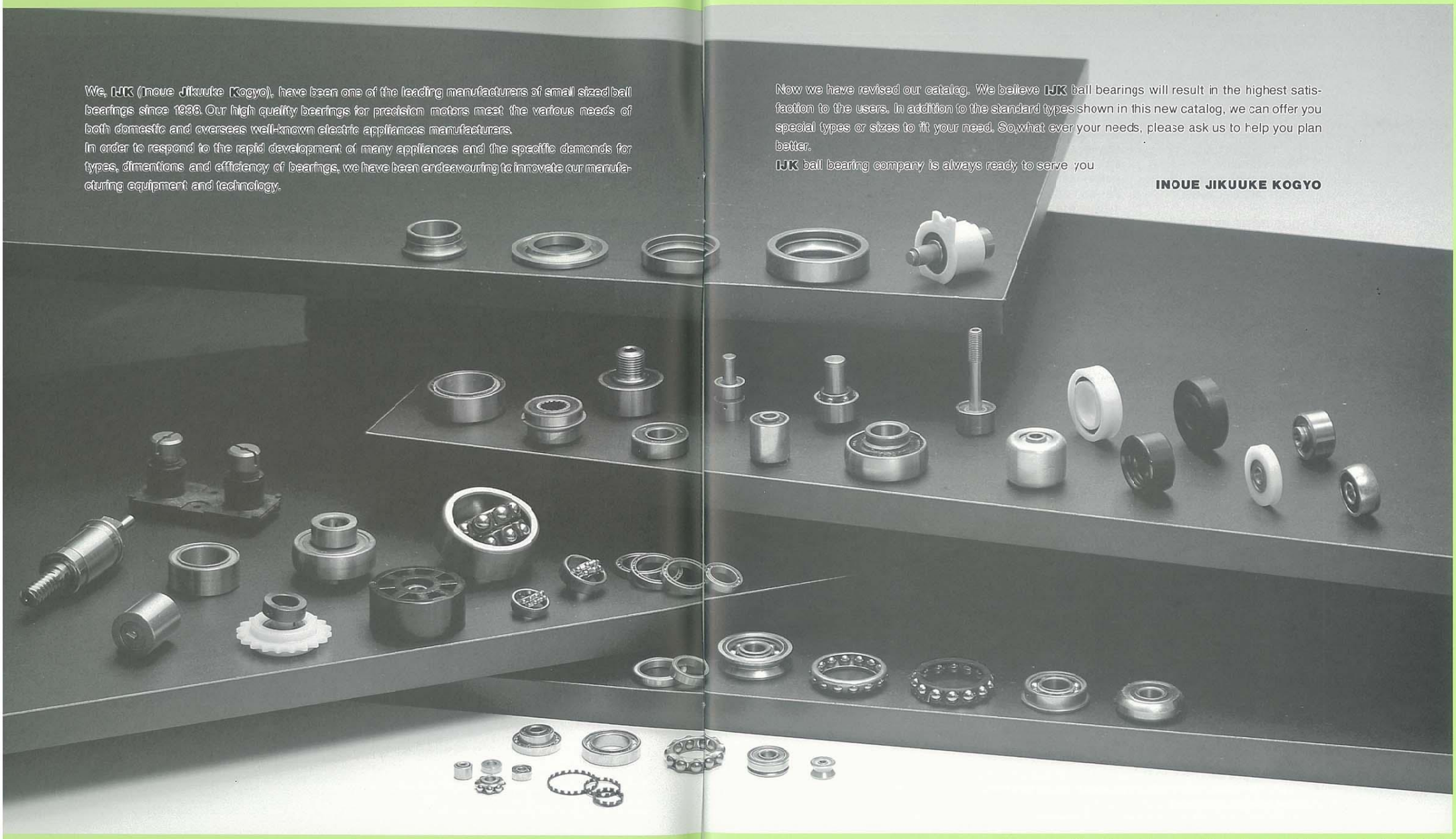
We, **IJK** (Inoue Jikuuke Kogyo), have been one of the leading manufacturers of small sized ball bearings since 1938. Our high quality bearings for precision motors meet the various needs of both domestic and overseas well-known electric appliances manufacturers.
In order to respond to the rapid development of many appliances and the specific demonds for types, dimentions and efficiency of bearings, we have been endeavouring to innovate our manufacturing equipment and technology.

Now we have revised our catalog. We believe **IJK** ball bearings will result in the highest satisfaction to the users. In addition to the standard types shown in this new catalog, we can offer you special types or sizes to fit your need. So,what ever your needs, please ask us to help you plan better.
IJK ball bearing company is always ready to serve you

INOUE JIKUUKE KOGYO



For the content of this catalog, we take every possibe care for accuracy, but please excuse us in case of clerical erro' or cmissions.
Regarding the extra or special specifications of the bearings, the usual manner is for applications to be sent to us and afte' approva, we produce it.

IJK BALL BEARINGS

CONTENTS

DEEP GROOVE BALL BEARINGS (F:FLANGED) Page

METRIC SERIES 686~6804,F686~F689 2
695~6904,F695~F699 3
604~6001,F603~F608 4
624~6200,F624~F627 5
633~6302,F634,F635 6
INCH SERIES R3~R12,FR3~FR12 7
WITH SNAP RING R4NR~R8NR 8
O.D.TAPER,FLANGED F2~F5,F2ZZ~F5ZZ 9
1600~1616 10

LARGE BORE,EXTRA THIN BEARINGS
METRIC SERIES BORE DIA. 10~20mm/.3937~.7874 inch 11
INCH SERIES BORE DIA. 10.000~50.000mm/.3937~1.9685 inch 11

FELT SEAL BALL BEARINGS
88035~88500 12
WC88035~WC88500 12
8035~8500 13
87035~87500 13
WC87035~WC87500 13

MAGNETO BEARINGS
E3~E20 14
EN3~EN20 14

SELF-ALIGNING BALL BEARINGS
BORE DIA.5-15.875mm 15
1200~1205 16
1300~1304 16
2200~2206 16
2300~2305 17

DOUBLE ROW ANGULAR CONTACT BALL BEARINGS
5200~5206 18
5300~5305 18

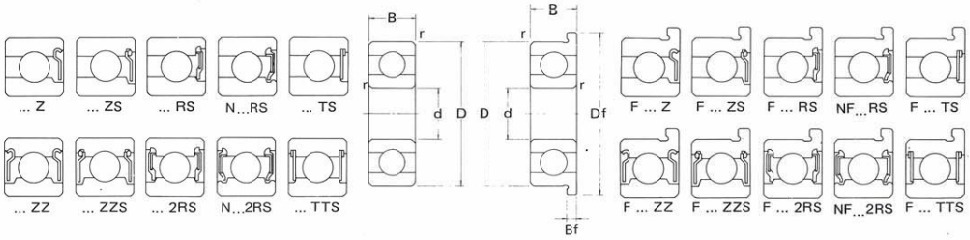
CONTROL BEARINGS
SINGLE ROW, RADIAL TYPE KP3AL~KSF10 19
KP3L~KP10 20
SINGLE ROW, SELF-ALIGNING TYPE KSP3L~KSF10 21
DOUBLE ROW, RADIAL TYPE DPP3~DPP10 22
DOUBLE ROW, EXTRAWIDE TYPE DW4K2~DW6 23
DOUBLE ROW, SELF-ALIGNING TYPE DSP3~DSP10 24
SIGLE ROW, TORQUE TUBE TYPE B538~B543 25
B538DD~B543DD 25

CONTROL BEARINGS
PULLEY KP3K~KP4K 26
P4K~PD5K~P10K 27

SPECIAL BEARINGS
DOUBLE ROW BALL BEARINGS FOR SPINNING MACHINE 28
HOUSING TYPE BALL BEARINGS 30
CARRIER ROLL BEARING WITH THREADED STUD, SPECIAL HOLE TYPE BALL BEARING, POWER TRANSMISSION TYPE BALL BEARING, DRIVE ROLLS BEARING, IDLER BEARING 31

ENGINEERING SECTION
MATERIAL, TOLERANCE, INTERNAL CLEARANCE ..... 32~36
LUBRICANT, TORQUE, VIBRATION ..... 37~38
NUMBERING SYSTEM 39
TORLERANCES(AFBMA) 40

DEEP GROOVE BALL BEARINGS
METRIC SERIES 68



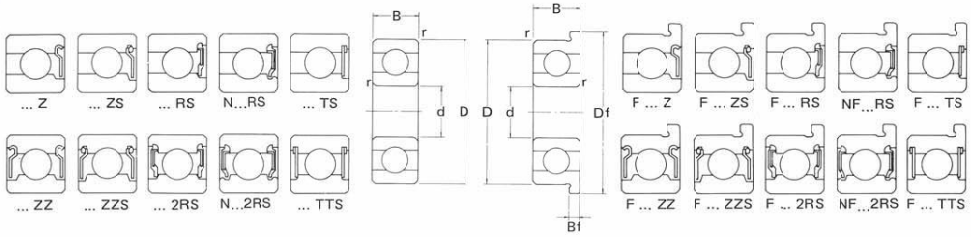
Dimensions mm / inches

BASIC BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER f min.	FLANGE Df	FLANGE Bf	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
686 ✳	6.000	13.000	3.500	0.15	15.00	1.00	8	2.000	110	45
	.2362	.5118	.1378	.006	.591	.039		.0787	243	99
686	6.000	13.000	5.000	0.15	15.00	1.10	8	2.000	110	45
	.2362	.5118	.1969	.006	.591	.043		.0787	243	99
687 ✳	7.000	14.000	3.500	0.15	16.00	1.00	9	2.000	120	52
	.2756	.5512	.1378	.006	.630	.039		.0787	265	115
687	7.000	14.000	5.000	0.15	16.00	1.10	9	2.000	120	52
	.2756	.5512	.1969	.006	.630	.043		.0787	265	115
688 ✳	8.000	16.000	4.000	0.20	18.00	1.00	10	2.000	128	60
	.3150	.6299	.1575	.008	.709	.039		.0787	282	132
688	8.000	16.000	5.000	0.20	18.00	1.10	10	2.000	128	60
	.3150	.6299	.1969	.008	.709	.043		.0787	282	132
689 ✳	9.000	17.000	4.000	0.20	19.00	1.00	11	2.000	136	68
	.3543	.6693	.1575	.008	.748	.039		.0787	300	150
689	9.000	17.000	5.000	0.20	19.00	1.10	11	2.000	136	68
	.3543	.6693	.1969	.008	.748	.043		.0787	300	150
6800	10.000	19.000	5.000	0.30	22.00	1.50	10	2.381	175	86
	.3937	.7480	.1969	.012	.866	.059		3-32	386	190
6801	12.000	21.000	5.000	0.30			12	2.381	195	106
	.4724	.8268	.1969	.012				3-32	430	234
6802	15.000	24.000	5.000	0.30	26.80	1.50	14	2.778	212	128
	.5906	.9449	.1969	.012	1.055	.059		7-64	467	282
6803	17.000	26.000	5.000	0.30			13	2.778	212	128
	.6693	1.0236	.1969	.012				7-64	467	282
6804	20.000	32.000	7.000	0.30			13	3.500	410	252
	.7874	1.2598	.2756	.012				.1378	904	556

✳ Open type only.

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DEEP GROOVE BALL BEARINGS
METRIC SERIES 69

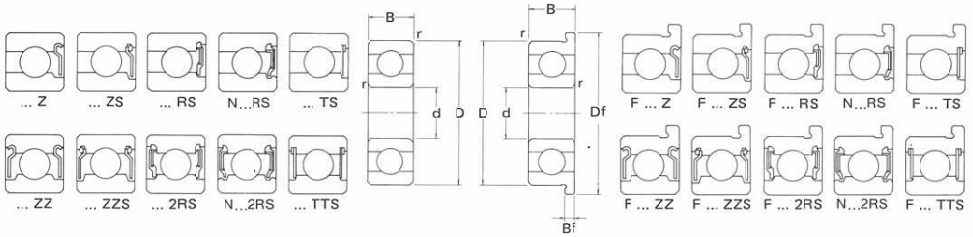


Dimensions mm / inches

BASIC BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER f min.	FLANGE Df	FLANGE Bf	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/bf)	LOAD RATINGS STATIC Co (kgf/lbf)
695	5.000	13.000	4.000	0.20	15.00	1.00	8	2.000	110	44
	.1969	.5118	.1575	.008	.590	039		.0787	243	97
696	6.000	15.000	5.000	0.20	17.00	1.20	8	2.381	177	68
	.2362	.5906	.1969	.008	.669	047		3-32	390	150
697 ✳	7.000	17.000	6.000	0.30	19.00	1.20	9	2.381	164	73
	.2756	.6693	.2362	.012	.748	047		3-32	362	161
698	8.000	19.000	6.000	0.30	22.00	1.50	7	3.175	228	93
	.3150	.7480	.2362	.012	.866	059		1-8	503	205
699	9.000	20.000	6.000	0.30	23.00	1.500	10	2.381	175	86
	.3543	.7874	.2362	.012	.906	059		3-32	386	190
6900	10.000	22.000	6.000	0.30			9	3.175	275	129
	.3937	.8661	.2362	.012				1-8	606	284
6901	12.000	24.000	6.000	0.30			10	3.175	295	149
	.4724	.9449	.2362	.012				1-8	650	328
6902	15.000	28.000	7.000	0.30			10	3.969	440	230
	.5906	1.1024	.2756	.012				5-32	970	507
6903	17.000	30.000	7.000	0.30			11	3.969	470	260
	.6693	1.1811	.2756	.012				5-32	1036	573
6904	20.000	37.000	9.000	0.30			11	4.762	650	375
	.7874	1.4567	.3543	.012				3-16	1433	827

✳ Open type only.

DEEP GROOVE BALL BEARINGS
METRIC SERIES 60



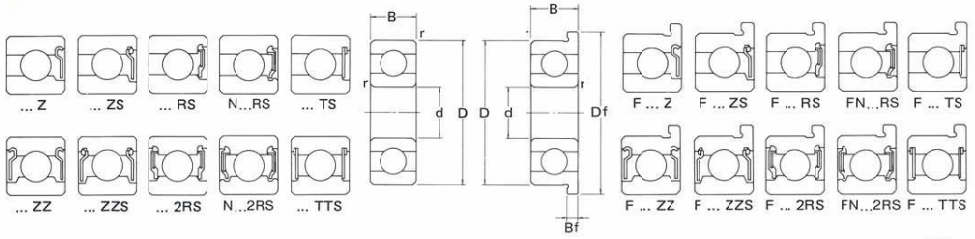
Dimensions mm / inches

BASIC BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER f min.	FLANGE Df	FLANGE Bf	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
604	4.000	12.000	4.000	0.20	13.50	1.00	7	2.000	93	35
	.1575	.4724	.1575	.008	.531	.039		.0787	216	77
605	5.000	14.000	5.000	0.20	16.00	1.00	7	2.381	135	52
	.1969	.5512	.1969	.008	.630	.039		3.32	298	115
606	6.000	17.000	6.000	0.30	19.00	1.20	6	3.500	231	85
	.2362	.6693	.2362	.012	.748	.047		.1378	509	187
607	7.000	19.000	6.000	0.30	22.00	1.50	7	3.500	238	90
	.2756	.7480	.2362	.012	.866	.059		.1378	525	198
608	8.000	22.000	7.000	0.30	25.00	1.50	7	3.969	335	140
	.3150	.8661	.2756	.012	.984	.059		5-32	739	309
609	9.000	24.000	8.000	0.30			7	3.969	335	140
	.3543	.9449	.2756	.012				5-32	739	309
6000	10000	26.000	8.000	0.30			7	4.762	465	201
	.3937	1.0236	.3150	.012				3-16	1025	443
6001	12.000	28.000	8.000	0.30			8	4.762	520	241
	.4724	1.1024	.3150	.012				3-16	1146	531

✳ Open type only.

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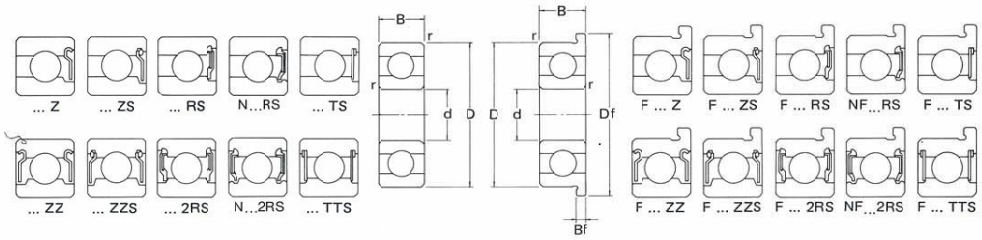
DEEP GROOVE BALL BEARINGS
METRIC SERIES 62



Dimensions mm / inches

BASIC BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER r min.	FLANGE Df	FLANGE Bf	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
624	4.000	13.000	5.000	0.20	15.00	1.00	7	2381	133	49
	.1575	.5118	.1969	.003	.590	.039		7-32	293	108
625	5.000	16.000	5.000	0.30	18.00	1.00	8	2.500	177	67
	.1969	6299	.1969	.012	.709	.039		.0984	390	148
626	6.000	19.000	6.000	0.30	22.00	1.50	7	3.500	238	90
	.2362	.7480	.2362	.012	.866	.059		.1378	525	198
627	7.000	22.000	7.000	0.30	25.00	1.50	7	3969	335	140
	.2756	.8661	.2756	.012	.984	.059		5-32	789	309
628	8.000	24.000	8.000	0.30			7	3969	340	146
	.3150	9449	.3150	.012				5-32	750	322
629	9.000	26.000	8.000	0.60			7	4762	465	201
	.3543	1.0236	.3150	.024				3-16	1025	443
6200	10.000	30.000	9.000	0.60			8	4762	520	244
	.3937	1.1811	.3543	.024				3-16	1146	538

DEEP GROOVE BALL BEARINGS
METRIC SERIES 63

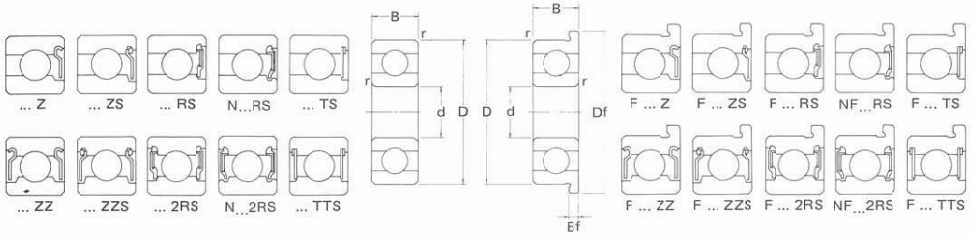


Dimensions mm / inches

BASIC BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER r min.	FLANGE Df	FLANGE Bi	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
634	4.000	16.000	5.000	0.30	18.00	1.00	8	2.500	177	68
	.1575	.6299	.1969	.012	.709	.039		.0984	390	150
635	5.000	19.000	6.000	0.30	22.00	1.50	7	3.500	266	107
	.1969	.7480	.2362	.012	.866	.059		.1378	586	236
636	6.000	22.000	7.000	0.30						
	.2362	.8661	.2756	.012						
637	7.000	26.000	9.000	0.30						
	.2756	1.0236	.3543	.012						
638	8.000	28.000	9.000	0.30			7	4.762	465	201
	.3150	1.1024	.3543	.012				3-16	1025	443
639	9.000	30.000	10.000	0.60			8	4.762	520	230
	.3543	1.1811	.3937	.024				3-16	1146	5070
6300	10.000	35.000	11.000	0.60			6	7.144	825	350
	.3937	1.3780	.4331	.024				9-32	1819	772
6301	12.000	37.000	12.000	1.00			6	7.938	990	425
	.4724	1.4567	.4724	.040				5-16	2183	937
6302	15.000	42.000	13.000	1.00			7	7.938	1162	555
	.5906	1.6535	.5118	.040				5-16	2563	1223

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DEEP GROOVE BALL BEARINGS
INCH SERIES

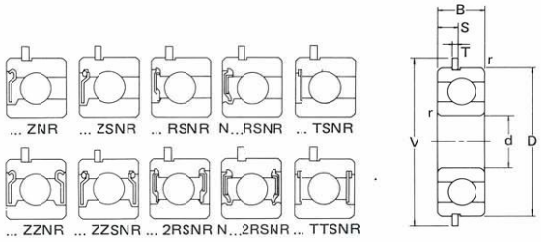


Dimensions mm / inches

BASIC BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER r min.	FLANGE Df	FLANGE Bf	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
R3 ✳	4.762	12.700	3.967	0.30	14.35	1.07	7	2.381	133	49
	.1875	.5000	.1562	.012	.565	.042		3-32	293	108
R3	4.762	12.700	4.978	0.30	14.35	1.07	7	2.381	133	49
	.1875	.5000	.1960	.012	.565	.042		3-32	293	108
R188 ✳	6.350	12.700	3.175	0.15	13.89	0.58	10	1.588	110	45
	.2500	.5000	.1250	.006	.547	.023		1-16	243	99
R188	6.350	12.700	4.762	0.15	13.89	1.14	10	1.588	110	45
	.2500	.5000	.1875	.006	.547	.045		1-16	243	99
R4	6.350	15.875	4.978	0.30	17.53	1.07	8	2.500	164	68
	.2500	.6250	.1960	.012	.690	.042		.0984	362	150
R4A ✳	6.350	19.050	5.558	0.40			7	3.500	274	107
	.2500	.7500	.2188	.016				.1378	604	236
R4A	6.350	19.050	7.142	0.40	17.53	1.07	7	3.500	274	107
	.2500	.7500	.2812	.016	.690	.042		.1378	604	236
R5A	7.938	22.225	7.142	0.40			7	3.969	340	138
	.3125	.8750	.2812	.016				5-32	750	304
R6 ✳	9.525	22.225	5.558	0.40	24.61	1.57	7	3.969	340	138
	.3750	.8750	.2188	.016	.969	.032		5-32	750	304
R6	9.525	22.225	7.142	0.40	24.61	1.57	7	3.969	340	138
	.3750	.8750	.2812	.016	.969	.032		5-32	750	304
R8 ✳	12.700	28.575	6.350	0.40			8	4.762	520	229
	.5000	1.1250	.2500	.016				3-16	1146	505
R8	12.700	28.575	7.938	0.40	31.11	1.57	8	4.762	520	229
	.5000	1.1250	.3125	.016	1.225	.032		3-16	1146	505
R10 ✳	15.875	34.925	7.142	0.80			10	4.762	611	331
	.6250	1.375	.2812	.031				3-16	1347	729
R10	15.875	34.925	8.733	0.80			10	4.762	611	331
	.6250	1.375	.3438	.031				3-16	1347	729
R12 ✳	19.05	41.275	7.938	0.80			9	6.350	955	510
	.75	1.625	.3125	.031				1-4	2105	1124
R12	19.05	41.275	11.112	0.80			9	6.350	955	510
	.75	1.625	.4375	.031				1-4	2105	1124

✳ Open type only.

DEEP GROOVE BALL BEARINGS
INCH SERIES, WITH SNAP RING

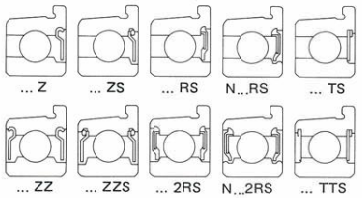


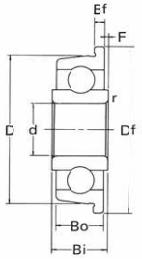
Dimensions mm / inches

BASIC BEARING NUMBER	BORE BORE d	O.D. D	WIDTH B	CHAMFER r min.	SNAP RING V	SNAP RING T	SNAP RING S	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
R4	6.350	15.875	4.978	0.30	18.64	0.65	1.78	8	2.500	164	68
	.2500	.6250	.1960	.012	.730	.026	.070		.0984	362	150
R4A	6.350	19.050	7.142	0.40	21.64	0.66	2.28	7	3.500	274	107
	.2500	.7500	.2812	.016	.852	.026	.090		.1378	604	236
R6	9.525	22.225	7.142	0.40	25.40	0.80	2.28	7	3.969	340	138
	.3750	.8750	.2812	.016	1.000	.031	.090		5-32	750	304
R8	12.700	28.575	7.938	0.40	31.93	0.70	2.28	8	4.762	520	229
	.5000	1.1250	.3125	.016	1.257	.028	.090		3-16	1145	505

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DEEP GROOVE BALL BEARINGS
O.D. TAPER FLANGED EXTR-SMALL
INCH SERIES
OPEN TYPE
CLOSURES TYPE





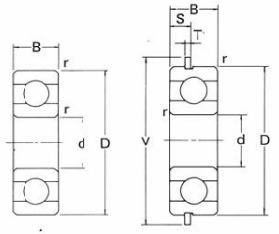
Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	O.D. TAPER PER FOOT	WIDTH Bo	WIDTH Bi	INNER RING PROJECT F	CAMFER r ×45°	FLANGE O.D. Df	FLANGE WIDTH Bf	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
	+0.008 −0	+0 −0.010		+0 −0.10	±0.025	+0.25 −0	+0.25 −0	+0.127 −0.	±0.050	← (mm TOLERANCE)			
	+.0003 −.0000	+.0000 −.0004		+.000 −.004	±.001	+.010 −.000	+.010 −.000	+0.005 −.002	±.002	← (in TOLERANCE)			
F2 ✳	4.762	11.130	2.032	4.14	4.78	0.41	0.25	12.700	1.07	15	1.588	108	47
	.1875	.4382	.080	.163	.188	.016	.010	.5000	.042		1-16	238	104
F3	4.762	14.305	2.032	4.95	5.51	0.38	0.25	15.875	1.07	7	2.381	135	50
	.1875	.5632	.080	.195	.217	.015	.010	.6250	.042		3-32	298	243
F4	6.350	15.893	1.727	5.740	6.62	0.38	0.25	17.462	1.07	8	2.500	163	63
	.2500	.6257	.068	.226	.249	.015	.010	.6875	.042		.0984	359	139
F5	7.938	17.480	1.727	5.740	6.32	0.38	0.25	19.050	1.07	7	3.175	225	88
	.3125	.6882	.068	.226	.249	.015	.010	.7500	.042		1-8	498	198
F2ZZ	3.175	9.543	1.905	4.14	4.78	0.38	0.25	11.125	0.94	7	1.588	65	22
	.1250	.3757	.075	.163	.188	.015	.010	.438	.037		1-16	143	49
F3ZZ	4.762	14.305	1.727	5.740	6.35	0.38	0.25	15.875	1.07	7	2.381	135	50
	.1875	.5632	.068	.226	.250	.015	.010	.625	.042		3-32	298	110
F4ZZ	6.350	15.893	1.727	5.740	6.35	0.38	0.25	17.450	1.07	8	2.500	163	63
	.2500	.6257	.068	.226	.250	.015	.010	.687	.042		.0984	359	139
F5ZZ	7.938	17.480	1.727	5.740	6.35	0.38	0.25	19.050	1.07	7	3.175	225	88
	.3125	.6882	.068	.226	.250	.015	.010	.750	.042		1-8	498	194

✳ Full complement — no cage.

DEEP GROOVE BALL BEARINGS
INCH SERIES, 1600





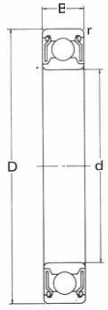
Dimensions mm / inches

BEARING NUMBER	O.D. D	BORE d	WIDTH B	CHAMFER r min.	SNAP RING V	SNAP RING T	SNAP RING S	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
1601ZZ	17.462	4.762	6.350	0.40				6	3.175	201	76
	.6875	.1875	.2500	.016					1-8	443	168
1601DC	17.462	4.762	7.938	0.40				6	3.175	201	76
	.6875	.1875	.3125	.016					1-8	443	168
1602ZZ	17.462	6.350	6.350	0.40				6	3.175	201	76
	.6875	.2500	.2500	.016					1-8	443	168
1602DC	17.462	6.350	7.938	0.40				6	3.175	201	76
	.6875	.2500	.3125	.016					1-8	443	168
1603ZZ	22.225	7.938	7.142	0.50				7	3.969	340	138
	.8750	.3125	.2812	.020					5-32	750	304
1603ZZNR	22.225	7.938	7.142	0.50	25.40	0.50	1.68	7	3.969	340	138
	.8750	.3125	.2812	.020	1.000	.020	.066		5-32	750	304
1603DC	22.225	7.938	8.731	0.50				7	3.969	340	138
	.8750	.3125	.3438	.020					5-32	750	304
1604ZZ	22.225	9.525	7.142	0.50				7	3.969	340	138
	.8750	.3750	.2812	.020					5-32	750	304
1604DC	22.225	9.525	8.731	0.50				7	3.969	340	138
	.8750	.3750	.3438	.020					5-32	750	304
1605ZZ	23.017	7.938	7.938	0.50				7	3.969	340	138
	.9062	.3125	.3125	.020					5-32	750	304
1605-2RS	23.017	7.938	7.938	0.50				7	3.969	340	138
	.9062	.3125	.3125	.020					5-32	750	304
1606ZZ	23.017	9.525	7.938	0.50				7	3.969	340	138
	.9062	.3750	.3125	.020					5-32	750	304
1606-2RS	23.017	9.525	7.938	0.50				7	3.969	340	138
	.9062	.3750	.3125	.020					5-32	750	304
1607ZZ	23.017	11.112	7.938	0.50				9	3.500	328	138
	.9062	.4375	.3125	.020					.1378	723	304
1607-2RS	23.017	11.112	7.938	0.50				9	3.500	328	138
	.9062	.4375	.3125	.020					.1378	723	304
1614ZZ	28.575	9.525	9.525	0.60				8	4.762	520	241
	1.1250	.3750	.3750	.024					3-16	1146	531
1614-2RS	28.575	9.525	9.525	0.60				8	4.762	520	241
	1.1250	.3750	.3750	.024					3-16	1146	531
1615ZZ	28.575	11.112	9.525	0.60				8	4.762	520	241
	1.1250	.4375	.3750	.024					3-16	1146	531
1615-2RS	28.575	11.112	9.525	0.60				8	4.762	520	241
	1.1250	.4375	.3750	.024					3-16	1146	531
1616ZZ	28.575	12.700	9.525	0.60				8	4.762	520	241
	1.1250	.5000	.3750	.024					3-16	1146	531
1616-2RS	28.575	12.700	9.525	0.60				8	4.762	520	241
	1.1250	.5000	.3750	.024					3-16	1146	531

LARGE BORE, EXTRA THIN BEARINGS

METRIC SERIES
BORE 10–20mm
INCH SERIES
BORE .3750–.7500 inches





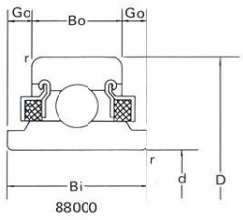
Dimensions mm / inches

BASIC BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER r min.	LAND DIAMETER Lo	LAND DIAMETER Li	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
1510	10.000	15.000	3.000	0.25	13.60	11.25	11	1.588	64	29
	.3937	.5906	.1181	.010	.535	.443		1-13	141	64
2015	15.000	20.000	3.500	0.25	18.60	16.40	14	1.588	96	49
	.5906	.7874	.1378	.010	.732	.646		1-13	212	108
2115	15.000	21.000	3.500	0.25	18.90	16.80	14	1.588	96	49
	.5906	.8286	.1378	.010	.744	.661		1-13	212	108
2216	16.000	22.000	4.000	0.25	19.90	17.80	15	1.588	99	50
	.6299	.8661	.1575	.010	.783	.700		1-13	218	110
2418	18.000	24.000	4.000	0.25	21.90	19.75	16	1.588	100	51
	.7087	.9449	.1575	.010	.862	.778		1-13	220	112
2520	20.000	25.000	4.000	0.25	23.40	21.35	17	1.588	103	54
	.7874	.9843	.1575	.010	.921	.841		1-13	227	119
6700	10.000	15.000	3.000	0.15	13.70	11.30	13	1.588	75	44
	.3937	.5906	.1181	.006	.539	.445		1-13	165	97
6701	12.000	18.000	4.000	0.20	16.14	13.86	16	1.588	109	55
	.4724	.7087	.1575	.008	.646	.546		1-13	240	121
6702 ✳	15.000	21.000	4.000	0.20	19.14	16.86	19	1.588	90	66
	.5906	.8268	.1575	.008	.754	.664		1-13	198	146
6703	17.000	23.000	4.000	0.20	21.14	18.86	21	1.588	94	73
	.6693	.9055	.1575	.008	.831	.743		1-13	207	161
6704	20.000	27.000	4.000	0.20	24.85	22.15	20	2.000	140	110
	.7874	1.0630	.1575	.008	.978	.872		10-127	309	243
6705	25.000	32.000	4.000	0.20	29.85	27.15	24	2.000	151	134
	.9843	1.2598	.1575	.008	1.175	1.069		10-127	333	295
6706	30.000	37.000	4.000	0.20	34.85	32.15	28	2.000	160	157
	1.1811	1.4567	.1575	.008	1.372	1.266		10-127	353	346
6707	35.000	44.000	5.000	0.30	41.12	37.88	28	2.381	220	222
	1.3780	1.7323	.1969	.012	1.619	1.491		3-32	485	489
6708	40.000	50.000	6.000	0.30	46.89	43.11	27	2.778	370	291
	1.5748	1.9685	.2362	.012	1.846	1.697		7-64	816	642
6709	45.000	55.000	6.000	0.30	51.89	48.11	30	2.778	298	325
	1.7717	2.1654	.2362	.012	2.043	1.894		7-64	657	717
6710	50.000	62.000	6.000	0.30	56.40	53.60	27	3.500	435	460
	1.9685	2.4409	.2362	.012	2.299	2.110		35-254	959	1014

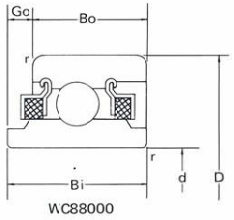
Open type only
✳ Rubber Seals type available

FELT SEAL BALL BEARINGS

88000 SERIES
WC88000 SERIES



88000



WC88000

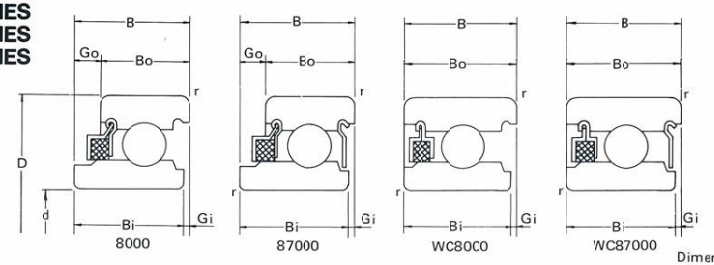
Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bo	WIDTH Bi	CHAMFER Go	CHAMFER r min.	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C	LOAD RATINGS STATIC Co
88035	5.000	19.000	8.000	12.620	2.31	0.30	7	3.500	266	107
	.1969	7480	.3150	.4970	.091	.012		.1378	586	236
WC88035	5.000	19.000	10.310	12.600	2.31	0.30	7	3.500	266	107
	.1969	7480	.4059	.4970	.091	0.12		.1378	586	236
88036	6.000	19.000	8.000	12.620	2.31	0.30	7	3.500	266	107
	.2362	7480	.3150	.4970	.091	0.12		.1378	586	236
WC88036	6.000	19.000	10.310	12.620	2.31	0.30	7	3.500	266	107
	.2362	7480	.4059	.4970	.091	0.12		.1378	586	236
88006	6.000	24.000	8.000	12.620	2.31	0.30	7	3.969	335	140
	.2362	9449	.3150	.4970	.091	0.12		5-32	739	309
WC88006	6.000	24.000	10.310	12.620	2.31	0.30	7	3.969	335	140
	.2362	9449	.4059	.4970	.091	0.12		5-32	739	309
88037	7.000	22.000	8.000	12.620	2.31	0.30	7	3.969	335	140
	.2756	8661	.3150	.4970	.091	0.12		5-32	739	309
WC88037	7.000	22.000	10.310	12.620	2.31	0.30	7	3.969	335	140
	.2756	8661	.4059	.4970	.091	0.12		5-32	739	309
88007	7.000	24.000	8.000	12.620	2.31	0.30	7	3.969	335	140
	.2756	9449	.3150	.4970	.091	0.12		5-32	739	309
WC88007	7.000	24.000	10.310	12.620	2.31	0.30	7	3.969	335	140
	.2756	9449	.4059	.4970	.091	0.12		5-32	739	309
88038	8.000	22.000	8.000	12.620	2.31	0.30	7	3.969	335	140
	.3150	8661	.3150	.4970	.091	0.12		5-32	739	309
WC88038	8.000	22.000	10.310	12.620	2.31	0.30	7	3.969	335	140
	.3150	8661	.4059	.4970	.091	0.12		5.32	739	309
88008	8.000	24.000	8.000	12.620	2.31	0.30	7	3.969	335	140
	.3150	9449	.3150	.4970	.091	.012		5-32	739	309
WC88008	8.000	24.000	10.310	12.620	2.31	0.30	7	3.969	335	140
	.3150	9449	.4059	.4970	.091	.012		5-32	739	309
88039	9.000	26.000	8.000	12.620	2.31	0.63	7	4.762	465	201
	.3543	1.0236	.3150	.4970	.091	.025		3-16	1025	443
WC88039	9.000	26.000	10.310	12.620	2.31	0.63	7	4.762	465	201
	.3543	1.0236	.4059	.4970	.091	025		3-16	1025	443
88009	9.000	30.000	8.990	16.400	3.70	0.63	7	5.556	520	241
	.3543	1.1811	.3539	.6457	.146	.025		7-32	1146	531
WC88009	9.000	30.000	12.700	16.400	3.70	0.63	7	5.556	520	241
	.3543	1.1811	.5000	.6457	.146	.025		7-32	1146	531
88500	10.000	30.000	8.990	16.400	3.70	0.63	7	5.556	520	241
	.3937	1.1811	.3539	.6457	.146	.025		7-32	1146	531
WC88500	10.000	30.000	12.700	16.400	3.70	0.63	7	5.556	520	241
	.3937	1.1811	.5000	.6457	.146	.025		7-32	1146	531

IJK

FELT SEAL BALL BEARINGS

8000 SERIES
87000 SERIES
WC8000 SERIES
WC87000 SERIES

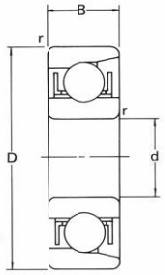


Dimensions $\frac{mm}{inches}$

BEARING NUMBER	BORE	O.D.	WIDTH					CHAMFER	BALLS		LOAD RATINGS	
	d	D	B	Bo	Bi	Go	Gi	r min.	NO.	SIZE	DYNAMIC C	STATIC Co
8035	5.000	19.000	10.310	8.000	9.800	2.31	0.51	0.30	7	3.500	266	107
87035	.1969	.7480	.4059	.3150	.3858	.091	.020	.012		.1378	586	236
WC8035	5.000	19.000	10.310	10.310	9.800		0.51	0.30	7	3.500	266	107
WC87035	.1969	.7480	.4059	.4059	.3858		.020	.012		.1378	586	236
8036	6.000	19.000	10.310	8.000	9.800	2.31	0.51	0.30	7	3.500	266	107
87036	.2362	.7480	.4059	.3150	.3858	.091	.020	.012		.1378	586	236
WC8036	6.000	19.000	10.310	10.310	9.800		0.51	0.30	7	3.500	266	107
WC87036	.2362	.7480	.4059	.4059	.3858		.020	.012		.1378	586	236
8006	6.000	24.000	10.310	8.000	9.800	2.31	0.51	0.30	7	3.969	335	140
87006	.2362	.9449	.4059	.3150	.3858	.091	.020	.012		5-32	739	309
WC8006	6.000	24.000	10.310	10.310	9.800		0.51	0.30	7	3.969	335	140
WC87006	.2362	.9449	.4059	.4059	.3858		.020	.012		5-32	739	309
8037	7.000	22.000	10.310	8.000	9.800	2.31	0.51	0.30	7	3.969	335	140
87037	.2756	.8661	.4059	.3150	.3858	.091	.020	.012		5-32	739	309
WC8037	7.000	22.000	10.310	10.310	9.800		0.51	0.30	7	3.969	335	140
WC87037	.2756	.8661	.4059	.4059	.3858		.020	.012		5-32	739	309
8007	7.000	24.000	10.310	8.000	9.800	2.31	0.51	0.30	7	3.969	335	140
87007	.2756	.9449	.4059	.3150	.3858	.091	.020	.012		5-32	739	309
WC8007	7.000	24.000	10.310	10.310	9.800		0.51	0.30	7	3.969	335	140
WC87007	.2756	.9449	.4059	.4059	.3858		.020	.012		5-32	739	309
8038	8.000	22.000	10.310	8.000	9.800	2.31	0.51	0.30	7	3.969	335	140
87038	.3150	.8661	.4059	.3150	.3858	.091	.020	.012		5-32	739	309
WC8038	8.000	22.000	10.310	10.310	9.800		0.51	0.30	7	3.969	335	140
WC87038	.3150	.8661	.4059	.4059	.3858		.020	.012		5-32	739	309
8008	8.000	24.000	10.310	8.000	9.800	2.31	0.51	0.30	7	3.969	335	140
87008	.3150	.9449	.4059	.3150	.3858	.091	.020	.012		5-32	739	309
WC8008	8.000	24.000	10.310	10.310	9.800		0.51	0.30	7	3.969	335	140
WC87008	.3150	.9449	.4059	.4059	.3858		.020	.012		5-32	739	309
8039	9.000	26.000	10.310	8.000	9.800	2.31	0.51	0.63	7	4.762	465	201
87039	.3543	1.0236	.4059	.3150	.3858	.091	.020	.025		3-16	1025	443
WC8039	9.000	26.000	10.310	10.310	9.800		0.51	0.63	7	4.762	465	201
WC87039	.3543	1.0236	.4059	.4059	.3858		.020	.025		3-16	1025	443
8009	9.000	30.000	12.700	8.900	12.190	3.70	0.51	0.63	8	4.762	520	241
87009	.3543	1.1811	.5000	.3539	.4800	.146	.020	.025		3-16	1146	531
WC8009	9.000	30.000	12.700	12.700	12.190		0.51	0.63	8	4.762	520	241
WC87009	.3543	1.1811	.5000	.5000	.4800		.020	.025		3-16	1146	531
8500	10.000	30.000	12.700	8.990	12.190	3.70	0.51	0.63	8	4.762	520	241
87500	.3937	1.1811	.5000	.3539	.4800	.146	.020	.025		3-16	1146	531
WC8500	10.000	30.000	12.700	12.700	12.190		0.51	0.63	8	4.762	520	241
WC87500	.3937	1.1811	.5000	.5000	.4800		.020	.025		3-16	1146	531

MAGNETO BALL BEARINGS

E SERIES
EN SERIES



Values in 0.001mm

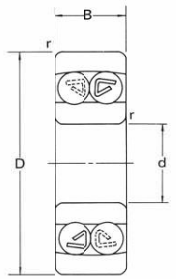
O.D. (mm)		ALLOWABLE DEVIATIONS			
		E SERIES		EN SERIES	
OVER	INCL.	HIGH	LOW	HIGH	LOW
—	10	+ 8	0	0	— 8
10	18	+ 8	0	0	— 8
18	30	+ 9	0	0	— 9
30	50	+11	0	0	—11

Dimensions $\frac{mm}{inches}$

BEARING NUMBER		BORE	O.D.	WIDTH	CHAMFER	BALLS		LOAD RATINGS	
		d	D	B	r min.	NO.	SIZE	DYNAMIC C (kgf/lbf)	STATIC Co (kgf/lbf)
E 3	EN 3	3.000	16.000	5.000	0.15	8	3.175	168	29
		.1181	.6299	.1969	.006		1-8	370	64
E 4	EN 4	4.000	16.000	5.000	0.15	8	3.175	168	29
		.1575	.6299	.1969	.006		1-8	370	64
E 5	EN 5	5.000	16.000	5.000	0.15	8	3.175	168	29
		.1969	.6299	.1969	.006		1-8	370	64
E 6	EN 6	6.000	21.000	7.000	0.30	8	3.969	254	46
		.2362	.8268	.2756	.012		5-32	560	101
E 7	EN 7	7.000	22.000	7.000	0.30	8	3.969	254	46
		.2756	.8661	.2756	.012		5-32	560	101
E 8	EN 8	8.000	24.000	7.000	0.30	8	4.762	350	66
		.3150	.9449	.2756	.012		3-16	772	146
E 9	EN 9	9.000	28.000	8.000	0.30	8	5.556	465	90
		.3543	1.1024	.3150	.012		7-32	1025	198
E10	EN10	10.000	28.000	8.000	0.30	8	5.556	465	90
		.3937	1.1024	.2150	.012		7-32	1025	198
E11	EN11	11.000	32.000	7.000	0.30	11	4.762	450	86
		.4331	1.2598	.2756	.012		3-16	992	190
E12	EN12	12.000	32.000	7.000	0.30	11	4.762	450	86
		.4724	1.2598	.2756	.012		3-16	992	190
E13	EN13	13.000	30.000	7.000	0.30	11	4.762	450	86
		.5118	1.1811	.2756	.012		3-16	992	190
E14	EN14	14.000	35.000	8.000	0.30	11	5.556	590	117
		.5512	1.3780	.3150	.012		7-32	1301	258
E15	EN15	15.000	35.000	8.000	0.30	11	5.556	590	117
		.5906	1.3780	.3150	.012		7-32	1301	258
E16	EN16	16.000	38.000	10.000	0.60	10	6.350	705	141
		.6299	1.4960	.3937	.024		1-4	1554	311
E17	EN17	17.000	44.000	11.000	0.60	11	6.350	750	153
		.6693	1.7323	.4331	.024		1-4	1653	337
E18	EN18	18.000	40.000	9.000	0.60	14	4.762	515	105
		.7087	1.5748	.3543	.024		3-16	1135	231
E19	EN19	19.000	40.000	9.000	0.60	14	4.762	515	105
		.7480	1.5748	.3543	.024		3-16	1135	231
E20	EN20	20.000	47.000	12.000	0.60	11	7.938	1120	245
		.7874	1.8504	.4724	.024		5-16	2469	540

IJK

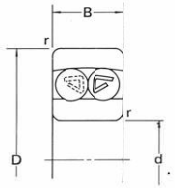
SELF-ALIGNING BALL EBEARINGS
100 SERIES
12000 SERIES
RL SERIES



Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER r min.	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
135	5.000 .1969	19.000 .7480	6.000 .2362	0.30 .012	16	3.175 1-8	258 569	49 108
12306	6.000 .2362	15.000 .5906	5.000 .1968	0.30 .012	20	2.381 3-32	136 300	27 60
126	6.000 .2362	19.000 .7480	6.000 .2362	0.30 .012	16	3.175 1-8	258 569	49 108
127	7.000 .2756	22.000 .8661	7.000 .2756	0.30 .012	22	3.175 1-8	280 617	61 134
12308	8.000 .3150	18.000 .7087	5.000 .1969	0.30 .012	24	2.500 .0984	193 425	51 112
108	8.000 .3150	22.000 .8661	7.000 .2756	0.30 .012	22	3.175 1-8	280 617	61 134
129	9.000 .3543	26.000 1.0236	8.000 .3150	0.60 .024	20	3.969 5-32	425 937	91 201
12310	10.000 .3937	23.000 .9055	7.000 .2756	0.30 .012	22	3.175 1-8	280 617	61 134
RL4	12.700 .5000	33.338 1.3125	11.112 .4375	0.60 .024	20	4.762 3-16	590 1300	154 340
RL5	15.875 .6250	39.688 1.5625	11.112 .4375	0.60 .024	24	5.556 7-32	827 1823	252 556

SELF-ALIGNING BALL BEARINGS
12 SERIES
13 SERIES
22 SERIES



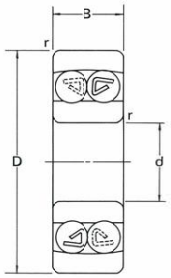
Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER r min.	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
1200	10.000 .3937	30.000 1.1811	9.000 .3543	0.60 .024	18	4.762 3-16	570 1257	121 267
1201	12.000 .4724	32.000 1.2598	10.000 .3937	0.60 .024	20	4.762 3-16	580 1279	130 287
1202	15.000 .5906	35.000 1.3780	11.000 .4331	0.60 .024	20	5.556 7-32	775 1709	179 395
1203	17.000 .6693	40.000 1.5748	12.000 .4724	0.60 .024	24	5.556 7-32	815 1797	205 452
1204	20.000 .7874	47.000 1.8504	14.000 .5512	1.00 .040	24	6.350 1-4	1020 2249	266 586
1205	25.000 .9843	52.000 2.0472	15.000 .5906	1.00 .040	24	7.144 9-32	1250 2755	335 739
1300	10.000 .3937	35.000 1.3780	11.000 .4331	0.60 .024	18	5.556 7-32	750 1653	165 364
1301	12.000 .4724	37.000 1.4567	12.000 .4724	1.00 .040	18	6.350 1.4	985 2171	221 487
1302	15.000 .5906	42.000 1.6535	13.000 .5118	1.00 .040	20	6.350 1.4	990 2183	234 516
1303	17.000 .6693	47.000 1.8504	14.000 .5512	1.00 .040	22	7.144 9-32	1300 2866	325 717
1304	20.000 .7874	52.000 2.0472	15.000 .5906	1.10 .430	24	7.144 9-32	1280 2822	340 750
2200 ✳	10.000 .3937	30.000 1.1811	14.000 .5512	0.60 .024	18	5.556 7-32	760 1676	162 357
2201 ✳	12.000 .4724	32.000 1.2593	14.000 .5512	0.60 .024	20	5.556 7.32	790 1742	177 390
2202 ✳	15.000 .5906	35.000 1.3780	14.000 .5512	0.60 .024	22	5.556 7-32	795 1753	188 414
2203 ✳	17.000 .6693	40.000 1.5748	16.000 .6299	0.60 .024	22	6.350 1-4	1010 2227	247 545
2204 ✳	20.000 .7874	47.000 1.8504	18.000 .7087	1.10 043	24	7.144 9-32	1310 2888	340 750
2205 ✳	25.000 .9843	52.000 2.0472	18.000 .7087	1.00 040	26	7.144 9-32	1270 2800	350 772
2206 ※	30.000 1.1811	62.000 2.4409	20.000 .7874	1.00 .039	28	7.938 5-16	1560 3439	460 1014

✳Rubber Seals type available
※M cage only

IJK

SELF-ALIGNING BALL BEARINGS
23 SERIES

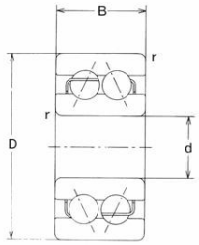


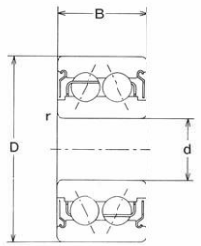
Dmensiors mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER r min.	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
2300 ✳	10.000	35.000	17.000	0.60	18	6.350	953	205
	.3937	1.3780	.6693	.024		1-4	2101	452
2301 ✳	12.000	37.000	17.000	1.10	18	7.144	1240	278
	.4724	1.4567	.6693	.043		9-32	2734	613
2302 ✳	15.000	42.000	17.000	1.10	20	7.144	1250	296
	.5906	1.6535	.6693	.043		9-32	2756	653
2303 ✳	17.000	47.000	19.000	1.10	20	7.938	1500	365
	.6693	1.8504	.7480	.043		5-16	3307	805
2304 ✳	20.000	52.000	21.000	1.10	22	8.731	1880	480
	.7874	2.0472	.8268	.043		11-32	4145	1058
2305 ※	25.000	62.000	24.000	1.50	22	10.319	2520	675
	.9843	2.4409	.9449	.043		13-32	5578	1488

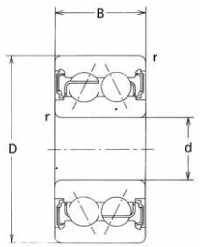
✳ Rubber Seals type available
※ M cage only

DOUBLE ROW ANGURAR CONTACT BALL BEARINGS
52 SERIES
53 SERIES

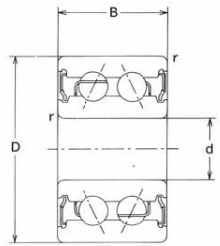




ZZ



2RS



NW...2RS

Dimensions mm / inches

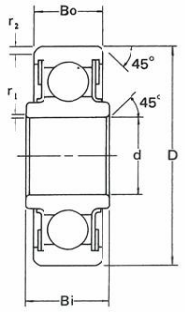
BEARING NUMBER	BORE d	O.D. D	WIDTH B	CHAMFER r min.	BALLS NO.	BALLS SIZE	LOAD RATINGS DYNAMIC C (kgf/lbf)	LOAD RATINGS STATIC Co (kgf/lbf)
5200	10.000	30.000	14.30	0.60	14	4.762	730	400
	.3937	1.1811	.5630	.024		3-16	1609	882
NW5200-2RS	10.000	30.000	17.462	0.60	14	4.762	730	400
	.3937	1.1811	.6875	.024		3-16	1609	882
5201 ✳	12.000	32.000	15.90	0.60	14	5.953	1070	590
	.4724	1.2598	.6260	.024		15-64	2359	1301
5201T1X ※	12.000	32.000	15.90	0.60	18	4.762	865	480
	.4724	1.2598	.6260	.024		3-16	1907	1058
5202 ✳	15.000	35.000	15.90	0.60	16	5.953	1190	715
	.5906	1.3780	.6260	.024		15-64	2624	1576
5202T1X ※	15.000	35.000	15.90	0.60	18	4.762	865	480
	.5906	1.3780	.6260	.024		3-16	1907	1058
5203	17.000	40.000	17.462	0.60	18	5.556	1170	765
	.6693	1.5748	.6875	.024		7-32	2579	1687
W5203-2RS	17.000	40.000	20.638	0.60	18	5.556	1170	765
	.6693	1.5748	.8125	.024		7-32	2579	1687
5204 ✳	20.000	47.000	20.60	1.0	16	7.938	2000	1270
	.7874	1.8504	.8110	.040		5-16	1416	2800
5204ZZ	20.000	47.000	20.60	1.0	18	6.747	1620	1090
	.7874	1.8504	.8110	.040		17-64	3571	2403
5205 ✳	25.000	52.000	20.60	1.0	18	7.938	2170	1500
	.9843	2.0472	.8110	.040		5-16	4791	3307
5205T12ZZ	25.000	52.000	20.60	1.0	20	6.747	1730	1260
	.9843	2.0472	.8110	.040		17-64	3814	2778
5206 ✳	30.000	62.000	23.80	1.0	18	9.525	3000	2150
	1.1811	2.4409	.9370	.040		3-8	6615	4740
5206ZZ	30.000	62.000	23.80	1.0	18	8.731	2570	1850
	1.1811	2.4409	.9370	.040		11-32	5667	4079
5300T12 ※	10.000	35.000	19.05	0.60	14	5.953	1060	560
	.3937	1.3780	.7500	.024		15-64	2337	1235
5301	12.000	37.000	19.05	1.0	14	6.350	1210	640
	.4724	1.4567	.7500	.040		1-4	2668	1411
5302	15.000	42.000	19.05	1.0	16	6.350	1370	755
	.5906	1.6535	.7500	.040		1-4	3020	1664
5303	17.000	47.000	22.225	1.0	16	7.144	1600	955
	.6693	1.8504	.8750	.040		9-32	3527	2105
5304 ✳	20.000	52.000	22.20	1.5	14	9.525	2510	1530
	.7874	2.0472	.8740	.059		3-8	5534	3373
5304ZZ	20.000	52.000	22.20	1.5	16	7.938	2010	1300
	.7874	2.0472	.8740	.059		5-16	4432	2866
5305 ✳	25.000	62.000	25.40	1.5	14	11.112	3350	2110
	.9843	2.4409	1.000	.059		7-16	7387	4653
5305ZZ	25.000	62.000	25.40	1.5	18	8.731	2570	1850
	.9843	2.4409	1.000	.059		11-32	5667	4079

✳ Open type only.
※ Plastic cage.

ZZ.2RS types related to 52xx series available
〈Basic reference 5000, 5001, 508 series available〉

IJK

CONTROL BEARINGS
KP-A SERIES
SINGLE ROW
RADIAL TYPE



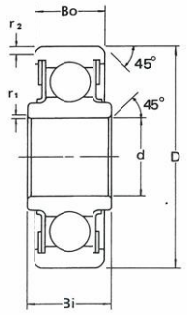
Equipped with teflon seals.

X : Non-Plated

Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bo	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL (kgf / lbf)	LIMITED LOAD RATINGS THRUST (kgf / lbf)
	+0.000 −0.013 / +.0000 −.0005	+0.000 −0.013 / +.0000 −.0005	+0.00 −0.13 / +.000 −.005	+0.00 −0.13 / +.000 −.005	+0.38 −0.00 / +.015 −.000	+0.38 −0.00 / +.015 −.000				
KP3ALX	4.826 / .1900	12.700 / .5000	6.02 / .237	4.98 / .196	0.13 / .005	0.30 / .012	11	2.381 / 3-32	440 / 970	195 / 430
KP 3AX	4.826 / .1900	15.875 / .6250	7.54 / .297	5.94 / .234	0.13 / .005	0.41 / .016	10	3.175 / 1-8	708 / 1560	318 / 700
KP 4AX	6.350 / .2500	19.050 / .7500	7.14 / .281	5.56 / .219	0.13 / .005	0.41 / .016	12	3.175 / 1-8	853 / 1880	408 / 900
KP 5AX	7.938 / .3125	20.638 / .8125	7.54 / .297	5.94 / .234	0.38 / .015	0.41 / .016	14	3.175 / 1-8	993 / 2190	454 / 1000
KP 6AX	9.525 / .3750	22.225 / .8750	7.95 / .313	6.35 / .250	0.38 / .015	0.41 / .016	16	3.175 / 1-8	1134 / 2500	499 / 1100
KP 8AX	12.700 / .5000	28.575 / 1.1250	9.52 / .375	7.95 / .313	0.38 / .015	0.41 / .016	16	3.969 / 5-32	1774 / 3910	771 / 1700
KP10AX	15.875 / .6250	34.925 / 1.3750	10.31 / .406	8.74 / .344	0.38 / .015	0.81 / .032	14	5.556 / 7-32	3039 / 6700	1361 / 3000

CONTROL BEARINGS
KP SERIES
SINGLE ROW
RADIAL TYPE



Equipped with teflon seals.

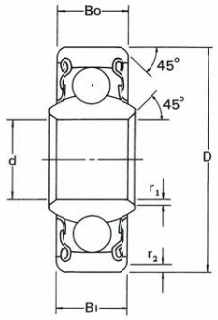
X : Non-Plated

Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bc	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL (kgf / lbf)	LIMITED LOAD RATINGS THRUST (kgf / lbf)
	+0.000 −0.013 / +.0000 −.0005	+0.000 −0.013 / +.0000 −.0005	+0.00 −0.13 / +.000 −.005	+0.00 −0.13 / +.000 −.005	+0.38 −0.00 / +.015 −.000	+0.38 −0.00 / +.015 −.000				
KP3LX	4.826 / .1900	15.875 / .6250	6.22 / .245	5.16 / .203	0.13 / .005	0.25 / .010	10	3.175 / 1-8	708 / 1560	318 / 700
KP 3X	4.826 / .1900	19.746 / .7774	7.54 / .297	6.86 / .270	0.13 / .005	0.56 / .022	12	3.175 / 1-8	853 / 1880	408 / 900
KP 4X	6.350 / .2500	22.896 / .9014	12.29 / .484	8.51 / .335	0.13 / .005	0.81 / .032	11	3.969 / 5-32	1216 / 2680	544 / 1200
KP 5X	7.938 / .3125	31.750 / 1.2500	14.17 / .558	9.52 / .375	0.38 / .015	0.81 / .032	9	6.350 / 1-4	2549 / 5620	1134 / 2500
KP 6X	9.525 / .3750	36.516 / 1.4375	15.75 / .620	11.91 / .469	0.38 / .015	0.81 / .032	10	7.144 / 9-32	3588 / 7910	1588 / 3500
KP 8X	12.700 / .5000	42.862 / 1.6875	15.75 / .620	12.70 / .500	0.38 / .015	1.12 / .044	10	9.525 / 3-8	5352 / 11800	2359 / 5200
KP10X	15.875 / .6250	49.212 / 1.9375	15.75 / .620	12.70 / .500	0.38 / .015	1.12 / .044	10	9.525 / 3-8	6396 / 14100	2812 / 6200

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CONTROL BEARINGS
KSP, KSP-A SERIES
SINGLE ROW
SELF-ALIGNING TYPE



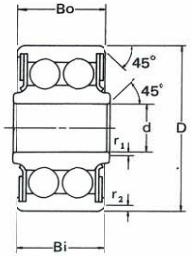
Equipped with teflon seals.

X : Non-Plated

Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bo	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL (kgf / lbf)	LIMITED LOAD RATINGS THRUST (kgf / lbf)
	+0.000 −0.013 / +.0000 −.0005	+0.000 −0.013 / +.0000 −.0005	+0.00 −0.13 / +.000 −.005	+0.00 −0.13 / +.000 −.005	+0.38 −0.00 / +.015 −.000	+0.38 −0.00 / +.015 −.000				
KSP3LX	4.826 / .1900	15.875 / .6250	6.22 / .245	5.16 / .203	0.13 / .005	0.41 / .016	13	2.381 / 3-32	249 / 550	45 / 100
KSP4AX	6.350 / .2500	19.050 / .7500	7.14 / .281	5.56 / .219	0.13 / .005	0.41 / .016	12	3.175 / -8	408 / 900	91 / 200
KSP5AX	7.938 / .3125	20.638 / .8125	7.54 / .297	5.94 / .234	0.38 / .015	0.41 / .016	14	3.175 / -8	454 / 1000	91 / 200
KSP6AX	9.525 / .3750	22.225 / .8750	7.95 / .313	6.35 / .250	0.41 / .016	0.41 / .016	15	3.175 / -8	508 / 1120	91 / 200
KSP 3X	4.826 / .1900	19.746 / .7774	7.54 / .297	6.86 / .270	0.13 / .005	0.56 / .022	12	3.175 / -8	408 / 900	91 / 200
KSP 4X	6.350 / .2500	22.896 / .9014	12.29 / .484	8.51 / .335	0.13 / .005	0.81 / .032	13	3.572 / 9-64	640 / 1410	136 / 300
KSP 5X	7.938 / .3125	31.750 / 1.2500	14.17 / .558	9.52 / .375	0.38 / .015	0.81 / .032	13	4.762 / 3-16	993 / 2190	186 / 300
KSP 6X	9.525 / .3750	36.512 / 1.4375	15.75 / .620	11.91 / .469	0.38 / .015	0.81 / .032	13	5.556 / 7-32	1352 / 2980	181 / 400
KSP 8X	12.700 / .5000	42.862 / 1.6875	15.75 / .620	12.70 / .500	0.38 / .015	1.12 / .044	16	5.556 / 7-32	1665 / 3670	227 / 500
KSP10X	15.875 / .6250	49.212 / 1.9375	20.65 / .813	15.88 / .625	0.38 / .015	1.12 / .044	14	7.144 / 9-32	2413 / 5320	272 / 600

CONTROL BEARINGS
DPP SERIES
DOUBLE ROW
RADIAL TYPE



Equipped with teflon seals.

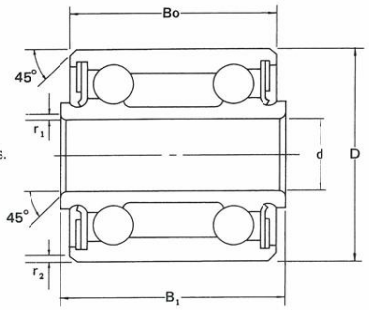
X : Non-Plated

Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bo	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL (kgf / lbf)	LIMITED LOAD RATINGS THRUST (kgf / lbf)
	+0.000 −0.013 / +.0000 −.0005	+0.000 −0.013 / +.0000 −.0005	+0.00 −0.13 / +.000 −.005	+0.00 −0.13 / +.000 −.005	−0.38 −0.00 / −.015 −.000	+0.38 −0.00 / +.015 −.000				
DPP 3X	4.826 / .1900	19.746 / .7774	12.57 / .495	12.01 / .473	0.13 / .005	0.46 / 018	20	3.969 / 5-32	1338 / 2950	771 / 1700
DPP 4X	6.350 / .2500	22.896 / .9014	15.75 / .620	12.47 / .491	0.13 / .005	0.81 / .032	22	3.969 / 5-32	2436 / 5370	816 / 1800
DPP 5X	7.938 / .3125	31.750 / 1.2500	18.92 / .745	17.45 / .687	0.38 / .015	0.81 / .032	22	5.953 / 15-64	499 / 11000	1814 / 4000
DPP 6X	9.525 / .3750	36.512 / 1.4375	22.10 / .870	20.17 / .794	0.38 / .015	0.81 / .032	20	7.144 / 9-32	7149 / 15760	2404 / 5300
DPP 8X	12.700 / .5000	42.862 / 1.6875	23.67 / .932	21.74 / .856	0.38 / .015	1.12 / .044	20	8.731 / 11-32	10705 / 23600	3538 / 7800
DPP10X	15.875 / .6250	49.212 / 1.9375	25.27 / .995	23.37 / .920	0.38 / .015	1.12 / .044	24	8.731 / 11-32	12882 / 28400	4264 / 9400

IJK

CONTROL BEARINGS
DW SERIES
DOUBLE ROW
EXTRA WIDE TYPE



Equipped with teflon seals.

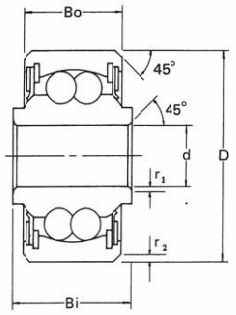
X : Non-Plated

Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bo	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL (kgf / lbf)	LIMITED LOAD RATINGS THRUST (kgf / lbf)
	+0.000 −0.013	+0.000 −0.013	+0.00 −0.13	+0.00 −0.13	+0.38 −0.00	+0.38 −0.00				
	+.0000 −.0005	+.0000 −.0005	+.000 −.005	+.000 −.005	+.015 −.000	+.015 −.000				
DW4K2X*	6.350 .2500	15.875 .6250	14.27 .562	12.70 .500	0.13 .005	0.41 .016	16	2.381 3-32	635 1400	227 500
DW4KX *	6.350 .2500	19.050 .7500	22.22 .875	19.05 .750	0.13 .005	0.41 .016	14	3.572 9-64	1256 2770	408 900
DW4X	6.350 .2500	19.050 .7500	22.22 .875	19.05 .750	0.13 .005	0.41 .016	24	3.175 1-8	1701 3750	552 1240
DW5X	7.938 .3125	22.225 .8750	23.83 .938	20.65 .813	0.13 .005	0.41 .016	26	3.572 9-64	2332 5140	726 1600
DW6X	9.525 .3750	26.988 1.0625	30.18 1.188	27.00 1.063	0.13 .005	0.41 .016	24	4.762 3-16	3828 8440	1179 2600

* Retainer type

CONTROL BEARINGS
DSP SERIES
DOUBLE ROW
SELF-ALIGNING TYPE



Equipped with teflon seals.

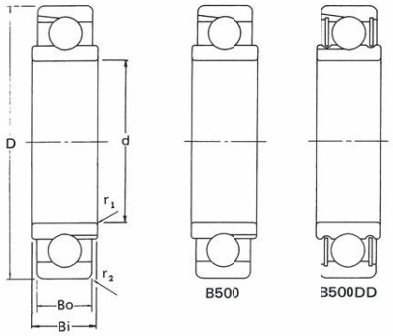
X : Non-Plated

Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bo	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL (kgf / lbf)	LIMITED LOAD RATINGS THRUST (kgf / lbf)
	+0.000 −0.013	+0.000 −0.013	+0.00 −0.13	+0.00 −0.13	+0.38 −0.00	+0.38 −0.00				
	+.0000 −.0005	+.0000 −.0005	+.000 −.005	+.000 −.005	+.015 −.000	+.015 −.000				
DSP 3X	4.826 .1900	19.746 .7774	12.70 .500	9.96 .392	0.13 .005	0.56 .022	24	3.175 1-8	644 1420	91 200
DSP 4X	6.350 .2500	22.896 .9014	17.45 .687	11.79 .464	0.13 .005	0.81 .032	30	3.175 1-8	807 1780	136 300
DSP 5X	7.938 .3125	31.750 1.2500	20.62 .812	16.66 .656	0.38 .015	0.81 .032	28	4.762 3-16	1696 3740	272 600
DSP 6X	9.525 .3750	36.512 1.4375	23.80 .937	19.05 .750	0.38 .015	0.81 .032	28	5.556 7-32	2313 5100	363 800
DSP 8X	12.700 .5000	42.862 1.6875	25.40 1.000	20.62 .812	0.38 .015	1.12 .044	30	6.350 1-4	3230 7120	454 1000
DSP10X	15.875 .6250	49.212 1.9375	28.58 1.125	23.80 .937	0.38 .015	1.12 .044	30	7.144 9-32	4082 9000	590 1300

IJK

CONTROL BEARINGS
B500, B500DD SERIES
SINGLE ROW
TORQUE TUBE TYPE



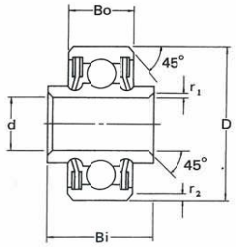
DD: Equipped with teflon coated glass fabric seals.

X : Non-Pated

Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bo	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL R (kgf / lbf)	LIMITED LOAD RATINGS THRUST T (kgf / lbf)
TYPE OPEN SEAL	+0.018 −0.018 / +.0007 −.0007	+0.000 −0.025 / +.0000 −.0010	+0.00 −0.13 / +.000 −.005	+0.00 −0.13 / +.000 −.005						
B538,B538DDX	15.875 / .6250	26.988 / 1.0625	7.14 / .281	6.35 / .250	0.38 / .015	0.38 / .015	21	3.175 / 1-8	1487 / 3280	680 / 1500
B539,B539DDX	19.050 / .7500	30.162 / 1.1875	7.14 / .281	6.35 / .250	0.38 / .015	0.38 / .015	24	3.175 / 1-8	1701 / 3750	771 / 1700
B540,B540DDX	22.225 / .8750	33.338 / 1.3125	7.14 / .281	6.35 / .250	0.38 / .015	0.38 / .015	27	3.175 / 1-8	1914 / 4220	862 / 1900
B541,B541DDX	26.988 / 1.0625	38.100 / 1.5000	7.14 / .281	6.35 / .250	0.38 / .015	0.38 / .015	32	3.175 / 1-8	2268 / 5000	998 / 2200
B542,B542DDX	33.338 / 1.3125	44.450 / 1.7500	7.14 / .281	6.35 / .250	0.38 / .015	0.38 / .015	38	3.175 / 1-8	2699 / 5950	1225 / 2700
B543,B543DDX	39.688 / 1.5625	50.800 / 2.0000	7.14 / .281	6.35 / .250	0.38 / .015	0.38 / .015	44	3.175 / 1-8	3121 / 6880	1452 / 3200

CONTROL BEARINGS
P SERIES
SINGLE ROW
RADIAL TYPE



Equipped with teflon seals.

X : Non-Plated

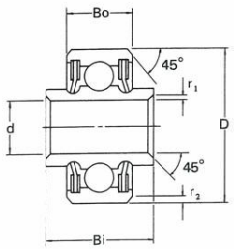
Dimensions mm / inches

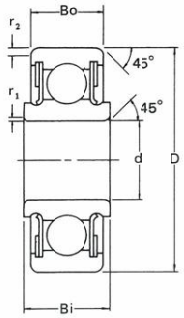
BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bo	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL (kgf / lbf)	LIMITED LOAD RATINGS THRUST (kgf / lbf)
	+0.000 −0.013 / +.0000 −.0005	+0.000 −0.013 / +.0000 −.0005	+0.00 −0.13 / +.000 −.005	+0.00 −0.13 / +.000 −.005	+0.38 −0.00 / +.015 −.000	+0.38 −0.00 / +.015 −.000				
KP3KX	4.826 / .1900	19.746 / .7774	7.54 / .297	6.86 / .270	0.13 / .005	0.61 / .024	7	3.175 / 1-8	494 / 1090	272 / 600
KP3AKX	4.826 / .1900	15.875 / .6250	7.54 / .297	5.94 / .234	0.13 / .005	0.41 / .016	8	2.381 / 3-32	320 / 705	175 / 385
KP3AK-2X	4.826 / .1900	15.875 / .6250	15.88 / .625	5.94 / .234	0.13 / .005	0.41 / .016	8	2.381 / 3-32	320 / 705	175 / 385
W4AKX	6.350 / .2500	19.050 / .7500	11.13 / .438	7.92 / .312	0.13 / .005	0.41 / .016	7	3.175 / 1-8	494 / 1090	272 / 600
KP4KX	6.350 / .2500	22.896 / .9014	12.29 / .484	8.51 / .335	0.13 / .005	0.86 / .034	7	3.969 / 5-32	776 / 1710	363 / 800

IJK

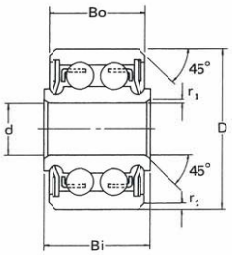
CONTROL BEARINGS
P SERIES

Equipped with teflon seals.





X : Non-Plated

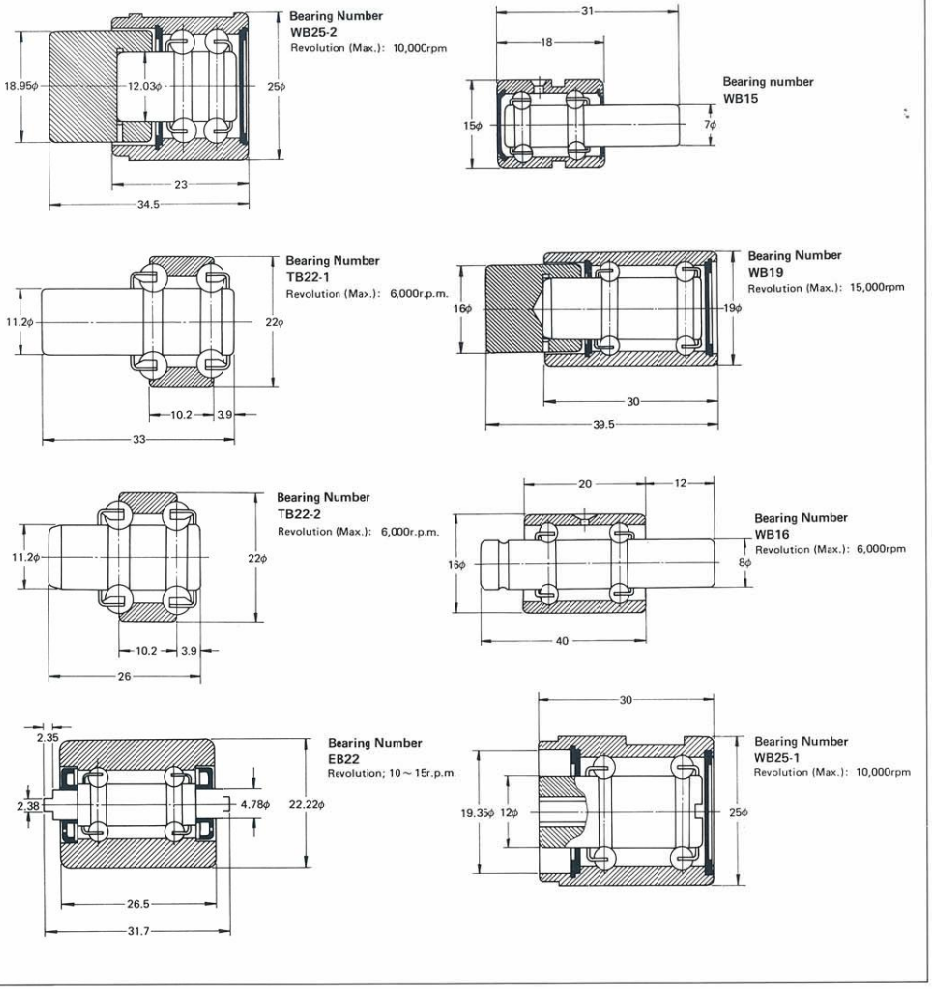


Dimensions mm / inches

BEARING NUMBER	BORE d	O.D. D	WIDTH Bi	WIDTH Bo	MINIMUM CHAMFER r1	MINIMUM CHAMFER r2	BALLS NO.	BALLS SIZE	LIMITED LOAD RATINGS RADIAL (kgf / lbf)	LIMITED LOAD RATINGS THRUST (kgf / lbf)
	+0.000 −0.013	+0.000 −0.013	+0.00 −0.13	+0.00 −0.13	+0.38 −0.00	+0.38 −0.00				
	+.0000 −.0005	+.0000 −.0005	+.000 −.005	+.000 −.005	+.015 −.000	+.015 −.000				
P 4KX	6.350	22.225	11.13	9.52	0.13	0.56	7	3.969	776	363
	.2500	.8750	.438	.375	.005	.022		5/32	1710	800
P 5KX	7.938	22.225	15.88	9.52	0.13	0.56	7	3.969	776	363
	.3125	.8750	.625	.375	.005	.022		5/32	1710	800
PD5KX	7.938	23.812	15.88	14.30	0.13	0.56	14	3.969	1551	467
	.3125	.9375	.625	.563	.005	.022		5/32	3420	1030
P 8X ✳	12.700	42.862	19.05	14.30	0.13	0.81	10	8.731	5352	2359
	.5000	1.6875	.750	.563	.005	.032		11/32	11800	5200
P10KX	15.875	30.162	11.13	9.52	0.13	0.56	10	3.969	1107	499
	.6250	1.1875	.438	.375	.005	.022		5/32	2440	1100

✳ Full complement-no cage.

SPECIAL BEARINGS
DOUBLE ROW BALL BEARINGS
FOR SPINNING MACHINE

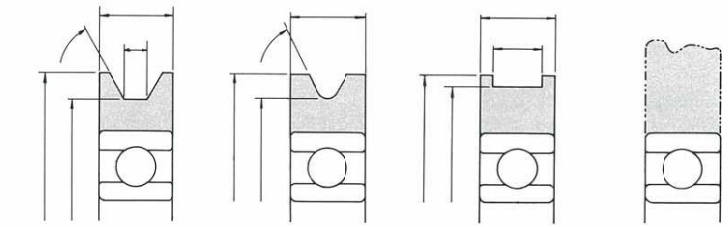


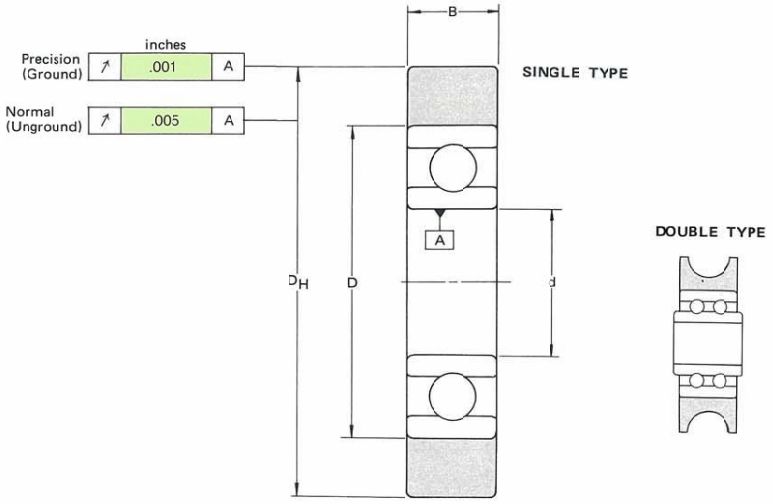
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SPECIAL BEARINGS
HOUSING TYPE BALL BEARINGS

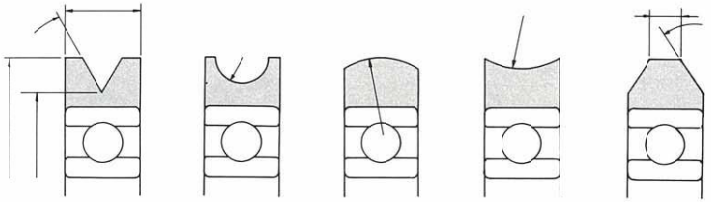
MATERIAL: HARD ANODIZED ALUMINUM, ACETAL RESIN SAE 52100 CHROME STEEL, AISI 440C STAINLESS STEEL

INSERT BEARING: SINGLE ROW BALL BEARING, DOUBLE ROW BEARING

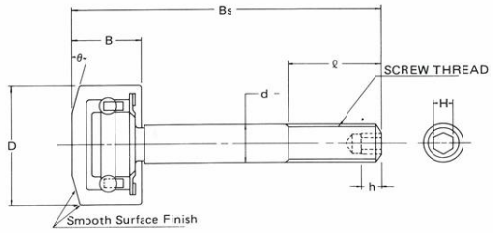




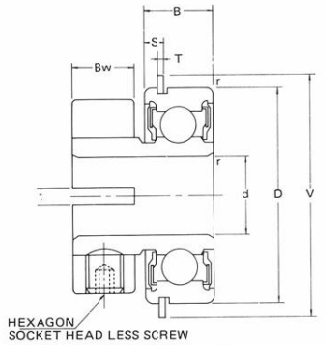
DOUBLE TYPE



CARRIER ROLL BEARING WITH THREADED STUD

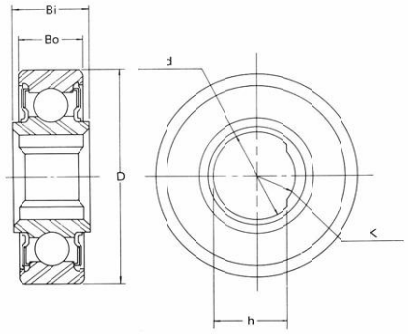


POWER TRANSMISSION TYPE BALL BEARING

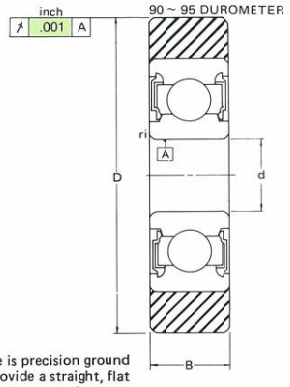


A cup-point, hexagon socket type set screw lock the collar to the shaft.

SPECIAL HOLE TYPE BALL BEARING

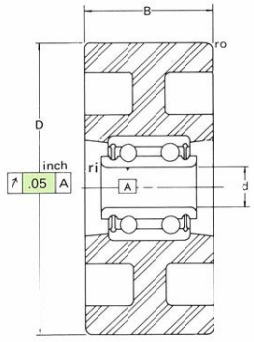


DRIVE ROLLS BEARING



The Urethane tire is precision ground on the O.D. to provide a straight, flat and true running contact surface.

IDLER BEARING



IJK

MATERIAL

As regard the material of bearings, JIS G4805 High Carbon Chromium Bearing Steel Class 2 (SUJ2) is in general use, but where corrosion resistance is required, JIS G4303 Stainless Steel Bar Class 440 (SUS 440C) which belongs to martensite type stainless steel used.

Table 1 Composition of bearing material

Kind of steel	Symbol	Chemical composition							Similar steel
		C	Si	Mn	P	S	Cr	Mo	
High Carbon Chromium Bearing Steel Class 2	SUJ 2	0.95 ~ 1.10	0.15 ~ 0.35	Max. 0.50	Max. 0.025	Max. 0.025	1.30 ~ 1.60	—	AISI 52100
Stainless Steel Bar Class 440	SUS 440C	0.95 ~ 1.20	Max. 1.00	Max. 1.00	Max. 0.040	Max. 0.030	16.00~ 18.00	Max. 0.75	AISI 440C

TOLERANCE

The bearings, which are important mechanical elements are used for every machinery, have internationally standardized: ISA, ISO.
The countries of the world have the standards of the bearings:
JIS (JAPAN), ANSI/AFBMA (U.S.A.), DIN (Germany), BS (England)
IJK have applied AFBMA STANDARDS.

AFBMA STANDARDS NO. 20
(METORIC BALL AND ROLLER BEARINGS)

AFBMA STANDARDS NO. 12
(INSTRUMENT BALL BEARINGS)

→ ABEC 1 – ABEC 7
ABEC 3 – ABEC 7P, ABEC 7T

Selection of Tolerance

Tolerance class of bearings is designated according to application.

Table 2 Selection of tolerance class

Place of application	Tolerance class
Electric motor, generator, servomechanism, cam mechanism, pinch roller, servomotor, low sensitivity synchro, etc.	ABEC 1, ABEC 3,
Gyro gimbals & rotor, high sensitivity synchro, servomotor, resolver, potentiometer, high frequency spindle, etc.	ABEC 5P, ABEC 7P,

INTERNAL CLEARANCE

The internal clearance of bearing has a considerable affect upon the life, generat on of heat, and noise of the bearing; Accordingly, it is important to select clearance most suitable for the working conditions.
To determine the clearance of bearings, the following should be taken into account.
Decrease of the clearance by fitting.
Decrease of the clearance by the difference of temperature of the inner and outer rings.
The most suitable operating clearance.

IJK Tolerance Limits are shown in the following table. (Table 3 ~ Table 8)
(AFBMA Tolerance Limits ..... See Table 9)

Table 3 Radial Internal Clearance in Single Row Deep Groove Ball Bearings under No Load

Values in 0.001 mm

Nominal Bore Diameter d mm		Radial Internal Clearance							
		C2		Normal		C3		C4	
Over	Incl	Low	High	Low	High	Low	High	Low	High
(10mm only*)		—	7	2	13	8	23	14	29
10	18	—	9	3	18	11	25	18	33
18	24	—	10	5	20	13	28	20	36
24	30	—	11	5	20	13	28	23	41
30	40	—	11	6	20	15	33	28	46
40	50	—	11	6	23	18	36	30	51
50	65	—	15	8	28	23	43	38	61

Values in 0.0001 inch

Nominal Bore Diameter d inch		Radial Internal Clearance							
		C2		Normal		C3		C4	
Over	Incl	Low	High	Low	High	Low	High	Low	High
(0.3937 inch only*)		—	2.8	0.8	5.1	3.1	9.1	5.5	11.4
0.3937	0.7087	—	3.5	1.2	7.1	4.3	9.8	7.1	13.0
0.7087	0.9449	—	3.9	2.0	7.9	5.1	11.0	7.9	14.2
0.9449	2.1811	—	4.3	2.0	7.9	5.1	11.0	9.1	16.1
1.1811	1.5748	—	4.3	2.4	7.9	5.9	13.0	11.0	18.1
1.5748	1.9685	—	4.3	2.4	9.1	7.1	14.2	11.8	20.1
1.9685	2.5591	—	5.9	3.1	11.0	9.1	16.9	15.0	24.0

IJK

Table 4 Radial Internal Clearance in Extra Small and Miniature Ball Bearings under No Load

Values in 0.001 mm

Clearance Symbols	MC1		MC2		MC3		MC4		MC5		MC6	
Radial Internal Clearance	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
	0	5	3	8	5	10	8	13	13	20	20	28

Nominal Bore Diameter d<10mm(0.3937 inch)

Values in 0.0001 inch

Clearance Symbols	MC1		MC2		MC3		MC4		MC5		MC6	
Radial Internal Clearance	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
	0	2.0	1.2	3.1	2.0	3.9	3.1	5.1	5.1	7.9	7.9	11.0

Table 5 Radial Internal Clearances in Magneto Bearings under No Load

Nominal Bore Diameter d				Radial Internal Clearance			
mm		inch		Values in 0.001 mm		Values in 0.0001 inch	
Over	Incl	Over	Incl	Low	High	Low	High
2.5	30	0.0984	1.1811	30	60	11.8	23.6

Table 6 Radial Internal Clearances of Deep Groove Ball Bearings for Electric Motors

Nominal Bore Diameter d				Radial Internal Clearance CM			
mm		inch		Values in 0.001 mm		Values in 0.0001 inch	
Over	Incl	Over	Incl	Low	High	Low	High
(d=)	10	(d=)	0.3937	4	11	1.6	4.3
10	18	0.3937	0.7087	4	11	1.6	4.3
18	30	0.7087	1.1811	5	12	2.0	4.7
30	50	1.1811	1.9685	9	17	3.5	6.7

Table 7 Radial Internal Clearances in Self-Aligning Ball Bearings with Cylindrical Bore under No Load

Values in 0.001 mm

Nominal Bore Diameter d mm		Radial Internal Clearance							
		C2		Normal		C3		C4	
Over	Inch	Low	High	Low	High	Low	High	Low	High
2.5	6	1	5	5	10	10	15	15	21
6	10	2	6	6	12	12	19	19	27
10	14	2	6	6	13	13	21	21	30
14	18	3	8	8	15	15	23	23	32
18	24	4	10	10	17	17	25	25	34
24	30	5	11	11	19	19	29	29	40
30	40	6	13	13	23	23	34	34	46
40	50	6	14	14	25	25	37	37	50
50	65	7	16	16	30	30	45	45	65

Values in 0.001 inch

Nominal Bore Diameter d inch		Radial Internal Clearance							
		C2		Normal		C3		C4	
Over	Incl	Low	High	Low	High	Low	High	Low	High
0.0984	0.2362	0.4	2.0	2.0	3.9	3.9	5.9	5.9	8.3
0.2362	0.3937	0.8	2.4	2.4	4.7	4.7	7.5	7.5	10.6
0.3937	0.5512	0.8	2.4	2.4	5.1	5.1	8.3	8.3	11.8
0.5512	0.7087	1.2	3.1	3.1	5.9	5.9	9.1	9.1	12.6
0.7087	0.9449	1.6	3.9	3.9	6.7	6.7	9.8	9.8	13.4
0.9449	1.1811	2.0	4.3	4.3	7.5	7.5	11.4	11.4	15.7
1.1811	1.5748	2.4	5.1	5.1	9.1	9.1	13.4	13.4	18.1
1.5748	1.9685	2.4	5.5	5.5	9.8	9.8	14.6	14.6	19.7
1.9685	2.5591	2.8	6.3	6.3	11.3	11.8	17.7	17.7	25.6
2.5591	3.1496	3.1	7.1	7.1	13.3	13.8	21.3	21.3	29.9
3.1496	3.9370	3.5	8.7	8.7	16.5	16.5	25.2	25.2	35.0
3.9370	4.7244	3.9	9.8	9.8	19.7	19.7	29.5	29.5	41.3

Table 8 Axial Internal Clearances in Double Row Angular Contact Ball Bearings under No Load

Values in 0.001 mm

Nominal Bore Diameter d mm		Axial Internal Clearance					
		C2		Normal		C3	
Over	Incl	Low	High	Low	High	Low	High
—	10	0	6	4	11	11	18
10	18	0	6	4	14	14	24
18	24	0	8	6	16	16	27
24	30	0	8	6	17	17	28
30	40	0	9	7	18	18	29
40	50	0	10	9	20	20	32

Values in 0.0001 inch

Nominal Bore Diameter d inch		Axial Internal Clearance					
		C2		Normal		C3	
Over	Incl	Low	High	Low	High	Low	High
—	0.3937	0	2.4	1.6	4.3	4.3	7.1
0.3937	0.7087	0	2.4	1.6	5.5	5.5	9.4
0.7087	0.9449	0	3.1	2.4	6.3	6.3	10.6
0.9449	1.1811	0	3.1	2.4	6.7	6.7	11.0
1.1811	1.5748	0	3.5	2.8	7.1	7.1	11.4
1.5748	1.9685	0	3.9	3.5	7.9	7.9	12.6

Table 9 Radial Intarnal Clearances, Single Row, Radial Contact, Ball Bearings.
(AFBMA STANDARD NO. 20 – 1977)

Tolerance Limits for Radial Internal Clearance of Single Row, Radial Contact Ball Bearings under no load

(Applicable to Bearings of ABEC 1, ABEC 5, ABEC 7 and ABEC 9 Tolerance Classes)

TOLERANCE LIMITS IN 0.0001 INCH

BASIC BORE DIAMETER d mm		SYMBOL 2(1)				SYMBOL 0(1) (Normal)				SYMBOL 3(1)				SYMBOL 4(1)			
		Acceptance Limits				Acceptance Limits				Acceptance Limits				Acceptance Limits			
			Mfg. Limits				Mfg. Limits				Mfg. Limits				Mfg. Limits		
Over	Incl.	Low	Low	High	High	Low	Low	High	High	Low	Low	High	High	Low	Low	High	High
2.5	10	–	–	2.5	3.0	1	1.5	4.5	5	3	4	8	9				
10	18	–	–	3.0	3.5	1	2	6	7	4	5	9	10	7	8	12	13
18	24	–	–	3.5	4.0	2	3	7	8	5	6	10	11	8	9	13	14
24	30	–	–	4	4.5	2	3	7	8	5	6	10	11	9	10	15	16
30	40	–	–	4	4.5	2	3	7	8	5	6	10	11	9	10	15	16
40	50	–	–	4	4.5	2	3	8	9	7	8	13	14	12	13	19	20
50	65	–	1	5	6	3	4	10	11	9	10	16	17	15	16	23	24
65	80	–	1	5	6	4	5	11	12	10	11	19	20	18	19	27	28
80	100	–	1	6	7	5	6	13	14	12	13	22	23	21	22	32	33
100	120	–	1	7	8	6	7	15	16	14	15	25	26	24	25	37	38
120	140	–	1	8	9	7	8	18	19	16	18	30	32	28	30	43	45
140	160	–	1	8	9	7	8	20	21	18	20	34	36	32	34	49	51
160	180	–	1	9	10	8	9	23	24	21	23	38	40	36	38	55	58
180	200	–	1	11	12	10	11	27	28	25	27	44	46	42	44	62	64

(1) These symbols relate to the Identification Code.

LUBRICANT CODE TABLE

The standard lubrication for IJK BALL BEARINGS is NS7; however, many other types of lubricants may be supplied. A number of other standard and acceptable lubricants are shown in the following table.

COMMON OILS AND GREASES

NAME		MANU-FACTURE	U.S.A. MIL SPEC.	IJK CODE	OPERATING TEMFERATURE RANGE (°F)	THICKNNER TYPE	LUBRICANT BASE
Aero Shell Fluid	3	Shell	MIL-L-7870A	AF3	–70 ~ +240	–	Petroleum
Aero Shell Fluid	12	Shell	MIL-L-6085A	AF2	–65 ~ +250	–	Diester
Anderol	L-401D	Teneco	MIL-L-6085A	A4D	–75 ~ +260	–	Diester
Aero Shell Grease	6	Shell	MIL-G-7711A	AG2	–40 ~ +250	Non-soap	Mineral
Aero Shell Grease	5	Shell	MIL-G-3545C	AG3	–40 ~ +350	Non-soap	Mineral
Aero Shell Grease	14	Shell	MIL-G-255374	AG4	–65 ~ +250	Ca	Mineral
Aero Shell Grease	15A	Shell	MIL-G-25013D	AG5	–100 ~ +500	Non-soap	Silicon
Aero Shell Grease	16	Shell	MIL-G-25760A	AG6		Non-soap	Diester
Aero Shell Grease	22	Shell	MIL-G-81322A	A22		Non-soap	Diester
Alvania No. 1		Shell		AV1	–15 ~ +250	Li	Mineral
Alvania No. 2		Shell		AV2	–15 ~ +250	Li	Mineral
Alvania No. 3		Shell		AV3	–15 ~ +280	Li	Mineral
Alvania RA		Shell		AVR	–40 ~ +280	Li	Mineral
Aero Shell Grease	17	Shell	MIL-G-21164C	AG8	–100 ~ +300	Microgel	Diester
Alvania EP Grease	2	Shell	MIL-G-21164C	AP2	0 ~ +230	Li	Mineral
Andok B		Esso	MIL-G-18709A	AKB	–40 ~ +250	Na	Mineral
Andok C		Esso		AKC	0 ~ +250	Na	Mineral
Andok 260		Esso	MIL-G-35453	AK2	0 ~ +300	Na	Mineral
Anderol L-793A		Teneco	MIL-G-3278A	AL7	–75 ~ +300	Na	Diester
Texaco Regal AFB2		Texaco		AB2		Li	Mineral
Beacon 325		Esso	MIL-G-3278A	B32	–65 ~ +250	Li	Diester
Tore Silicon SH331		Tore	MIL-S-27875	D31	–100 ~ +350	–	–
Dow Corning DC44		Dow	MIL-G-15719A	D4F	–40 ~ +400	Li	Silicon
Dow Corning DC55		Dow	MIL-G-4343A	D5M	–65 ~ +325	Li	Silicon
Tore silicon SH44M		Tore		D4M	–40 ~ +400	Li	Silicon
Krytox 240 AB		Dupont	MIL-G-38220	KAB	–40 ~ +400	Fluorotelomer	Fluorinated
Krytox 240 AC		Dupont	MIL-G-27617A	KAC		Fluorotelomer	Fluorinated
Krytox 240 AD		Dupont	MIL-G-27617A	KAD		Fluorotelomer	Fluorinated
Krytox 283 AC		Dupont	MIL-G-27617A	K3C		Fluorotelomer	Fluorinated
Krytox 280 AC		Dupont	MIL-G-27617A	K0C		Fluorotelomer	Fluorinated
Mobil 28		Mobil	MIL-G-81322A	MG2	–65 ~ +350	Non-soap	Synthetic
NS High Lube		Kyodo Ushi		NS7	–40 ~ +260	Li	Diester
Martemp PS No. 1		Mobil		PS1		Li	Diester
Martemp PS No. 2		Mobil		PS2	–40 ~ +230	Li	Diester
Martemp PS No. 3		Mobil		PS3		Li	Diester
Martemp PS 2A		Mobil		PSA		Li	Diester
Univis P-38		Esso	MIL-L-6085A	P38		–	–
Caltex RPM BRB-2		Caltex	MIL-G-3545B	RB2		Non-soap	Mineral
Caltex Aviation 33		Caltex	MIL-G-3545B	RP3		Non-soap	Mineral
Caltex RPM SRI 2		Caltex		SRI		Non-soap	Mineral
Molykote EP		Dow		MEP		Li	Mineral

IJK

TORQUE

Standard Torque Unit — The standard units of torque shall be the milligram-force millimeter. Convenient multiples thereof may also be used (1gram-force centimeter = 10,000 milligram force millimeter). Ref. AFBMA STANDARD NO. 12 – 1969 TABLE 9. (STARTING TORQUE VALUES FOR INSTRUMENT BALL BEARINGS)

VIBRATION (NOISE GRADE CODE)

One basis for quality ball bearings is the degree of quietness with which they operate. Higher grade bearings receive an ANDEROMETER Test or IJK-developed "VMC" to check noise level and nature of sound. The operator observes vibration noise level readings visually on dial level meter or osciloscope.

Grade N = Commercial grade.
EM = Indicates very low noise-leveled bearings for electric moter quality.
EMR = Best quality

SPECIAL REQUIREMENTS

- CHAMFERS
- FACE CONDITIONS
- SURFACE CONDITIONS
- PLATING
- WIDTH
- MATERIAL
- HEAT STABILIZATION

Please consult with your IJK sales engineer or contact the factory in Japan for information on many special sizes not listed in the catalog.

NUMBERING SYSTEM

DEEP GROOVE BALL BEARINGS

Typical Call-Out	S	F	R4	E	J	ZZ	EM	5	K25	B32-L	Q15
	Material	Flange	Basic Number	Special Feature	Retainer Type	Closures	Vibration Spec.	Tolerance	Radial Clearance	Lubrication	Torque Spec.
Code Positions	1	2	3	4	5	6	7	8	9	10	11

EXAMPLES: SFR4EZZEM5K25B32Q15

1	S = AISI 440C Stainless Steel OMITTED = SAE 52100 Chrome Steel
2	F = Flanged
3	Basic Number
4	E = Extended Inner Ring NW = Narrower Than Standard Width W = Wider Than Standard Width
5	J = Two Piece Ribbon Crimped (Omitted) TD = Delrin Crown — TG = Teflon Slugs TN = Nylon Crown — TP = Phenol Crown
6	Z1 = Shield on Flanged Side, — RS = 1 Rubber Seal Molded Steel. Z2 = Shield Opposite Flange, — 2RS = 2 Rubber Seal Molded Steel. Z = 1 Shield, ZZ = 2 Shield, — T = 1 Teflon Seal Grass-Reinforced ZS = 1 Shield, Removable — TT = 2 Teflon Seal Grass-Reinforced ZZS = 2 Shield, Removable
7	N = Commercial Grade EM = High Grade (General Motor Grade) EMR = Higher Grade Than EM (Precision Motor Grade)
8	1 = ABEC 1, 3 = ABEC 3, 5 = ABEC 5, 7 = ABEC 7
9	K Followed by Last Degit of Each Limit. EXAMPLE .0002 to .0005 = K25 (inches) .0002 to .0008 = K25 IJK Standard. → Table 3 ~ Table 8 — See clearance Symbols AFBMA Standard → Table 9
10	AF2 = ASF12 (MIL-L-6085A) — Amount of Grease (%) AK2 = ANDOK 260 (MIL-G-3545E) — L = Light B32 = BEACON 325 (MIL-G-3278A) — M = Medium NS7 = NS High Lube — F = Full PS2 = Maltemp PS No. 2
11	Q Followed by a Number Indicates Peak Starting Torque Limit in Hundred of mg.mm. for Example "Q15" Indicates a Bearing with Less Than 1500 mg. mm. Peak Starting Torque.

IJK

TOLERANCES

ABEC standards for dimensional tolerances and terminology have been established by the Anti Friction Bearing Manufacturers Association. These are shown in the tables below. Tolerances are in .0001".

	BORE DIAMETER				Bore Tolerance +0		Radial Runout		Width Tolerance +0	
	mm		inch		ABEC 3	ABEC 1	ABEC 3	ABEC 1	ABEC 3	ABEC 1
INNER RING	Over	Incl	Over	Incl						
	0	10	0	0.3937	−2	−3	2	3	−50	−50
	10	18	0.3937	0.7087	−2	−3	3	4	−50	−50
	18	30	0.7087	1.1811	−2	−4	3	5	−50	−50

ABEC 3-ABEC 1

	OUTSIDE DIAMETER				Outside Diameter Tolerance Limits +0		Radial Runout		Width Tolerances +0		Flange Width Tolerance Limits +0		Flange Diameter Tolerance Limits −50	
	mm		inch											
OUTER RING	Over	Incl	Over	Incl	ABEC 3	ABEC 1	ABEC 3	ABEC 1	ABEC 3	ABEC 1	ABEC 3	ABEC 1	ABEC 3	ABEC 1
	0	18	0	0.7087	−3	−3	4	6	−50	−50	−20		−20	
	18	30	0.7087	1.1811	−3	−4	4	6	−50	−50	−20		−20	
	30	50	1.1811	1.9685	−3	−5	4	8	−50	−50	−20		−20	

	BORE DIAMTER				Bore Tolerance +0		Radial Runout (Max.)		Width Variation (Max.)						Width Toerances +0		Bore 2 point Out-of-Round (Max.)		Bore Taper (Max.)	
	mm		inch		ABEC	ABEC	ABEC	ABEC	AEEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	AEEC	ABEC	ABEC	ABEC	ABEC
INNER RING	Over	Incl	Over	Inc	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P
	0	10	0	0.3937	−2	−2	1.0	1.5	1	2	1.0	3	1.0	3	−10	−10	1	1	1	1
	10	18	0.3937	0.7087	−2	−2	1.0	1.5	1	2	1.0	3	1.0	3	−10	−10	1	1	1	1
	18	30	0.7087	1.1811	−2	−2	1.5	1.5	1	2	1.5	3	1.5	3	−10	−10	1	1	1	1

ABEC 7P-ABEC 5P

	OUTSIDE DIAMETER				O.D. Tolerance +0		Radial Runout (Max.)		Width Variation (Max.)		Outside Cylindrical Surface Runout with Reference Side (Max.)		Groove Runout with Reference Side (Max.)		Width Tolerances +0		Flange Width Tolerance Limits +0		Flange Diameter Tolerance Limits +0		O.D. 2 Point Out-of-Reund (Max.)		Outside Diameter Taper (Max.)	
	mm		inch		ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC
OUTER RING	Over	Incl	Over	Incl	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P	7P	5P
	18	30	0.7087	1.1811	−2	−2	1.5	2	1	2	1.5	3	2	3	−10	−10	−20	−20	−10	−10	1	1	1	1
	0	18	0	0.7087	−2	−2	1.5	2	1	2	1.5	3	2	3	−10	−10	−20	−20	−10	−10	1	1	1	1
	30	50	1.1811	1.9685	−2	−2	1.2	2	1	2	1.5	3	2	3	−10	−10	−20	−20	−10	−10	1	1	1	1

	BORE DIAMETER d				BORE TOLERANCE LIMITS(S)						Radial Runout	Width Variation	Bore Runout With Refrence Side	Raceway Runout with Reference Side
	mm		inch		dm		Torque Tube Type		Extra Thin Section					
INNER RING	Over	Incl	Over	Incl	Low	High	dmin	dmax	dmin	dmax	Max	Max.	Max.	Max. Max
	13	18	.5118	.7087	−2	+0	−3	+1	−3	+1	2	2	3	3
	18	30	.7087	1.1811	−2	+0	−3	+1	−4	+2	2	2	3	3
	30	45	1.1811	1.7717	−3	+0	−4	+1	−6	+3	3	2	3	3

ABEC 5T

	OUTSIDE DIAMETER D				OUTSIDE DIAMETER TOLERANCE LIMITS (2)										Radial Runout	Width Variation	Outside Cylindrical Surface Runout with Reference Side	Raceway Runout with Reference Side
					Dm		Open Type Bearings				Shielded or Sealed Bearings							
							Torque Tube Type		Extra Thin Section		Torque Tube Type		Extra Thin Section					
OUTER RING	mm		inch															
	Over	Incl	Over	Incl	High	Low	Dmax	Dmin	Dmax	Dmin	Dmax	Dmin	Dmax	Dmin	Max	Max.	Max.	Max.
	18	28	.7087	1.1024	+0	−2	+1	−3	+1	−3	+2	−4	+2	−4	2	2	3	3
	28	50	1.1024	1.9685	+0	−4	+1	−5	+3	−7	+2	−6	+4	−8	3	2	3	3
	50	80	1.9685	3.1496	+0	−4	+1	−5	+4	−8	+2	−6	+5	−9	3	2	3	4

	BORE DIAMTER d				BORE TOLERANCE LIMITS(1)						Radial Runout	Width Variation	Bore Runout with Reference Side	Raceway Runout with Reference Side
	mm		inch		dm		Torque Tube Type		Extra Thin Section					
INNER RING	Over	Incl	Over	Incl	Low	High	dmin	dmax	dmin	dmax	Max.	Max.	M a x.	Max.
	13	18	.5118	.7087	−2	+0	−2	+0	−2	+0	1	1	1	1
	18	30	.7087	1.1811	−2	+0	−2.5	+0.5	−3	+1	1.5	1	1.5	1.5
	30	45	1.1811	1.7717	−2	+0	−3	+1	−4	+2	1.5	1	1.5	1.5

ABEC 7T

	OUTSIDE DIAMETER D					OUTSIDE DIAMETER TOLERANCE LIMITS(2)							Radial Runout	Width Variation	Outside Cylindrical Surface Runout with Reference Side	Raceway Runout with Reference Side
						Open Type Bearings				Shielddo or Sealed Bearings						
					Dm	Torque Tube Type		Extra Thin Section		Torque Tube Type		Extra Thin Section				
OUTER RING	mm		inch													
	Over	Incl	Over	Incl	High	Low	Dmax	Dmin	Dmax	Dmin	Dmax	Dmin	Dmax	Dmin	Max	Max.	Max.	Max.
	18	28	.7087	1.1024	+0	−2	+0	−2	+0	−2	+1	−3	+1	−3	1.5	1	1.5	2
	28	50	1.1024	1.9685	+0	−2	+1	−3	+2	−4	+2	−4	+3	−5	2	1	1.5	2
	50	80	1.9685	3.1496	+0	−3	+1	−4	+3	−6	+2	−5	+4	−7	2	1.5	1.5	3

ABEC 5T ABEC 7T	Bore Inner Ring Bore				Bearings Other Than Duplex				Duplex Bearings			
					Width of Incividual Inner or Outer Ring				Total Width of a Pair of Inner or Outer Rings			
	mm		inch		HIGH		LOW		HIGH		LOW	
TOLERANCE LIMITS	Over	Incl	Over	Incl	ABEC 5T	ABEC 7T	ABEC 5T	ABEC 7T	ABEC 5T	ABEC 7T	ABEC 5T	ABEC 7T
	0	30	0	1.1811	+0	+0	−10	−10	+0	+0	−50	−150
	30	80	1.1811	3.1496	+0	+0	−50	−10	+0	+0	−200	−150

(1) $\frac{d\ max+d\ min}{2}$ must be with dm. (2) $\frac{D\ max+D\ min}{2}$ must be with n dm.



Tondabayashi Plant