

# Ball Bearings for Special Environment - SUS304 / Non-Grease, Non-Oil

# Plastic Ball Bearings

**SUS304 Ball Bearings**  
(Water Resistant, Heat Resistant)

RoHS10

**SUB6**     **ZZ**  
**SUB6**     **ZZ**

Operating Temperature: -40 ~ +150°C  
SUS304 may be slightly magnetized after machining.

Component	Material
Inner/Outer Rings, Shield, Retainer, Ball	SUS304

Part Number	d	D	B	r (min)	Basic Load Rating		Allowable Rotational Speed (rpm Reference)	Relative Dimensions				Mass (g) (Reference)	Unit Price
					Cr (Dynamic) N	Cor (Static) N		Ds (min)	dh (max)	R (max)	R (max)		
SUB626ZZ	6	19	6	0.3	52	32	2100	8	10	17	8.2		
SUB608ZZ	8	24	7	0.3	66	41	2000	10	11.5	20	12		
SUB628ZZ	8	24	7	0.3	67	42	1900	10	12	22	18		
SUB600ZZ	10	26	8	0.3	91	59	1800	12	13.5	24	19		
SUB620ZZ	10	30	9	0.6	102	72	1500	14	16	26	32		
SUB601ZZ	12	28	8	0.3	106	72	1500	14	16	26	21		
SUB6201ZZ	12	32	10	0.6	136	92	1300	16	17	28	37		
SUB6002ZZ	15	32	10	0.3	112	85	1300	17	19	30	30		
SUB6202ZZ	15	35	11	0.6	153	113	1200	19	20	31	46		
SUB6003ZZ	17	40	12	0.3	120	98	1200	21	22	36	41		
SUB6203ZZ	17	42	12	0.6	192	144	1100	21	22	36	66		
SUB6004ZZ	20	42	12	0.6	188	152	1000	24	25	38	68		
SUB6204ZZ	20	47	14	1.0	256	200	900	25	27	42	105		

kgf=Nx0.101972

**Non-Grease, Non-Oil Ball Bearings**

RoHS10

**Clean Type**  
**SE6**     **ZZPR**  
**SE600**     **ZZPR**  
**SE620**     **ZZPR**

**Vacuum**  
**3NC600**  **ZZST**

**Highly Corrosion Resistant**  
**3NC600**  **ZZMD**

Bearing Accuracy JIS B 1514 Class 0  
Bearing Internal Clearance C3  
Operating Temperature -100~+200°C  
Operating Vacuum Level 10<sup>5</sup> Pa

Type	Inner and Outer Ring	Shield	Rolling Element	Retainer
SE ZZPR	SUS440C (Special Fluoro-Macromolecule Coating)	60HRC	SUS440C (Special Fluoro-Macromolecule Coating)	SUS304 (Special Fluoro-Macromolecule Coating)
3NC ZZST	SUS440C	40HRC	Ceramics (Silicon Nitride)	Fluororesin
3NC ZZMD	SUS630	40HRC	Ceramics (Silicon Nitride)	Fluororesin

For details on the tolerance and allowable values of inner and outer rings, P.2243

Part Number	d	D	B	r (min)	Allowable Radial Load N	Allowable Rotational Speed (rpm Reference)	Relative Dimensions				Mass (g)				Unit Price				
							Ds (min)	dh (max)	R (max)	R (max)	SE	ZZPR	3NC	ZZST		3NC	ZZMD	SE	ZZPR
SE624ZZPR	4	13	5	0.2	40	-	5.6	6.9	11.4	0.2	2.93	-	-	-	-	-	-	-	-
SE626ZZPR	6	19	6	0.3	80	-	8	10.6	17	0.3	7.90	-	-	-	-	-	-	-	-
SE608ZZPR	8	22	7	0.3	100	-	10	12.4	20	0.3	11.81	-	-	-	-	-	-	-	-
SE600ZZPR	10	26	8	0.3	135	35	12	13	24	-	19	16	17	-	-	-	-	-	-
SE620ZZPR	10	30	9	0.6	155	50	14	15	26	0.6	32	-	-	-	-	-	-	-	-
SE601ZZPR	12	28	8	0.3	155	40	16	16.5	28	0.3	20	17	18	-	-	-	-	-	-
SE6201ZZPR	12	32	10	0.6	205	70	17	18.5	30	0.3	30	26	27	-	-	-	-	-	-
SE6002ZZPR	15	32	9	0.3	170	45	19	19.5	31	0.6	44	38	-	-	-	-	-	-	-
SE6202ZZPR	15	35	11	0.6	230	75	24	25	38	0.3	63	56	-	-	-	-	-	-	-
SE6004ZZPR	20	42	12	0.6	280	70	25	26.5	42	0.6	105	92	-	-	-	-	-	-	-
SE6204ZZPR	20	47	14	1.0	385	130	25	26.5	42	0.6	105	92	-	-	-	-	-	-	-

Priority is given to the life of solid lubricant (Fluororesin Retainer). Use within the allowable load range.  
Allowable rotational speed is based on 1/2 of allowable load.

kgf=Nx0.101972

Ordering Example  
Part Number  
SUB600ZZ  
3NC600ZZST

## Performance Comparison of Bearings for Special Environment

Part Number	Inner/Outer Rings	Shield	Rolling Element	Retainer	Low Dust Generation	Abrasion Resistance	Corrosion Resistance and Chemical Resistance							Heat Resistance	Vacuum	Insulation	Non-magnetic	Heavy Load	High Rotational Speed
							Acid	Alkali	Solvent	Seawater	Water	Hydrochloric Acid	Sulfuric Acid						
SE6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>ZZPR</b>	SUS440C Special Fluoro-Macromolecule Coating	SUS304	SUS440C Special Fluoro-Macromolecule Coating	SUS304 Special Fluoro-Macromolecule Coating	○	×	×	×	×	×	×	×	×	×	×	×	×	×	
3NC6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>ZZST</b>	SUS440C	SUS304	Ceramics	Fluororesin	○	×	○	○	○	○	○	○	○	○	○	×	×	×	
3NC6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>ZZMD</b>	SUS630	SUS304	Ceramics	Fluororesin	○	×	○	○	○	○	○	○	○	○	○	×	×	×	
SUB6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>ZZ</b>	SUS304	SUS304	SUS304	SUS304	×	△	○	○	○	○	○	○	○	○	×	×	×	×	

The service life may be shortened drastically when used in conditions where the product is soaked in corrosive solution.

Well Suited ○ Good △ Questionable × Not Suitable

**Plastic Ball Bearings**  
(Water Resistant, Nonmagnetic)

RoHS10

**UKB6**     **ZZ**  
**PTN6**     **ZZ**  
**PKB6**     **ZZ**

Type	Material	Operating Temp.
UKB6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>ZZ</b>	UHMW	Soda-lime Glass
PTN6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>ZZ</b>	PTFE	Alumina Ceramics
PKB6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>ZZ</b>	PEEK	Alumina Ceramics

Part Number	d	D	B	c	Relative Dimensions			Allowable Load (kgf/1 pc)			Allowable Rotational Speed (rpm)			Mass (g) (Reference)			Unit Price		
					Ds (min)	dh (max)	R (max)	UKB	PTN	PKB	UKB	PTN	PKB	UKB	PTN	PKB	UKB	PTN	PKB
624ZZ	4	13	5	0.29	5	6	12	0.29	-	-	1120(3140)	-	-	0.55	-	-	-	-	-
625ZZ	5	16	6	0.4	6	7.4	14	0.6	0.4	1.5	900(2540)	540	1800	0.9	1.9	1.3	-	-	-
605ZZ	5	14	6	0.4	6	6.8	13	0.4	-	-	1000(2800)	-	-	0.65	-	-	-	-	-
626ZZ	6	19	7	0.5	7	9	17	0.7	0.5	1.5	760(2140)	450	1500	1.5	3.1	2.0	-	-	-
606ZZ	6	17	7	0.5	7	8.4	16	0.7	-	-	830(2320)	-	-	1.2	-	-	-	-	-
696ZZ	6	15	5	0.8	7	7.8	14	0.5	-	-	900(2540)	-	-	0.75	-	-	-	-	-
628ZZ	8	24	8	0.8	8	12	22	1.3	0.8	2.8	600(1670)	350	1200	3.2	6.7	4.4	-	-	-
608ZZ	8	22	7	0.8	8	10.7	20	1.3	-	-	630(1780)	-	-	2.4	-	-	-	-	-
698ZZ	8	19	6	1.0	8	10.6	18	0.6	-	-	700(1980)	-	-	1.3	-	-	-	-	-
620ZZ	10	30	9	1.0	9	15.3	28	2.2	-	-	460(1300)	-	-	5.6	-	-	-	-	-
600ZZ	10	26	8	1.0	9	13.8	24	1.3	0.8	3.0	520(1470)	310	1000	3.5	7.7	5.1	-	-	-
690ZZ	10	22	6	1.0	9	12.6	21	1.3	-	-	590(1670)	-	-	1.9	-	-	-	-	-
6201ZZ	12	32	10	1.0	10	16.3	30	2.5	-	-	430(1210)	-	-	7	-	-	-	-	-
6001ZZ	12	28	8	1.0	10	15.5	26	1.6	1	4.0	470(1330)	280	950	4	8.5	5.6	-	-	-
6901ZZ	12	24	6	1.0	10	14.8	21	1.2	-	-	530(1480)	-	-	1.9	-	-	-	-	-
6202ZZ	15	35	11	1.0	11	19.4	33	3	-	-	380(1070)	-	-	8.8	-	-	-	-	-
6002ZZ	15	32	9	1.0	11	18.6	30	2.5	1.5	5.5	400(1140)	240	810	5.7	11.0	7.8	-	-	-
6902ZZ	15	28	7	1.0	11	18.2	26	1.6	-	-	440(1240)	-	-	3	-	-	-	-	-
6203ZZ	17	40	12	1.0	12	22.6	38	4	-	-	330(930)	-	-	12.8	-	-	-	-	-
6003ZZ	17	35	10	1.0	12	21	33	3	1.8	6.5	360(1000)	220	730	7.3	14.2	9.4	-	-	-
6903ZZ	17	30	7	1.0	12	20	28	2	-	-	400(1130)	-	-	3.3	-	-	-	-	-
6204ZZ	20	47	14	1.0	14	26.5	43	5	-	-	280(790)	-	-	20	-	-	-	-	-
6004ZZ	20	42	12	1.0	14	25	38	3.6	2.3	8.0	300(860)	180	610	12.6	24.6	16.2	-	-	-
6904ZZ	20	37	9	1.0	14	23.6	35	3.3	-	-	330(930)	-	-	6.8	-	-	-	-	-

Note that sizes without Unit Price shown are not available.

The tolerance above is the dimension at standard temperature 24°C±1°C at the time of manufacture. The allowable values are for reference, not guaranteed.

Soda-lime glass may be broken when temperature changes rapidly. Exporting PKB6     **ZZ** (Material PEEK) requires export application to the Ministry of Economy, Trade and Industry.

Ordering Example  
Part Number  
UKB600ZZ

## Characteristic Values of Plastic Ball Bearing Material

Item	UHMW	PEEK	PTFE	Soda-lime Glass	Alumina Ceramics
Specific Gravity	0.94	1.32	2.14~2.20	2.5	3.9
Tension Strength (kgf/cm <sup>2</sup> )	460	1000	210~350	600	-
Elongation (%)	400	20	200~400	-	-
Compression Strength (kgf/cm <sup>2</sup> )	-	1210	120	9000	25000
Compression Elasticity Modulus (kgf/cm <sup></sup>					