

# Heat-Resistant Series Heat-Resistant Stainless Bearings

Bearing selection

Products Series

AISI 440C

AISI 304

AISI 630

Pure Titanium

Ceramic



Corrosion resistance



High temperature



Vacuum

Heat Resistance

Grease

Low Torque

Solid Grease

Set Screws

Alignment Function

Flange Unit

Guide Wheel

6800

6900

S35200

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

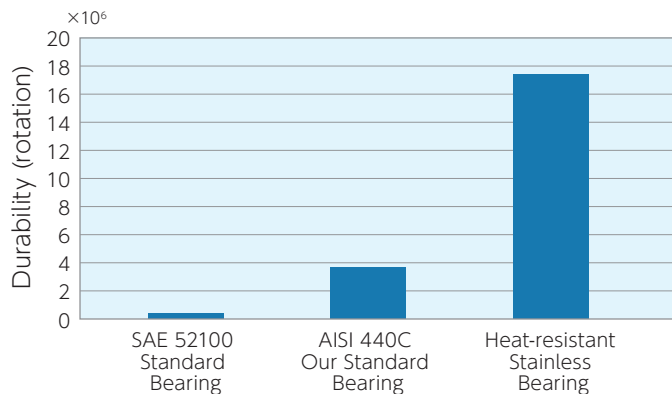
※Sealed type is usable up to 200°C/392°F

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.

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# 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

Self  
Sealing

Alignment  
function

Flange  
Unit

Guide  
Wheel

6800  
6900

SS5200  
5200

5800

Specialization

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

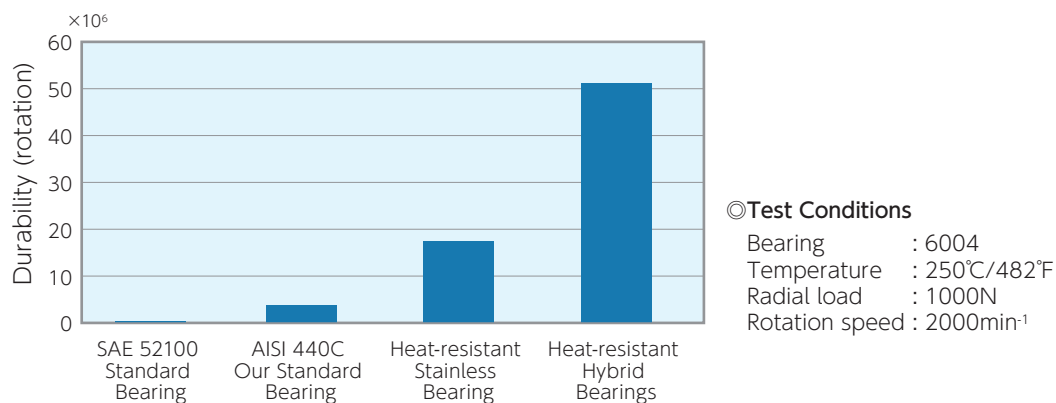
## Product Specifications

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.

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Examples of Use

## Composition of bearing number

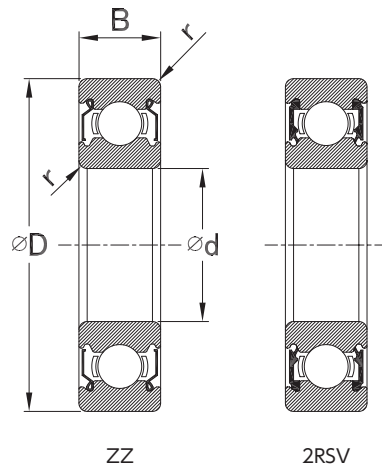
**SS 6900 ZZ CB C4 KP**

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



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6800 6900

SS5200 5200

5800

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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.