	7
SS 6903 TC2	17	30	7	0.3	195	670	17
SS 6003 TC2	17	35	10	0.3	255	610	39
SS 6203 TC2	17	40	12	0.6	410	540	63
SS 6303 TC2	17	47	14	1.0	580	480	110
SS 6804 TC2	20	32	7	0.3	170	620	17
SS 6904 TC2	20	37	9	0.3	275	550	36
SS 6004 TC2	20	42	12	0.6	400	500	65
SS 6204 TC2	20	47	14	1.0	545	460	101
SS 6304 TC2	20	52	15	1.1	675	440	142
SS 6805 TC2	25	37	7	0.3	185	520	21
SS 6905 TC2	25	42	9	0.3	300	460	42
SS 6005 TC2	25	47	12	0.6	430	440	77
SS 6205 TC2	25	52	15	1.0	595	400	127
SS 6305 TC2	25	62	17	1.1	880	350	225
SS 6806 TC2	30	42	7	0.3	195	440	24
SS 6906 TC2	30	47	9	0.3	310	410	49
SS 6006 TC2	30	55	13	1.0	560	370	114
SS 6206 TC2	30	62	16	1.0	830	340	192
SS 6306 TC2	30	72	19	1.1	1140	300	342
SS 6807 TC2	35	47	7	0.3	200	390	27
SS 6907 TC2	35	55	10	0.6	445	350	74
SS 6007 TC2	35	62	14	1.0	680	320	148
SS 6207 TC2	35	72	17	1.1	1090	290	276
SS 6307 TC2	35	80	21	1.5	1420	270	446



Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed	Mass
	mm	mm	mm	mm	N	min <sup>-1</sup>	g
SS 6808 TC2	40	52	7	0.3	210	350	30
SS 6908 TC2	40	62	12	0.6	585	310	109
SS 6008 TC2	40	68	15	1.0	715	290	186
SS 6208 TC2	40	80	18	1.1	1240	260	364
SS 6308 TC2	40	90	23	1.5	1730	240	616
SS 6909 TC2	45	68	12	0.6	600	280	128
SS 6009 TC2	45	75	16	1.0	895	260	237
SS 6209 TC2	45	85	19	1.1	1390	240	401
SS 6309 TC2	45	100	25	1.5	2260	210	811
SS 6910 TC2	50	72	12	0.6	620	260	130
SS 6010 TC2	50	80	16	1.0	930	240	254
SS 6210 TC2	50	90	20	1.1	1500	220	452
SS 6310 TC2	50	110	27	2.0	2640	190	1044
SS 6911 TC2	55	80	13	1.0	705	230	184
SS 6011 TC2	55	90	18	1.1	1210	220	376
SS 6211 TC2	55	100	21	1.5	1850	200	584
SS 6311 TC2	55	120	29	2.0	3050	180	1336
SS 6912 TC2	60	85	13	1.0	860	220	192
SS 6012 TC2	60	95	18	1.1	1250	200	405
SS 6212 TC2	60	110	22	1.5	2230	180	764
SS 6312 TC2	60	130	31	2.1	3480	160	1676
SS 6913 TC2	65	90	13	1.0	740	200	209
SS 6013 TC2	65	100	18	1.1	1290	190	428
SS 6213 TC2	65	120	23	1.5	2430	170	975
SS 6914 TC2	70	100	16	1.0	1000	180	334
SS 6014 TC2	70	110	20	1.1	1610	170	596
SS 6214 TC2	70	125	24	1.5	2640	160	1049
SS 6915 TC2	75	105	16	1.0	1030	170	351
SS 6015 TC2	75	115	20	1.1	1680	160	622
SS 6916 TC2	80	110	16	1.0	1060	160	369
SS 6016 TC2	80	125	22	1.1	2030	150	833

\* Limiting radial load is estimated to have a total rotation speed of 1 million revolutions.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# LF Series Special Low Torque Lubricant Bearings



Corrosion  
resistance



Clean



Non-grease

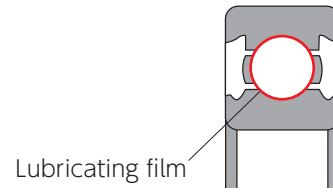
A very low torque rotation is achieved because grease is not used. Ideal when you want to reduce rotational resistance in an application such as "free spinning rollers".

- Bearing selection
- Products Series
  - AISI 440C
  - AISI 304
  - AISI 630
  - Pure Titanium
  - Ceramic
- Heat Resistance
- Grease Free
- Low Torque
- Solid Grease
- Set Screw
- Alignment Function
- Flange Unit
- Guide Wheel
  - 6800
  - 6900
  - SS5200
  - 5200
  - 5800
- Customization
- Examples of Use



## Features

1. Low torque compared to conventional bearings
2. By applying a lubricating film to the inside of the bearing, it can be used where oil leakage is not desired.
3. Low dust generation
4. The operating temperature is up to 50°C/122°F.
5. Used for light loads



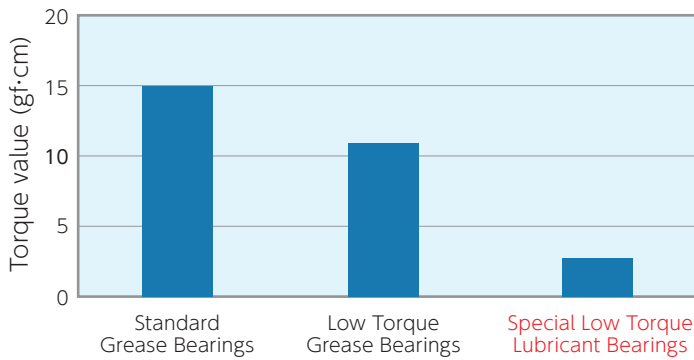
Lubricating film

## Product Specifications

Standard Specifications	
Inner and Outer rings	AISI 440C
Balls	AISI 440C
Retainer	AISI 304
Shield	AISI 304
Lubricant	Lubricating film

## Performance

Measured results at the start of rotation



©Measurement conditions  
Bearings: SS 6004 ZZ

\*The above performance values are our company measurement results and are not guaranteed.

## Applications

Free spinning rollers, film transfer rollers, clean room rollers, LCD and semiconductor manufacturing equipment

## Precautions

- Do not use in areas exposed to water, steam, chemicals, or oils.
- Do not use this product in a dusty environment as it is more likely to be damaged than regular products if foreign substances enter.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

## Composition of bearing number

# SS 6000 ZZ L-F1

1      2      3      4

1 SS : Material AISI 440C

2 Basic number

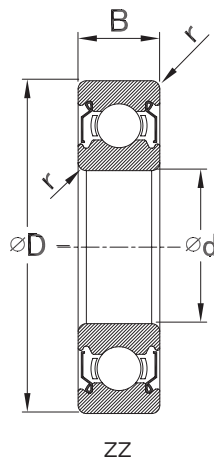
3 ZZ : Double steel plate shields

4 L-F1 : Lubricating film

## Table of Dimensions

Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed	Mass
	mm	mm	mm	mm	N	min <sup>-1</sup>	g
SS 6800 ZZ L-F1	10	19	5	0.3	180	2120	5
SS 6900 ZZ L-F1	10	22	6	0.3	230	1930	9
SS 6000 ZZ L-F1	10	26	8	0.3	390	1750	18
SS 6200 ZZ L-F1	10	30	9	0.6	430	1500	31
SS 6300 ZZ L-F1	10	35	11	0.6	685	1370	52
SS 6801 ZZ L-F1	12	21	5	0.3	160	1870	6
SS 6901 ZZ L-F1	12	24	6	0.3	245	1750	10
SS 6001 ZZ L-F1	12	28	8	0.3	430	1500	20
SS 6201 ZZ L-F1	12	32	10	0.6	575	1430	36
SS 6301 ZZ L-F1	12	37	12	1.0	825	1250	59
SS 6802 ZZ L-F1	15	24	5	0.3	175	1620	7
SS 6902 ZZ L-F1	15	28	7	0.3	365	1430	16
SS 6002 ZZ L-F1	15	32	9	0.3	475	1310	30
SS 6202 ZZ L-F1	15	35	11	0.6	650	1250	45
SS 6302 ZZ L-F1	15	42	13	1.0	970	1060	81
SS 6803 ZZ L-F1	17	26	5	0.3	220	1430	7
SS 6903 ZZ L-F1	17	30	7	0.3	390	1310	17
SS 6003 ZZ L-F1	17	35	10	0.3	510	1180	39
SS 6203 ZZ L-F1	17	40	12	0.6	815	1060	63
SS 6303 ZZ L-F1	17	47	14	1.0	1155	930	110
SS 6804 ZZ L-F1	20	32	7	0.3	340	1250	17
SS 6904 ZZ L-F1	20	37	9	0.3	545	1120	36
SS 6004 ZZ L-F1	20	42	12	0.6	800	1000	65
SS 6204 ZZ L-F1	20	47	14	1.0	1085	870	101
SS 6304 ZZ L-F1	20	52	15	1.1	1350	870	142
SS 6805 ZZ L-F1	25	37	7	0.3	365	1000	21
SS 6905 ZZ L-F1	25	42	9	0.3	595	930	42
SS 6005 ZZ L-F1	25	47	12	0.6	860	870	77
SS 6205 ZZ L-F1	25	52	15	1.0	1190	810	127
SS 6305 ZZ L-F1	25	62	17	1.1	1750	680	225
SS 6806 ZZ L-F1	30	42	7	0.3	385	870	24
SS 6906 ZZ L-F1	30	47	9	0.3	615	810	49
SS 6006 ZZ L-F1	30	55	13	1.0	1120	750	114
SS 6206 ZZ L-F1	30	62	16	1.0	1660	680	192
SS 6306 ZZ L-F1	30	72	19	1.1	2270	600	342
SS 6807 ZZ L-F1	35	47	7	0.3	400	750	27
SS 6907 ZZ L-F1	35	55	10	0.6	885	680	74
SS 6007 ZZ L-F1	35	62	14	1.0	1360	620	148
SS 6207 ZZ L-F1	35	72	17	1.1	2185	570	276
SS 6307 ZZ L-F1	35	80	21	1.5	2830	530	446





Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed	Mass
	mm	mm	mm	mm	N	min <sup>-1</sup>	g
SS 6808 ZZ L-F1	40	52	7	0.3	420	680	30
SS 6908 ZZ L-F1	40	62	12	0.6	1165	610	109
SS 6008 ZZ L-F1	40	68	15	1.0	1430	570	186
SS 6208 ZZ L-F1	40	80	18	1.1	2475	510	364
SS 6308 ZZ L-F1	40	90	23	1.5	3460	480	616
SS 6909 ZZ L-F1	45	68	12	0.6	1200	550	128
SS 6009 ZZ L-F1	45	75	16	1.0	1785	510	237
SS 6209 ZZ L-F1	45	85	19	1.1	2780	480	401
SS 6309 ZZ L-F1	45	100	25	1.5	4510	420	811
SS 6910 ZZ L-F1	50	72	12	0.6	1230	510	130
SS 6010 ZZ L-F1	50	80	16	1.0	1855	470	254
SS 6210 ZZ L-F1	50	90	20	1.1	2985	440	452
SS 6310 ZZ L-F1	50	110	27	2.0	5275	380	1044
SS 6911 ZZ L-F1	55	80	13	1.0	1410	460	184
SS 6011 ZZ L-F1	55	90	18	1.1	2405	430	376
SS 6211 ZZ L-F1	55	100	21	1.5	3690	390	584
SS 6311 ZZ L-F1	55	120	29	2.0	6090	350	1336
SS 6912 ZZ L-F1	60	85	13	1.0	1715	420	192
SS 6012 ZZ L-F1	60	95	18	1.1	2500	400	405
SS 6212 ZZ L-F1	60	110	22	1.5	4460	360	764
SS 6312 ZZ L-F1	60	130	31	2.1	6960	320	1676
SS 6913 ZZ L-F1	65	90	13	1.0	1480	400	209
SS 6013 ZZ L-F1	65	100	18	1.1	2595	380	428
SS 6213 ZZ L-F1	65	120	23	1.5	4865	330	975
SS 6914 ZZ L-F1	70	100	16	1.0	2015	360	334
SS 6014 ZZ L-F1	70	110	20	1.1	3230	350	596
SS 6214 ZZ L-F1	70	125	24	1.5	5290	310	1049
SS 6915 ZZ L-F1	75	105	16	1.0	2065	350	351
SS 6015 ZZ L-F1	75	115	20	1.1	3360	330	622
SS 6916 ZZ L-F1	80	110	16	1.0	2125	330	369
SS 6016 ZZ L-F1	80	125	22	1.1	4060	300	833

\* Limiting radial load is estimated to have a total rotation speed of 1 million revolutions.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS200  
5200

5800

Customization

Examples of Use

# SG Series Solid Grease Bearings

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

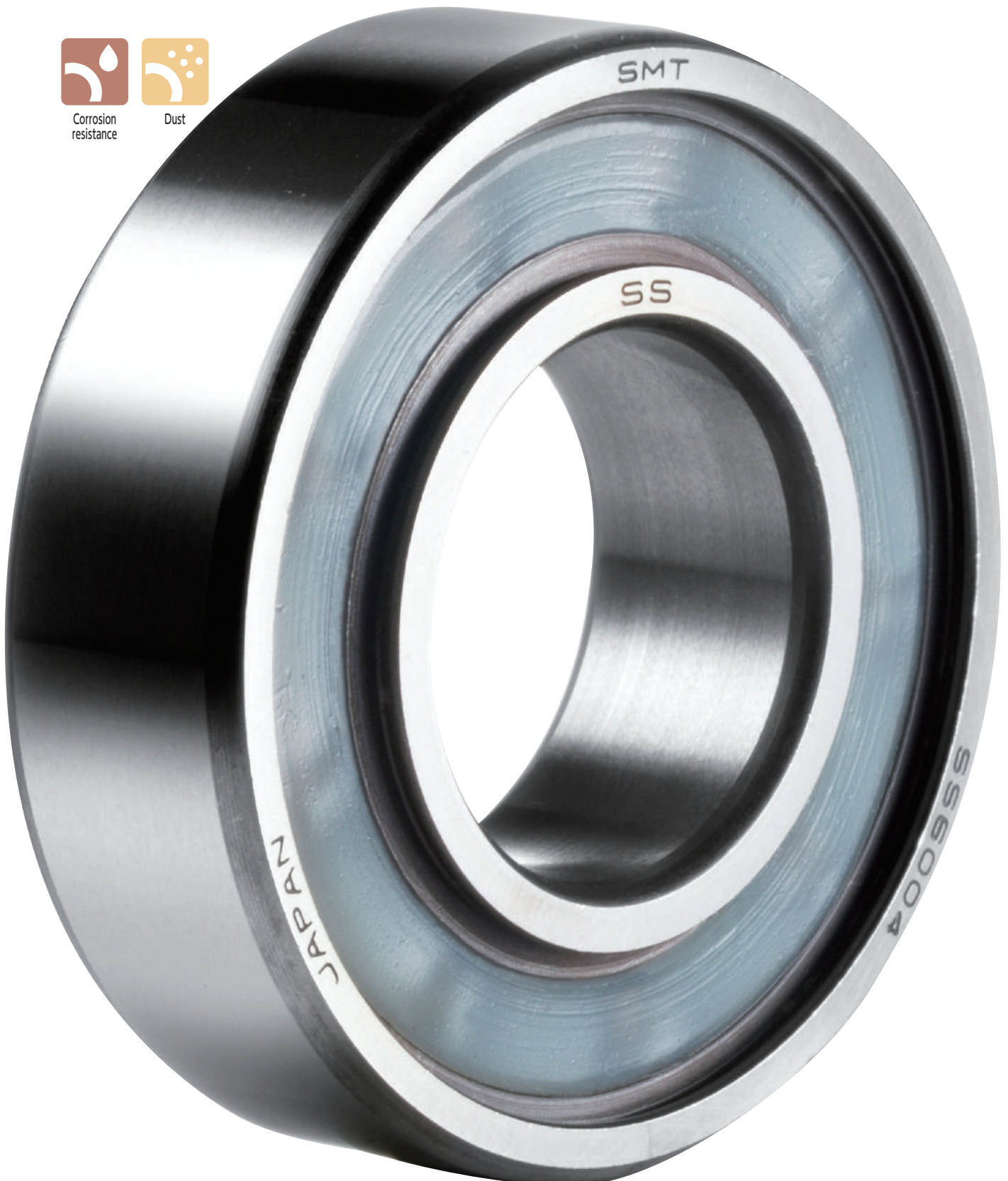
Examples of Use



Corrosion resistance



Dust



By fully packing the inside space of the bearings with solid grease, dust is less likely to enter, resulting in a longer bearing life.

## Features

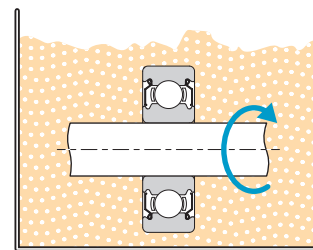
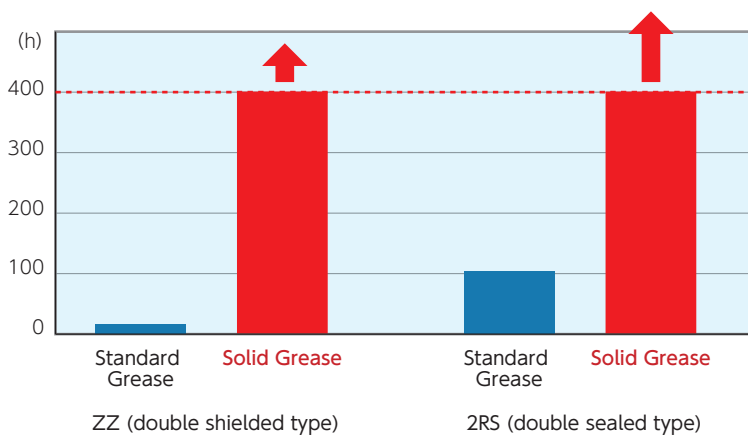
1. Solid grease is retained inside the bearing even in wet or humid environments.
2. Solid grease contains NSF H1-certified food machine grease and FDA-compliant resin.
3. The operating temperature is from -20°C to 80°C/ -4°F to 176°F.

## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 440C
Balls	AISI 440C
Retainer	AISI 304
Shield	AISI 304
Seal	Nitrile rubber
Lubricant	Solid grease

## Performance

### Durability in dusty environments



#### ◎Test conditions

Bearing : SS 6004  
 Temperature : room temperature  
 Radial load : 1000N  
 Rotating speed : 500min<sup>-1</sup>  
 Powder particle size : about 0.02mm

\*The test finished in 400 hours without any problems.

The above performance values are our company test results and are not guaranteed.

## Applications

Powder equipment , food machinery, cleaning equipment, agitators, textile machinery, papermaking machinery

## Precautions

- A load of at least 5% of the limiting radial load in the dimension chart is required to rotate the balls without slipping.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

## Composition of bearing number

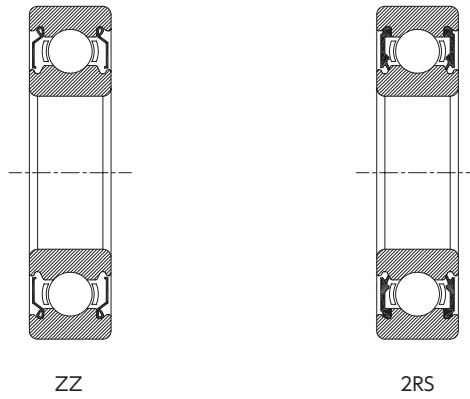
**SS 6200 2RS SG1**

1 2 3 4

- 1 SS : Material AISI 440C
- 2 Basic number
- 3 ZZ : Double steel plate shields  
2RS : Double contact rubber seals
- 4 SG1 : Solid grease

## Table of Dimensions

Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed	Mass
	mm	mm	mm	mm	N	min <sup>-1</sup>	g
SS 6800 SG1	10	19	5	0.3	450	5310	5
SS 6900 SG1	10	22	6	0.3	570	4840	9
SS 6000 SG1	10	26	8	0.3	975	4370	18
SS 6200 SG1	10	30	9	0.6	1085	3750	31
SS 6300 SG1	10	35	11	0.6	1720	3430	52
SS 6801 SG1	12	21	5	0.3	405	4680	6
SS 6901 SG1	12	24	6	0.3	615	4370	10
SS 6001 SG1	12	28	8	0.3	1085	3750	20
SS 6201 SG1	12	32	10	0.6	1445	3590	36
SS 6301 SG1	12	37	12	1.0	2060	3120	59
SS 6802 SG1	15	24	5	0.3	440	4060	7
SS 6902 SG1	15	28	7	0.3	915	3590	16
SS 6002 SG1	15	32	9	0.3	1190	3280	30
SS 6202 SG1	15	35	11	0.6	1625	3120	45
SS 6302 SG1	15	42	13	1.0	2425	2650	81
SS 6803 SG1	17	26	5	0.3	560	3590	7
SS 6903 SG1	17	30	7	0.3	975	3280	17
SS 6003 SG1	17	35	10	0.3	1275	2960	39
SS 6203 SG1	17	40	12	0.6	2040	2650	63
SS 6303 SG1	17	47	14	1.0	2890	2340	110
SS 6804 SG1	20	32	7	0.3	850	3120	17
SS 6904 SG1	20	37	9	0.3	1360	2810	36
SS 6004 SG1	20	42	12	0.6	2000	2500	65
SS 6204 SG1	20	47	14	1.0	2720	2180	101
SS 6304 SG1	20	52	15	1.1	3380	2180	142
SS 6805 SG1	25	37	7	0.3	915	2500	21
SS 6905 SG1	25	42	9	0.3	1485	2300	42
SS 6005 SG1	25	47	12	0.6	2145	2180	77
SS 6205 SG1	25	52	15	1.0	2975	2030	127
SS 6305 SG1	25	62	17	1.1	4380	1710	225
SS 6806 SG1	30	42	7	0.3	965	2180	24
SS 6906 SG1	30	47	9	0.3	1540	2030	49
SS 6006 SG1	30	55	13	1.0	2805	1870	114
SS 6206 SG1	30	62	16	1.0	4145	1710	192
SS 6306 SG1	30	72	19	1.1	5680	1500	342
SS 6807 SG1	35	47	7	0.3	1010	1870	27
SS 6907 SG1	35	55	10	0.6	2210	1710	74
SS 6007 SG1	35	62	14	1.0	3400	1560	148
SS 6207 SG1	35	72	17	1.1	5465	1430	276
SS 6307 SG1	35	80	21	1.5	7085	1340	446



Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800 6900

SS5200 5200

5800

Customization

Examples of Use

Bearing Numbers	d	D	B	r min.	Limiting Radial Load	Limiting Speed	Mass
	mm	mm	mm	mm	N	min <sup>-1</sup>	g
SS 6808 SG1	40	52	7	0.3	1050	1710	30
SS 6908 SG1	40	62	12	0.6	2915	1530	109
SS 6008 SG1	40	68	15	1.0	3570	1430	186
SS 6208 SG1	40	80	18	1.1	6190	1290	364
SS 6308 SG1	40	90	23	1.5	8660	1200	616
SS 6909 SG1	45	68	12	0.6	3000	1390	128
SS 6009 SG1	45	75	16	1.0	4465	1290	237
SS 6209 SG1	45	85	19	1.1	6955	1200	401
SS 6309 SG1	45	100	25	1.5	11275	1060	811
SS 6910 SG1	50	72	12	0.6	3085	1280	130
SS 6010 SG1	50	80	16	1.0	4635	1180	254
SS 6210 SG1	50	90	20	1.1	7465	1100	452
SS 6310 SG1	50	110	27	2.0	13190	950	1044
SS 6911 SG1	55	80	13	1.0	3530	1150	184
SS 6011 SG1	55	90	18	1.1	6020	1070	376
SS 6211 SG1	55	100	21	1.5	9230	980	584
SS 6311 SG1	55	120	29	2.0	15230	870	1336
SS 6912 SG1	60	85	13	1.0	4295	1060	192
SS 6012 SG1	60	95	18	1.1	6255	1010	405
SS 6212 SG1	60	110	22	1.5	11145	900	764
SS 6312 SG1	60	130	31	2.1	17400	810	1676
SS 6913 SG1	65	90	13	1.0	3700	1010	209
SS 6013 SG1	65	100	18	1.1	6485	950	428
SS 6213 SG1	65	120	23	1.5	12170	840	975
SS 6914 SG1	70	100	16	1.0	5040	920	334
SS 6014 SG1	70	110	20	1.1	8085	870	596
SS 6214 SG1	70	125	24	1.5	13230	790	1049
SS 6915 SG1	75	105	16	1.0	5170	870	351
SS 6015 SG1	75	115	20	1.1	8400	820	622
SS 6916 SG1	80	110	16	1.0	5315	820	369
SS 6016 SG1	80	125	22	1.1	10145	760	833

\* Limiting radial load is estimated to have a total rotation speed of 1 million revolutions.

# SSXC Series Stainless Bearings with Set Screw

Bearing  
selection

Products  
Series

AISI  
440C

AISI  
304

AISI  
630

Pure  
Titanium

Ceramic



Corrosion  
resistance



High-load  
environment



Transportation

Heat  
Resistance

Grease  
Free

Low  
Torque

Solid  
Grease

Set  
Screw

Alignment  
Function

Flange  
Unit

Guide  
Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples  
of Use



Improving workability by mounting with set screw and no need for collars to fix or locate bearings.

## Features

1. Secure fastening by set screw prevents creeping between shaft and bore
2. Free from abrasion powder caused by creeping  
Suitable for use in such environment like clean room where powder dust is not allowed
3. Heat-resistant temperature of standard specifications is the same as SS series

## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 440C
Balls *1	AISI 440C
Retainer	AISI 304
Shield	AISI 304
Set screw	AISI 304 equivalent
Lubricant *2	Heat-resistant grease

The following special specifications are also available.

\*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)

\*2 Chemical- and heat-resistant fluorine grease, food-grade grease, and other special greases

## Applications

Food processing machinery, cleaning equipment, LCD and semiconductor manufacturing equipment, carrier device in a watery environment, other equipment used in environments with high temperatures and high humidity.

## Precautions

Please refer to the chart for the tightening torque.

Too much torque may damage the bearing. Adhesive bond is not recommended that may increase the tightening force and result in the breakage of bearing.

Tightening torque

Set screw size	Tightening torque N·m
M3	0.7
M4	1.8
M5	3.0
M6	4.0

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

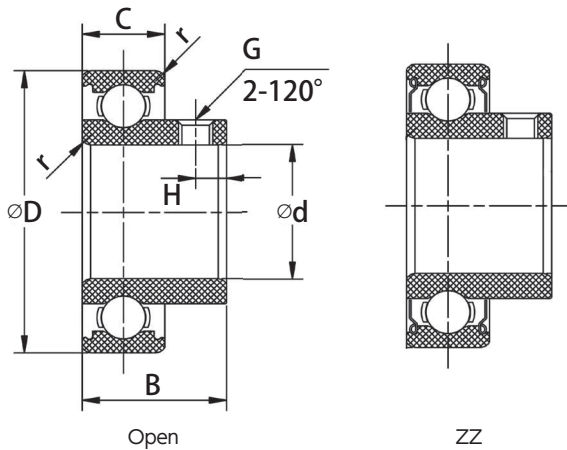
Examples of Use

## Composition of bearing number

**SS XC 200 ZZ**

1      2      3      4

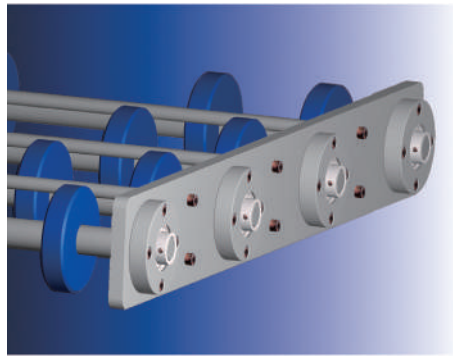
- 1 SS : Material AISI 440C
- 2 XC : With set screw
- 3 Basic number
- 4 Blank : Open  
ZZ : Double steel plate shields



## Table of Dimensions

Bearing Numbers	d		D	B	C	G	H	r min.	Basic Load Ratings		Mass
	mm	Tolerance							C <sub>r</sub>	C <sub>or</sub>	
SS XC900	10	+0.015 0	22	13	6	M3	3.0	0.3	2700	1270	13
SS XC000	10		26	15	8	M3	3.0	0.3	4600	1970	24
SS XC200	10		30	17	9	M4	3.5	0.6	5100	2390	41
SS XC901	12		24	13	6	M3	3.0	0.3	2890	1460	15
SS XC001	12		28	15	8	M3	3.0	0.3	5100	2390	27
SS XC201	12		32	19	10	M4	3.5	0.6	6800	3050	47
SS XC902	15		28	14	7	M3	3.0	0.3	4300	2250	21
SS XC002	15		32	16.5	9	M3	3.0	0.3	5600	2840	39
SS XC202	15		35	20	11	M4	3.5	0.6	7650	3750	58
SS XC903	17		30	14	7	M3	3.0	0.3	4600	2550	23
SS XC003	17	35	17.5	10	M4	3.5	0.3	6000	3250	51	
SS XC203	17	40	21	12	M5	4.5	0.6	9600	4800	83	
SS XC904	20	+0.018 0	37	18	9	M4	3.5	0.3	6400	3700	51
SS XC004	20		42	21	12	M5	4.5	0.6	9400	5050	86
SS XC204	20		47	23	14	M5	4.5	1.0	12800	6650	127
SS XC905	25		42	18	9	M4	3.5	0.3	7000	4550	62
SS XC005	25		47	22	12	M5	4.5	0.6	10100	5850	103
SS XC205	25		52	26	15	M5	4.5	1.0	14000	7900	162
SS XC906	30		47	18	9	M4	3.5	0.3	7250	5000	69
SS XC006	30		55	24.5	13	M5	5.0	1.0	13200	8300	152
SS XC206	30		62	28.5	16	M6	5.5	1.0	19500	11300	252
SS XC207	35		+0.021 0	72	33	17	M6	6.5	1.1	25700	15400





Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# SH Series Stainless Bearings with Aligning Ring



Corrosion  
resistance



High-load  
environment



Transportation



The aligning feature allows for the misalignment of roller or shaft. This allows the bearings to require less maintenance and less downtime.

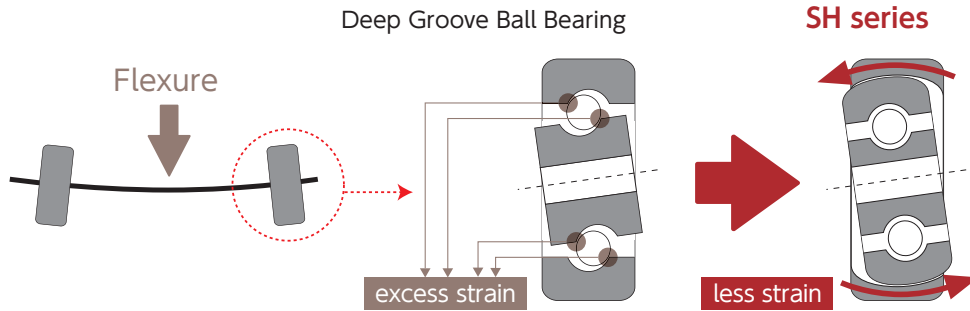
## Features

### 1. Corrosion Resistance

Made of AISI 440C stainless steel, and suitable in a corrosive environment, in clean room and for food machinery.

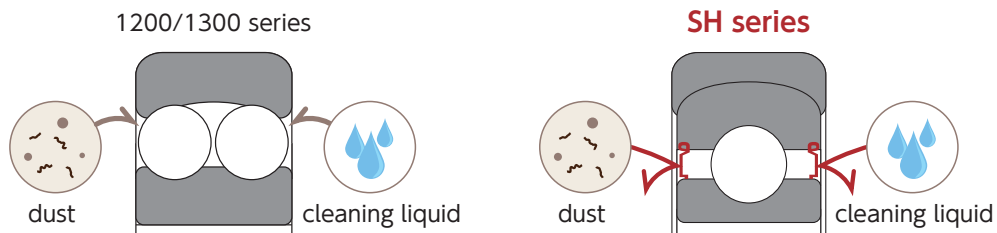
### 2. Aligning Function

Reducing the excess strain on bearing, by aligning the flexure of the conveyor roller's shaft or the error of shaft center.



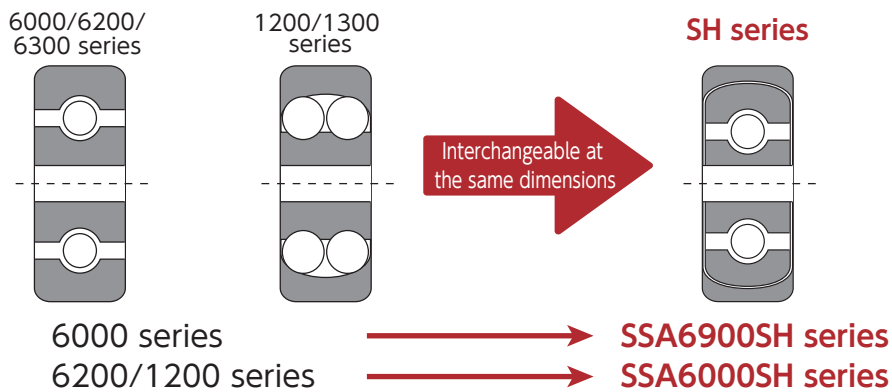
### 3. Dustproof

Available with seals and shields, and suitable in a dusty or watery environment.



### 4. Interchangeability

Interchangeable to 6000, 6200, 6300, 1200 and 1300 series bearings. The dimensions are the same, except the width of the bearing inside.



### 5. Heat resistance

Heat-resistant temperature of standard specifications is the same as SS series.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization



Examples of Use

Bearing selection

## 6. Other

The SH series bearings have more advantages than the standard self-aligning bearings made of SAE 52100 steel.

Products Series

	 Existing Products	 SH series
Radial load	○	○
Axial load	△	○
Combined load	△	○
High speed	△	○
Dustproof	×	○
Low noise/ Low torque	—	○
Corrosion resistance	×	○

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

## ■ Applications

Rollers for chemical film conveyor, clean room application, food machinery, glass substrate equipment, cleaning system, printing machine conveyor, transportation conveyor, other places where requiring aligning function.

## ■ Precautions

- Recommended fit to housing bore is H class of tolerance range. Please consult with us in case of special use conditions.
- Axial load may impair the aligning function, therefore is not recommended.
- Please refer to the chart below for the recommended tightening torque. Adhesive bond is not recommended. It may damage the bearing.

Recommended tightening torque

Set screw size	Tightening torque N·m
M3	0.7
M4	1.8
M5	3.0
M6	4.0

## ■ Product Specifications (SSA type with aligning function)

Standard Specifications	
Inner and Outer Rings	AISI 440C
Aligning Ring	AISI 440C
Balls*1	AISI 440C
Retainer	AISI 304
Shield	AISI 304
Seal*2	Nitrile rubber
Lubricant*3	Heat-resistant grease

The following special specifications are also available.

\*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)

\*2 Fluorine rubber seal

\*3 Fluorine chemical-resistant grease, food grade grease, and other special greases

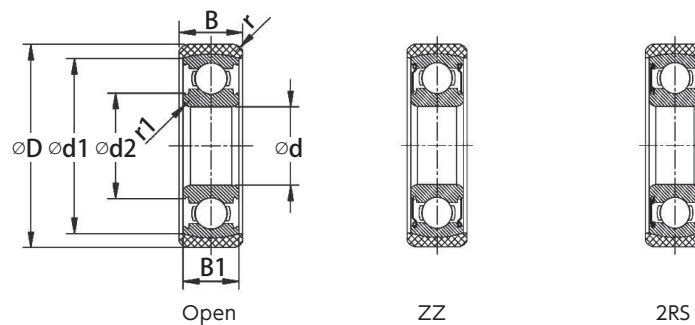
## Composition of bearing number (SSA type with aligning function)

**SS A 6000 2RS SH**

1 2 3 4 5

- 1 SS : Material AISI 440C
- 2 A : With aligning function
- 3 Basic number
- 4 Blank : Open  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals
- 5 SH : Aligning ring

## Table of Dimensions (SSA type with aligning function)



Bearing Numbers	d mm	D mm	B mm	B1 mm	d1 mm	d2 mm	r min. mm	r1 min. mm	Basic Load Ratings		Mass g	Interchangeable
									Cr N	Cor N		
SS A6900 SH	10	26	8	6	20.9	13.2	0.3	0.3	2700	1270	19	6000
SS A6000 SH	10	30	9	8	24.8	13.3	0.6	0.3	4600	1970	30	6200,1200
SS A6200 SH	10	35	11	9	28.3	16.0	0.6	0.6	5100	2390	52	6300,1300
SS A6901 SH	12	28	8	6	23.0	15.3	0.3	0.3	2890	1460	21	6001
SS A6001 SH	12	32	10	8	26.5	16.0	0.6	0.3	5100	2390	34	6201,1201
SS A6201 SH	12	37	12	10	30.1	16.7	1.0	0.6	6800	3050	60	6301,1301
SS A6902 SH	15	32	9	7	26.8	18.5	0.3	0.3	4300	2250	29	6002
SS A6002 SH	15	35	11	9	30.4	19.0	0.6	0.3	5600	2840	43	6202,1202
SS A6202 SH	15	42	13	11	32.9	20.2	1.0	0.6	7650	3750	86	6302,1302
SS A6903 SH	17	35	10	7	28.6	20.5	0.3	0.3	4600	2550	37	6003
SS A6003 SH	17	40	12	10	33.2	21.5	0.6	0.3	6000	3250	67	6203,1203
SS A6203 SH	17	47	14	12	37.9	22.2	1.0	0.6	9600	4800	114	6303,1303
SS A6904 SH	20	42	12	9	35.3	24.0	0.6	0.3	6400	3700	65	6004
SS A6004 SH	20	47	14	12	40.1	25.1	1.0	0.6	9400	5050	102	6204,1204
SS A6204 SH	20	52	15	14	45.0	26.9	1.1	1.0	12800	6650	144	6304,1304
SS A6905 SH	25	47	12	9	40.6	29.7	0.6	0.3	7000	4550	75	6005
SS A6005 SH	25	52	15	12	45.0	30.1	1.1	0.6	10100	5850	120	6205,1205
SS A6205 SH	25	62	17	15	49.6	32.8	1.1	1.0	14000	7900	241	6305,1305
SS A6906 SH	30	55	13	9	45.5	34.0	1.0	0.3	7250	5000	113	6006
SS A6006 SH	30	62	16	13	53.0	35.8	1.0	1.0	13200	8300	193	6206,1206
SS A6206 SH	30	72	19	16	59.6	38.5	1.1	1.0	19500	11300	344	6306,1306
SS A6907 SH	35	62	14	10	53.5	39.7	1.0	0.6	10400	7200	144	6007
SS A6007 SH	35	72	17	14	60.1	41.9	1.1	1.0	16000	10300	284	6207,1207
SS A6207 SH	35	80	21	17	69.4	45.2	1.5	1.1	25700	15400	436	6307,1307
SS A6908 SH	40	68	15	12	60.6	45.0	1.0	0.6	13700	9900	180	6008
SS A6008 SH	40	80	18	15	66.5	47.1	1.1	1.0	16800	11600	377	6208,1208
SS A6208 SH	40	90	23	18	77.4	50.3	1.5	1.1	29100	17900	602	6308,1308
SS A6909 SH	45	75	16	12	66.5	50.5	1.0	0.6	14100	10900	227	6009
SS A6009 SH	45	85	19	16	73.0	52.1	1.1	1.0	21000	15100	419	6209,1209
SS A6209 SH	45	100	25	19	82.0	54.3	1.5	1.1	32700	20500	821	6309,1309
SS A6910 SH	50	80	16	12	70.6	55.0	1.0	0.6	14500	11700	249	6010
SS A6010 SH	50	90	20	16	78.1	57.6	1.1	1.0	21800	16600	459	6210,1210
SS A6210 SH	50	110	27	20	86.7	59.8	2.0	1.1	35100	23200	1102	6310,1310

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900SS5200  
5200

5800

Customization

Examples of Use

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

## Product Specifications (SSXCA type with aligning function and set screw)

Standard Specifications	
Inner and Outer Rings	AISI 440C
Aligning Ring	AISI 440C
Balls*1	AISI 440C
Retainer	AISI 304
Shield	AISI 304
Set screw	AISI 304 equivalent
Lubricant*2	Heat-resistant grease

The following special specifications are also available.

- \*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)
- \*2 Chemical- and heat-resistant fluorine grease, food-grade grease, and other special greases

Pure Titanium

Ceramic

## Composition of bearing number (SSXCA type with aligning function and set screw)

**SS XCA 6200 ZZ SH**

1 2 3 4 5

- 1 SS : Material AISI 440C
- 2 XCA : With aligning function and set screw
- 3 Basic number
- 4 Blank : Open  
ZZ : Double steel plate shields
- 5 SH : Aligning ring

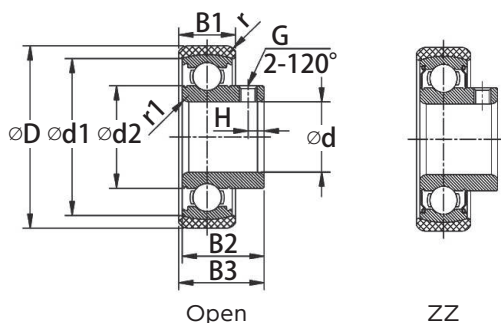
Heat Resistance

Grease Free

Low Torque

Solid Grease

## Table of Dimensions (SSXCA type with aligning function and set screw)



Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Bearing Numbers	d		D	B1	B2	B3	G	H	d1	d2	r min.	r1 min.	Basic Load Ratings	
	mm	Tolerance											C <sub>r</sub>	C <sub>or</sub>
SS XCA6900 SH	10	+0.015 0	26	8	13	14	M3	3.0	20.9	13.75	0.3	0.3	2700	1270
SS XCA6000 SH	10		30	9	15	15.5	M3	3.0	24.8	14.86	0.6	0.3	4600	1970
SS XCA6200 SH	10		35	11	17	18	M4	3.5	28.3	17.45	0.6	0.6	5100	2390
SS XCA6901 SH	12		28	8	13	14	M3	3.0	23.0	15.85	0.3	0.3	2890	1460
SS XCA6001 SH	12		32	10	15	16	M3	3.0	26.5	17.45	0.6	0.3	5100	2390
SS XCA6201 SH	12		37	12	19	20	M4	3.5	30.1	18.19	1.0	0.6	6800	3050
SS XCA6902 SH	15		32	9	14	15	M3	3.0	26.8	18.96	0.3	0.3	4300	2250
SS XCA6002 SH	15		35	11	16.5	17.5	M3	3.0	30.4	20.45	0.6	0.3	5600	2840
SS XCA6202 SH	15		42	13	20	21	M4	3.5	32.9	21.69	1.0	0.6	7650	3750
SS XCA6903 SH	17		35	10	14	15.5	M3	3.0	28.6	20.96	0.3	0.3	4600	2550
SS XCA6003 SH	17	40	12	17.5	18.5	M4	3.5	33.2	22.95	0.6	0.3	6000	3250	
SS XCA6203 SH	17	47	14	21	22	M5	4.5	37.9	24.68	1.0	0.6	9600	4800	
SS XCA6904 SH	20	+0.018 0	42	12	18	19.5	M4	3.5	35.3	25.45	0.6	0.3	6400	3700
SS XCA6004 SH	20		47	14	21	22	M5	4.5	40.1	27.44	1.0	0.6	9400	5050
SS XCA6204 SH	20		52	15	23	23.5	M5	4.5	45.0	29.22	1.1	1.0	12800	6650
SS XCA6905 SH	25		47	12	18	19.5	M4	3.5	40.6	31.15	0.6	0.3	7000	4550
SS XCA6005 SH	25		52	15	22	23.5	M5	4.5	45.0	32.04	1.1	0.6	10100	5850
SS XCA6205 SH	25		62	17	26	27	M5	4.5	49.6	33.92	1.1	1.0	14000	7900
SS XCA6906 SH	30		55	13	18	20	M4	3.5	45.5	35.45	1.0	0.3	7250	5000
SS XCA6006 SH	30		62	16	24.5	26	M5	5.0	53.0	37.93	1.0	1.0	13200	8300
SS XCA6206 SH	30		72	19	28.5	30	M6	5.5	59.6	40.60	1.1	1.0	19500	11300
SS XCA6207 SH	35		+0.021 0	80	21	33	35	M6	6.5	69.4	47.39	1.5	1.1	25700

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use



Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# SB Series Stainless Bearings with Aligning Ring (for outer ring rotation)



Corrosion resistance



High-load environment



Transportation

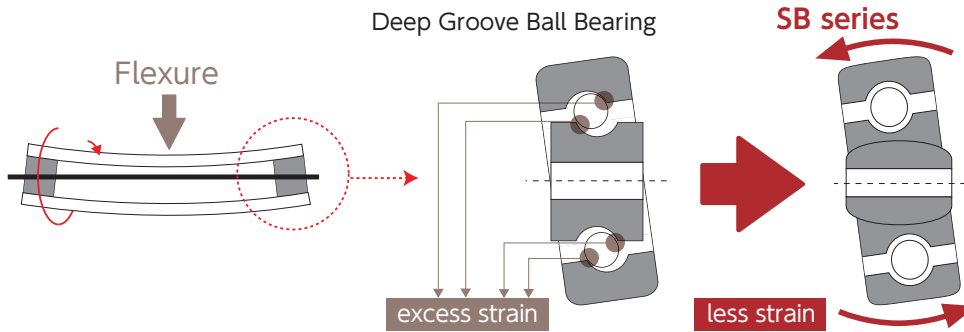


This bearing has an alignment function, implemented by incorporating an alignment ring inside the inner ring.



## Features

1. Used for outer ring rotation
2. The alignment function reduces the abnormal load on bearings caused by deflection of rollers, etc.



## Product Specifications

Standard Specifications	
Inner and Outer Rings	AISI 440C
Aligning Ring	AISI 440C
Balls*1	AISI 440C
Retainer	AISI 304
Shield	AISI 304
Seal*2	Nitrile rubber
Lubricant*3	Heat-resistant grease

The following special specifications are also available.

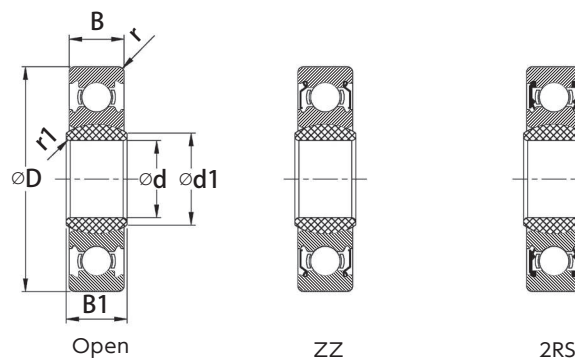
- \*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)
- \*2 Fluorine rubber seal
- \*3 Chemical- and heat-resistant fluorine grease, food-grade grease, and other special greases

## Composition of bearing number

**SS 00200 ZZ SB**

1      2      3      4

- 1 SS : Material AISI 440C
- 2 Basic number
- 3 Blank : Open  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals
- 4 SB : Aligning ring (for outer ring rotation)



## Table of Dimensions

Bearing Numbers	d	D	B	B1	d1	r min.	r1 min.	Basic Load Ratings	
								C <sub>r</sub>	C <sub>or</sub>
								N	N
SS 00200 SB	10	32	9	10	12.8	0.3	0.3	5600	2840
SS 00301 SB	12	35	10	11	14.8	0.3	0.3	6000	3250
SS 00402 SB	15	42	12	13	17.3	0.6	0.3	9400	5050
SS 00503 SB	17	47	12	14	21.7	0.6	0.6	10100	5850
SS 00604 SB	20	55	13	15	26.5	1.0	1.0	13200	8300
SS 00705 SB	25	62	14	16	31.4	1.0	1.0	16000	10300
SS 00806 SB	30	68	15	17	36.4	1.0	1.0	16800	11600
SS 00907 SB	35	75	16	18	41.4	1.0	1.0	21000	15100

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# SF Series AISI 440C Flanged Bearing Units



Corrosion  
resistance



High-load  
environment



Transportation

Bearing  
selection

Products  
Series

AISI  
440C

AISI  
304

AISI  
630

Pure  
Titanium

Ceramic

Heat  
Resistance

Grease  
Free

Low  
Torque

Solid  
Grease

Set  
Screw

Alignment  
Function

Flange  
Unit

Guide  
Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples  
of Use



High-precision flanged bearing units made with single low deep groove stainless steel bearing and stainless bearing housing. Contribute significantly to cost reduction by simplified facility design and improved work efficiency.

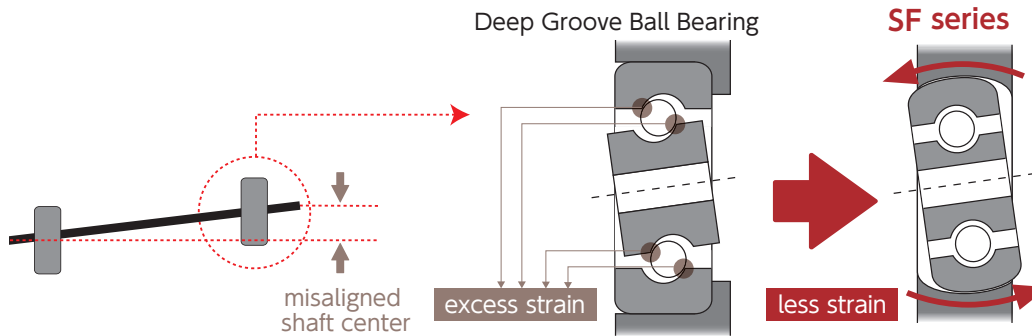
## Features

### 1. Corrosion Resistance

Both bearing and housing made of AISI 440C stainless steel are superior for corrosion resistance and clean environment.

### 2. Aligning function for SSA and SSXCA type

Aligning function can reduce the stress on the bearing by the error of shaft center and the flexure of the shaft.



### 3. Fit

The adequate fit is kept between the bearing and the housing because no difference occurs in the amount of expansion and contraction by using AISI 440C stainless steel for both components.

### 4. Mounting

Best used for the applications that require precise positioning by the precision finishing. As for SSXCA and SSXC types, shaft can be easily fastened with set screws.

## Applications

Food machinery, clean room application, chemical processing machine, cleaning equipment, conveyor

## Precautions

Axial load may impair the aligning function, therefore is not recommended.

Please refer to the chart below for the recommended tightening torque.

Refrain from tightening over the recommended torque or using a screw locking adhesive.

They can cause bearings to fail prematurely.

### Set screw recommended torque

Sizes	TorqueN·m
M3	0.7
M4	1.8
M5	3.0
M6	4.0

### Mounting bolt recommended torque

Sizes	TorqueN·m
M4	1.8
M5	3.0
M6	4.0
M8	8.5

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

## Composition of bearing number

# SS XCA 6000 ZZ SFA

1 2 3 4 5

- 1 SS : Material AISI 440C
- 2 A : With aligning function  
XCA : With aligning function and set screw  
XC : With set screw
- 3 Basic number
- 4 Blank : Open  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals
- 5 SF : Round flange, cylindrical I.D.  
SFA : Round flange, spherical I.D.

## Product Specifications (SSA type with aligning function)

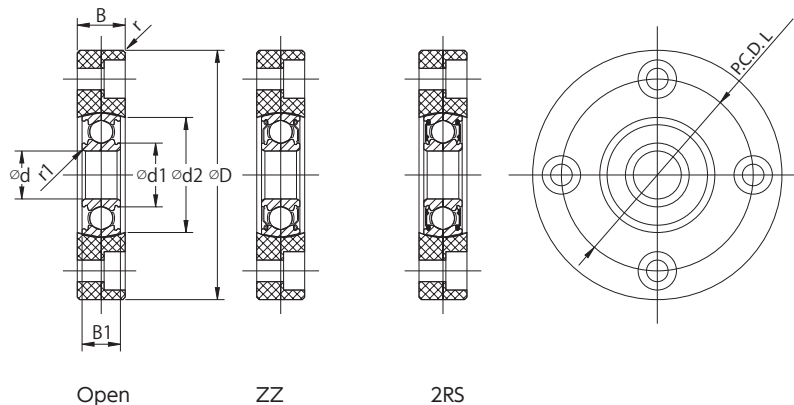
Standard Specifications			
Bearing	SSA type Spherical O.D.	Inner and Outer Rings	AISI 440C
		Balls*1	AISI 440C
		Retainer	AISI 304
		Shield	AISI 304
		Seal*2	Nitrile rubber
Housing		AISI 440C	
Lubricant*3		Heat-resistant grease	

The following special specifications are also available.

\*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)

\*2 Fluorine rubber seal

\*3 Heat- and chemical-resistant fluorine grease, food grade grease, and other special greases

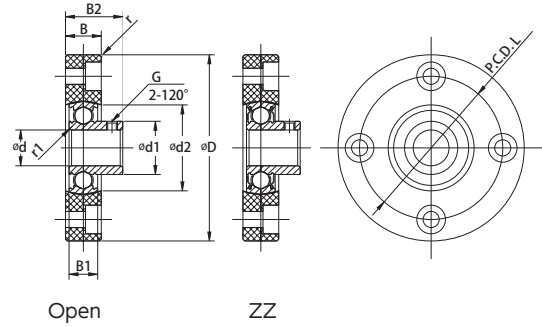


## Table of Dimensions

Bearing Numbers	d	B1	D	B	L	d1	d2	r min.	r1 min.	Bolt size	Basic Load Ratings	
											C <sub>r</sub>	C <sub>0r</sub>
	mm	mm	mm	mm	mm	mm	mm	mm	mm	—	N	N
SS A6000 SFA	10	8	52	10	40	13.3	24.4	0.6	0.3	M4	4600	1970
SS A6200 SFA	10	9	55	10	43	16.0	28.6	0.6	0.6	M4	5100	2390
SS A6001 SFA	12	8	55	10	43	16.0	26.5	0.6	0.3	M4	5100	2390
SS A6201 SFA	12	10	58	12	45.5	16.7	30.1	0.6	0.6	M5	6800	3050
SS A6002 SFA	15	9	58	12	45.5	19.0	30.1	0.6	0.3	M5	5600	2840
SS A6202 SFA	15	11	68	12.5	52	20.2	33.1	0.6	0.6	M5	7650	3750
SS A6003 SFA	17	10	68	12.5	52	21.5	33.1	0.6	0.3	M5	6000	3250
SS A6203 SFA	17	12	72	14	57	22.2	37.9	1.0	0.6	M6	9600	4800
SS A6004 SFA	20	12	72	14	57	25.1	40.1	1.0	0.6	M6	9400	5050
SS A6204 SFA	20	14	80	15.5	64	26.9	44.8	1.1	1.0	M6	12800	6650
SS A6005 SFA	25	12	80	15.5	64	30.1	44.8	1.1	0.6	M6	10100	5850
SS A6205 SFA	25	15	95	17	76	32.8	49.7	1.1	1.0	M8	14000	7900
SS A6006 SFA	30	13	95	17	76	35.8	52.7	1.1	1.0	M8	13200	8300
SS A6206 SFA	30	16	105	18.5	86	38.5	59.7	1.1	1.0	M8	19500	11300

**Product Specifications (SSXCA type with aligning function and set screw)**

Standard Specifications			
Bearing	SSXCA type Spherical O.D. with set screw	Inner and Outer Rings	AISI 440C
		Balls*1	AISI 440C
		Retainer	AISI 304
		Shield	AISI 304
		Set Screw	AISI 304 equivalent
Housing		AISI 440C	
Lubricant*3		Heat-resistant grease	



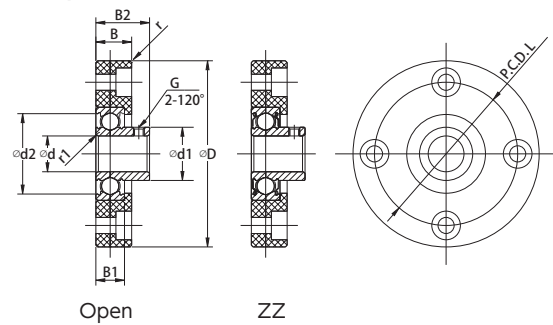
**Table of Dimensions**

Bearing Numbers	d		B1	B2	G	D	B	L	d1	d2	r min.	r1 min.	Bolt size	Basic Load Ratings	
	mm	Tolerance												Cr	Cor
SS XCA6000 SFA	10	+0.015 0	8	16	M3	52	10	40	14.86	24.4	0.6	0.3	M4	4600	1970
SS XCA6200 SFA	10		9	17.5	M4	55	10	43	17.45	28.6	0.6	0.6	M4	5100	2390
SS XCA6001 SFA	12		8	16	M3	55	10	43	17.45	26.5	0.6	0.3	M4	5100	2390
SS XCA6201 SFA	12		10	20	M4	58	12	45.5	18.19	30.1	0.6	0.6	M5	6800	3050
SS XCA6002 SFA	15		9	18	M3	58	12	45.5	20.45	30.1	0.6	0.3	M5	5600	2840
SS XCA6202 SFA	15		11	20.75	M4	68	12.5	52	21.69	33.1	0.6	0.6	M5	7650	3750
SS XCA6003 SFA	17		10	18.75	M4	68	12.5	52	22.95	33.1	0.6	0.3	M5	6000	3250
SS XCA6203 SFA	17	12	22	M5	72	14	57	24.68	37.9	1.0	0.6	M6	9600	4800	
SS XCA6004 SFA	20	+0.018 0	12	22	M5	72	14	57	27.44	40.1	1.0	0.6	M6	9400	5050
SS XCA6204 SFA	20		14	23.75	M5	80	15.5	64	29.22	44.8	1.1	1.0	M6	12800	6650
SS XCA6005 SFA	25		12	23.75	M5	80	15.5	64	32.04	44.8	1.1	0.6	M6	10100	5850
SS XCA6205 SFA	25		15	27	M5	95	17	76	33.92	49.7	1.1	1.0	M8	14000	7900
SS XCA6006 SFA	30		13	26.5	M5	95	17	76	37.93	52.7	1.1	1.0	M8	13200	8300
SS XCA6206 SFA	30		16	29.75	M6	105	18.5	86	40.60	59.7	1.1	1.0	M8	19500	11300

Also usable by inverting a housing against bearings.

**Products Specifications (SSXC type with set screw)**

Standard Specifications			
Bearing	SSXC type Cylindrical O.D. with set screw	Inner and Outer Rings	AISI 440C
		Balls*1	AISI 440C
		Retainer	AISI 304
		Shield	AISI 304
		Set Screw	AISI 304 equivalent
Housing		AISI 440C	
Lubricant*3		Heat-resistant grease	



**Table of Dimensions**

Bearing Numbers	d		B1	B2	G	D	B	L	d1	d2	r min.	r1 min.	Bolt size	Basic Load Ratings	
	mm	Tolerance												Cr	Cor
SS XC000 SF	10	+0.015 0	8	15	M3	52	10	40	14.86	22.5	0.6	0.3	M4	4600	1970
SS XC200 SF	10		9	17	M4	55	10	43	17.45	25.2	0.6	0.6	M4	5100	2390
SS XC001 SF	12		8	15	M3	55	10	43	17.45	25.2	0.6	0.3	M4	5100	2390
SS XC201 SF	12		10	19	M4	58	12	45.5	18.19	27.5	0.6	0.6	M5	6800	3050
SS XC002 SF	15		9	16.5	M3	58	12	45.5	20.45	28.2	0.6	0.3	M5	5600	2840
SS XC202 SF	15		11	20	M4	68	12.5	52	21.69	30.6	0.6	0.6	M5	7650	3750
SS XC003 SF	17		10	17.5	M4	68	12.5	52	22.95	30.7	0.6	0.3	M5	6000	3250
SS XC203 SF	17	12	21	M5	72	14	57	24.68	35.1	1.0	0.6	M6	9600	4800	
SS XC004 SF	20	+0.018 0	12	21	M5	72	14	57	27.44	37.5	1.0	0.6	M6	9400	5050
SS XC204 SF	20		14	23	M5	80	15.5	64	29.22	41.3	1.1	1.0	M6	12800	6650
SS XC005 SF	25		12	22	M5	80	15.5	64	32.04	42.5	1.1	0.6	M6	10100	5850
SS XC205 SF	25		15	26	M5	95	17	76	33.92	46.1	1.1	1.0	M8	14000	7900
SS XC006 SF	30		13	24.5	M5	95	17	76	37.93	49.1	1.1	1.0	M8	13200	8300
SS XC206 SF	30		16	28.5	M6	105	18.5	86	40.60	55.1	1.1	1.0	M8	19500	11300

Bearing can be dismounted from housing. Also usable by inverting a housing against bearings. Please mind a bearing coming off a housing.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# GW Series Guide Wheel Bearings

Bearing  
selection

Products  
Series

AISI  
440C

AISI  
304

AISI  
630

Pure  
Titanium

Ceramic

Heat  
Resistance

Grease  
Free

Low  
Torque

Solid  
Grease

Set  
Screw

Alignment  
Function

Flange  
Unit

Guide  
Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples  
of Use

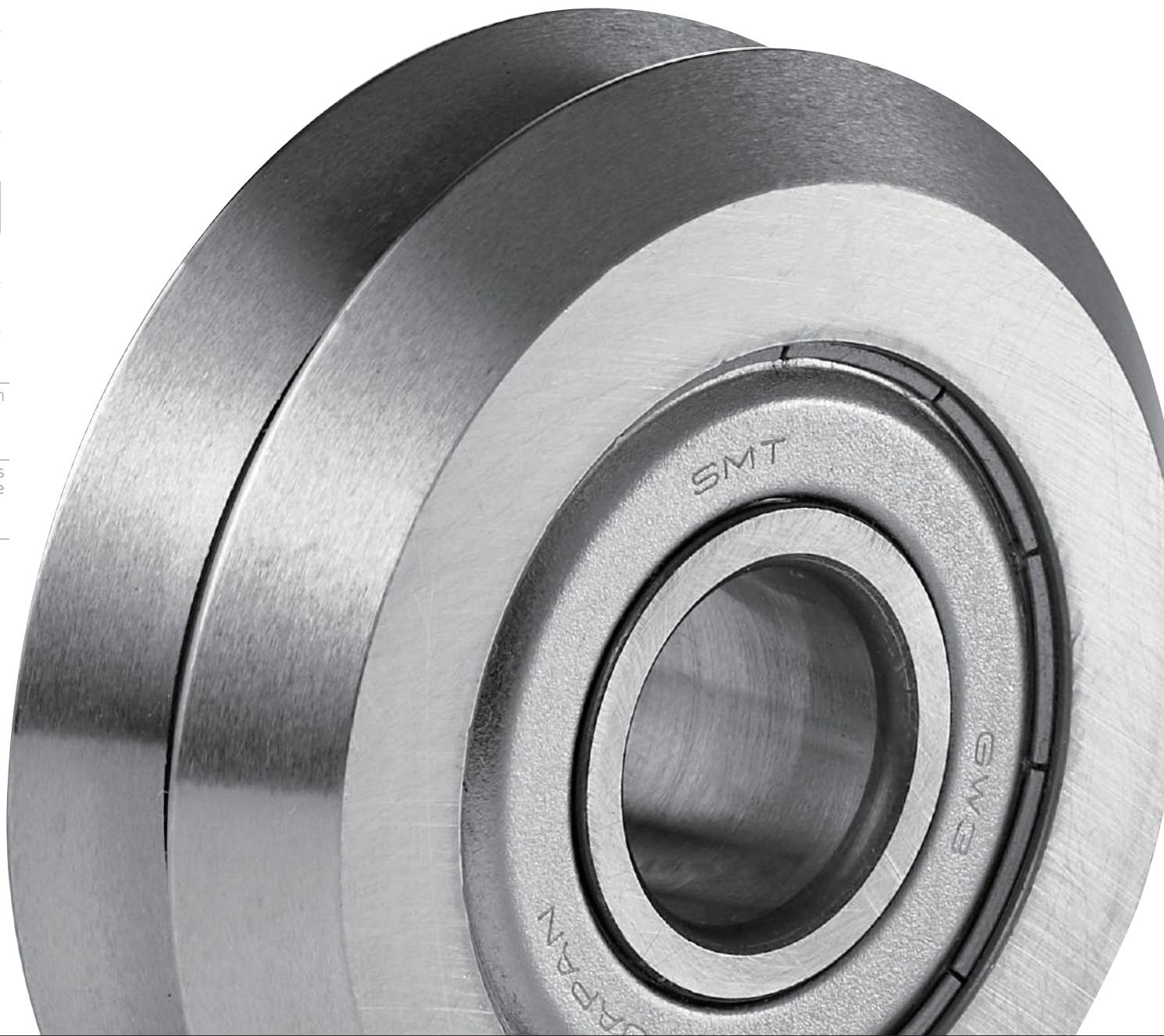


High-load  
environment



Transportation

Bearing with W-shaped outer ring, suitable for use as guide wheels with both internal and external V-shaped rail.



## Features

1. High precision grade by integral construction of bearing and precision-ground W-shaped outer ring.
2. Tolerant to both radial and axial load with inner construction of double row angular contact type and also resistant to moment load.
3. Available with both SAE 52100 bearing steel and AISI 440C stainless steel.

## Product Specifications

Standard Specifications		
	GW	GWSS
Inner and Outer Rings	SAE 52100	AISI 440C
Balls	SAE 52100	AISI 440C
Retainer	Polyamide resin	Polyamide resin
Shield	SECC	<b>not available</b>
Seal	Nitrile rubber	Nitrile rubber
Lubricant*1	Lithium grease	Lithium grease

The following special specifications are also available.

\*1 Food-grade grease and other special greases

## Usage Examples

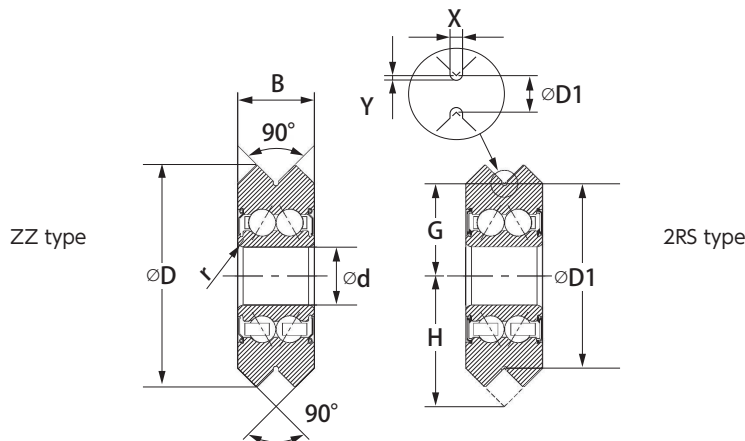


## Composition of bearing number

**GW 1 SS 2RS**

1      2      3      4

- 1 GW : Guide Wheel
- 2 Basic number
- 3 Blank : Material SAE 52100  
SS : Material AISI 440C
- 4 ZZ : Double steel plate shields  
2RS : Double contact rubber seals



## Table of Dimensions

Bearing Numbers	d		D	B	D1	G	H	X	Y	r min.	Basic Load Ratings		Mass
	mm	Tolerance									C <sub>r</sub>	C <sub>or</sub>	
GW1	4.762		19.58	7.874	15.875	7.937	11.870	0.50	0.27	0.5	2180	1110	11
GW1SS													11
GW2	9.525	0 -0.008	30.73	11.112	25.400	12.700	18.259	0.60	0.30	0.5	4700	2780	38
GW2SS													38
GW3	12		45.80	15.9	38.100	19.050	26.989	0.75	0.18	0.6	9150	5050	133
GW3SS													131
GW4	15		59.94	19.050	50.800	25.400	34.931	0.89	0.20	0.6	12800	7900	288
GW4SS													284

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# 6800 and 6900 Thin-Wall Bearings (SAE 52100)



High speed  
rotation



Transportation



General



Thin-wall bearings, suitable for compact design and reduction of weight in machinery and equipment.

Bearing  
selection

Products  
Series

AISI  
440C

AISI  
304

AISI  
630

Pure  
Titanium

Ceramic

Heat  
Resistance

Grease  
Free

Low  
Torque

Solid  
Grease

Set  
Screw

Alignment  
Function

Flange  
Unit

Guide  
Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples  
of Use



## Product Specifications

Standard Specifications	
Inner and Outer Rings	SAE 52100
Balls*1	SAE 52100
Retainer	SPCC (Some are AISI 304)
Shield	SECC
Seal*2	Nitrile rubber
Snap Ring	SWRH77A
Lubricant*3	Lithium grease
ISO Tolerance Class	Normal

The following special specifications are also available.

- \*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)
- \*2 Fluorine rubber seals
- \*3 Food-grade grease and other special greases

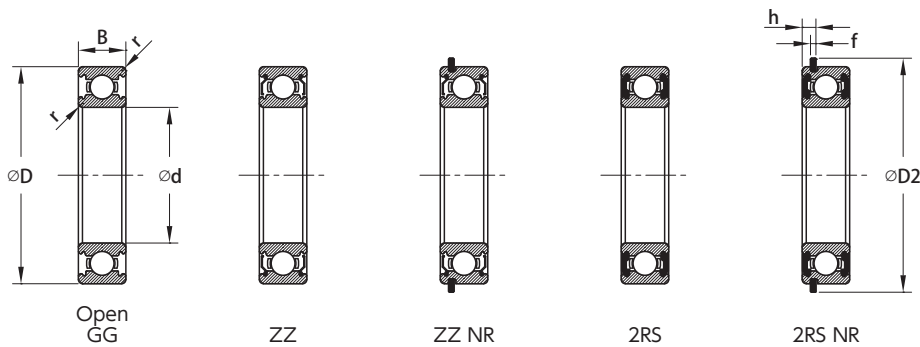
## Composition of bearing number

**6900 ZZ NR**

1      2      3

- 1 Basic number
- 2 GG\* : Open with seal groove  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals
- 3 Blank : No snap ring  
NR : With snap ring

\*Open type with SAE 52100 has a code "GG" after bearing number.



## Table of Dimensions

Bearing Numbers	d mm	D mm	B mm	r min. mm	Basic Load Ratings		Limiting Speed (min <sup>-1</sup> )			Size of Snap Ring			Mass g
					C <sub>r</sub> N	C <sub>0r</sub> N	Grease		Oil Open	D2 max. mm	f max. mm	h max. mm	
							Open-ZZ	2RS					
6800	10	19	5	0.3	2120	985	34000	24000	41000	—	—	—	5
6900	10	22	6	0.3	2700	1270	31000	22000	38000	24.8	0.70	1.75	10
6801	12	21	5	0.3	1920	1040	30000	20000	36000	—	—	—	6
6901	12	24	6	0.3	2890	1460	28000	19000	33000	26.8	0.70	1.75	11
6802	15	24	5	0.3	2080	1260	26000	17000	31000	—	—	—	7
6902	15	28	7	0.3	4300	2250	23000	16000	28000	30.8	0.85	2.15	16
6803	17	26	5	0.3	2630	1570	23000	15000	28000	—	—	—	8
6903	17	30	7	0.3	4600	2550	21000	14000	26000	32.8	0.85	2.15	17
6804	20	32	7	0.3	4000	2460	20000	13000	24000	34.8	0.85	2.15	18
6904	20	37	9	0.3	6400	3700	18000	12000	21000	39.8	0.85	2.55	36
6805	25	37	7	0.3	4300	2940	16000	10000	20000	—	—	—	21
6905	25	42	9	0.3	7000	4550	15000	9700	18000	44.8	0.85	2.55	43
6806	30	42	7	0.3	4550	3400	14000	8800	17000	—	—	—	25
6906	30	47	9	0.3	7250	5000	13000	8500	16000	—	—	—	50
6807	35	47	7	0.3	4750	3800	12000	7600	15000	—	—	—	28
6907	35	55	10	0.6	10400	7200	11000	7200	13000	—	—	—	75
6808	40	52	7	0.3	4950	4200	11000	6700	13000	—	—	—	31
6908	40	62	12	0.6	13700	9950	9600	6400	12000	—	—	—	110
6809	45	58	7	0.3	5400	4900	9700	6000	12000	—	—	—	39
6810	50	65	7	0.3	6400	5850	8700	5300	10000	—	—	—	50

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# SS5200 and 5200 Series Double Row Angular Contact Bearings



High-load  
environment



General

5200 series double-row angular contact ball bearings, designed to sustain axial load in both directions.



Bearing  
selection

Products  
Series

AISI  
440C

AISI  
304

AISI  
630

Pure  
Titanium

Ceramic

Heat  
Resistance

Grease  
Free

Low  
Torque

Solid  
Grease

Set  
Screw

Alignment  
Function

Flange  
Unit

Guide  
Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples  
of Use

## Product Specifications

Standard Specifications		
	SS5200 series	5200 series
Inner and Outer Rings	AISI 440C	SAE 52100
Balls* <sup>1</sup>	AISI 440C	SAE 52100
Retainer	AISI 304	S55C
Shield	AISI 304	SECC
Seal* <sup>2</sup>	Nitrile rubber	Nitrile rubber
Lubricant* <sup>3</sup>	Heat-resistant grease	Lithium grease
ISO Tolerance Class	Normal	Normal
Contact Angle	30°	30°

The following special specifications are also available.

- \*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)
- \*2 Fluorine rubber seals
- \*3 Food-grade grease, and other special greases

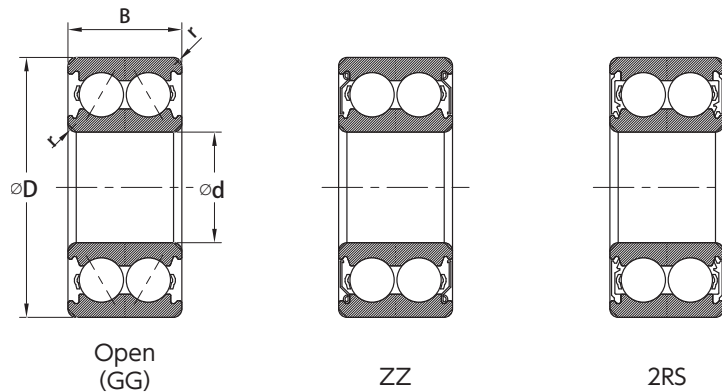
## Composition of bearing number

**SS 5200 2RS**

1      2      3

- 1 Blank : Material SAE 52100  
SS : Material AISI 440C
- 2 Basic number
- 3 Blank : Open (AISI 440C)  
GG\* : Open with seal groove (SAE 52100)  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals

\*Open type with SAE 52100 has a code "GG" after bearing number.



Open (GG)

ZZ

2RS

## Table of Dimensions

Bearing Numbers		d	D	B	r min.	Basic Load Ratings		Limiting Speed (min <sup>-1</sup> )			Mass
						C <sub>r</sub>	C <sub>or</sub>	Grease		Oil	
AISI 440C	SAE 52100	mm	mm	mm	mm	N	N	Open-ZZ	2RS	Open	g
SS 5200	5200	10	30	14.3	0.6	6950	3800	15000	15000	20000	51
SS 5201	5201	12	32	15.9	0.6	9150	5050	14000	14000	18000	60
SS 5202	5202	15	35	15.9	0.6	10000	6050	12000	12000	16000	68
SS 5203	5203	17	40	17.5	0.6	12800	7900	11000	11000	14000	98
SS 5204	5204	20	47	20.6	1.0	19000	12100	9000	9000	12000	159
SS 5205	5205	25	52	20.6	1.0	20600	14300	7700	7700	10000	183
SS 5206	5206	30	62	23.8	1.0	24400	17600	6500	6500	8600	300
—	5207	35	72	27.0	1.1	33000	24500	5600	5600	7500	459
—	5208	40	80	30.2	1.1	42700	32400	5000	5000	6700	618

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

# 5800 Series Double Row Angular Contact Bearings (SAE 52100)



General

Thin-wall type double-row angular contact ball bearings, suitable for compact and lightweight equipment, resulting in low torque and smooth rotation, and designed to sustain axial load in both directions.

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Example of Use

## Product Specifications

Standard Specifications	
Inner and Outer Rings	SAE 52100
Balls*1	SAE 52100
Retainer	Polyamide resin
Shield	SECC
Seal*2	Nitrile rubber
Lubricant*3	Lithium grease
ISO Tolerance Class	Normal
Contact Angle	25°

The following special specifications are also available.

- \*1 Ceramic balls (Silicon Nitride Si<sub>3</sub>N<sub>4</sub>)
- \*2 Fluorine rubber seal
- \*3 Food grade grease, other special greases

## Composition of bearing number

**5806 ZZ**

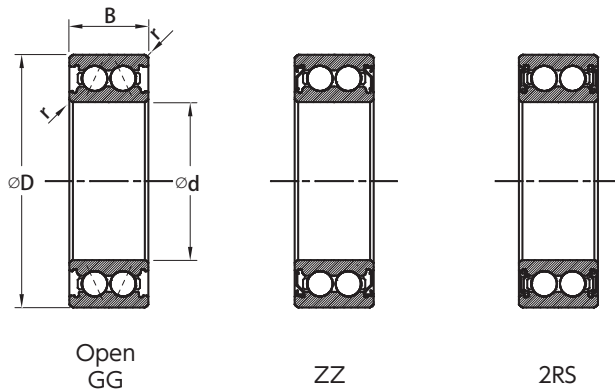
1

2

1 Basic number

2 GG\* : Open with seal groove  
ZZ : Double steel plate shields  
2RS : Double contact rubber seals

\*Open type with SAE 52100 has a code "GG" after bearing number.



## Table of Dimensions

Bearing Numbers	d	D	B	r min.	Basic Load Ratings		Limiting Speed (min <sup>-1</sup> )		
					C <sub>r</sub>	C <sub>or</sub>	Grease		Oil
							Open-ZZ	2RS	Open
5806	30	42	10	0.3	5950	5650	8300	8300	13000
5807	35	47	10	0.3	6350	6500	7300	7300	11000
5808	40	52	10	0.3	6700	7300	6500	6500	9800
5809	45	58	10	0.3	6850	7800	5800	5800	8700
5810	50	65	12	0.3	9750	10900	5200	5200	7800

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

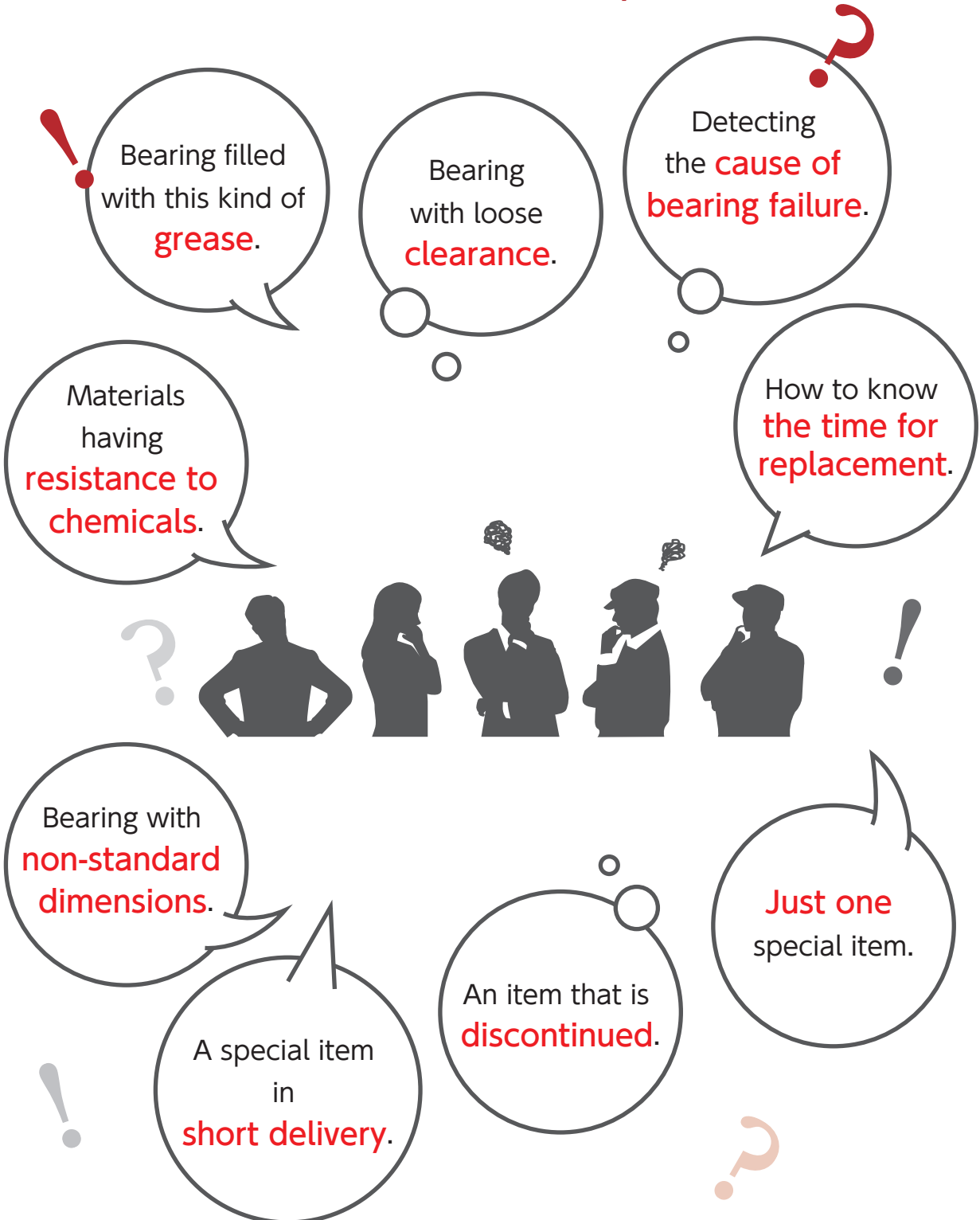
5800

Customization

Examples of Use

# Customizations

Please let us know what you need.



Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

SMT has established a high-mix, low-volume production system, to respond quickly to diverse user needs. We can manufacture with high precision customized bearings of special designs, with a variety of materials, specified greases, and other features.



Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

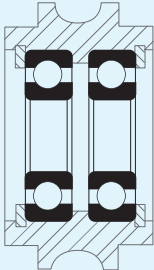

SS5200  
5200

5800

Customization

Examples of Use

### Examples of responding to user needs

User need	Customized bearing
Bearing for HACCP-compliant food machines and production equipment.	(1) AISI 440C stainless steel bearing with NSF H1 standard grease for food machines (2) AISI 304 stainless steel bearing with NSF H1 standard grease for food machines
Bearing suitable for use in a hot environment.	(1) AISI 440C stainless steel bearing with a heat-resistant fluorine grease (2) Change to a C4 clearance that is larger than the standard clearance
Bearing turning lightly.	(1) Fill with low-torque grease (2) Change to a small amount of grease for lower torque (3) Switch to special low torque lubricant bearings
Bearing suitable for use underwater.	(1) AISI 304 stainless steel bearing with contact rubber seals (2) Fill with water-resistant grease that does not easily flow in water
Bearing integrated with peripheral parts for compactness and precision.	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p><b>Current status</b> Two bearings are used for the U-grooved housing</p> </div> <div style="text-align: center;">  <p><b>Improvement</b> • The housing and bearings are integrated into double-row angular bearings • Compact and space-saving</p> </div> </div>

# Specified Grease and Clearance

The selection of grease and clearance is a key factor in demonstrating the features of the bearing. SMT will respond to requests and changes in grease filling and clearances according to the operating environment with **short delivery times and small lots from as little as one unit.**

## Grease

### ■ We meet these needs

- Grease for food machines compatible with H1 grade (compatible with HACCP).
- Low-dust generation grease suitable for use in clean rooms.
- Grease suitable for use in a vacuum environment.
- Grease for a low torque to reduce the starting torque.
- Grease suitable for use in hot and cold environments.
- Water-resistant grease.
- Filling the grease you have.

### ■ Examples of greases

Characteristics	Brand	Manufacturer	Thickener	Base oil	Penetration	Operating temperature range
Low temperature	AeroShell 7	Shell	Microgel	Organic ester	296	-73 to 149°C/ -100 to 300°F
Food grade Water-resistant	SHC Polyree 462	Mobil	Polyurea	Synthetic	NLGI No.2	-20 to 170°C/ -4 to 338°F
Conductive	Multemp ELP	Kyodo Yushi	Carbon Black	Synthetic hydrocarbon	254	-50 to 150°C/ -58 to 302°F
High temperature Chemical-resistant Food grade	Barrierta L55/2 H1	NOK Klüber	PTFE	Fluoric	NLGI No.2	-30 to 260°C/ -22 to 500°F
High temperature Chemical-resistant	Noxlub BF 4026	NOK Klüber	PTFE	Fluoric	NLGI No.2	-30 to 260°C/ -22 to 500°F
High temperature Chemical-resistant Vacuum	Noxlub KF 2024	NOK Klüber	PTFE	Fluoric	NLGI No.2	-50 to 260°C/ -58 to 500°F
Low torque High speed rotation	Klüberspeed BF 72 -22	NOK Klüber	Urea	Ester	NLGI No.2 to No.3	-50 to 120°C/ -58 to 248°F
Low dust generation	AFE-CA	THK	Urea	Synthetic	280	-40 to 180°C/ -40 to 356°F

\*The product characteristic values above are the grease manufacturer catalog values. Please note that the specifications are subject to change without notice.

A variety of greases are available in addition to those listed. You can also supply us your specific grease.

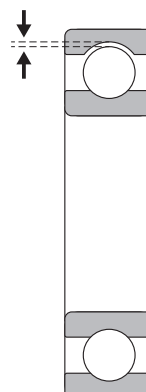
## Clearance

### ■ We meet these needs

- Proper clearance for eliminating thermal expansion caused by a high temperature environment.
- Proper clearance for reducing vibration during high-speed rotation.
- Non-standard clearance.

### ■ Examples of clearance

Applications	Clearance
Hot environment	C3, C4, C5
High-speed rotation	C2, CM





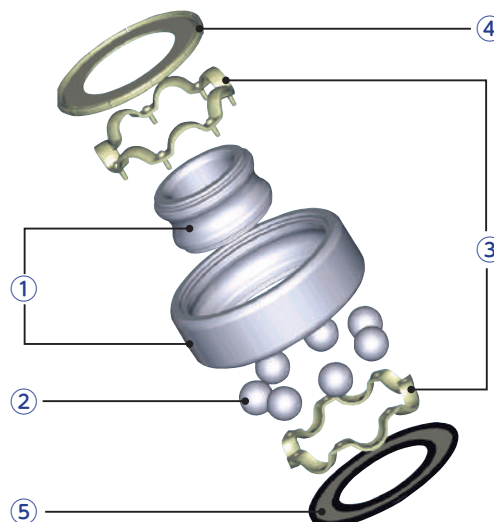
# Material Types

In addition to inner and outer ring materials, various materials are prepared for each component of the bearing.

Optimum bearings can be manufactured by combining materials according to the application.

## Examples of materials

	Parts	Material Examples
①	Inner and outer rings	<ul style="list-style-type: none"> <li>• SAE 52100</li> <li>• AISI 440C</li> <li>• AISI 304, AISI 316L, AISI 630</li> <li>• Titanium, Hastelloy-equivalent material</li> <li>• Ceramics, resins</li> </ul>
②	Balls	<ul style="list-style-type: none"> <li>• SAE 52100, AISI 440C, AISI 304</li> <li>• Ceramics, special coatings</li> </ul>
③	Retainer	<ul style="list-style-type: none"> <li>• SPCC • S55C • AISI 304</li> <li>• Special coating, polyamide resin</li> <li>• Fluorine resin, solid lubricant</li> </ul>
④	Shield	<ul style="list-style-type: none"> <li>• SECC, AISI 304</li> </ul>
⑤	Seal	<ul style="list-style-type: none"> <li>• Nitrile rubber, acrylic rubber</li> <li>• Fluorine rubber, fluorine resin</li> </ul>



## Special Designs

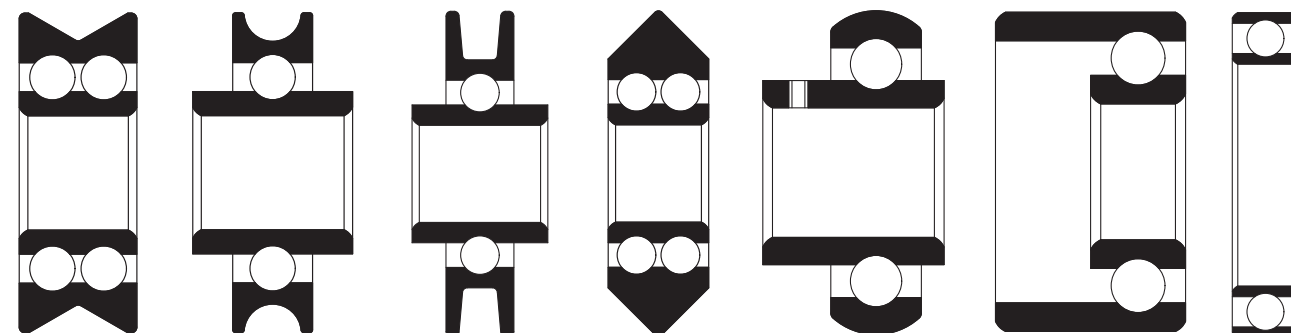
Bearings with special designs are available according to the application, such as V- or U-grooved outer diameter, wide or thin-walled type.

We also cater to customers who want to integrate bearings and peripheral parts.

## Manufacturable dimensions

Dimensions	
Inner diameter	4mm to 250mm
Outer diameter	12mm to 280mm
Width	4mm to 75mm

\*Depending on the specifications, the range of manufacturable dimensions may change.



Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800

6900

SS5200

5200

5800

Customization

Examples of Use

Bearing selection

## Table of Simple Customization Support by Series

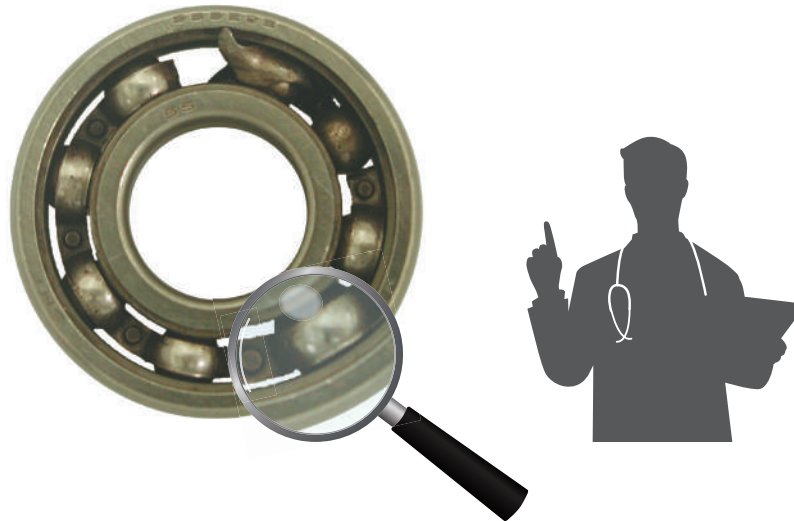
Products Series	Series Name	Customization Contents			
		Grease change	Clearance change	Fluorine rubber seal	Silicon nitride ceramic ball
AISI 440C	AISI 440C Stainless Steel Bearings	○	○	○	○
AISI 304	AISI 304 Stainless Steel Bearings	○	×	○	○
AISI 630	AISI 630 Stainless Steel Bearings	○	×	○	—
Pure Titanium	Pure Titanium Bearings	×	×	×	—
Ceramic	Ceramic Bearings	×	×	×	—
Heat Resistance	Heat-Resistant Stainless Bearings	×	○	—	×
Grease Free	Heat-Resistant Hybrid Bearings	×	△	—	—
Low Torque	Grease-Free Bearings	×	△	○	○
Solid Grease	Special Low Torque Lubricant Bearings	×	○	×	○
Set Screw	Solid Grease Bearings	×	○	○	○
Alignment Function	Stainless Bearings with Set Screw	○	△	×	○
Flange Unit	Stainless Bearings with Aligning Ring	○	△	△	○
Guide Wheel	Flanged Bearing Units	○	△	△	○
6800 6900	Guide Wheel Bearings	○	×	×	×
SS5200 5200	Thin-Wall Bearings 6800 / 6900	○	△	○	○
5800	Double Row Angular Contact Bearings SS5200 / 5200	○	△	○	○
Customization	Double Row Angular Contact Bearings 5800	○	△	○	○
Examples of Use					

○ : Modifiable  
 △ : Partially unmodifiable  
 × : Unmodifiable  
 — : Standard specification

# Support for Bearing Improvement

We offer free diagnosis of bearings.

We can help you solve problems with bearings used in all special environments.



Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

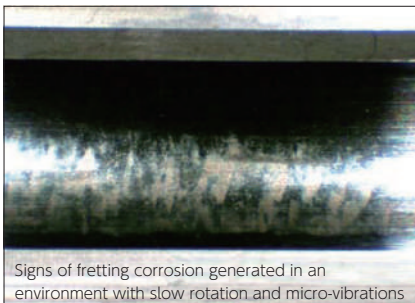
SS5200  
5200

5800

Customization

Examples of Use

## Internal raceway observation



Signs of fretting corrosion generated in an environment with slow rotation and micro-vibrations

## Examination of main dimensions, grease, acoustics, and clearance

表 2. 02 6805 22 調査結果

測定項目	型式規格	No.1	No.2
遊隙係数 (A) 単位: パンド	—	分解状態	良好
ラジアル遊隙 (mm)	0.000~0.010	測定不能	0.011
グリース量 (g)	0.30~0.50	—	0.45
遊隙	内輪	規格: 0.7~0.4	0.3
	外輪	規格: 0.5	0.1
玉寸法 (mm)	内径	規格: 0.01, 中央: 0.04	-0.002
	外径	規格: 0.005, 中央: 0.005	-0.004
幅 (mm)	規格: 0.10	-0.015	-0.035
外観状況	外輪	全周に全周に剥離、強い圧痕あり	全周に強い剥離あり
	ボール	真円性に剥離あり	真円性に剥離あり
保持器	—	全周に剥離、微小傷あり	全周に強い剥離あり
シール (P)	—	剥離剥離	良好
		剥離剥離	良好

## Lifespan and internal clearance calculation



The cause of most failures can be inferred by examining the inside of the bearing.

Based on the examination results, we suggest the best countermeasures using our company's extensive experience in manufacturing and marketing technology, which has been cultivated through the manufacture of customized bearings.

We hope that using our diagnostic support will resolve your bearing problem as soon as possible.

# Examples of Use and Improvement

Bearing selection

## Meat Slicer

General

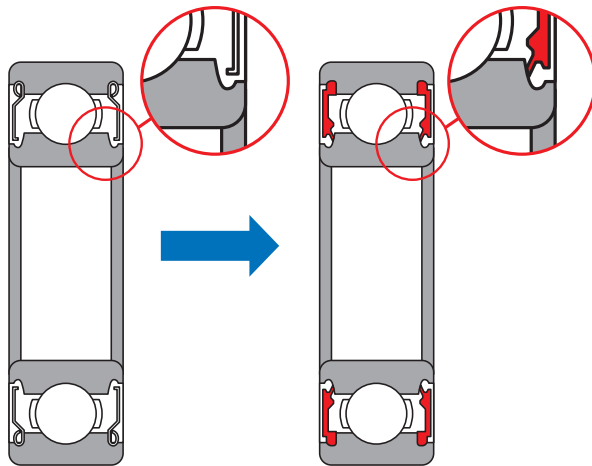


Products Series

Bearings with contact rubber seals are used in areas requiring dust resistance.

### ◆ Usage Conditions

Environment : Air  
 Temperature : Room temperature to 60°C/140°F  
 Rotating speed: 1200min<sup>-1</sup>



### ◆ Conventional Bearings

AISI 440C stainless steel bearings (non-contact steel plate shield type)

### ◆ Problems

Bearing life due to foreign matter intrusion



### ◆ Bearings Adopted

SS Series AISI 440C  
 Stainless steel bearing  
 Seal type

### ◆ Effect

Improved dust resistance and reduction in bearing replacement frequency due to contact rubber seal

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

Customization

Examples of Use

## LCD Panel Conveyance Equipment

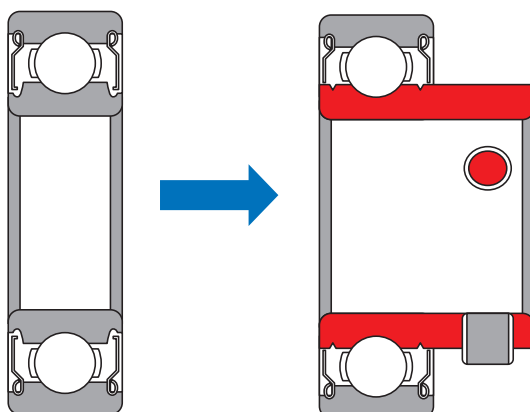
General



Conveyance equipment, such as for liquid crystal panels, is equipped with stainless bearings with set screw (SSXC Series) that can be easily fastened to the shaft, improving assembly workability, and eliminating the need for other accessories.

### ◆ Usage Conditions

Environment : Clean room  
 Temperature : Room temperature  
 Rotating speed: 50min<sup>-1</sup>



### ◆ Conventional Bearings

AISI 440C stainless steel bearings

### ◆ Problems

Generation of abrasive wear dust due to creep with the shaft



### ◆ Bearings Adopted

SSXC Series AISI 440C  
 Stainless bearings with set screw

### ◆ Effect

Creep prevented and the bearing replacement frequency reduced due to fixing with set screws

## Film Manufacturing Equipment

General 

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

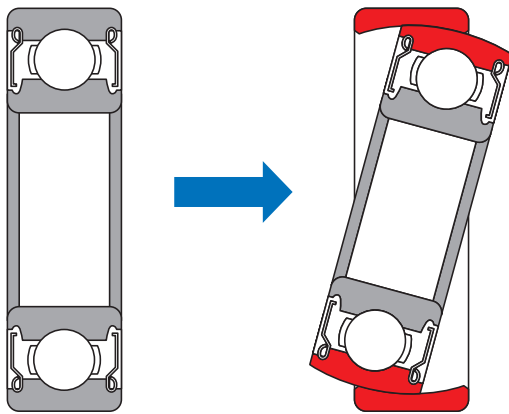
Customization

Examples of Use

Film production equipment that suffers from problems caused by shaft flexure and misalignment is equipped with stainless bearings with an alignment function (SH Series).

### Usage Conditions

Environment : Air  
 Temperature : 120°C/248°F  
 Rotating speed: 100min<sup>-1</sup>




### Conventional Bearings

SAE 52100 steel bearings

### Problems

Grease deterioration and flexure of the shaft due to high temperatures, and an increase in rotational torque and shortened life (3 months) due to an error of the shaft center.



### ◆ Bearings Adopted

SH Series AISI 440C  
 Stainless bearings with aligning ring

### ◆ Effect

Improved heat resistance and alignment  
 Low torque  
 Extended bearing life (12 months or more)

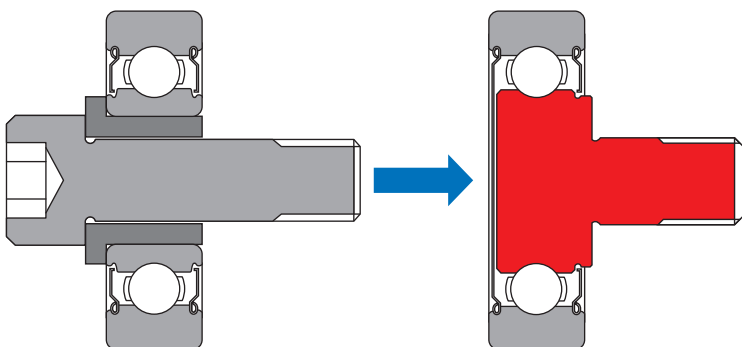
## Transportation Conveyor

General 

Specially shaped bearings with integrated shafts and inner rings are used in areas where the number of accessory parts needs to be reduced or assembly accuracy needs to be improved.

### Usage Conditions

Environment : Air  
 Temperature : Room temperature to 40°C/104°F  
 Rotating speed: 120min<sup>-1</sup>




### Conventional Bearings

SAE 52100 steel bearings

### Problems

Waste of assembly time and money



### ◆ Bearings Adopted

Customization: Special design

### ◆ Effect

Reduced assembly time and cost

## Drying Furnace Fan

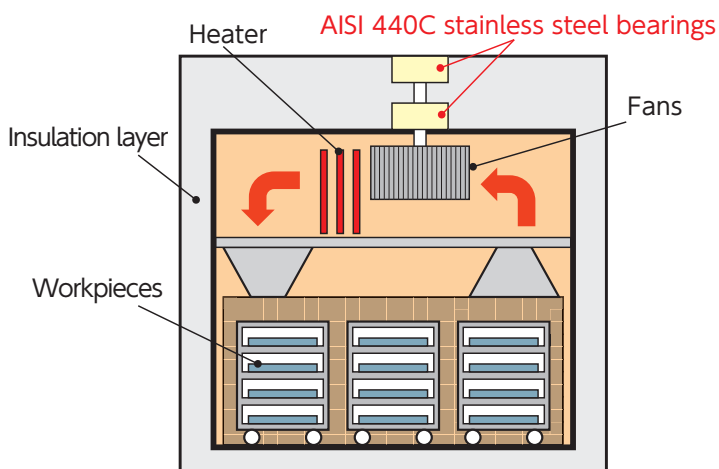
High-Temperature



Grease degradation and seizure become a problem in environments with high temperatures exceeding 100°C /212°F. For such environments, AISI 440C stainless steel bearings (SS Series) with heat-resistant grease as standard are adopted.

### ◆ Usage Conditions

Environment : Air  
Temperature : 130°C/266°F  
Rotating speed: 1800min<sup>-1</sup>



### ◆ Conventional Bearings

SAE 52100 steel bearings

### ◆ Problems

Short bearing life (2 months) due to grease deterioration



### ◆ Bearings Adopted

SS Series AISI 440C  
Stainless steel bearings

### ◆ Effect

Improved lubricity and extended bearing life (12 months) due to heat-resistant grease as standard

## Film Manufacturing Equipment

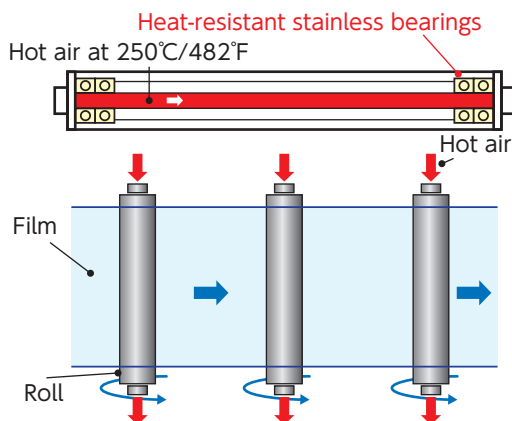
High-Temperature



Heat-resistant stainless bearing, made of AISI 440C stainless steel with heat-resistant fluorine grease are used at high temperatures exceeding 200°C/392°F.

### ◆ Usage Conditions

Environment : Air  
Temperature : 200°C/392°F  
Rotating speed: 30min<sup>-1</sup>



### ◆ Conventional Bearings

SAE 52100 steel bearings

### ◆ Problems

Short bearing life (2 months) due to grease deterioration



### ◆ Bearings Adopted

Heat-resistant series  
Heat-resistant stainless bearings

### ◆ Effect

Improved lubricity and extended bearing life (24 months) due to heat-resistant fluorine grease

## Firing Furnace Conveyor

## High-Temperature

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

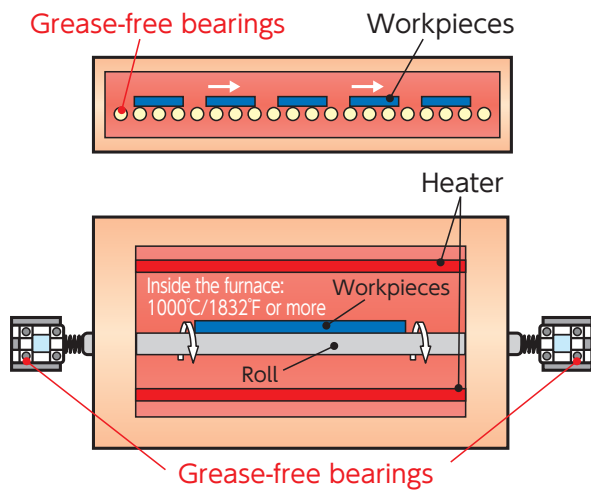
Customization

Examples of Use

High temperatures exceeding 250°C/482°F make it impossible to use grease. Grease-free bearings (TC Series) with a special coating of solid lubricant are used in this environment.

### ◆ Usage Conditions

Environment : Air  
 Temperature : 280°C/536°F  
 Rotating speed: 10min<sup>-1</sup>



### ◆ Conventional Bearings

AISI 440C stainless steel bearings

### ◆ Problems

Short bearing life (1 month) due to grease deterioration

### ◆ Bearings Adopted

TC Series AISI 440C Grease-free bearings

### ◆ Effect

Improved lubricity and extended bearing life (12 months or more) due to solid lubricants

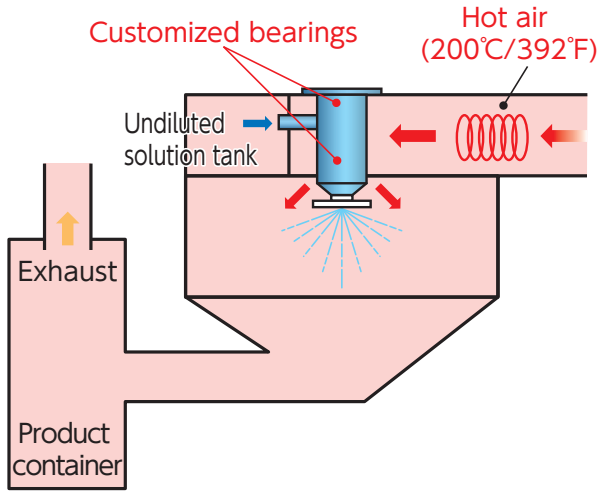
## Spray Dryer

## High-Speed Rotation

The centrifugal force of the ball is a problem in equipment that uses bearings at high speeds. Customized bearings using low-density ceramic balls are used for such equipment.

### ◆ Usage Conditions

Environment : Air  
 Temperature : 130°C/266°F  
 Rotating speed: 40000min<sup>-1</sup>



### ◆ Conventional Bearings

SAE 52100 steel bearings

### ◆ Problems

Short bearing life (1 month) due to high-speed rotation

### ◆ Bearings Adopted

Customization: Various materials  
 SS Series AISI 440C  
 Stainless steel bearings  
 + Ceramic balls

### ◆ Effect

Reduced centrifugal force of the balls and extended bearing life (12 months) due to use of ceramic balls

## Plating Equipment

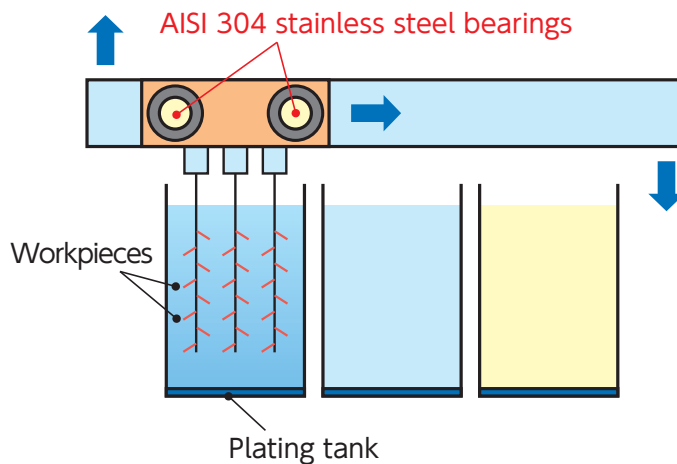
Corrosion resistance



AISI 304 stainless steel bearings (6S Series) made of corrosion-resistant materials are used for plating equipment that uses liquids such as acids and alkalis.

### Usage Conditions

Atmosphere : Acidic solution droplets  
 Temperature : Room temperature  
 Rotating speed: 20min<sup>-1</sup>



### Conventional Bearings

AISI 440C stainless steel bearings

### Problems

Short bearing life (1 month) due to corrosive environment

### Bearings Adopted

6S Series AISI 304  
 Stainless steel bearings

### Effect

Improved corrosion resistance and extended bearing life (6 months) due to use of AISI 304 stainless steel bearings

## Substrate Cleaning Equipment

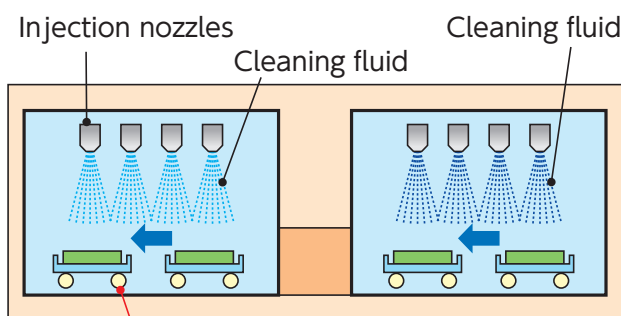
Corrosion resistance



AISI 630 stainless steel bearings (4S Series) made of corrosion-resistant materials are used for substrate cleaning equipment that uses liquids such as acids, alkalis, and water.

### Usage Conditions

Environment : Cleaning solution droplets  
 Temperature : Room temperature to 80°C/176°F  
 Rotating speed: 20min<sup>-1</sup>



### Conventional Bearings

AISI 440C stainless steel bearings

### Problems

Short bearing life (3 months) due to corrosive environment

### Bearings Adopted

4S Series AISI 630  
 Stainless steel bearings

### Effect

Improved corrosion resistance and extended bearing life (12 months or more) due to use of AISI 630 stainless steel bearings



## Film Cleaning Equipment

Corrosion resistance 

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic

Heat Resistance

Grease Free

Low Torque

Solid Grease

Set Screw

Alignment Function

Flange Unit

Guide Wheel

6800  
6900

SS5200  
5200

5800

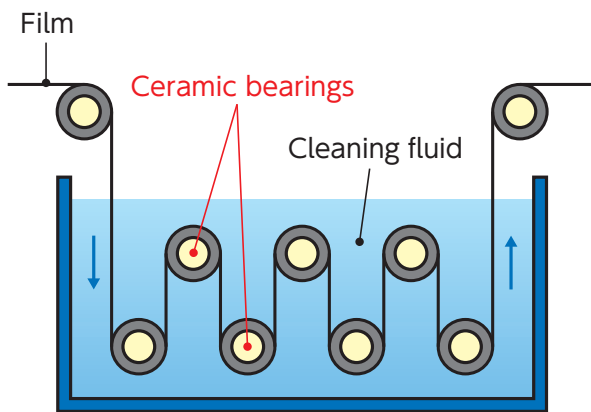
Customization

Examples of Use

Ceramic bearings (2C Series) made of highly corrosion-resistant materials are used for film cleaning equipment that uses liquids such as acids, alkalis, and water.

### Usage Conditions

Environment : Weak alkaline solution  
 Temperature : Room temperature to 80°C/176°F  
 Rotating speed: 100min<sup>-1</sup>



### Conventional Bearings

AISI 440C stainless steel bearings

### Problems

Short bearing life (1 month) due to corrosive environment


**◆ Bearings Adopted**

2C Series  
Ceramic bearings

**◆ Effect**

Improved corrosion resistance and extended bearing life (24 months or more) due to use of ceramic bearings

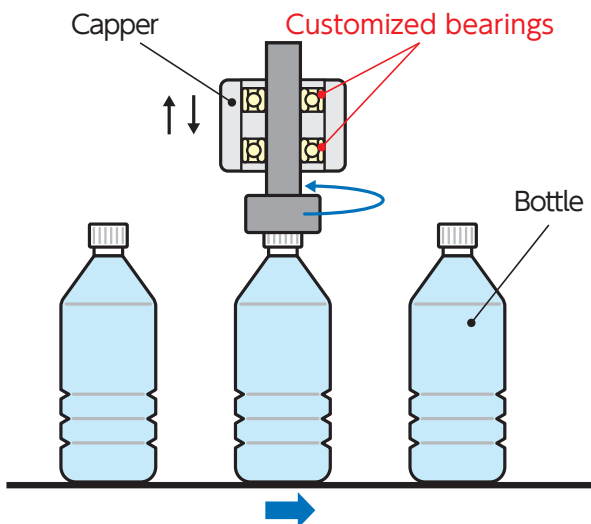
## Capping Equipment

Food Machinery 

Bearings filled with food grade grease (Customization) are used in food machinery.

### Usage Conditions

Environment : Air  
 Temperature : Room temperature  
 Rotating speed : 200min<sup>-1</sup>



### Conventional Bearings

AISI 440C stainless steel bearings

### Problems

Danger of grease spills

**◆ Bearings Adopted**

Customization: Specified grease  
 SS Series AISI 440C  
 Stainless steel bearings + Filled with food-grade grease

**◆ Effect**

Improved safety due to filling with food-grade grease



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