

# Ball Bearings



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# Single Row Deep Groove Ball Bearings



## Basic Type & Series

- R:** Inch
- 600:** Metric, Extra Small
- 6000:** Metric, Extra Light
- 6200:** Metric, Light
- 6300:** Metric, Medium
- 6800:** Metric, Extra Thin Section
- 6900:** Metric, Very Thin Section
- 63200:** Metric, Light Cartridge
- 63300:** Metric, Medium Cartridge
- BL 200:** Metric, Maximum Capacity, Light
- BL 300:** Metric, Maximum Capacity, Medium

## Cage Type

- M:** Brass
- Blank:** Steel
- T1X:** Polyamide

## Internal Clearance

- C2:** Tight
- Blank:** Normal
- C3:** Greater than Normal
- C4:** Greater than C3

## Grease Type

- NS7:** NS Hi-Tube
- AS2:** Alvania #2
- B32:** Beacon 325
- SRI:** Chevron SRI-2
- EEM:** Polyrex EM

**62**

**05**

**T1X**

**ZZ**

**C3**

**E**

**SRI**

**S**

## Bore Size

(04 and up: multiply last two numbers by 5 to get bore in mm)

- 00:** 10 mm    **04:** 20 mm
- 01:** 12 mm    **05:** 25 mm
- 02:** 15 mm    **12:** 60 mm
- 03:** 17 mm    **20:** 100 mm

## Features

- V:** Single Non-Contact Seal
- VV:** Double Non-Contact Seal
- Z:** Single Shield
- ZZ:** Double Shield
- D/DD:** Single Contact Seal
- DD/DDU:** Double Contact Seal
- NR:** Snap Ring and Groove
- M:** Brass Cage
- Blank:** Steel Cage

## Noise Level

- E:** Electric Motor Grade

## Grease Fill

- S:** Standard
- L:** Light
- H:** Heavy

Please refer to the bearing tables for exact part number options.

## Interchange

Description		Interchange					
		NSK	SKF	FAF/TIMKEN	FAG	MRC	NTN
Part Number	Inch	Rxx	Rxx	SxxK	Rxx	Rxx	Rxx
	Extra Small	6xx	6xx	3xK	6xx	3x	6xx
	Extra Light	60xx	60xx	91xxK	60xx	1xxK	60xx
	Light	62xx	62xx	2xxK	62xx	2xxS	62xx
	Medium	63xx	63xx	3xxK	63xx	3xxS	63xx
	ExtraThin Section	68xx	618xx	--	618xx	18xxS	--
	Very Thin Section	69xx	619xx	93xxK	619xx	19xxS	69xx
	Thin Section	16xxx	16xxx	--	16xxx	--	--
	Maximum Capacity, Light	BL2xx	2xx	2xxW	2xx	2xxM	BL2xx
	Maximum Capacity, Medium	BL3xx	3xx	3xxW	3xx	3xxM	BL3xx
	Cartridge Type	632xx 633xx	462xx 4623xx	W2xx W3xx	335xx 336xx	2xxC 3xxC	632xx 633xx
Part Number Suffix	Two Seals (Non Contact)	VV	--	--	2RSD	--	LLB
	Two Seals (Contact)	DDU	2RS	PP	2RSR	ZZ	LLU
	One Seals (Contact)	DU	RS	P	RSR	Z	LU
	Two Shield	ZZ	ZZ	DD	2ZR	FF	ZZ
	One Shield	Z	Z	D	ZR	F	Z
	Snap Ring	NR	NR	G	NR	G	NR
	Steel Cage	BLANK	J or BLANK	BLANK	J	BLANK or STL	BLANK
	Polyamide Cage	T1X	TN9	PRB	TNH or TVH	TN9	T2
	Brass Cage	M	M	MBR	Y	BRS	L1
	Heat Stabilized 200C	X28	S1	--	S1	HT	PREFIX TS3
	Tight Clearance	C2	C2	H	C2	C2	C2
	Normal Clearance	BLANK	BLANK	R	BLANK	C0	BLANK
	Greater than Normal Clearance	C3	(C3)	P	C3	C3	C3
	Greater than C3 Clearance	C4	C4	J	C4	C4	C4
	Radial Clearance in Microns	CGXX	RLXX	--	RXX	--	--
	Electric Motor Grade	E	EM (C3)	--	--	EMQ	--

The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please contact NSK. NSK assumes no liability with respect to errors or omissions.

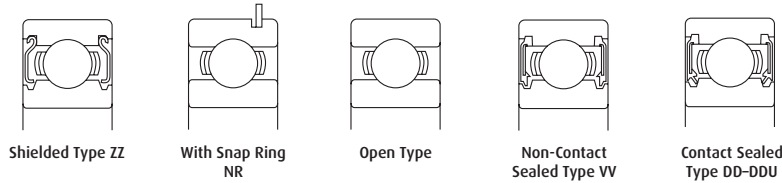
## Applications

- › Transmissions › Electric Motors & Generators › Electrical Appliances › Pumps & Compressors › Blowers & Fans
- › Speed Changers › Gear Boxes & Drives › Woodworking Machinery › Lawn & Garden Equipment › Turbines
- › Farm Machinery › Construction Machinery › Oil Field Machinery › Elevators › Conveying Equipment › Hoists & Cranes
- › Power Hand Tools › Industrial Valves › Rolling Mill Machinery › Textile Machinery › Paper Machinery › Printing Machinery
- › Food Products Machinery › Packaging Machinery › Medical & Dental Equipment (Extra Small) › Robotics Equipment (Thin)
- › Industrial Clutches › Slip Joints › Skate Boards (608ZZ) › Inline Skates (608ZZ)

# Single Row Deep Groove Ball Bearings

Single-Row Deep Groove Ball Bearings are classified into several types.

The proper amount of good quality grease is packed in shielded and sealed ball bearings. A comparison of the features of each type is shown below.



## Features of Sealed Ball Bearings

Type	Shielded Type (ZZ Type)	Non-Contact Rubber Sealed Type (VV Type)	Contact Rubber Sealed Type (DDU Type)
Torque	Low	Low	Higher than ZZ, VV types due to contact seal
Speed Capability	Good	Good	Limited by contact seal
Grease Sealing Effectiveness	Good	Better than ZZ Type	A little better than VV Type
Dust Resistance	Good	Better than ZZ Type (usable in moderately dusty environment)	Best (usable even in very dusty environment)
Water Resistance	Not Suitable	Not Suitable	Good (usable even if fluid is splashed on bearing)
Operating Temperature <sup>(1)</sup>	-10 to +110°C	-10 to +110°C	-10 to +100°C

Note: <sup>(1)</sup> The above temperature range applies to standard bearings. By using cold or heat resistant grease and changing the type of rubber, the operating temperature range can be extended. For such applications, please contact NSK.

For deep groove ball bearings, pressed cages are usually used. For big bearings, machined brass cages are used. (Refer to below table.)

Machined cages are also used for high speed applications.

## Standard Cages for Deep Groove Ball Bearings

Series	Pressed Steel Cage	Machined Brass Cage
68	6800 - 6838	6840 - 68/800
69	6900 - 6936	6938 - 69/800
160	16001 - 16026	16028 - 16064
60	6000 - 6040	6044 - 60/670
62	6200 - 6240	6244 - 6272
63	6300 - 6332	6334 - 6356

## Maximum Type Ball Bearings

Maximum Type Ball Bearings contain a larger number of balls than normal deep groove ball bearings. A filling slot is located in the inner and outer rings. Because of their filling slots, they are not suitable for applications with high axial loads.

BL2 and BL3 types of bearings have boundary dimensions equal to those of single-row deep groove ball bearings of Series 62 and 63 respectively. Besides the open type, ZZ type shielded bearings are also available.

When using these bearings, it is important for the filling slot in the outer ring to be outside of the loaded zone as much as possible.

Their cages are pressed steel.

# Single Row Deep Groove Ball Bearings Radial Internal Clearance

## Radial Internal Clearance in Single Row Deep Groove Ball Bearings Under No Load

Units: inch

Nominal Bore Diameter d (mm)		Radial Internal Clearance							
		C2		C0		C3		C4	
over	incl.	low	high	low	high	low	high	low	high
(10mm Only)*		+0.000	+0.003	+0.001	+0.005	+0.003	+0.009	+0.006	+0.011
10	18	+0.000	+0.004	+0.001	+0.007	+0.004	+0.010	+0.007	+0.013
18	24	+0.000	+0.004	+0.002	+0.008	+0.005	+0.011	+0.008	+0.014
24	30	+0.000	+0.004	+0.002	+0.008	+0.005	+0.011	+0.009	+0.016
30	40	+0.000	+0.004	+0.002	+0.008	+0.006	+0.013	+0.011	+0.018
40	50	+0.000	+0.004	+0.002	+0.009	+0.007	+0.014	+0.012	+0.020
50	65	+0.000	+0.006	+0.003	+0.011	+0.009	+0.017	+0.015	+0.024
65	80	+0.000	+0.006	+0.004	+0.012	+0.010	+0.020	+0.018	+0.028
80	100	+0.000	+0.007	+0.005	+0.014	+0.012	+0.023	+0.021	+0.033
100	120	+0.001	+0.008	+0.006	+0.016	+0.014	+0.026	+0.024	+0.038
120	140	+0.001	+0.009	+0.007	+0.019	+0.016	+0.032	+0.028	+0.045
140	160	+0.001	+0.009	+0.007	+0.021	+0.018	+0.036	+0.032	+0.051
160	180	+0.001	+0.010	+0.008	+0.024	+0.021	+0.040	+0.036	+0.058
180	200	+0.001	+0.012	+0.010	+0.028	+0.025	+0.046	+0.042	+0.064
200	225	-	+0.013	+0.010	+0.0315	+0.029	+0.053	+0.049	+0.074
225	250	-	+0.014	+0.012	+0.035	+0.033	+0.059	+0.057	+0.084
250	280	-	+0.016	+0.014	+0.037	+0.035	+0.063	+0.061	+0.092
280	315	-	+0.020	+0.020	+0.043	+0.043	+0.071	+0.075	+0.104
315	355	-	+0.022	+0.022	+0.049	+0.049	+0.079	+0.085	+0.116
355	400	-	+0.026	+0.026	+0.055	+0.055	+0.089	+0.096	+0.134

\*For bore sizes smaller than 10mm, refer to Table 10.39.

## Radial Internal Clearances in Extra Small & Miniature Ball Bearings Under No Load

Units: inch

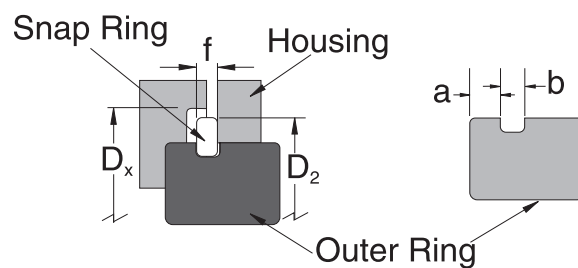
Clearance Symbols (Among these NSK Standard Clearances, MC5 is the most widely used)											
MC1		MC2		MC3		MC4		MC5		MC6	
low	high	low	high	low	high	low	high	low	high	low	high
+0.000	+0.002	+0.001	+0.003	+0.002	+0.004	+0.003	+0.005	+0.005	+0.008	+0.008	+0.011

# Snap Ring and Groove Dimensions

Series 6000, 6200, 6300 and 6400

Units: inch

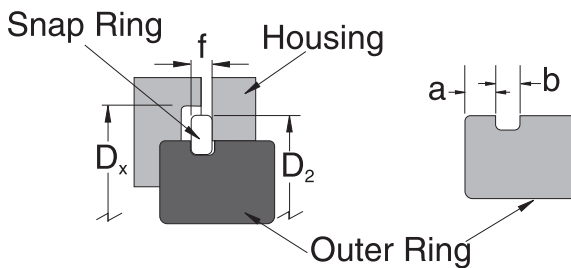
Bearing Bore d (mm)				Snap Ring Groove Position, a		Groove Width, b	Snap Ring Thickness, f	Snap Ring O.D., D <sub>2</sub>	Housing Bore, D <sub>x</sub>
Dimension Series				0	2,3,4	med.	med.	max.	min.
0	2	3	4	0	2,3,4	med.	med.	max.	min.
10	-	-	-	0.0500	-	0.0402	0.0311	1.1299	1.1575
12	-	-	-	0.0500	-	0.0402	0.0311	1.2087	1.2362
-	10	9	8	-	0.0780	0.0591	0.0421	1.3661	1.3976
15	12	-	9	0.0780	0.0780	0.0591	0.0421	1.4449	1.4764
17	15	10	-	0.0780	0.0591	0.0421	1.5630	1.5945	1.5945
-	-	12	10	-	0.0780	0.0591	0.0421	1.626	1.6535
-	17	-	-	-	0.0780	0.0591	0.0421	1.7559	1.7913
20	-	15	12	0.0780	0.0780	0.0591	0.0421	1.8228	1.8504
22	-	-	-	0.0780	-	0.0591	0.0421	1.9016	1.9291
25	20	17	-	0.0939	0.0591	0.0421	2.0748	2.1063	2.1063
-	22	-	-	-	0.0939	0.0591	0.0421	2.1929	2.2244
28	25	20	15	0.0780	0.0939	0.0591	0.0421	2.2795	2.3031
30	-	-	-	0.0780	-	0.0591	0.0421	2.3898	2.4213
-	-	22	-	-	0.0939	0.0591	0.0421	2.4291	2.4606
32	28	-	-	0.0780	0.0939	0.0591	0.0421	2.5079	2.5394
35	30	25	17	0.0780	0.1250	0.0807	0.0650	2.6654	2.6969
-	32	-	-	-	0.1250	0.0807	0.0650	2.7835	2.815
40	-	28	-	0.0941	0.1250	0.0807	0.0650	2.937	2.9921
-	35	30	20	-	0.1250	0.0807	0.0650	3.0945	3.1496
45	32	-	-	0.0807	0.0650	3.2126	3.2677	3.2126	3.2677
50	40	35	25	0.0941	0.1250	0.0807	0.0650	3.4094	3.4646
-	45	-	-	-	0.1250	0.0807	0.0650	3.6063	3.6614
55	50	40	30	0.1130	0.1250	0.1122	0.0949	3.7992	3.8583
60	-	-	-	0.1130	-	0.1122	0.0949	4.0000	4.0551
65	55	45	35	0.1130	0.1250	0.1122	0.0949	4.1929	4.252
70	60	50	40	0.1130	0.1250	0.1122	0.0949	4.5906	4.6457
75	-	-	-	0.1130	-	0.1122	0.0949	4.7874	4.8425
-	65	55	45	-	0.1559	0.1280	0.1091	5.1063	5.1772
80	70	-	-	0.1130	0.1559	0.1280	0.1091	5.3031	5.374
85	75	60	50	0.1130	0.1559	0.1280	0.1091	5.5000	5.5709
90	80	65	55	0.1409	0.1880	0.1280	0.1091	5.8937	5.9843
95	-	-	-	0.1409	-	0.1280	0.1091	6.0906	6.1811
100	85	70	60	0.1409	0.1880	0.1280	0.1091	6.2874	6.378
105	90	75	65	0.1409	0.1880	0.1280	0.1091	6.6811	6.7717
110	95	80	-	0.2191	0.1437	0.1437	7.2008	7.2835	7.2835
120	100	85	70	0.1409	0.2191	0.1437	0.1437	7.5945	7.6772
-	105	90	75	-	0.2191	0.1437	0.1437	7.9882	8.0709
130	110	95	80	0.2191	0.2191	0.1437	0.1437	8.3819	8.4646



Series 6800 and 6900

Units: inch

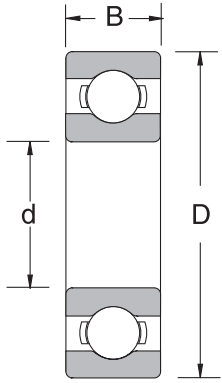
Bearing Bore d (mm)		Snap Ring Groove Position, a		Groove Width, b	Snap Ring Thickness, f	Snap Ring O.D., D <sub>2</sub>	Housing Bore, Dx
Dimension Series							
8	9	8	9	med.	med.	max.	min.
-	10	-	1.0677	0.0222	0.0256	0.9764	1.0039
-	12	-	1.0677	0.0222	0.0256	1.0551	1.0827
-	15	-	1.3226	0.0423	0.0315	1.2126	1.2402
-	17	-	1.3226	0.0423	0.0315	1.2913	1.3189
20	-	0.0482	-	0.0423	0.0315	1.3701	1.3976
22	-	0.0482	-	0.0423	0.0315	1.4488	1.4764
25	20	0.0482	1.7305	0.0423	0.0315	1.5669	1.5945
-	22	-	1.7305	0.0423	0.0315	1.6457	1.6732
28	-	0.0482	-	0.0423	0.0315	1.685	1.7126
30	25	0.0482	1.7305	0.0423	0.0315	1.7638	1.7913
32	-	0.0482	-	0.0423	0.0315	1.8425	1.8701
-	28	-	1.7305	0.0423	0.0315	1.8819	1.9094
35	30	0.0482	1.7305	0.0423	0.0315	1.9606	1.9882
40	32	0.0482	1.7305	0.0423	0.0315	2.1575	2.1850
-	35	-	1.7305	0.0423	0.0315	2.2756	2.3031
45	-	0.0482	-	0.0423	0.0315	2.3937	2.4213
-	40	-	1.7305	0.0423	0.0315	2.5512	2.5787
50	-	0.0482	-	0.0423	0.0315	2.6693	2.6969
-	45	-	1.7305	0.0571	0.0421	2.7874	2.8346
55	50	0.064	1.7305	0.0571	0.0421	2.9449	2.9921
60	-	0.064	-	0.0571	0.0421	3.2559	3.3071
-	55	-	2.1374	0.0571	0.0421	3.3228	3.3858
65	60	0.0640	2.1374	0.0571	0.0421	3.5197	3.5827
70	65	0.0640	2.1374	0.0571	0.0421	3.7165	3.7795
75	-	0.0640	-	0.0571	0.0421	3.9134	3.9764
80	70	0.0640	2.5453	0.0571	0.0421	4.1102	4.1732
-	75	-	2.5453	0.0571	0.0421	4.3583	4.4094
85	80	0.0787	2.5453	0.0571	0.0421	4.5551	4.6063
90	-	0.0787	-	0.0571	0.0421	4.752	4.8031
95	85	0.0787	3.3610	0.0571	0.0421	4.9488	5.0000
100	90	0.0787	3.3610	0.0571	0.0421	5.1457	5.1969
105	95	0.0787	3.3610	0.0571	0.0421	5.3425	5.3937
110	100	0.0945	3.3610	0.0807	0.065	5.7362	5.7874
-	105	-	3.3610	0.0807	0.065	5.9331	5.9843
120	110	0.0945	3.3610	0.0807	0.065	6.1299	6.1811
130	120	0.126	3.3610	0.0807	0.065	6.7520	6.8110
140	-	0.126	-	0.0807	0.065	7.1457	7.2047
-	130	-	3.3610	0.0807	0.065	7.3425	7.4016
150	140	0.126	3.3610	0.0807	0.065	7.7362	7.7953
160	-	0.126	-	0.0807	0.065	8.1299	8.1890





# Ball Bearings: R-Series

Single Row, Inch Dimension



Common Options	
VV	Two Non-Contact Seals
DDU	Two Contact Seals
ZZ	Two Shields
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance
T1X	Polyamide Cage
*Not shown in part number	

Bearing Number	Nominal Bearing Dimensions			Preferred Shoulder Diameters			Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx.
	d	D	B	r*	Shaft	Housing	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	lbs
	inch	inch	inch	inch	inch	inch					
R2	0.1250	0.375	0.1562	0.012	0.188	0.313	141	49	56	67	0.003
R2A	0.1250	0.500	0.1719	0.012	0.188	0.438	143	51	56	67	0.006
R3	0.1875	0.500	0.1562	0.012	0.250	0.438	293	108	43	53	0.005
R3ZZ	0.1875	0.500	0.1960	0.012	0.250	0.438	293	108	53	53	0.006
R4B	0.2500	0.625	0.1960	0.012	0.313	0.563	362	150	38	45	0.010
R4AA	0.2500	0.750	0.2188	0.016	0.344	0.656	589	238	36	45	0.015
R4AAZZ	0.2500	0.750	0.2812	0.016	0.344	0.656	589	238	36	45	0.018
R6	0.3750	0.875	0.2188	0.016	0.469	0.781	750	317	32	38	0.020
R6ZZ\VV	0.3750	0.875	0.2812	0.016	0.469	0.781	750	317	38	38	0.026
R8	0.5000	1.125	0.2500	0.016	0.594	1.031	1150	538	26	32	0.040
R8ZZ\VV	0.5000	1.125	0.3125	0.016	0.594	1.031	1150	538	30	32	0.050
R10	0.6250	1.375	0.2812	0.031	0.750	1.250	1340	728	22	26	0.060
R10ZZ\VV	0.6250	1.375	0.3438	0.031	0.750	1.250	1340	728	24	26	0.070
R12	0.7500	1.625	0.3125	0.031	0.906	1.469	2110	1120	18	20	0.100
R12ZZ\VV	0.7500	1.625	0.4375	0.031	0.906	1.469	2110	1120	20	20	0.120
R14	0.8750	1.875	0.3750	0.031	1.031	1.719	2270	1310	15	18	0.160
R14ZZ	0.8750	1.875	0.5000	0.031	1.031	1.719	2270	1310	18	18	0.180
R16	1.0000	2.000	0.3750	0.031	1.156	1.844	2270	1310	15	18	0.170
R16ZZ	1.0000	2.000	0.5000	0.031	1.156	1.844	2270	1310	18	18	0.190
R18	1.1250	2.125	0.3750	0.031	1.281	1.969	2980	1860	13	15	0.190
R18ZZ	1.1250	2.125	0.5000	0.031	1.281	1.969	2980	1860	15	15	0.210
R20	1.2500	2.250	0.3750	0.031	1.406	2.094	2980	1860	15	15	0.210
R20ZZ	1.2500	2.250	0.5000	0.031	1.406	2.094	2980	1860	15	15	0.230
R22	1.3750	2.500	0.4375	0.031	1.531	2.344	3590	2320	13	15	0.270
R22ZZ	1.3750	2.500	0.5625	0.031	1.531	2.344	3590	2320	13	15	0.290
R24	1.5000	2.625	0.4375	0.031	1.656	2.469	3770	2600	12	15	0.300

\*Maximum fillet which corner radius of bearing will clear.

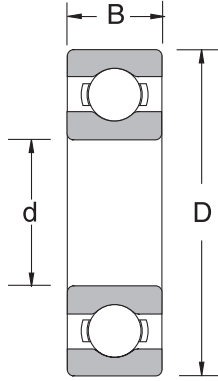
C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>or</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Ball Bearings: 600 Series

Single Row, Extra Small



Common Options	
VV	Two Non-Contact Seals
DDU	Two Contact Seals
ZZ	Two Shields
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance
T1X	Polyamide Cage
*Not shown in part number	

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters			Basic Load Ratings		Limiting Speeds		Bearing Weight Approx.
	d		D		B		r*	Shaft	Housing	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	
	mm	inch	mm	inch	mm	inch	inch	inch	inch	(lbs)	(lbs)	(1000 RPM)	(1000 RPM)	lbs
693	3.0	0.1181	8	0.3150	3.0	0.1181	0.006	0.169	0.287	126	40	60	67	0.001
693ZZ\VV	3.0	0.1181	8	0.3150	4.0	0.1575	0.006	0.165	0.268	126	40	60	67	0.002
623	3.0	0.1181	10	0.3937	4.0	0.1575	0.006	0.165	0.346	141	49	50	60	0.003
684	4.0	0.1575	9	0.3543	2.5	0.0984	0.004	0.205	0.319	143	51	53	63	0.001
684ZZ\VV	4.0	0.1575	9	0.3543	4.0	0.1575	0.004	0.189	0.323	143	51	53	63	0.002
694	4.0	0.1575	11	0.4331	4.0	0.1575	0.006	0.205	0.386	216	77	48	56	0.003
604	4.0	0.1575	12	0.4724	4.0	0.1575	0.008	0.220	0.409	216	77	48	56	0.004
624	4.0	0.1575	13	0.5118	5.0	0.1969	0.008	0.220	0.449	293	108	40	48	0.006
634	4.0	0.1575	16	0.6299	5.0	0.1969	0.012	0.236	0.551	390	151	36	43	0.015
685	5.0	0.1969	11	0.4331	3.0	0.1181	0.006	0.244	0.390	161	64	45	53	0.002
685ZZ\VV	5.0	0.1969	11	0.4331	5.0	0.1969	0.006	0.244	0.386	161	64	45	53	0.004
695	5.0	0.1969	13	0.5118	4.0	0.1575	0.008	0.260	0.449	243	97	43	50	0.005
605	5.0	0.1969	14	0.5512	5.0	0.1969	0.008	0.260	0.488	298	115	40	50	0.007
625	5.0	0.1969	16	0.6299	5.0	0.1969	0.012	0.276	0.551	390	150	36	43	0.010
635	5.0	0.1969	19	0.7480	6.0	0.2362	0.012	0.276	0.669	526	199	32	40	0.022
686	6.0	0.2362	13	0.5118	3.5	0.1378	0.006	0.291	0.461	243	99	40	50	0.004
686ZZ\VV	6.0	0.2362	13	0.5118	5.0	0.1969	0.006	0.283	0.465	243	99	40	50	0.005
696	6.0	0.2362	15	0.5906	5.0	0.1969	0.008	0.299	0.528	390	150	40	45	0.008
606	6.0	0.2362	17	0.6693	6.0	0.2362	0.012	0.315	0.591	509	187	38	45	0.012
626	6.0	0.2362	19	0.7480	6.0	0.2362	0.012	0.315	0.669	526	199	32	40	0.021
687	7.0	0.2756	14	0.5512	3.5	0.1378	0.006	0.335	0.500	265	115	40	45	0.004
687ZZ\VV	7.0	0.2756	14	0.5512	5.0	0.1969	0.006	0.323	0.504	265	115	40	45	0.006
697	7.0	0.2756	17	0.6693	5.0	0.1969	0.012	0.354	0.591	362	161	36	43	0.011
607	7.0	0.2756	19	0.7480	6.0	0.2362	0.012	0.354	0.669	525	198	36	43	0.015
627	7.0	0.2756	22	0.8661	7.0	0.2756	0.012	0.354	0.787	741	308	30	36	0.031
608-5	7.9	0.3123	22	0.8661	7.0	0.2756	0.012	0.394	0.787	741	308	34	40	0.030
698	8.0	0.3150	19	0.7480	6.0	0.2362	0.012	0.394	0.650	503	205	36	43	0.014
608	8.0	0.3150	22	0.8661	7.0	0.2756	0.012	0.394	0.787	741	308	34	40	0.030
628	8.0	0.3150	24	0.9449	8.0	0.3150	0.012	0.394	0.669	750	322	28	34	0.034
638	8.0	0.3150	28	1.1024	9.0	0.3543	0.012	0.394	1.024	1030	443	28	34	0.057
689	9.0	0.3543	17	0.6693	4.0	0.1575	0.008	0.421	0.598	300	150	36	43	0.007
689ZZ\VV	9.0	0.3543	17	0.6693	5.0	0.1969	0.008	0.417	0.606	300	150	36	43	0.009
609	9.0	0.3543	24	0.9449	7.0	0.2756	0.012	0.433	0.866	750	322	32	38	0.029
629	9.0	0.3543	26	1.0236	8.0	0.3150	0.024	0.453	0.945	1030	444	28	34	0.044

\*Maximum fillet which corner radius of bearing will clear.

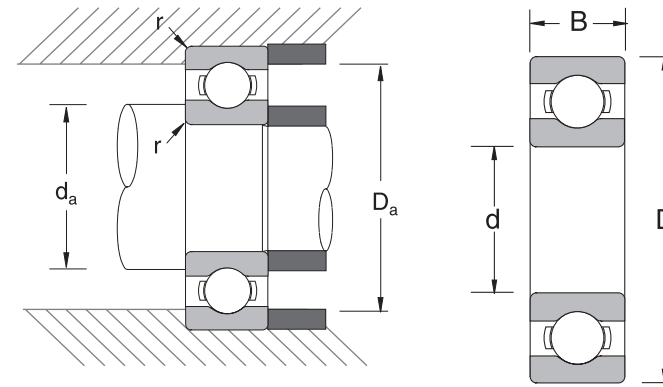
C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>or</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Ball Bearings: 6000 Series

Single Row, Deep Groove, Conrad Type



Common Options	
V	One Non-Contact Seal
VV	Two Non-Contact Seals
DU	One Contact Seal
DDU	Two Contact Seals
Z	One Shield
ZZ	Two Shields
NR	Snap Ring
M**	Brass Cage
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance
E	Electric Motor Quality

\*Not shown in part number  
\*\* Not available on all sizes, consult NSK for availability.

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters			
	d		D		B		r**	da (in)		Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max	max
6000	10	0.3937	26	1.0236	8	0.3150	0.012	0.472	0.512	0.949
6001	12	0.4724	28	1.1024	8	0.3150	0.012	0.551	0.611	1.024
6002	15	0.5906	32	1.2598	9	0.3543	0.012	0.669	0.749	1.181
6003	17	0.6693	35	1.3780	10	0.3937	0.012	0.748	0.847	1.299
6004	20	0.7874	42	1.6535	12	0.4724	0.024	0.945	1.005	1.496
6005	25	0.9843	47	1.8504	12	0.4724	0.024	1.142	1.182	1.693
6006	30	1.1811	55	2.1654	13	0.5118	0.039	1.378	1.438	1.969
6007	35	1.3780	62	2.4409	14	0.5512	0.039	1.575	1.635	2.244
6008	40	1.5748	68	2.6772	15	0.5906	0.039	1.772	1.872	2.480
6009	45	1.7717	75	2.9528	16	0.6299	0.039	1.969	2.108	2.756
6010	50	1.9685	80	3.1496	16	0.6299	0.039	2.165	2.305	2.953
6011*	55	2.1654	90	3.5433	18	0.7087	0.039	2.421	2.528	3.287
6012*	60	2.3622	95	3.7402	18	0.7087	0.039	2.618	2.719	3.484
6013*	65	2.5591	100	3.9370	18	0.7087	0.039	2.815	2.876	3.681
6014*	70	2.7559	110	4.3307	20	0.7874	0.039	3.012	3.172	4.075
6015*	75	2.9528	115	4.5276	20	0.7874	0.039	3.209	3.369	4.272
6016*	80	3.1496	125	4.9213	22	0.8661	0.039	3.406	3.585	4.665
6017*	85	3.3465	130	5.1181	22	0.8661	0.039	3.602	3.782	4.862
6018*	90	3.5433	140	5.5118	24	0.9449	0.059	3.858	4.058	5.197
6019*	95	3.7402	145	5.7087	24	0.9449	0.059	4.055	4.275	5.394
6020*	100	3.9370	150	5.9055	24	0.9449	0.059	4.252	4.452	5.591
6021*	105	4.1339	160	6.2992	26	1.0236	0.079	4.528	4.728	5.906
6022*	110	4.3307	170	6.6929	28	1.1024	0.079	4.724	4.905	6.299
6024*	120	4.7244	180	7.0866	28	1.1024	0.079	5.118	5.299	6.693
6026	130	5.1181	200	7.8740	33	1.2992	0.079	5.512	5.851	7.480
6028	140	5.5118	210	8.2677	33	1.2992	0.079	5.906	6.245	7.874
6030	150	5.9055	225	8.8583	35	1.3780	0.079	6.339	6.698	8.425
6032	160	6.2992	240	9.4488	38	1.4961	0.079	6.732	7.131	9.016
6034	170	6.6929	260	10.2362	42	1.6535	0.079	7.126	7.663	9.803
6036	180	7.0866	280	11.0236	46	1.8110	0.079	7.520	8.195	10.591
6038	190	7.4803	290	11.4173	46	1.8110	0.079	7.913	8.589	10.984
6040	200	7.8740	310	12.2047	51	2.0079	0.079	8.307	9.121	11.772

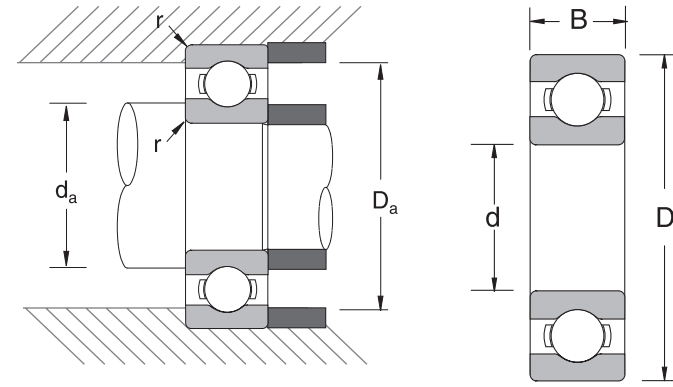
\*Indicates NSK (HPS) High Performance Standard bearing. \*\*Maximum fillet which corner radius of bearing will clear. Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Factor	Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>or</sub>		Grease	Oil	
	6000	1030	443	12.4	30.0	36.0
6001	1150	531	13.0	28.0	32.0	0.05
6002	1260	637	13.9	24.0	28.0	0.07
6003	1350	732	14.4	22.0	26.0	0.09
6004	2110	1130	13.8	18.0	20.0	0.16
6005	2270	1310	14.5	15.0	18.0	0.18
6006	2980	1860	14.7	13.0	15.0	0.26
6007	3590	2315	14.8	11.0	13.0	0.35
6008	3770	2600	15.3	10.0	12.0	0.43
6009	4720	3420	15.3	9.0	11.0	0.54
6010	4900	3750	15.6	8.5	10.0	0.58
6011*	6680	4780	15.3	7.5	9.0	0.85
6012*	6963	5230	15.6	7.1	8.5	0.92
6013*	7200	5670	15.8	6.7	8.0	0.96
6014*	8970	6970	15.6	6.0	7.1	1.33
6015*	9324	7540	15.8	5.6	6.7	1.41
6016*	11212	8950	15.6	5.3	6.3	1.87
6017*	11684	9680	15.8	5.0	6.0	1.96
6018*	13691	11200	15.6	4.8	5.6	2.56
6019*	14281	12100	15.8	4.5	5.3	2.67
6020*	14163	12200	15.9	4.3	5.3	2.76
6021*	17114	14800	15.8	4.0	4.8	3.51
6022*	20064	16400	15.5	3.8	4.5	4.32
6024*	20772	18000	15.7	3.6	4.3	5.34
6026	23800	22700	15.8	3.0	3.6	8.16
6028	24700	24300	16.0	2.8	3.4	8.62
6030	28200	28200	15.9	2.6	3.0	10.60
6032	30600	30400	15.9	2.4	2.8	13.00
6034	36200	36200	15.8	2.2	2.6	17.50
6036	40600	41500	15.6	2.0	2.4	23.00
6038	48815	45200	15.8	2.0	2.4	24.50
6040	53748	50700	15.6	1.9	2.2	31.00

C<sub>r</sub> = Dynamic Radial Load Rating C<sub>or</sub> = Static Radial Load Rating  
Note: Limiting speeds are lower with contact seals. For more information, contact NSK.  
\*Indicates NSK (HPS) High Performance Standard bearing.

# Ball Bearings: 6200 Series

Single Row, Deep Groove, Conrad Type



### Common Options

V	One Non-Contact Seal
VV	Two Non-Contact Seals
DU	One Contact Seal
DDU	Two Contact Seals
Z	One Shield
ZZ	Two Shields
NR	Snap Ring
M**	Brass Cage
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance
E	Electric Motor Quality

\*Not shown in part number

\*\* Not available on all sizes, consult NSK for availability.

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters			
	d		D		B		r**	da (in)		Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max	max
6200	10.00	0.3937	30	1.1811	9	0.3543	0.024	0.500	0.630	0.984
6201	12.00	0.4724	32	1.2598	10	0.3937	0.024	0.578	0.670	1.063
6201-08	12.70	0.5000	32	1.2598	10	0.3937	0.024	0.595	0.670	1.063
6201-13M	13.00	0.5118	32	1.2598	10	0.3937	0.024	0.610	0.670	1.063
6202	15.00	0.5906	35	1.3780	11	0.4331	0.024	0.703	0.749	1.181
6202-10	15.87	0.6250	35	1.3780	11	0.4331	0.024	0.730	0.749	1.181
6202-16M	16.00	0.6299	35	1.3780	11	0.4331	0.024	0.740	0.749	1.181
6203	17.00	0.6693	40	1.5748	12	0.4724	0.024	0.787	0.926	1.380
6203-625	15.90	0.6250	40	1.5748	12	0.4724	0.024	0.750	0.926	1.380
6204	20.00	0.7874	47	1.8504	14	0.5512	0.039	0.969	1.044	1.614
6205	25.00	0.9843	52	2.0472	15	0.5906	0.039	1.172	1.261	1.811
6206	30.00	1.1811	62	2.4409	16	0.6299	0.039	1.406	1.517	2.205
6207	35.00	1.3780	72	2.8346	17	0.6693	0.039	1.614	1.753	2.559
6208	40.00	1.5748	80	3.1496	18	0.7087	0.039	1.811	1.990	2.874
6209*	45.00	1.7717	85	3.3465	19	0.7480	0.039	2.008	2.187	3.071
6210*	50.00	1.9685	90	3.5433	20	0.7874	0.039	2.205	2.364	3.268
6211*	55.00	2.1654	100	3.9370	21	0.8268	0.059	2.441	2.620	3.602
6212*	60.00	2.3622	110	4.3307	22	0.8661	0.059	2.717	2.935	3.996
6213*	65.00	2.5591	120	4.7244	23	0.9055	0.059	2.913	3.152	4.390
6214*	70.00	2.7559	125	4.9213	24	0.9449	0.059	3.110	3.310	4.587
6215*	75.00	2.9528	130	5.1181	25	0.9843	0.059	3.307	3.546	4.783
6216*	80.00	3.1496	140	5.5118	26	1.0236	0.079	3.504	3.763	5.118
6217*	85.00	3.3465	150	5.9055	28	1.1024	0.079	3.740	4.019	5.512
6218*	90.00	3.5433	160	6.2992	30	1.1811	0.079	3.937	4.236	5.906
6219*	95.00	3.7402	170	6.6929	32	1.2598	0.079	4.213	4.492	6.220
6220*	100.00	3.9370	180	7.0866	34	1.3386	0.079	4.409	4.787	6.614
6221*	105.00	4.1339	190	7.4803	36	1.4173	0.079	4.606	5.024	7.008
6222	110.00	4.3307	200	7.8740	38	1.4961	0.079	4.803	5.280	7.402
6224	120.00	4.7244	215	8.4646	40	1.5748	0.079	5.197	5.752	7.992
6226	130.00	5.1181	230	9.0551	40	1.5748	0.098	5.669	6.206	8.504
6228	140.00	5.5118	250	9.8425	42	1.6535	0.098	6.063	6.757	9.291
6230	150.00	5.9055	270	10.6299	45	1.7717	0.098	6.457	7.328	10.079
6232	160.00	6.2992	290	11.4173	48	1.8898	0.098	6.850	7.959	10.886
6234	170.00	6.6929	310	12.2047	52	2.0472	0.118	7.362	8.471	11.535
6236	180.00	7.0866	320	12.5984	52	2.0472	0.118	7.758	8.786	11.929
6238	190.00	7.4803	340	13.3858	55	2.1654	0.118	8.150	9.298	12.717

\*Indicates NSK (HPS) High Performance Standard bearing.

\*\*Maximum fillet which corner radius of bearing will clear.

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Factor	Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>0r</sub>		Grease	Oil	
			f <sub>0</sub>			
6200	1150	538	13.2	24.0	30.0	0.07
6201	1530	685	12.3	22.0	28.0	0.08
6201-08	1530	685	12.3	22.0	28.0	0.08
6201-13M	1530	685	12.3	22.0	28.0	0.08
6202	1720	839	13.2	20.0	24.0	0.10
6202-10	1720	839	13.2	20.0	24.0	0.10
6202-16M	1720	839	13.2	20.0	24.0	0.10
6203	2150	1080	13.2	17.0	20.0	0.14
6203-625	2150	1080	13.2	17.0	20.0	0.14
6204	2880	1480	13.1	15.0	18.0	0.23
6205	3150	1770	13.9	13.0	15.0	0.29
6206	4380	2540	13.8	11.0	13.0	0.44
6207	5770	3440	13.8	9.5	11.0	0.64
6208	6550	4010	14.0	8.5	10.0	0.82
6209*	7436	4580	14.4	7.5	9.0	0.89
6210*	8262	5220	14.4	7.1	8.5	1.02
6211*	10268	6580	14.3	6.3	7.5	1.36
6212*	12393	8130	14.3	5.6	7.1	1.73
6213*	13573	9010	14.4	5.3	6.3	2.18
6214*	14635	9910	14.5	5.0	6.3	2.31
6215*	15579	11100	14.7	4.8	5.6	2.64
6216*	17114	11900	14.6	4.5	5.3	3.09
6217*	19828	13900	14.5	4.3	5.0	3.97
6218*	22661	16100	14.5	4.0	4.8	4.74
6219*	25729	18400	14.4	3.8	4.5	5.73
6220*	28798	20900	14.4	3.6	4.3	6.94
6221*	31395	23500	14.4	3.4	4.0	8.15
6222	32400	26300	14.3	2.8	3.4	9.59
6224	34900	29500	14.4	2.6	3.2	11.40
6226	37500	32900	14.5	2.4	3.0	12.70
6228	37400	33700	14.9	2.2	2.8	19.60
6230	39600	37700	15.1	2.0	2.6	25.30
6232	41600	41800	15.4	1.9	2.4	28.16
6234	47700	50300	15.3	1.8	2.2	34.32
6236	51100	55000	15.1	1.7	2.0	34.76
6238	66212	63300	15.0	1.6	2.0	48.84

C<sub>r</sub> = Dynamic Radial Load Rating

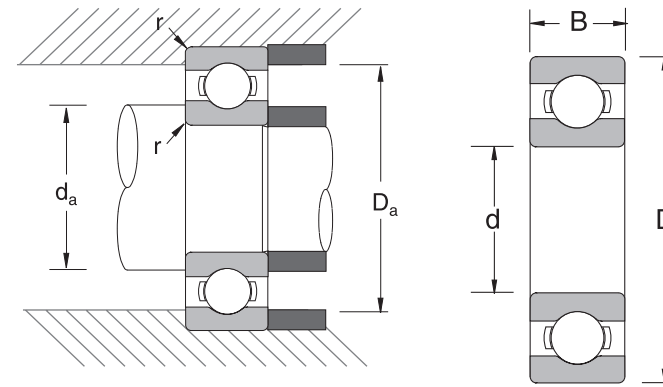
C<sub>0r</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

\*Indicates NSK (HPS) High Performance Standard bearing.

# Ball Bearings: 6300 Series

Single Row, Deep Groove, Conrad Type



Common Options	
V	One Non-Contact Seal
VV	Two Non-Contact Seals
DU	One Contact Seal
DDU	Two Contact Seals
Z	One Shield
ZZ	Two Shields
NR	Snap Ring
M**	Brass Cage
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance
E	Electric Motor Quality

\*Not shown in part number  
\*\* Not available on all sizes, consult NSK for availability.

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters			
	d		D		B		r**	d <sub>a</sub> (in)		Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max	max
6300	10	0.3937	35	1.3780	11	0.4331	0.024	0.563	0.650	1.181
6301	12	0.4724	37	1.4567	12	0.4724	0.039	0.656	0.709	1.220
6302	15	0.5906	42	1.6535	13	0.5118	0.039	0.781	0.887	1.417
6303	17	0.6693	47	1.8504	14	0.5512	0.039	0.875	1.005	1.614
6304	20	0.7874	52	2.0472	15	0.5906	0.039	1.016	1.103	1.772
6305	25	0.9843	62	2.4409	17	0.6693	0.039	1.220	1.418	2.165
6306	30	1.1811	72	2.8346	19	0.7480	0.039	1.469	1.675	2.559
6307*	35	1.3780	80	3.1496	21	0.8268	0.059	1.688	1.852	2.795
6308*	40	1.5748	90	3.5433	23	0.9055	0.059	1.929	2.088	3.189
6309*	45	1.7717	100	3.9370	25	0.9843	0.059	2.126	2.423	3.583
6310*	50	1.9685	110	4.3307	27	1.0630	0.079	2.362	2.679	3.937
6311*	55	2.1654	120	4.7244	29	1.1417	0.079	2.559	2.857	4.331
6312*	60	2.3622	130	5.1181	31	1.2205	0.079	2.835	3.113	4.646
6313*	65	2.5591	140	5.5118	33	1.2992	0.079	3.031	3.369	5.039
6314*	70	2.7559	150	5.9055	35	1.3780	0.079	3.228	3.625	5.433
6315*	75	2.9528	160	6.2992	37	1.4567	0.079	3.425	3.881	5.827
6316*	80	3.1496	170	6.6929	39	1.5354	0.079	3.622	4.117	6.220
6317*	85	3.3465	180	7.0866	41	1.6142	0.098	3.898	4.354	6.535
6318*	90	3.5433	190	7.4803	43	1.6929	0.098	4.094	4.610	6.929
6319*	95	3.7402	200	7.8740	45	1.7717	0.098	4.291	4.866	7.323
6320	100	3.9370	215	8.4646	47	1.8504	0.098	4.488	5.240	7.913
6321	105	4.1339	225	8.8583	49	1.9291	0.098	4.685	5.437	8.307
6322	110	4.3307	240	9.4488	50	1.9685	0.098	4.882	5.851	8.898
6324	120	4.7244	260	10.2362	55	2.1654	0.098	5.276	6.343	9.685
6326	130	5.1181	280	11.0236	58	2.2835	0.118	5.827	6.895	10.315
6328	140	5.5118	300	11.8110	62	2.4409	0.118	6.220	7.368	11.102
6330	150	5.9055	320	12.5984	65	2.5591	0.118	6.614	7.998	11.890
6332	160	6.2992	340	13.3858	68	2.6772	0.118	7.008	-	12.677
6334	170	6.6929	360	14.1732	72	2.8346	0.118	7.402	-	13.465
6336	180	7.0866	380	14.9606	75	2.9528	0.118	7.795	-	14.252
6338	190	7.4803	400	15.7480	78	3.0709	0.157	8.346	-	14.882
6340	200	7.8740	420	16.5354	80	3.1496	0.157	8.740	-	15.669

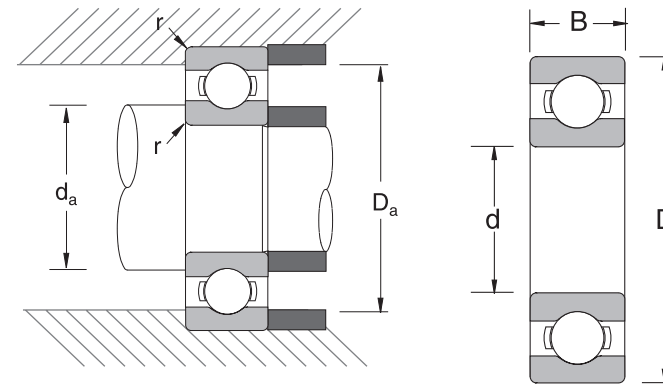
\*Indicates NSK (HPS) High Performance Standard bearing. \*\*Maximum fillet which corner radius of bearing will clear. Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Factor	Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>or</sub>		Grease	Oil	
	6300	1820	772	11.2	22.0	26.0
6301	2180	941	11.1	20.0	24.0	0.13
6302	2570	1220	12.3	17.0	20.0	0.18
6303	3060	1490	12.4	15.0	18.0	0.25
6304	3580	1770	12.4	14.0	17.0	0.32
6305	4630	2530	13.2	11.0	13.0	0.52
6306	5990	3380	13.3	9.5	12.0	0.76
6307*	7908	4320	13.2	8.5	10.0	1.01
6308*	9560	5400	13.2	7.5	9.0	1.40
6309*	12511	7210	13.1	6.7	8.0	1.84
6310*	14635	8610	13.2	6.0	7.5	2.42
6311*	16878	10040	13.1	5.6	6.7	2.98
6312*	19356	11680	13.1	5.3	6.3	3.75
6313*	21835	13450	13.2	4.8	6.0	4.63
6314*	24549	15300	13.2	4.5	5.3	5.51
6315*	26674	17400	13.2	4.3	5.0	6.61
6316*	29034	19500	13.3	4.0	4.8	7.93
6317*	31395	21800	13.3	3.8	4.5	9.37
6318*	33755	24100	13.3	3.6	4.3	10.80
6319*	36116	26700	13.3	3.0	3.6	12.50
6320	38900	31800	13.2	2.8	3.4	15.30
6321	41300	34500	13.2	2.6	3.2	17.90
6322	46200	40300	13.2	2.4	3.0	21.00
6324	46500	41500	13.5	2.2	2.8	27.60
6326	51600	48200	13.6	2.2	2.6	40.80
6328	65693	55300	13.6	2.0	2.4	48.50
6330	61700	63800	13.9	1.8	2.2	57.30
6332	62400	64400	13.9	1.7	2.0	58.00
6334	73400	79800	13.6	1.6	2.0	84.00
6336	79600	91600	13.9	1.5	1.8	98.00
6338	92177	93200	14.1	1.4	1.7	112.00
6340	85300	100400	13.8	1.3	1.6	127.00

C<sub>r</sub> = Dynamic Radial Load Rating C<sub>or</sub> = Static Radial Load Rating  
Note: Limiting speeds are lower with contact seals. For more information, contact NSK.  
\*Indicates NSK (HPS) High Performance Standard bearing.

# Ball Bearings: 6800 Series

Single Row, Deep Groove, Conrad Type



Common Options	
V	One Non-Contact Seal
VV	Two Non-Contact Seals
DU	One Contact Seal
DDU	Two Contact Seals
Z	One Shield
ZZ	Two Shields
NR	Snap Ring
M**	Brass Cage
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance
E	Electric Motor Quality

\*Not shown in part number  
\*\* Not available on all sizes, consult NSK for availability.

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters			
	d		D		B		r*	da (in)		Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max	max
6800	10	0.3937	19	0.7480	5	0.1969	0.012	0.551	0.551	0.700
6801	12	0.4724	21	0.8268	5	0.1969	0.012	0.551	0.551	0.748
6802	15	0.5906	24	0.9449	5	0.1969	0.012	0.669	0.669	0.866
6803	17	0.6693	26	1.0236	5	0.1969	0.012	0.748	0.748	0.945
6804	20	0.7874	32	1.2598	7	0.2756	0.012	0.866	0.886	1.181
6805	25	0.9843	37	1.4567	7	0.2756	0.012	1.063	1.063	1.378
6806	30	1.1811	42	1.6535	7	0.2756	0.012	1.260	1.260	1.575
6807	35	1.3780	47	1.8504	7	0.2756	0.012	1.457	1.457	1.772
6808	40	1.5748	52	2.0472	7	0.2756	0.012	1.654	1.654	1.969
6809	45	1.7717	58	2.2835	7	0.2756	0.012	1.850	1.870	2.205
6810	50	1.9685	65	2.5591	7	0.2756	0.012	2.047	2.067	2.480
6811	55	2.1654	72	2.8346	9	0.3543	0.012	2.244	2.323	2.756
6812	60	2.3622	78	3.0709	10	0.3937	0.012	2.441	2.520	2.992
6813	65	2.5591	85	3.3465	10	0.3937	0.024	2.717	2.717	3.189
6814	70	2.7559	90	3.5433	10	0.3937	0.024	2.913	2.933	3.386
6815	75	2.9528	95	3.7402	10	0.3937	0.024	3.110	3.130	3.583
6816	80	3.1496	100	3.9370	10	0.3937	0.024	3.307	3.327	3.780
6817	85	3.3465	110	4.3307	13	0.5118	0.039	3.543	3.563	4.134
6818	90	3.5433	115	4.5276	13	0.5118	0.039	3.740	3.760	4.331
6819	95	3.7402	120	4.7244	13	0.5118	0.039	3.937	3.957	4.528
6820	100	3.9370	125	4.9213	13	0.5118	0.039	4.134	4.154	4.724
6821	105	4.1339	130	5.1181	13	0.5118	0.039	4.331	4.350	4.921
6822	110	4.3307	140	5.5118	16	0.6299	0.039	4.528	4.606	5.315
6824	120	4.7244	150	5.9055	16	0.6299	0.039	4.921	5.000	5.709
6826	130	5.1181	165	6.4961	18	0.7087	0.039	5.374	5.433	6.240
6828	140	5.5118	175	6.8898	18	0.7087	0.039	5.768	-	6.634
6830	150	5.9055	190	7.4803	20	0.7874	0.039	6.161	-	7.224
6832	160	6.2992	200	7.8740	20	0.7874	0.039	6.555	6.713	7.618
6834	170	6.6929	215	8.4646	22	0.8661	0.039	6.949	7.165	8.209
6836	180	7.0866	225	8.8583	22	0.8661	0.039	7.343	-	8.602
6838	190	7.4803	240	9.4488	24	0.9449	0.059	7.795	7.972	9.134
6840	200	7.8740	250	9.8425	24	0.9449	0.059	8.189	-	9.528

\*Maximum fillet which corner radius of bearing will clear.

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Factor	Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>0r</sub>		Grease	Oil	
	6800	385	189	f <sub>0</sub>	34.0	40.0
6801	429	233	14.8	32.0	38.0	0.01
6802	466	282	15.3	28.0	34.0	0.02
6803	590	352	15.8	26.0	30.0	0.02
6804	902	554	15.5	22.0	26.0	0.04
6805	968	660	16.1	18.0	22.0	0.05
6806	1010	770	16.4	15.0	18.0	0.05
6807	1070	880	16.7	13.0	16.0	0.06
6808	1100	979	17.0	12.0	14.0	0.07
6809	1210	1180	17.2	11.0	13.0	0.08
6810	1440	1400	17.2	9.5	11.0	0.11
6811	1980	1900	17.0	8.5	10.0	0.18
6812	2570	2460	16.9	8.0	9.5	0.22
6813	2680	2710	17.0	7.5	8.5	0.28
6814	2710	2860	17.2	6.7	8.0	0.29
6815	2820	3100	17.3	6.3	7.5	0.32
6816	2840	3230	17.4	6.0	7.4	0.32
6817	4200	4490	17.1	5.6	6.7	0.56
6818	4270	4710	17.2	5.3	6.3	0.59
6819	4330	4930	17.2	5.0	6.0	0.63
6820	4400	5150	17.3	4.8	5.6	0.66
6821	4440	5370	17.4	4.8	5.6	0.69
6822	6290	7370	17.1	4.3	5.3	1.07
6824	6490	8030	17.3	4.0	4.8	1.16
6826	8250	9790	17.1	3.6	4.3	1.63
6828	8580	10700	17.3	3.4	4.0	1.79
6830	10700	10900	17.1	3.2	3.8	2.49
6832	10900	13800	17.2	2.6	3.2	3.08
6834	13400	16800	17.1	2.6	3.0	4.11
6836	13600	17600	17.2	2.4	2.8	4.36
6838	18955	21000	17.1	2.2	2.6	5.57
6840	19214	22000	17.2	2.2	2.6	5.85

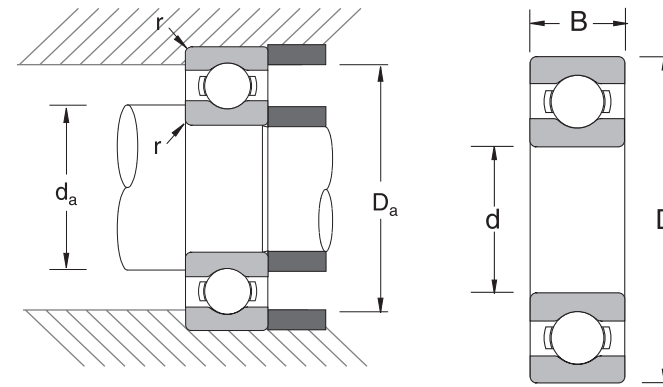
C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>0r</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Ball Bearings: 6900 Series

Single Row, Deep Groove, Conrad Type



### Common Options

V	One Non-Contact Seal
VV	Two Non-Contact Seals
DU	One Contact Seal
DDU	Two Contact Seals
Z	One Shield
ZZ	Two Shields
NR	Snap Ring
M**	Brass Cage
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance
E	Electric Motor Quality

\*Not shown in part number

\*\* Not available on all sizes, consult NSK for availability.

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters			
	d		D		B		r*	d <sub>a</sub> (in)		Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max	max
6900	10	0.3937	22	0.8661	6	0.2362	0.012	0.472	0.492	0.787
6901	12	0.4724	24	0.9449	6	0.2362	0.012	0.551	0.571	0.866
6902	15	0.5906	28	1.1024	7	0.2756	0.012	0.669	0.669	1.024
6903	17	0.6693	30	1.1811	7	0.2756	0.012	0.748	0.768	1.102
6904	20	0.7874	37	1.4567	9	0.3543	0.012	0.866	0.945	1.378
6905	25	0.9843	42	1.6535	9	0.3543	0.012	1.063	1.122	1.575
6906	30	1.1811	47	1.8504	9	0.3543	0.012	1.260	1.339	1.772
6907	35	1.3780	55	2.1654	10	0.3937	0.024	1.535	1.535	2.008
6908	40	1.5748	62	2.4409	12	0.4724	0.024	1.732	1.811	2.283
6909	45	1.7717	68	2.6772	12	0.4724	0.024	1.929	1.969	2.520
6910	50	1.9685	72	2.8346	12	0.4724	0.024	2.126	2.165	2.677
6911	55	2.1654	80	3.1496	13	0.5118	0.039	2.362	2.421	2.953
6912	60	2.3622	85	3.3465	13	0.5118	0.039	2.559	2.598	3.150
6913	65	2.5591	90	3.5433	13	0.5118	0.039	2.756	2.815	3.346
6914	70	2.7559	100	3.9370	16	0.6299	0.039	2.953	3.051	3.740
6915	75	2.9528	105	4.1339	16	0.6299	0.039	3.150	3.228	3.937
6916	80	3.1496	110	4.3307	16	0.6299	0.039	3.346	3.445	4.134
6917	85	3.3465	120	4.7244	18	0.7087	0.039	3.602	3.720	4.469
6918	90	3.5433	125	4.9213	18	0.7087	0.039	3.799	3.878	4.665
6919	95	3.7402	130	5.1181	18	0.7087	0.039	3.996	4.075	4.862
6920	100	3.9370	140	5.5118	20	0.7874	0.039	4.193	4.370	5.256
6921	105	4.1339	145	5.7087	20	0.7874	0.039	4.390	4.567	5.453
6922	110	4.3307	150	5.9055	20	0.7874	0.039	4.587	4.764	5.650
6924	120	4.7244	165	6.4961	22	0.8661	0.039	4.980	5.197	6.240
6926	130	5.1181	180	7.0866	24	0.9449	0.059	5.433	5.669	6.772
6928	140	5.5118	190	7.4803	24	0.9449	0.059	5.827	6.043	7.165
6930	150	5.9055	210	8.2677	28	1.1024	0.079	6.260	6.535	7.913
6932	160	6.2992	220	8.6614	28	1.1024	0.079	6.654	6.929	8.307
6934	170	6.6929	230	9.0551	28	1.1024	0.079	7.047	7.323	8.701
6936	180	7.0866	250	9.8425	33	1.2992	0.079	7.441	7.815	9.488
6938	190	7.4803	260	10.2362	33	1.2992	0.079	7.835	-	9.882
6940	200	7.8740	280	11.0236	38	1.4961	0.079	8.307	8.740	10.591

\*Maximum fillet which corner radius of bearing will clear.

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Factor	Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>0r</sub>		Grease	Oil	
				f <sub>0</sub>		
6900	605	284	14.0	32.0	38.0	0.02
6901	649	328	14.5	30.0	36.0	0.02
6902	968	506	14.3	26.0	30.0	0.03
6903	1030	572	14.7	24.0	28.0	0.04
6904	1430	825	14.7	19.0	22.0	0.08
6905	1570	1010	15.4	16.0	19.0	0.09
6906	1630	1120	15.8	14.0	17.0	0.11
6907	2380	1630	15.5	12.0	15.0	0.16
6908	3060	2240	15.7	11.0	13.0	0.24
6909	3170	2440	15.9	9.5	12.0	0.27
6910	3260	2640	16.1	9.0	11.0	0.29
6911	3590	2970	16.2	8.0	9.5	0.40
6912	4360	3650	16.2	7.5	9.0	0.41
6913	3890	3610	16.6	7.1	8.5	0.47
6914	5320	4750	16.3	6.3	7.5	0.75
6915	5460	5060	16.5	6.0	7.4	0.79
6916	5590	5390	16.6	5.6	6.7	0.84
6917	7150	6600	16.4	5.3	6.3	1.19
6918	7370	7040	16.5	5.0	6.0	1.25
6919	7590	7480	16.6	4.8	5.6	1.28
6920	9570	9350	16.4	4.5	5.3	1.78
6921	9460	9460	16.5	4.3	5.3	1.84
6922	9790	10000	16.6	4.3	5.0	1.91
6924	11900	12100	16.5	3.8	4.5	2.62
6926	14600	15100	16.5	3.4	4.0	3.41
6928	15000	16100	16.6	3.2	3.8	3.61
6930	19000	20200	16.5	2.6	3.2	6.56
6932	19500	21600	16.6	2.6	3.0	6.89
6934	19300	21700	16.7	2.4	2.8	7.28
6936	26600	28800	16.4	2.2	2.6	10.76
6938	29341	28600	16.6	2.2	2.6	11.31
6940	32100	35400	16.4	2.0	2.4	15.82

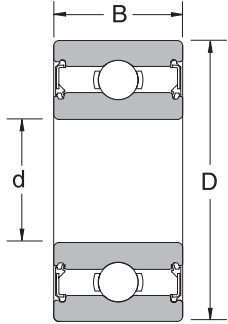
C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>0r</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Ball Bearings: 63200 Series

Single Row, Deep Groove, Cartridge



Bearing Number	Nominal Bearing Dimensions					Preferred Shoulder Diameters			Basic Load Ratings (lbs)		Bearing Weight Approx. lbs
	d		D		B	r*	Shaft	Housing	C <sub>r</sub>	C <sub>or</sub>	
	mm	inch	mm	inch	inch	inch	inch	inch			
63204DDU	20	0.7874	47	1.8504	0.8125	0.039	0.969	1.614	2870	1480	0.34
63205DDU	25	0.9843	52	2.0472	0.8125	0.039	1.172	1.811	3150	1760	0.39
63206DDU	30	1.1811	62	2.4409	0.9375	0.039	1.406	2.205	4370	2540	0.96
63207DDU	35	1.3780	72	2.8346	1.0625	0.039	1.614	2.559	5780	3440	0.96
63208DDU	40	1.5748	80	3.1496	1.1875	0.039	1.811	2.874	6550	4010	1.28
63209DDU	45	1.7717	85	3.3465	1.1875	0.039	2.008	3.071	7050	4590	1.37

\*Maximum fillet which corner radius of bearing will clear.

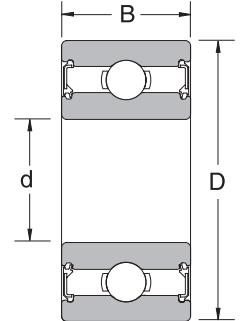
C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>or</sub> = Static Radial Load Rating



# Ball Bearings: 63300 Series

Single Row, Deep Groove, Cartridge



Bearing Number	Nominal Bearing Dimensions					Preferred Shoulder Diameters			Basic Load Ratings (lbs)		Bearing Weight Approx. lbs
	d		D		B	r*	Shaft	Housing	C <sub>r</sub>	C <sub>or</sub>	
	mm	inch	mm	inch	inch	inch	inch	inch			
63304DDU	20	0.7874	52	2.0472	0.8750	0.039	1.016	1.772	3580	1770	0.44
63305DDU	25	0.9843	62	2.4409	1.0000	0.039	1.220	2.165	4630	2530	0.78
63306DDU	30	1.1811	72	2.8346	1.1875	0.039	1.469	2.559	5990	3380	1.13
63307DDU	35	1.3780	80	3.1496	1.3750	0.059	1.688	2.795	7490	4320	1.64
63308DDU	40	1.5748	90	3.5433	1.4375	0.059	1.929	3.189	9160	5400	2.06
63309DDU	45	1.7717	100	3.9370	1.5625	0.059	2.126	3.583	11910	7210	3.00
63310DDU	50	1.9685	110	4.3307	1.7500	0.079	2.362	3.937	13940	8610	3.75
63311DDU	55	2.1654	120	4.7244	1.9375	0.079	2.559	4.331	16070	10040	5.12
63312DDU	60	2.3622	130	5.1181	2.1250	0.079	2.835	4.646	18400	11700	6.50

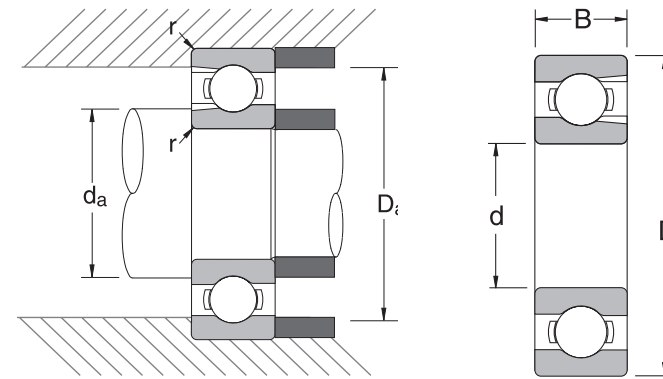
\*Maximum fillet which corner radius of bearing will clear.

C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>or</sub> = Static Radial Load Rating

# Ball Bearings: BL200/300 Series

Maximum Capacity Type



### COMMON OPTIONS

Z	One Shield
ZZ	Two Shields
NR	Snap Ring
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance

\* Not shown in part number

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters			
	d		D		B		r*	da (in)		Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max	max
BL205	25	0.9843	52	2.0472	15	0.5906	0.039	1.182	1.261	1.852
BL305	25	0.9843	62	2.4409	17	0.6693	0.039	1.241	1.418	2.187
BL206	30	1.1811	62	2.4409	16	0.6299	0.039	1.379	1.517	2.246
BL306	30	1.1811	72	2.8346	19	0.7480	0.039	1.438	1.655	2.581
BL207	35	1.3780	72	2.8346	17	0.6693	0.039	1.635	1.753	2.581
BL307	35	1.3780	80	3.1496	21	0.8268	0.059	1.694	1.753	2.837
BL208	40	1.5748	80	3.1496	18	0.7087	0.039	1.832	1.970	2.896
BL308	40	1.5748	90	3.5433	23	0.9055	0.059	1.891	2.069	3.231
BL209	45	1.7717	85	3.3465	19	0.7480	0.039	2.029	2.187	3.093
BL309	45	1.7717	100	3.9370	25	0.9843	0.059	2.088	2.423	3.625
BL210	50	1.9685	90	3.5433	20	0.7874	0.039	2.226	2.364	3.290
BL310	50	1.9685	110	4.3307	27	1.0630	0.079	2.325	2.679	3.979
BL211	55	2.1654	100	3.9370	21	0.8268	0.059	2.482	2.620	3.625
BL311	55	2.1654	120	4.7244	29	1.1417	0.079	2.522	2.857	4.373
BL212	60	2.3622	110	4.3307	22	0.8661	0.059	2.679	2.935	4.019
BL312	60	2.3622	130	5.1181	31	1.2205	0.079	2.797	3.113	4.689
BL213	65	2.5591	120	4.7244	23	0.9055	0.059	2.876	3.152	4.413
BL313	65	2.5591	140	5.5118	33	1.2992	0.079	2.994	3.369	5.083
BL214	70	2.7559	125	4.9213	24	0.9449	0.059	3.073	3.310	4.610
BL314	70	2.7559	150	5.9055	35	1.3780	0.079	3.191	3.625	5.477
BL215	75	2.9528	130	5.1181	25	0.9843	0.059	3.270	3.546	4.807
BL315	75	2.9528	160	6.2992	37	1.4567	0.079	3.388	3.881	5.871
BL216	80	3.1496	140	5.5118	26	1.0236	0.079	3.507	3.763	5.161
BL316	80	3.1496	170	6.6929	39	1.5354	0.079	3.585	4.117	6.265
BL217	85	3.3465	150	5.9055	28	1.1024	0.079	3.704	4.019	5.555
BL317	85	3.3465	180	7.0866	41	1.6142	0.099	3.861	4.354	6.580
BL218	90	3.5433	160	6.2992	30	1.1811	0.079	3.901	4.236	5.949
BL318	90	3.5433	190	7.4803	43	1.6929	0.099	4.058	4.610	6.974
BL219	95	3.7402	170	6.6929	32	1.2598	0.079	4.176	4.492	6.265
BL319	95	3.7402	200	7.8740	45	1.7717	0.099	4.255	4.886	7.368
BL220	100	3.9370	180	7.0866	34	1.3386	0.079	4.373	4.787	6.659
BL221	105	4.1339	190	7.4803	36	1.4173	0.079	4.570	5.024	7.053

\*Maximum fillet which corner radius of bearing will clear.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>0r</sub>	Grease	Oil	
	BL205	3250	2360	12.0	
BL305	4850	3450	11.0	13.0	0.54
BL206	4750	3650	10.0	12.0	0.47
BL306	6250	4650	9.0	11.0	0.80
BL207	6250	4950	9.0	11.0	0.68
BL307	8350	6550	8.0	9.5	1.07
BL208	7950	6500	8.0	9.5	0.87
BL308	10400	8050	7.5	9.0	1.47
BL209	8350	7150	7.5	9.0	0.99
BL309	12500	9900	6.3	8.0	1.94
BL210	8750	7850	6.7	8.5	1.11
BL310	14600	11800	6.0	7.1	2.51
BL211	10800	9900	6.3	7.5	1.46
BL311	16800	13800	5.6	6.7	3.23
BL212	13100	12200	5.6	6.7	1.88
BL312	19200	16100	5.0	6.0	4.07
BL213	14300	13500	5.3	6.3	2.40
BL313	23100	20200	4.8	5.6	5.10
BL214	15500	14900	5.0	6.0	2.62
BL314	26000	23000	4.3	5.3	6.23
BL215	16200	16100	4.5	5.6	2.84
BL315	28300	26000	4.0	5.0	7.44
BL216	18900	19100	4.3	5.3	3.48
BL316	30500	29200	3.8	4.5	8.89
BL217	20900	20900	4.0	5.0	4.29
BL317	33000	32500	3.6	4.3	10.36
BL218	23900	24100	3.8	4.5	5.30
BL318	35500	36000	3.4	4.0	11.84
BL219	27100	27600	3.6	4.3	6.38
BL319	38000	40000	2.8	3.6	14.08
BL220	30500	31500	3.4	4.0	7.68
BL221	43000	47500	3.0	3.6	9.20

C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>0r</sub> = Static Radial Load Rating

# Double Row Angular Contact Ball Bearings



## Basic Type & Series

**3200:** Metric, Max Capacity, Light, 32° Contact Angle

**3200B:** Metric, Conrad, Light, 25° Contact Angle

**3300:** Metric, Max Capacity, Medium, 32° Contact Angle

**3300B:** Metric, Conrad, Medium, 25° Contact Angle

**5200:** Metric, Conrad, Light, 25° Contact Angle

**5300:** Metric, Conrad, Medium, 25° Contact Angle

## Contact Angle

**Blank for 3xxx Series:** 32°

**Blank for 5xxx Series:** 25°

**B for 3xxx Series:** 25°

## Cage Material

**J, Blank:** Steel

**TNG:** Polyamide

**32**

**10**

**B**

**2RS**

**TNG**

**C3**

## Bore Size

(04 and up: multiply last two numbers by 5 to get bore in mm)

**00:** 10 mm

**01:** 12 mm

**02:** 15 mm

**03:** 17 mm

**04:** 20 mm

## Bearing Protection

**Blank:** Open

**2RS:** Double Contact Seal

**ZZ:** Double Shield

## Internal Clearance

**C2:** Tight

**Blank:** Normal

**C3:** Greater than Normal

**C4:** Greater than C3

Please refer to the bearing tables for exact part number options.

## Interchange

Description		Interchange				
		NSK	SKF	FAG	NTN	FAF/TIMKEN
Part Number	Maximum Capacity, Light	32xx, 32xxJ	52xxE, 32xx	32xx, 32xxC	32xx	52xx, 52xxW
	Maximum Capacity, Medium	33xx, 33xxJ	53xxE, 33xx	33xx, 33xxC	33xx	53xx, 53xxW
	Conrad, Light	32xxB, 52xx	52xxA, 32xxA	32xxB, 32xxBC	52xx	52xxK
	Conrad, Medium	33xxB, 53xx	53xxA, 33xxA	33xxB, 33xxBC	53xx	53xxK
Part Number Suffix	Polyamide Cage	TNG/TNH	TN9	TVP, TVH	--	PRB
	Steel Cage	Blank	Blank	Blank	Blank	Blank
	2 Contact Seals	2RS	2RS1	2RSR	LLU	PP
	2 Shields	2Z	2Z	2ZR	ZZ	FF
	Tight Clearance	C2	C2	C2	C2	H
	Normal Clearance	Blank	Blank	Blank	Blank	R
	Greater than Normal Clearance	C3	C3	C3	C3	P

The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please contact NSK. NSK assumes no liability with respect to errors or omissions.

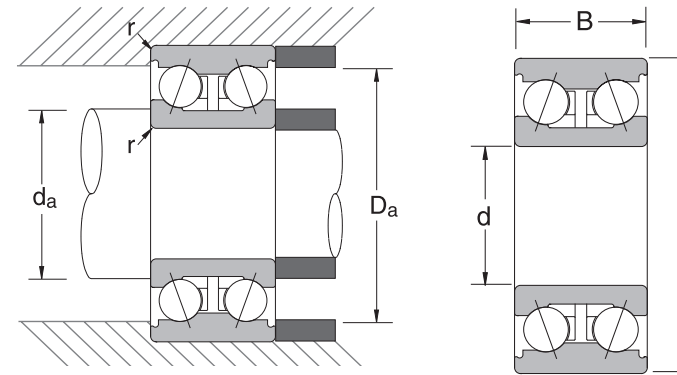
## Applications

- › Petrochemical Equipment › Gear Boxes › Centrifugal Pumps › Electrical Motors › Pumps and Compressors
- › Transmissions › Worm Drives › Blowers and Fans

Please contact NSK Engineering for internal clearance information.

# Ball Bearings: 3200/3300 Series

Double Row, Maximum Capacity, 32° Contact Angle



### COMMON OPTIONS

NR	Snap Ring
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance

\*Not shown in part number

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters		
	d		D		B		r*	da (in)	Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max
3200J	10	0.3937	30	1.1811	14.0	0.5512	0.023	0.546	1.014
3201J	12	0.4724	32	1.2598	15.9	0.6260	0.023	0.624	1.092
3202J	15	0.5906	35	1.3780	15.9	0.6260	0.023	0.741	1.209
3302J	15	0.5906	42	1.6535	19.0	0.7480	0.039	0.819	1.404
3203J	17	0.6693	40	1.5748	17.5	0.6890	0.023	0.819	1.404
3303J	17	0.6693	47	1.8504	22.2	0.8740	0.039	0.897	1.599
3204J	20	0.7874	47	1.8504	20.6	0.8110	0.039	1.014	1.599
3304J	20	0.7874	52	2.0472	22.2	0.8740	0.039	1.053	1.755
3205J	25	0.9843	52	2.0472	20.6	0.8110	0.039	1.209	1.794
3305J	25	0.9843	62	2.4409	25.4	1.0000	0.039	1.209	2.145
3206J	30	1.1811	62	2.4409	23.8	0.9370	0.039	1.404	2.184
3306J	30	1.1811	72	2.8346	30.2	1.1890	0.039	1.443	2.535
3207J	35	1.3780	72	2.8346	27.0	1.0630	0.039	1.638	2.535
3307J	35	1.3780	80	3.1496	34.9	1.3740	0.059	1.716	2.769
3208J	40	1.5748	80	3.1496	30.2	1.1890	0.039	1.833	2.847
3308J	40	1.5748	90	3.5433	36.5	1.4370	0.059	1.911	3.159
3209J	45	1.7717	85	3.3465	30.2	1.1890	0.039	2.028	3.042
3309J	45	1.7717	100	3.9370	39.7	1.5630	0.059	2.106	3.549
3210J	50	1.9685	90	3.5433	30.2	1.1890	0.039	2.223	3.237
3310J	50	1.9685	110	4.3307	44.4	1.7480	0.078	2.340	3.900
3211J	55	2.1654	100	3.9370	33.3	1.3110	0.059	2.496	3.549
3311J	55	2.1654	120	4.7244	49.2	1.9370	0.078	2.535	4.290
3212J	60	2.3622	110	4.3307	36.5	1.4370	0.059	2.691	3.939
3312J	60	2.3622	130	5.1181	54.0	2.1260	0.078	2.808	4.602
3213J	65	2.5591	120	4.7244	38.1	1.5000	0.059	2.886	4.329
3313J	65	2.5591	140	5.5118	58.7	2.3110	0.078	3.003	4.992
3214J	70	2.7559	125	4.9213	39.7	1.5630	0.059	3.081	4.524
3314J	70	2.7559	150	5.9055	63.5	2.5000	0.078	3.198	5.382

\*Maximum fillet which corner radius of bearing will clear.

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx.
	C <sub>r</sub>	C <sub>0r</sub>	Grease	Oil	
	lbs				
3200J	1820	1330	17.0	24.0	0.11
3201J	2180	1620	15.0	20.0	0.14
3202J	2470	1890	13.0	18.0	0.16
3302J	3190	2380	12.0	17.0	0.29
3203J	2880	2290	12.0	17.0	0.23
3303J	4520	3420	10.0	15.0	0.42
3204J	3960	3240	10.0	15.0	0.37
3304J	4610	3570	9.5	14.0	0.51
3205J	4360	3840	8.5	12.0	0.43
3305J	6320	5150	7.5	10.0	0.81
3206J	5940	5440	7.0	9.5	0.70
3306J	8410	7010	6.3	8.5	1.29
3207J	8410	7940	6.3	8.5	1.06
3307J	10600	9130	5.6	7.5	1.80
3208J	9290	8680	5.6	7.5	1.44
3308J	13100	11900	4.8	6.3	2.35
3209J	9890	10100	5.0	6.7	1.56
3309J	16000	15100	4.3	5.6	3.08
3210J	11100	11300	4.8	6.3	1.68
3310J	19100	18300	4.0	5.3	4.29
3211J	13200	12100	4.3	5.6	2.31
3311J	22000	21400	3.6	4.8	5.61
3212J	15600	16200	3.8	5.0	3.08
3312J	25600	25200	3.4	4.5	7.15
3213J	16500	18700	3.6	4.8	3.85
3313J	29000	29000	3.2	4.3	9.02
3214J	18300	20600	3.2	4.3	4.18
3314J	32100	32800	2.8	3.8	11.11

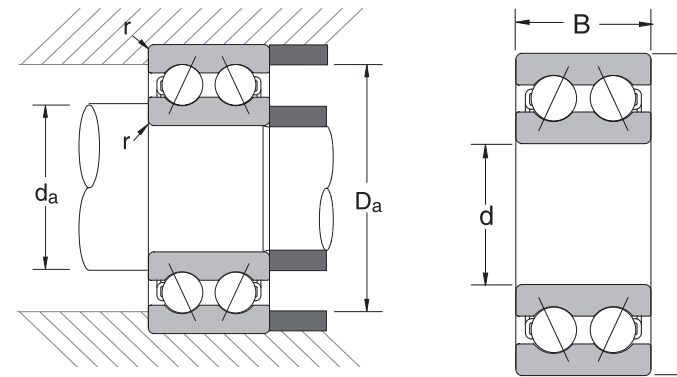
C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>0r</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Ball Bearings: 5200/5300 Series

Double Row, Conrad Type, Bore Sizes: 10mm to 40mm, 25° Contact Angle



### COMMON OPTIONS

2RS**	Two Seals
ZZ	Two Shields
NR	Snap Ring
J	Steel Cage
TN	Polyamide Cage
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance

\*Not shown in part number

\*\* Available with TN only

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters		
	d		D		B		r*	da (in)	Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max
5200TN	10	0.3937	30	1.1811	14.3	0.5512	0.023	0.585	0.984
5200J	10	0.3937	30	1.1811	14.3	0.5512	0.023	0.585	0.984
5201TN	12	0.4724	32	1.2598	15.9	0.6260	0.023	0.663	1.063
5201J	12	0.4724	32	1.2598	15.9	0.6260	0.023	0.663	1.063
5202TN	15	0.5906	35	1.3780	15.9	0.6260	0.023	0.787	1.170
5202J	15	0.5906	35	1.3780	15.9	0.6260	0.023	0.787	1.170
5302TN	15	0.5906	42	1.6535	19.0	0.7480	0.039	0.819	1.404
5203TN	17	0.6693	40	1.5748	17.5	0.6890	0.023	0.866	1.380
5203J	17	0.6693	40	1.5748	17.5	0.6890	0.023	0.866	1.380
5303TN	17	0.6693	47	1.8504	22.2	0.8740	0.039	0.906	1.615
5303J	17	0.6693	47	1.8504	22.2	0.8740	0.039	0.906	1.615
5204TN	20	0.7874	47	1.8504	20.6	0.8110	0.039	1.014	1.614
5204J	20	0.7874	47	1.8504	20.6	0.8110	0.039	1.014	1.614
5304TN	20	0.7874	52	2.0472	22.2	0.8740	0.039	1.053	1.772
5304J	20	0.7874	52	2.0472	22.2	0.8740	0.039	1.053	1.772
5205TN	25	0.9843	52	2.0472	20.6	0.8110	0.039	1.220	1.811
5205J	25	0.9843	52	2.0472	20.6	0.8110	0.039	1.220	1.811
5305TN	25	0.9843	62	2.4409	25.4	1.0000	0.039	1.260	2.165
5305J	25	0.9843	62	2.4409	25.4	1.0000	0.039	1.260	2.165
5206TN	30	1.1811	62	2.4409	23.8	0.9370	0.039	1.404	2.205
5206J	30	1.1811	62	2.4409	23.8	0.9370	0.039	1.404	2.205
5306TN	30	1.1811	72	2.8346	30.2	1.1890	0.039	1.457	2.559
5306J	30	1.1811	72	2.8346	30.2	1.1890	0.039	1.457	2.559
5207TN	35	1.3780	72	2.8346	27.0	1.0630	0.039	1.638	2.559
5207J	35	1.3780	72	2.8346	27.0	1.0630	0.039	1.638	2.559
5307TN	35	1.3780	80	3.1496	34.9	1.3740	0.059	1.716	2.795
5307J	35	1.3780	80	3.1496	34.9	1.3740	0.059	1.716	2.795
5208TN	40	1.5748	80	3.1496	30.2	1.1890	0.039	1.833	2.874
5208J	40	1.5748	80	3.1496	30.2	1.1890	0.039	1.833	2.874
5308TN	40	1.5748	90	3.5433	36.5	1.4370	0.059	1.911	3.189
5308J	40	1.5748	90	3.5433	36.5	1.4370	0.059	1.911	3.189

\*Maximum fillet which corner radius of bearing will clear.

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	
	5200TN	1750	877	16.0	
5200J	1610	878	17.0	22.0	0.10
5201TN	2380	1150	15.0	20.0	0.11
5201J	2360	1300	15.0	20.0	0.12
5202TN	2650	1370	13.0	18.0	0.13
5202J	2630	1580	13.0	17.0	0.14
5302TN	3660	1940	10.0	15.0	0.25
5203TN	3280	1750	10.0	15.0	0.19
5203J	3290	2030	11.0	15.0	0.20
5303TN	4680	2380	9.5	14.0	0.35
5303J	4730	2830	10.0	13.0	0.31
5204TN	4410	2430	9.0	13.0	0.31
5204J	4410	2790	10.0	13.0	0.26
5304TN	5220	2900	8.5	12.0	0.43
5304J	5530	3370	9.0	12.0	0.51
5205TN	4770	2860	8.0	11.0	0.35
5205J	4790	3310	8.5	11.0	0.42
5305TN	6740	3890	7.5	10.0	0.70
5305J	7330	4650	7.5	10.0	0.75
5206TN	6740	4110	7.1	9.0	0.58
5206J	6650	4740	7.1	9.5	0.64
5306TN	9330	5510	6.2	7.9	1.09
5306J	9150	6320	6.3	8.5	1.12
5207TN	8770	5620	5.6	7.1	0.91
5207J	8770	6450	6.3	8.0	0.95
5307TN	11500	6740	5.1	6.5	1.46
5307J	11500	8100	5.6	7.5	1.74
5208TN	10800	7080	5.0	6.3	1.21
5208J	9930	7510	5.3	7.1	1.26
5308TN	13900	8770	4.7	5.8	1.99
5308J	12700	9250	5.3	6.7	2.30

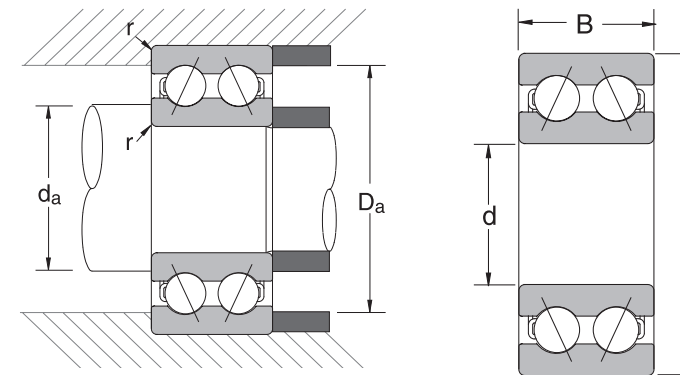
C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>or</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Ball Bearings: 5200/5300 Series (cont.)

Double Row, Conrad Type, Bore Sizes: 45mm to 85mm, 25° Contact Angle



COMMON OPTIONS	
2RS**	Two Seals
ZZ	Two Shields
NR	Snap Ring
J	Steel Cage
TN	Polyamide Cage
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance

\*Not shown in part number  
\*\* Available with TN only

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters		
	d		D		B		r*	da (in)	Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max
5209TN	45	1.7717	85	3.3465	30.2	1.189	0.039	2.047	3.071
5209J	45	1.7717	85	3.3465	30.2	1.189	0.039	2.047	3.071
5309TN	45	1.7717	100	3.9370	39.7	1.563	0.059	2.126	3.583
5309J	45	1.7717	100	3.9370	39.7	1.563	0.059	2.126	3.583
5210TN	50	1.9685	90	3.5433	30.2	1.189	0.039	2.224	3.268
5210J	50	1.9685	90	3.5433	30.2	1.189	0.039	2.224	3.268
5310TN	50	1.9685	110	4.3307	44.4	1.748	0.078	2.362	3.937
5310J	50	1.9685	110	4.3307	44.4	1.748	0.078	2.362	3.937
5211TN	55	2.1654	100	3.9370	33.3	1.311	0.059	2.520	3.602
5211J	55	2.1654	100	3.9370	33.3	1.311	0.059	2.520	3.602
5311TN	55	2.1654	120	4.7244	49.2	1.937	0.078	2.559	4.331
5311J	55	2.1654	120	4.7244	49.2	1.937	0.078	2.559	4.331
5212TN	60	2.3622	110	4.3307	36.5	1.437	0.059	2.717	3.996
5212J	60	2.3622	110	4.3307	36.5	1.437	0.059	2.717	3.996
5312TN	60	2.3622	130	5.1181	54.0	2.126	0.078	2.835	4.646
5312J	60	2.3622	130	5.1181	54.0	2.126	0.078	2.835	4.646
5213TN	65	2.5591	120	4.7244	38.1	1.500	0.059	2.913	4.370
5213J	65	2.5591	120	4.7244	38.1	1.500	0.059	2.913	4.370
5313TN	65	2.5591	140	5.5118	58.7	2.311	0.078	3.034	5.039
5313J	65	2.5591	140	5.5118	58.7	2.311	0.078	3.034	5.039
5214TN	70	2.7559	125	4.9213	39.7	1.563	0.059	3.110	4.567
5214J	70	2.7559	125	4.9213	39.7	1.563	0.059	3.110	4.567
5314J	70	2.7559	150	5.9055	63.5	2.500	0.078	3.228	5.433
5215J	75	2.9528	130	5.1181	41.3	1.626	0.059	3.307	4.764
5216J	80	3.1496	140	5.5118	44.4	1.748	0.078	3.543	5.118
5217J	85	3.3465	150	5.9055	49.2	1.937	0.078	3.740	5.512

\*Maximum fillet which corner radius of bearing will clear.

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	
	5209TN	10800	7190	4.5	
5209J	11100	8580	5.0	6.7	1.37
5309TN	15300	9780	4.3	5.0	2.66
5309J	15400	11400	4.5	6.0	3.10
5210TN	11500	8210	4.0	4.6	1.39
5210J	11900	9740	4.8	6.0	1.48
5310TN	18200	11900	3.6	4.2	3.52
5310J	18300	13800	4.3	5.6	4.30
5211TN	13200	9670	4.3	5.6	1.93
5211J	12600	11000	4.3	5.6	2.12
5311TN	22900	15300	3.8	5.0	4.64
5311J	21400	16400	3.8	5.0	5.10
5212TN	16200	11900	3.8	5.0	2.60
5212J	15600	13900	3.8	5.0	2.98
5312TN	28100	19100	3.4	4.5	5.94
5312J	28200	22100	3.4	4.5	7.00
5213TN	18000	14200	3.4	4.5	3.34
5213J	17100	15500	3.6	4.5	3.64
5313TN	33700	22900	3.2	4.3	7.46
5313J	25400	32000	3.2	4.3	8.49
5214TN	18700	15100	3.4	4.5	3.61
5214J	21100	18500	3.4	4.5	4.00
5314J	35700	28900	3.0	3.8	10.80
5215J	21100	18700	3.2	4.3	4.19
5216J	22300	20900	3.0	3.8	5.51
5217J	26000	24700	2.8	3.6	7.50

C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>or</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Self-Aligning Ball Bearings



## Basic Type & Series

**1200:** Metric, Self-Aligning, Extra Narrow  
**1300:** Metric, Self-Aligning, Narrow  
**2200:** Metric, Self-Aligning, Wide  
**2300:** Metric, Self-Aligning, Extra Wide  
**NLJ:** Inches, Self-Aligning, Light  
**NMJ:** Inches, Self-Aligning, Medium

## Suffixes

**2RS:** Double Contact Seal  
**K:** Taper Bore 1:12  
**E:** Extra Capacity  
**NR:** Snap Ring

## Internal Clearance

**C2:** Tight  
**Blank:** Normal  
**C3:** Greater than Normal  
**C4:** Greater than C3

22

06

2RS

TNG

C3

## Bore Size

(04 and up: multiply last two numbers by 5 to get bore in mm)

<b>00:</b> 10 mm	<b>04:</b> 20 mm
<b>01:</b> 12 mm	<b>05:</b> 25 mm
<b>02:</b> 15 mm	<b>12:</b> 60 mm
<b>03:</b> 17 mm	<b>20:</b> 100 mm

Inch: directly indicated

## Cage Material

**TNG:** Polyamide  
**J:** Pressed Steel

Please refer to the bearing tables for exact part number options.

## Applications

- › Film Processing Equipment › Vertical Spinning Equipment › Vertical Weaving Equipment › Industrial Countershafts
- › Paper Making – Fourdrinier



## Interchange

Description		Interchange			
		NSK	SKF	FAG	NTN
Part Number	Metric, Self-Aligning, Extra Narrow	12xx	12xx	12xx	12xx
	Metric, Self-Aligning, Narrow	13xx	13xx	13xx	13xx
	Metric, Self-Aligning, Wide	22xx	22xx	22xx	22xx
	Metric, Self-Aligning, Extra Wide	23xx	23xx	23xx	23xx
Part Number Suffix	Polyamide Cage	TNG	TN9	TV	--
	Steel Cage	Blank, J	Blank	Blank	Blank
	2 Contact Seals	2RS	2RS1	2RSR	LLU
	Tight Clearance	C2	C2	C2	C2
	Normal Clearance	Blank	Blank	Blank	Blank
	Greater than Normal Clearance	C3	C3	C3	C3
	Tapered Bore 1:12	K	K	K	K

The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please contact NSK. NSK assumes no liability with respect to errors or omissions.

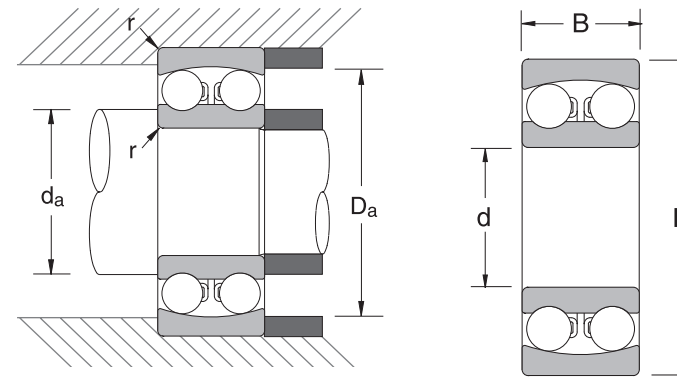
## Radial Internal Clearance

Unit:  $\mu\text{m}$

Nominal Bore Diameter d (mm)		Clearance in Bearings with Cylindrical Bores										Clearance in Bearings with Tapered Bores									
		C2		CN		C3		C4		C5		C2		CN		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
2.5	6	1	8	5	15	10	20	15	25	21	33	--	--	--	--	--	--	--	--	--	--
6	10	2	9	6	17	12	25	19	33	27	42	--	--	--	--	--	--	--	--	--	--
10	14	2	10	6	19	13	26	21	35	30	48	--	--	--	--	--	--	--	--	--	--
14	18	3	12	8	21	15	28	23	37	32	50	--	--	--	--	--	--	--	--	--	--
18	24	4	14	10	23	17	30	25	39	34	52	7	17	13	26	20	33	28	42	37	55
24	30	5	16	11	24	19	35	29	46	40	58	9	20	15	28	23	39	33	50	44	62
30	40	6	18	13	29	23	40	34	53	46	66	12	24	19	35	29	46	40	59	52	72
40	50	6	19	14	31	25	44	37	57	50	71	14	27	22	39	33	52	45	65	58	79
50	65	7	21	16	36	30	50	45	69	62	88	18	32	27	47	41	61	56	80	73	99
65	80	8	24	18	40	35	60	54	83	76	108	23	39	35	57	50	75	69	98	91	123
80	100	9	27	22	48	42	70	64	96	89	124	29	47	42	68	62	90	84	116	109	144
100	120	10	31	25	56	50	83	75	114	105	145	35	56	50	81	75	108	100	139	130	170
120	140	10	38	30	68	60	100	90	135	125	175	40	68	60	98	90	130	120	165	155	205
140	160	15	44	35	80	70	120	110	161	150	210	45	74	65	110	100	150	140	191	180	240

# Ball Bearings: 1200/1300 Series

Double Row, Self-Aligning



### COMMON OPTIONS

E	Extra Capacity
K	Tapered Bore
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance

\*Not shown in part number

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters		
	d		D		B		r*	da (in)	Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max
1200	10	0.3937	30	1.1811	9	0.3543	0.024	0.552	1.024
1201	12	0.4724	32	1.2598	10	0.3937	0.024	0.630	1.103
1301	12	0.4724	37	1.4567	12	0.4724	0.039	0.670	1.261
1202	15	0.5906	35	1.3780	11	0.4331	0.024	0.749	1.221
1302	15	0.5906	42	1.6535	13	0.5118	0.039	0.788	1.458
1203	17	0.6693	40	1.5748	12	0.4724	0.024	0.827	1.418
1303	17	0.6693	47	1.8504	14	0.5512	0.039	0.867	1.655
1204	20	0.7874	47	1.8504	14	0.5512	0.039	0.985	1.655
1304	20	0.7874	52	2.0472	15	0.5906	0.039	1.044	1.793
1205	25	0.9843	52	2.0472	15	0.5906	0.039	1.182	1.852
1305	25	0.9843	62	2.4409	17	0.6693	0.039	1.241	2.187
1206	30	1.1811	62	2.4409	16	0.6299	0.039	1.379	2.246
1306	30	1.1811	72	2.8346	19	0.7480	0.039	1.438	2.581
1207	35	1.3780	72	2.8346	17	0.6693	0.039	1.635	2.581
1307	35	1.3780	80	3.1496	21	0.8268	0.059	1.694	2.837
1208	40	1.5748	80	0.3150	18	0.7087	0.039	1.832	2.896
1308	40	1.5748	90	3.5433	23	0.9055	0.059	1.891	3.231
1209	45	1.7717	85	3.3465	19	0.7480	0.039	2.029	3.093
1309	45	1.7717	100	3.9370	25	0.9843	0.059	2.088	3.625
1210	50	1.9685	90	3.5433	20	0.7874	0.039	2.226	3.290
1310	50	1.9685	110	4.3307	27	1.0630	0.079	2.325	3.979
1211	55	2.1654	100	3.9370	21	0.8268	0.059	2.482	3.625
1311	55	2.1654	120	4.7244	29	1.1417	0.079	2.522	4.373
1212	60	2.3622	110	4.3307	22	0.8661	0.059	2.679	4.019
1312	60	2.3622	130	5.1181	31	1.2205	0.079	2.797	4.689
1213	65	2.5591	120	4.7244	23	0.9055	0.059	2.876	4.413
1313	65	2.5591	140	5.5118	33	1.2992	0.079	2.994	5.083
1214	70	2.7559	125	4.9213	24	0.9449	0.059	3.073	4.610
1314	70	2.7559	150	5.9055	35	1.3780	0.079	3.191	5.477
1215	75	2.9528	130	5.1181	25	0.9843	0.059	3.270	4.807
1315	75	2.9528	160	6.2992	37	1.4567	0.079	3.388	5.871

\*Maximum fillet which corner radius of bearing will clear.

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	
	1200	1240	344	24.0	
1201	1260	373	24.0	30.0	0.09
1301	2140	629	18.0	22.0	0.15
1202	1690	513	20.0	36.0	0.11
1302	2140	674	17.0	20.0	0.21
1203	1800	596	18.0	22.0	0.16
1303	2810	933	15.0	17.0	0.30
1204	2250	776	15.0	18.0	0.26
1304	2810	989	13.0	15.0	0.38
1205	2740	989	13.0	16.0	0.30
1305	4050	1510	11.0	13.0	0.61
1206	3510	1390	11.0	14.0	0.49
1306	4770	1910	9.0	11.0	0.90
1207	3600	1560	9.5	12.0	0.73
1307	5620	2380	8.0	9.5	1.18
1208	4340	1980	8.5	10.0	0.92
1308	6520	2900	7.0	8.5	1.64
1209	4950	2250	7.5	9.0	1.02
1309	8540	3820	6.3	7.5	2.19
1210	5130	2470	7.0	8.5	1.17
1310	9330	4340	5.6	6.7	2.84
1211	6070	3080	6.3	7.5	1.53
1311	11500	5400	5.0	6.0	3.62
1212	6740	3600	5.6	6.7	1.98
1312	12800	6290	4.5	5.3	4.48
1213	6970	3890	5.3	6.3	2.54
1313	13900	6970	4.3	5.0	5.56
1214	7760	4270	5.0	6.0	2.84
1314	16900	8430	4.0	4.8	6.79
1215	8770	3530	4.3	5.3	2.98
1315	18000	6740	3.8		

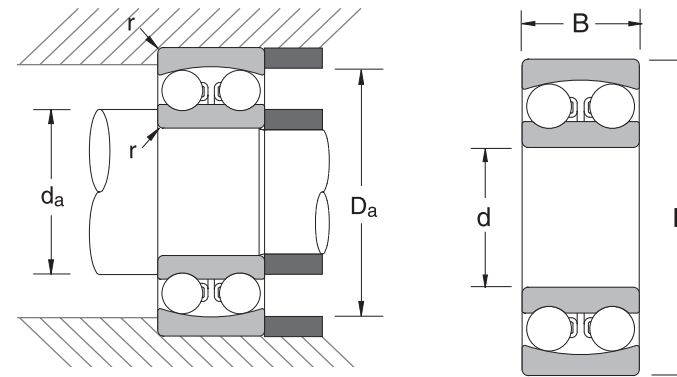
C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>or</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Ball Bearings: 2200/2300 Series

Double Row, Self-Aligning



### COMMON OPTIONS

E	Extra Capacity
K	Tapered Bore
CO*	Normal Internal Clearance
C3	Greater than Normal Internal Clearance

\*Not shown in part number

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters		
	d		D		B		r*	da (in)	Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max
2200	10	0.3937	30	1.1811	14	0.5512	0.024	0.552	1.024
2201	12	0.4724	32	1.2598	14	0.5512	0.024	0.630	1.103
2202	15	0.5906	35	1.3780	14	0.5512	0.024	0.749	1.221
2302	15	0.5906	42	1.6535	17	0.6693	0.039	0.788	1.458
2203	17	0.6693	40	1.5748	16	0.6299	0.024	0.827	1.418
2303	17	0.6693	47	1.8504	19	0.7480	0.039	0.867	1.655
2204	20	0.7874	47	1.8504	18	0.7087	0.039	0.985	1.655
2304	20	0.7874	52	2.0472	21	0.8268	0.043	1.044	1.793
2205	25	0.9843	52	2.0472	18	0.7087	0.039	1.182	1.852
2305	25	0.9843	62	2.4409	24	0.9449	0.043	1.241	2.187
2206	30	1.1811	62	2.4409	20	0.7874	0.039	1.379	2.246
2306	30	1.1811	72	2.8346	27	1.0630	0.043	1.438	2.581
2207	35	1.3780	72	2.8346	23	0.9055	0.043	1.635	2.581
2307	35	1.3780	80	3.1496	31	1.2205	0.059	1.694	2.837
2208	40	1.5748	80	3.1496	23	0.9055	0.043	1.832	2.896
2308	40	1.5748	90	3.5433	33	1.2992	0.059	1.891	3.231
2209	45	1.7717	85	3.3465	23	0.9055	0.043	2.029	3.093
2309	45	1.7717	100	3.9370	36	1.4173	0.059	2.088	3.625
2210	50	1.9685	90	3.5433	23	0.9055	0.043	2.226	3.290
2310	50	1.9685	110	4.3307	40	1.5748	0.079	2.325	3.979
2211	55	2.1654	100	3.9370	25	0.9843	0.059	2.482	3.625
2311	55	2.1654	120	4.7244	43	1.6929	0.079	2.522	4.373
2212	60	2.3622	110	4.3307	28	1.1024	0.059	2.679	4.019
2312	60	2.3622	130	5.1181	46	1.8110	0.079	2.797	4.689
2213	65	2.5591	120	4.7244	31	1.2205	0.059	2.876	4.413
2313	65	2.5591	140	5.5118	48	1.8898	0.079	2.994	5.083
2214	70	2.7559	125	4.9213	31	1.2205	0.059	3.073	4.610
2314	70	2.7559	150	5.9055	51	2.0079	0.079	3.191	5.477
2215	75	2.9528	130	5.1181	31	1.2205	0.059	3.270	4.807
2315	75	2.9528	160	6.2992	55	2.1654	0.079	3.388	5.871
2216	80	3.1496	140	5.5118	33	1.2992	0.079	3.507	5.161
2316	80	3.1496	170	6.6929	58	2.2835	0.079	3.585	6.265

\*Maximum fillet which corner radius of bearing will clear.

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	
	2200	1620	459	24.0	
2201	1690	504	24.0	30.0	0.12
2202	1720	540	22.0	26.0	0.13
2302	2290	843	16.0	19.0	0.24
2203	2200	708	17.0	20.0	0.19
2303	3210	1020	14.0	17.0	0.39
2204	3210	1050	14.0	17.0	0.31
2304	4050	1370	13.0	16.0	0.52
2205	3820	1320	12.0	15.0	0.35
2305	5510	1910	10.0	13.0	0.82
2206	5730	2020	9.5	12.0	0.55
2306	7080	2560	8.5	10.0	1.22
2207	7190	2650	8.0	9.5	0.88
2307	8770	3280	7.5	9.0	1.64
2208	7080	2810	7.5	9.0	1.08
2308	10100	3960	6.7	8.0	2.20
2209	6290	2700	7.1	8.5	1.17
2309	12100	4950	6.0	7.1	2.91
2210	6290	2900	6.7	8.0	1.26
2310	14400	5960	5.3	6.3	3.92
2211	5960	3010	6.3	7.5	1.83
2311	16900	7080	4.8	5.6	5.05
2212	7640	3890	5.6	6.7	2.54
2312	19400	8430	4.3	5.0	6.24
2213	9890	5040	5.0	6.0	3.35
2313	21400	9670	4.0	4.8	7.56
2214	9890	5220	4.8	5.6	3.51
2314	24700	11200	3.6	4.5	9.19
2215	10000	4000	4.3	5.3	3.40
2315	28100	9670	3.4	4.3	10.30
2216	11000	4470	4.0	5.0	4.19
2316	29200	10100	3.2	4.0	11.99

C<sub>r</sub> = Dynamic Radial Load Rating

C<sub>or</sub> = Static Radial Load Rating

Note: Limiting speeds are lower with contact seals. For more information, contact NSK.

# Angular Contact Ball Bearings



## Basic Type & Series

**7200:** Metric, Angular Contact, Light  
**7300:** Metric, Angular Contact, Medium  
**7400:** Metric, Angular Contact, Heavy

## Contact Angle

**B:** 40°  
**C:** 15°  
**A:** 30°

## Other Features

**G:** Ground on Both Sides for use in Universal Duplex Mounting with Clearance  
**PC:** Combination of Flush Ground Faces, Normal Axial Clearance and ABEC3 (ISO Class 6) Tolerance

72

10

B

Y

G

## Bore Size

(04 and up: multiply last two numbers by 5 to get bore in mm)

**00:** 10 mm      **04:** 20 mm  
**01:** 12 mm      **05:** 25 mm  
**02:** 15 mm      **12:** 60 mm  
**03:** 17 mm      **20:** 100 mm

## Retainer

**M:** Machined Brass, Land Riding  
**Y:** Pressed Brass  
**W:** Steel

Please refer to the bearing tables for exact part number options.

## High Performance Standard (HPS)

## Basic Type & Series

**7200:** Metric, Angular Contact, Light  
**7300:** Metric, Angular Contact, Medium  
**7400:** Metric, Angular Contact, Heavy

## Contact Angle

**B:** 40°

## Retainer

**MR:** Machined Brass, Ball Riding

## Internal Clearance

**CNB:** Normal  
**VA:** Light Preload

72

10

B

EA

MR

SU

CNB

## Bore Size

(04 and up: multiply last two numbers by 5 to get bore in mm)

**00:** 10 mm      **04:** 20 mm  
**01:** 12 mm      **05:** 25 mm  
**02:** 15 mm      **12:** 60 mm  
**03:** 17 mm      **20:** 100 mm

## Capacity

**EA:** Extra Capacity

## Other Features

**SU:** Single Universal Flush Ground  
**DU:** Duplex Universal Flush Ground

Please refer to the bearing tables for exact part number options.

## Interchange

Description		Interchange					
		NSK	SKF	FAF/TIMKEN	FAG	MRC	NTN
Part No.	Light	72xx	72xx	72xx	72xx	72xx	72xx
	Medium	73xx	73xx	73xx	73xx	73xx	73xx
	Heavy	74xx	74xx	74xx	74xx	74xx	74xx
Part No. Suffix	40° Contact	B	B	WN	B	P	B
	30° Contact	A	A	--	--	BLANK	BLANK
	25° Contact	A5	ACD, AC	--	E	--	--
	15° Contact	C	CD	--	C	R	C
	Machined Brass Cage	M	M	MBR	MP	BRZ	L1
	Pressed Brass Cage	Y	Y	BLANK	YP	--	--
	Polyamide Cage	TY	P	PRC	TVP	BKE	T2
	Steel Cage	W	J	--	JP	BLANK	J
	Universal Ground Faces	G	CA, CB	SU	UA	DE	G
	Petrochemical	BMPC	BECBM	--	--	PumpPac*	--

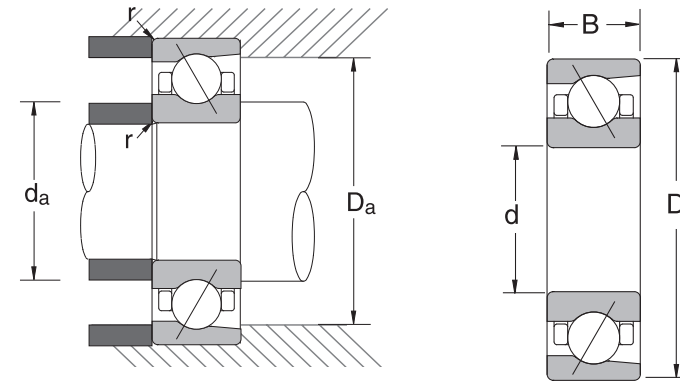
The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please consult NSK Engineering. NSK assumes no liability with respect to errors or omissions. \*PumpPac is a registered trademark of SKF USA.

## Applications

- › Metal Rolling Mills › Oil Field Equipment › Gear Boxes & Drives › Deep Well Pumps › Centrifugal Pumps
- › Electric Motors & Generators › Blowers & Fans › Gear Reducers

# Ball Bearings: 7200 Series

Angular Contact, 40° Contact Angle



### COMMON OPTIONS

B	40° Contact Angle
C**	15° Contact Angle
TY	Polyamide Cage
Y	Pressed Brass Cage
M	Machined Brass Cage
W	Pressed Steel Cage
G	Flush Ground Faces
PC	Flush Ground Faces Normal Axial Clearance and ABEC6

\*\*Load and speed ratings are not shown in the table below.

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters		
	d		D		B		r**	da (in)	Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max
7200B	10	0.3937	30	1.1811	9	0.3543	0.024	0.591	0.984
7201B*	12	0.4724	32	1.2598	10	0.3937	0.024	0.669	1.063
7202B*	15	0.5906	35	1.3780	11	0.5331	0.024	0.787	1.181
7203B*	17	0.6693	40	1.5748	12	0.4724	0.024	0.866	1.378
7204B*	20	0.7874	47	1.8504	14	0.5512	0.039	1.024	1.614
7205B*	25	0.9843	52	2.0472	15	0.5906	0.039	1.220	1.911
7206B*	30	1.1811	62	2.4409	16	0.6299	0.039	1.417	2.205
7207B*	35	1.3780	72	2.8346	17	0.6693	0.039	1.654	2.559
7208B*	40	1.5748	80	3.1496	18	0.7087	0.039	1.850	2.874
7209B*	45	1.7717	85	3.3465	19	0.7480	0.039	2.047	3.071
7210B*	50	1.9685	90	3.5433	20	0.7874	0.039	2.244	3.268
7211B*	55	2.1654	100	3.9370	21	0.8268	0.059	2.500	3.602
7212B*	60	2.3622	110	4.3307	22	0.8661	0.059	2.697	3.996
7213B*	65	2.5591	120	4.7244	23	0.9005	0.059	2.894	4.390
7214B*	70	2.7559	125	4.9213	24	0.9449	0.059	3.091	4.587
7215B*	75	2.9528	130	5.1181	25	0.9843	0.059	3.287	4.783
7216B*	80	3.1496	140	5.5118	26	1.0236	0.079	3.543	5.118
7217B	85	3.3465	150	5.9055	28	1.1024	0.079	3.740	5.512
7218B*	90	3.5433	160	6.2992	30	1.1811	0.079	3.937	5.906
7219B*	95	3.7402	170	6.6929	32	1.2598	0.079	4.213	6.220
7220B*	100	3.9370	180	7.0866	34	1.3386	0.079	4.409	6.614
7221B	105	4.1339	190	7.4803	36	1.4173	0.079	4.606	7.008
7222B*	110	4.3307	200	7.8740	38	1.4961	0.079	4.803	7.402
7224B*	120	4.7244	215	8.4646	40	1.5748	0.079	5.197	7.992
7226B	130	5.1181	230	9.0551	40	1.5748	0.098	5.669	8.504
7228B	140	5.5118	250	9.8425	42	1.6535	0.098	6.063	9.291
7230B	150	5.9055	270	10.6299	45	1.7717	0.098	6.457	10.079
7232B	160	6.2992	290	11.4173	48	1.8898	0.098	6.850	10.866
7234B	170	6.6929	310	12.2047	52	2.0472	0.118	7.402	11.496
7236B	180	7.0866	320	12.5984	52	2.0472	0.118	7.795	11.890
7238B	190	7.4803	340	13.3858	55	2.1654	0.118	8.190	12.677
7240B	200	7.8740	360	14.1732	58	2.2835	0.118	8.583	13.465

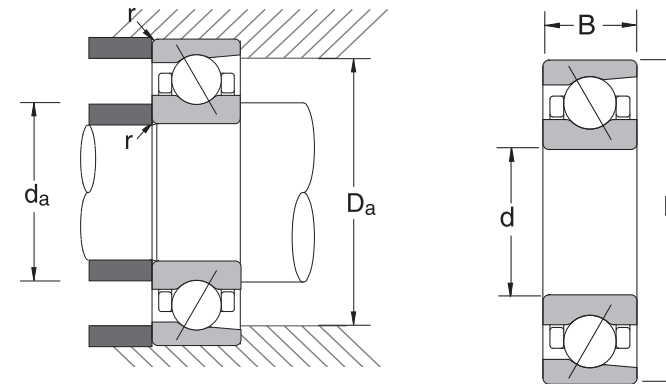
\*Indicates NSK (HPS) High Performance Standard bearing.. \*\*Maximum fillet which corner radius of bearing will clear.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	
7200B	1050	505	20.0	28.0	0.07
7201B*	1832	761	18.0	26.0	0.08
7202B*	2203	882	16.0	22.0	0.11
7203B*	2608	1120	14.0	19.0	0.15
7204B*	3507	1570	12.0	16.0	0.24
7205B*	3957	1950	10.0	14.0	0.30
7206B*	5328	2800	8.5	12.0	0.46
7207B*	7306	3810	7.5	10.0	0.65
7208B*	8655	4810	6.7	9.0	0.84
7209B*	9105	5470	6.3	8.5	0.95
7210B*	9442	6000	5.6	8.0	1.07
7211B*	11578	7610	5.3	7.1	1.40
7212B*	13826	9370	4.8	6.3	1.81
7213B*	15737	11100	4.3	6.0	2.20
7214B*	16973	12200	4.0	5.6	2.42
7215B*	17647	13100	3.8	5.3	3.02
7216B*	19671	14700	3.6	5.0	3.68
7217B	20100	17100	3.4	4.8	4.58
7218B*	24504	19700	3.2	4.3	5.62
7219B*	27651	21200	3.0	4.0	6.83
7220B*	30574	24000	2.8	3.8	8.15
7221B	30400	27100	2.6	3.6	9.70
7222B*	34621	30200	2.6	3.4	11.40
7224B*	40241	36400	2.4	3.2	13.70
7226B	38400	39200	2.2	3.0	15.40
7228B	44300	47800	2.0	2.8	19.40
7230B	50500	57100	1.8	2.6	24.20
7232B	53400	62600	1.7	2.4	30.20
7234B	60000	72800	1.6	2.2	37.50
7236B	62000	78300	1.5	2.0	39.00
7238B	73742	83800	1.4	2.0	47.00
7240B	79195	91500	1.3	1.8	55.80

C<sub>r</sub> = Dynamic Radial Load Rating C<sub>or</sub> = Static Radial Load Rating  
\*Indicates NSK (HPS) High Performance Standard bearing.

# Ball Bearings: 7300 Series

Angular Contact, 40° Contact Angle



### COMMON OPTIONS

B	40° Contact Angle
C**	15° Contact Angle
TY	Polyamide Cage
Y	Pressed Brass Cage
M	Machined Brass Cage
W	Pressed Steel Cage
G	Flush Ground Faces
PC	Flush Ground Faces Normal Axial Clearance and ABEC6

\*\*Load and speed ratings are not shown in the table below.

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters		
	d		D		B		r**	da (in)	Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max
7300B	10	0.3937	35	1.3780	11	0.4331	0.024	0.591	1.181
7301B*	12	0.4724	37	1.4567	12	0.4724	0.039	0.709	1.221
7302B*	15	0.5906	42	1.6535	13	0.5118	0.039	0.827	1.418
7303B*	17	0.6693	47	1.8504	14	0.5512	0.039	0.906	1.614
7304B*	20	0.7874	52	2.0472	15	0.5906	0.039	1.063	1.772
7305B*	25	0.9843	62	2.4409	17	0.6693	0.039	1.260	2.165
7306B*	30	1.1811	72	2.8346	19	0.7480	0.039	1.457	2.559
7307B*	35	1.3780	80	3.1496	21	0.8268	0.059	1.712	2.815
7308B*	40	1.5748	90	3.5433	23	0.9055	0.059	1.909	3.209
7309B*	45	1.7717	100	3.9370	25	0.9843	0.059	2.106	3.602
7310B*	50	1.9685	110	4.3307	27	1.0630	0.079	2.362	3.937
7311B*	55	2.1654	120	4.7244	29	1.1417	0.079	2.559	4.331
7312B*	60	2.3622	130	5.1181	31	1.2205	0.079	2.835	4.646
7313B*	65	2.5591	140	5.5118	33	1.2992	0.079	3.031	5.039
7314B*	70	2.7559	150	5.9055	35	1.3780	0.079	3.228	5.433
7315B*	75	2.9528	160	6.2992	37	1.4567	0.079	3.425	5.827
7316B*	80	3.1496	170	6.6929	39	1.5354	0.079	3.622	6.220
7317B*	85	3.3465	180	7.0866	41	1.6142	0.098	3.898	6.535
7318B*	90	3.5433	190	7.4803	43	1.6929	0.098	4.094	6.929
7319B*	95	3.7402	200	7.8740	45	1.7717	0.098	4.291	7.323
7320B*	100	3.9370	215	8.4646	47	1.8504	0.098	4.488	7.913
7321B*	105	4.1339	225	8.8583	49	1.9291	0.098	4.685	8.307
7322B*	110	4.3307	240	9.4488	50	1.9685	0.098	4.882	8.898
7324B*	120	4.7244	260	10.2362	55	2.1654	0.098	5.276	9.685
7326B	130	5.1181	280	11.0236	58	2.2835	0.118	5.827	10.315
7328B	140	5.5118	300	11.8110	62	2.4409	0.118	6.220	11.102
7330B	150	5.9055	320	12.5984	65	2.5591	0.118	6.614	11.890
7332B	160	6.2992	340	13.3858	68	2.6772	0.118	7.008	12.677
7334B	170	6.6929	360	14.1732	72	2.8346	0.118	7.402	13.465
7336B	180	7.0866	380	14.9606	75	2.9528	0.118	7.795	14.252
7338B	190	7.4803	400	15.7480	78	3.0709	0.157	8.346	14.882
7340B	200	7.8740	420	16.5354	80	3.1496	0.157	8.740	15.669

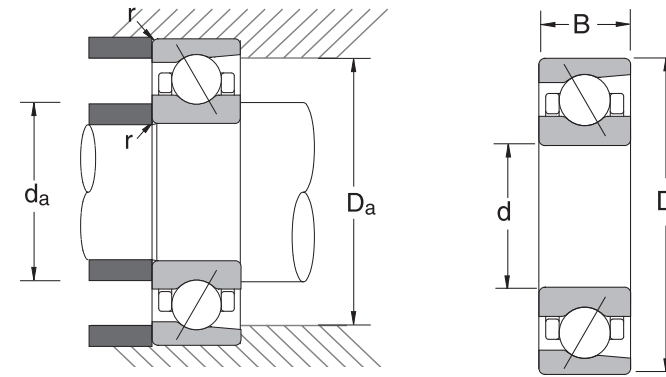
\*Indicates NSK (HPS) High Performance Standard bearing. \*\*Maximum fillet which corner radius of bearing will clear.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx. lbs
	C <sub>r</sub>	C <sub>0r</sub>	Grease	Oil	
7300B	1960	904	18.0	24.0	0.12
7301B*	2495	940	16.0	22.0	0.14
7302B*	3215	1330	14.0	19.0	0.19
7303B*	3777	1620	13.0	17.0	0.26
7304B*	4451	1950	11.0	15.0	0.33
7305B*	6115	3000	9.0	13.0	0.54
7306B*	8206	3950	8.0	11.0	0.79
7307B*	9105	4980	7.1	9.5	1.05
7308B*	11915	6240	6.3	8.5	1.45
7309B*	14051	8270	5.6	7.5	1.93
7310B*	17535	9920	5.0	6.7	2.53
7311B*	20008	11700	4.5	6.3	3.35
7312B*	22931	13600	4.3	5.6	4.41
7313B*	25628	15500	3.8	5.3	5.44
7314B*	27876	17700	3.6	5.0	6.61
7315B*	29978	20100	3.4	4.8	7.93
7316B*	32575	22500	3.2	4.3	9.37
7317B*	35295	25100	3.0	4.0	11.10
7318B*	37993	27800	2.8	3.8	12.90
7319B*	40466	30600	2.6	3.6	14.90
7320B*	45411	39900	2.4	3.4	18.30
7321B*	47884	39900	2.4	3.2	20.70
7322B*	50807	44300	2.2	3.0	24.50
7324B*	53505	52000	2.0	2.8	31.50
7326B	56200	60400	1.9	2.6	38.30
7328B	62000	69500	1.7	2.4	46.90
7330B	64800	76100	1.6	2.2	55.80
7332B	70600	87100	1.5	2.0	65.70
7334B	79400	100100	1.4	2.0	78.20
7336B	83800	110000	1.3	1.8	90.40
7338B	92600	123200	1.3	1.7	104.00
7340B	97000	135300	1.2	1.6	117.00

C<sub>r</sub> = Dynamic Radial Load Rating C<sub>0r</sub> = Static Radial Load Rating  
\*Indicates NSK (HPS) High Performance Standard bearing.

# Ball Bearings: 7400 Series

Angular Contact, 40° Contact Angle



### COMMON OPTIONS

B	40° Contact Angle
C**	15° Contact Angle
TY	Polyamide Cage
Y	Pressed Brass Cage
M	Machined Brass Cage
W	Pressed Steel Cage
G	Flush Ground Faces
PC	Flush Ground Faces Normal Axial Clearance and ABEC6

\*\*Load and speed ratings are not shown in the table below.

Bearing Number	Nominal Bearing Dimensions						Preferred Shoulder Diameters		
	d		D		B		r*	da (in)	Da (in)
	mm	inch	mm	inch	mm	inch	inch	min	max
7405B	25	0.9843	80	3.1496	21	0.8268	0.059	1.319	2.815
7406B	30	1.1811	90	3.5433	23	0.9055	0.059	1.516	3.209
7407B	35	1.3780	100	3.9370	25	0.9843	0.059	1.713	3.602
7408B	40	1.5748	110	4.3307	27	1.0630	0.079	1.969	3.937
7409B	45	1.7717	120	4.7244	29	1.1417	0.079	2.165	4.331
7410B	50	1.9685	130	5.1181	31	1.2205	0.079	2.441	4.646
7411B	55	2.1654	140	5.5118	33	1.2992	0.079	2.638	5.039
7412B	60	2.3622	150	5.9055	35	1.3780	0.079	2.835	5.433
7413B	65	2.5591	160	6.2992	37	1.4567	0.079	3.031	5.827
7414B	70	2.7559	180	7.0866	42	1.6535	0.098	3.307	6.535
7415B	75	2.9528	190	7.4803	45	1.7717	0.098	3.504	6.929
7416B	80	3.1496	200	7.8740	48	1.8898	0.098	3.701	7.323
7420B <sup>1</sup>	100	3.9370	250	9.8425	58	2.2835	0.118	4.646	9.134
A7420B <sup>1</sup>	100	3.9370	265	10.4331	60	2.3622	0.118	4.646	9.125

\*Maximum fillet which corner radius of bearing will clear.

<sup>1</sup>NSK part number 7420 conforms to ISO and ABMA standards. Part number 7420 of other manufacturers may be equivalent to NSK A7420.

Bearing Number	Basic Load Ratings (lbs)		Limiting Speeds (1000 RPM)		Bearing Weight Approx.
	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	
	7405B	9700	5310	7.6	10.5
7406B	10700	6330	6.7	9.2	2.9
7407B	12600	7600	5.9	8.2	3.0
7408B	14600	9000	5.3	7.3	3.1
7409B	16600	10600	4.9	6.7	3.9
7410B	18900	12200	4.5	6.0	4.8
7411B	23200	15400	4.1	5.6	5.8
7412B	24900	17400	3.8	5.2	7.0
7413B	26900	19500	3.5	4.9	8.4
7414B	33300	26500	3.2	4.4	10.4
7415B	37700	31500	3.0	4.1	12.6
7416B	37900	32000	2.8	3.9	16.7
7420B <sup>1</sup>	49800	47800	2.2	3.1	33.0
A7420B <sup>1</sup>	53100	53400	2.1	2.9	40.1

C<sub>r</sub> = Dynamic Radial Load Rating

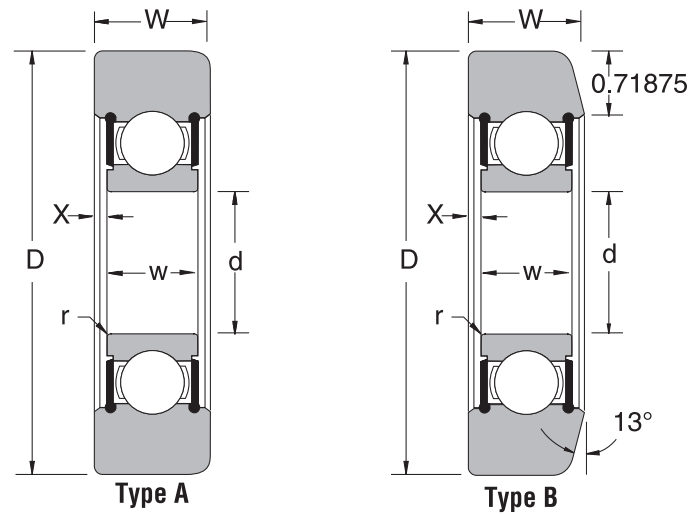
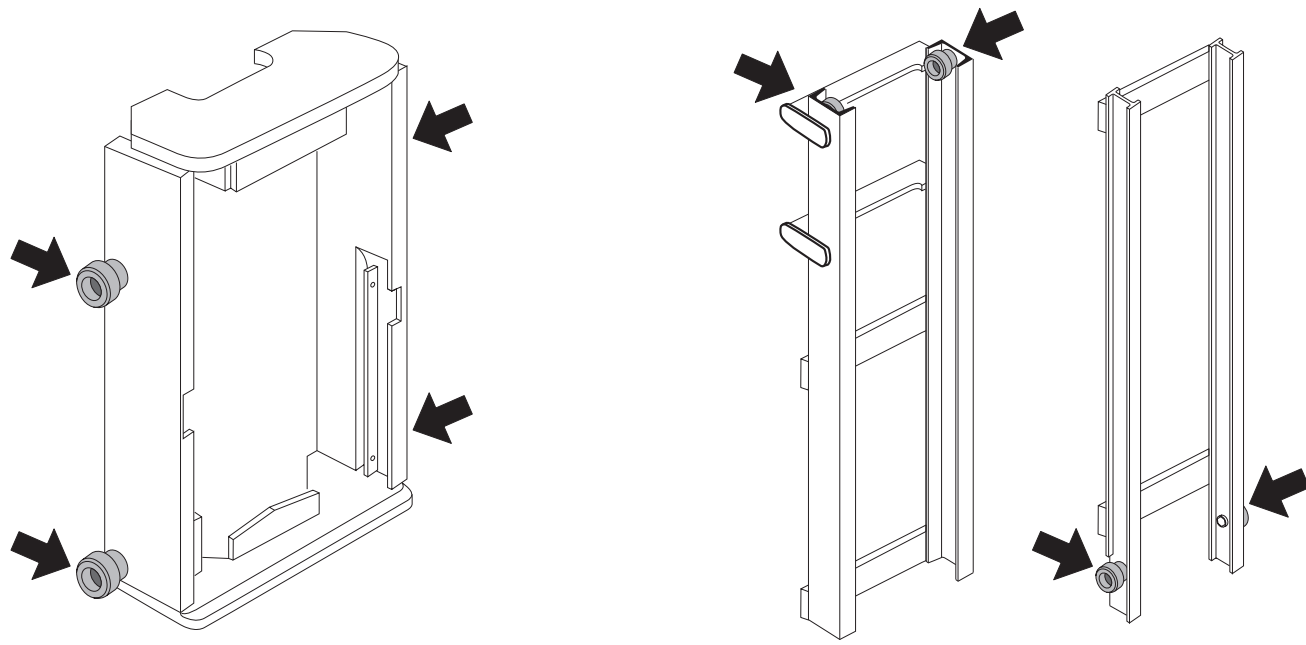
C<sub>or</sub> = Static Radial Load Rating

<sup>1</sup>NSK part number 7420 conforms to ISO and ABMA standards. Part number 7420 of other manufacturers may be equivalent to NSK A7420.



# Mast Guide Bearings

## Typical Applications



Interchange Table		
NSK	MRC	BCA
X421RS	305SZZ3	MG305DD
X549RS	307SZZ9	MG307FFK
X376RS	307SZZ10	MG307FFH
X501	309SZZ4	MGA309DD

### Dimensions

Bearing Number	Type	Bore (d)		O.D (D) inches	Outer width (W) inches	Fillet Radius (r) inches	Ref. (X) inches
		mm	inches				
X421RS	A	25	0.9843	3.0000	1.000	1.000	0.1628
X549RS	A	35	1.3780	3.7250	1.000	1.000	0.1287
X376RS	A	35	1.3780	3.9930	1.125	1.125	0.1772
X501	B	45	1.7717	5.0025	1.250	1.250	0.1303

### Specifications

Bearing Number	Type	Dynamic Capacity (lbs)	Static Capacity (lbs)	Number of Balls	Diameter of Balls inches
X421RS	A	4630	2540	8	13/32
X549RS	A	7500	4320	8	17/32
X376RS	A	7500	4320	8	17/32
X501	B	11900	7170	8	11/16

# Magnetic Clutch Bearings and Integral Shaft Bearings

## Magnetic Clutch Bearing

Bearing	Bore (mm/in)	O.D. (mm/in)	Width (mm/in)	
			IR	OR
30BD5222	30 / 1.18	52 / 2.05	22 / 0.866	22 / 0.866
30BD40	30 / 1.18	55 / 2.17	23 / 0.905	23 / 0.905
40BD49 T	40 / 1.57	62 / 2.44	20.625 / 0.812	20.625 / 0.812

## Integral Shaft Bearing

Bearing Number	Shaft O.D. (inch)			D	F	X	Y	Z	H	W
	Standard		Step							
	A	B	B'							
885807C	0.7465	0.7465	0.6267	1.5000	2.125	6.040	1.800	2.115	—	1.99
885586	0.6267	0.6267	—	1.1811	1.531	6.281	1.747	3.003	—	—
885820	0.7465	0.7465	—	1.5000	2.125	6.625	2.000	2.500	—	—

