



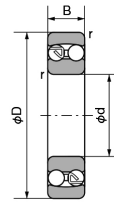
Self Aligning Ball Bearings:

Self-aligning ball bearings have two rows of balls, a common spherical raceway in the outer ring and two deep uninterrupted raceway grooves in the inner ring. Therefore, the axis of the inner ring, balls, and cage can deflect to some extent around the bearing center.

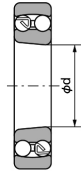
The bearings are insensitive to angular misalignment of the shaft and housing caused by machining or mounting error is automatically corrected. Under normal loads, depending on the dimensional series, the maximum permissible angular misalignment is approximately 2 to 4 degrees.

BMD produces a wide range of Self Aligning Ball Bearings in both Cylindrical Bore and Tapered Bore.

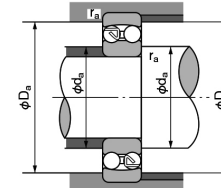
Suffix and Corresponding Description For Self Aligning Ball Bearing	
Suffix	Description of Suffix
K	Taper Bore
No Symbol	Steel Cage
No Symbol	(CN) Normal Internal Clearance
C3	Radial Internal Clearance C3 (Clearance Larger than Normal)
No Symbol	ISO Normal
P6	ISO Class 6
P5	ISO Class 5
P4	ISO Class 4
P2	ISO Class 2



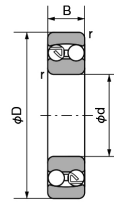
Cylindrical bore



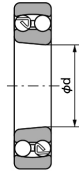
Tapered bore (Taper: 1/12)



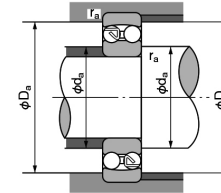
Boundary Dimensions					Basic Load Rating		Limiting Speed		Bearing Designation	Axial Load Factor	Constant e	Abutment and Fillet Dimensions			Mass Approx			
(mm)					(KN)		(rpm)					(mm)			(kg)			
d	D	B	B ₁	r (min)	Cr	Cor	Grease	Oil	Cylindrical Bore	Tapered Bore	Y ₁	Y ₂	Y ₀	d _a (min)	D _a (max)	r _a (max)	(Reference) Cylindrical Bore	
10	30	9	-	0.6	5.50	1.20	23000	28000										1200
10	30	14	-	0.6	7.40	1.60	23000	29000	2200	-	1.07	1.65	1.12	0.59	14	26	0.6	0.047
12	32	10	-	0.6	5.60	1.25	21000	26000	1201	-	1.89	2.93	1.98	0.33	16	28	0.6	0.04
12	32	14	-	0.6	7.65	1.75	21000	26000	2201	-	1.18	1.83	1.24	0.53	16	28	0.6	0.053
12	37	12	-	1	9.40	2.15	18000	22000	1301	-	1.77	2.74	1.86	0.36	17	32	1	0.067
12	37	17	-	1	9.70	2.30	16000	22000	2301	-	1.17	1.81	1.23	0.54	17	32	1	0.095
15	35	11	-	0.6	7.45	1.75	18000	22000	1202	-	1.9	2.95	2	0.33	19	31	0.6	0.049
15	35	14	-	0.6	7.70	1.85	18000	22000	2202	-	1.27	1.97	1.33	0.5	19	31	0.6	0.06
15	42	13	-	1	9.55	2.30	16000	20000	1302	-	1.86	2.88	1.95	0.34	20	37	1	0.094
15	42	17	-	1	12.10	2.90	14000	20000	2302	-	1.27	1.96	1.33	0.5	20	37	1	0.114
17	40	12	-	0.6	7.90	2.00	16000	20000	1203	-	2.03	3.14	2.12	0.31	21	36	0.6	0.073
17	40	16	-	0.6	9.80	2.40	16000	20000	2203	-	1.27	1.96	1.33	0.5	21	36	0.6	0.088
17	47	14	-	1	12.50	3.20	14000	17000	1303	-	1.92	2.97	2.01	0.33	22	42	1	0.13
17	47	19	-	1	14.50	3.60	13000	18000	2303	-	1.28	1.98	1.34	0.49	22	42	1	0.158
20	47	14	-	1	9.90	2.60	14000	17000	1204	1204K	2.16	3.35	2.27	0.29	25	42	1	0.12
20	47	18	-	1	12.60	3.30	14000	17000	2204	2204K	1.31	2.02	1.37	0.48	25	42	1	0.14
20	52	15	-	1.1	12.40	3.30	13000	15000	1304	1304K	2.12	3.28	2.22	0.3	26.5	45.5	1	0.163
20	52	21	-	1.1	18.00	4.70	11000	15000	2304	2304K	1.29	2	1.35	0.49	26.5	45.5	1	0.209
25	52	15	-	1	12.10	3.30	12000	14000	1205	1205K	2.28	3.52	2.39	0.28	30	47	1	0.141
25	52	18	-	1	12.60	3.30	12000	15000	2205	2205K	1.58	2.45	1.66	0.4	30	47	1	0.163
25	62	17	-	1.1	18.00	5.00	9900	12000	1305	1305K	2.31	3.57	2.42	0.27	31.5	55.5	1	0.257
25	62	24	-	1.1	24.40	6.60	9400	13000	2305	2305K	1.36	2.1	1.42	0.46	31.5	55.5	1	0.335
30	62	16	-	1	15.60	4.65	9900	12000	1206	1206K	2.55	3.94	2.67	0.25	35	57	1	0.22
30	62	20	-	1	15.60	4.65	10000	12000	2206	2206K	1.79	2.77	1.87	0.35	35	57	1	0.26
30	72	19	-	1.1	21.30	6.30	8700	11000	1306	1306K	2.4	3.72	2.52	0.26	36.5	65.5	1	0.387
30	72	27	-	1.1	31.40	8.75	8000	11000	2306	2306K	1.44	2.23	1.51	0.44	36.5	65.5	1	0.5
35	72	17	-	1.1	15.80	5.10	8500	10000	1207	1207K	2.71	4.2	2.84	0.23	41.5	65.5	1	0.323
35	72	23	-	1.1	21.60	6.60	8500	10000	2207	2207K	1.71	2.65	1.79	0.37	41.5	65.5	1	0.403
35	80	21	-	1.5	25.10	7.85	7600	9300	1307	1307K	2.48	3.84	2.6	0.25	43	72	1.5	0.51
35	80	31	-	1.5	39.40	11.30	7100	9800	2307	2307K	1.39	2.15	1.46	0.45	43	72	1.5	0.675



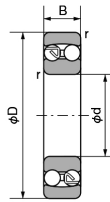
Cylindrical bore



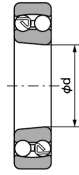
Tapered bore (Taper: 1/12)



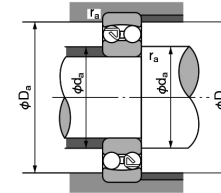
Boundary Dimensions					Basic Load Rating		Limiting Speed		Bearing Designation	Axial Load Factor				Constant e	Abutment and Fillet Dimensions			Mass Approx
(mm)					(KN)		(rpm)		Cylindrical Bore	(mm)			(mm)			(kg)		
d	D	B	B ₁	r (min)	Cr	Cor	Grease	Oil		Tapered Bore	Y ₁	Y ₂	Y ₀		d _a (min)	D _a (max)	r _a (max)	(Reference) Cylindrical Bore
40	80	18	-	1.1	19.20	6.50	7500	9200	1208	1208K	2.83	4.38	2.97	0.22	46.5	73.5	1	0.417
40	80	23	-	1.1	22.40	7.40	7600	9300	2208	2208K	1.92	2.96	2.01	0.33	46.5	73.5	1	0.505
40	90	23	-	1.5	29.50	9.70	6900	8400	1308	1308K	2.57	3.98	2.69	0.25	48	82	1.5	0.715
40	90	33	-	1.5	44.90	13.50	6200	8600	2308	2308K	1.47	2.27	1.54	0.43	48	82	1.5	0.925
45	85	19	-	1.1	21.80	7.35	7000	8500	1209	1209K	2.94	4.56	3.09	0.21	51.5	78.5	1	0.465
45	85	23	-	1.1	23.30	8.15	7000	8500	2209	2209K	2.09	3.23	2.19	0.3	51.5	78.5	1	0.545
45	100	25	-	1.5	38.10	12.70	6100	7500	1309	1309K	2.56	3.95	2.68	0.25	53	92	1.5	0.957
45	100	36	-	1.5	54.40	16.70	5600	7700	2309	2309K	1.51	2.33	1.58	0.42	53	92	1.5	1.23
50	90	20	-	1.1	22.70	8.10	6500	7900	1210	1210K	3.07	4.76	3.22	0.21	56.5	83.5	1	0.525
50	90	23	-	1.1	23.30	8.50	6500	7900	2210	2210K	2.33	3.61	2.45	0.27	56.5	83.5	1	0.59
50	110	27	-	2	43.40	14.10	5600	6800	1310	1310K	2.7	4.17	2.83	0.23	59	101	2	1.21
50	110	40	-	2	64.60	20.30	5100	7000	2310	2310K	1.56	2.41	1.63	0.4	59	101	2	1.64
55	100	21	-	1.5	26.80	10.00	5800	7100	1211	1211K	3.19	4.94	3.34	0.2	63	92	1.5	0.705
55	100	25	-	1.5	26.60	10.00	5800	7100	2211	2211K	2.35	3.64	2.47	0.27	63	92	1.5	0.81
55	120	29	-	2	51.30	17.90	5000	6200	1311	1311K	2.7	4.18	2.83	0.23	64	111	2	1.58
55	120	43	-	2	75.30	24.00	4600	6400	2311	2311K	1.53	2.37	1.6	0.41	64	111	2	2.1
60	110	22	-	1.5	30.20	11.50	5200	6400	1212	1212K	3.37	5.22	3.53	0.19	68	102	1.5	0.9
60	110	28	-	1.5	34.10	12.60	5300	6500	2212	2212K	2.26	3.49	2.36	0.28	68	102	1.5	1.09
60	130	31	-	2.1	57.20	20.80	4500	5500	1312	1312K	2.91	4.5	3.05	0.22	71	119	2	1.96
60	130	46	-	2.1	87.20	28.30	4200	5800	2312	2312K	1.62	2.51	1.7	0.39	71	119	2	2.6
65	120	23	-	1.5	31.00	12.50	4800	5800	1213	1213K	3.67	5.68	3.84	0.17	73	112	1.5	1.15
65	120	31	-	1.5	43.50	16.40	4900	5900	2213	2213K	2.24	3.47	2.35	0.28	73	112	1.5	1.46
65	140	33	-	2.1	61.70	22.90	4300	5200	1313	1313K	2.73	4.23	2.86	0.23	76	129	2	2.45
65	140	48	-	2.1	95.80	32.50	3800	5300	2313	2313K	1.66	2.58	1.74	0.38	76	129	2	3.23
70	125	24	-	1.5	34.60	13.80	4600	5700	1214	-	3.48	5.38	3.64	0.18	78	117	1.5	1.26
70	125	31	-	1.5	43.90	17.10	4600	5600	2214	-	2.42	3.74	2.53	0.26	78	117	1.5	1.52
70	150	35	-	2.1	74.00	27.70	4000	4900	1314	-	2.84	4.4	2.98	0.22	81	139	2	2.99
70	150	51	-	2.1	89.60	31.70	3600	4900	2314	-	1.82	2.82	1.91	0.35	81	139	2	4.23
75	130	25	-	1.5	38.80	15.70	4300	5300	1215	1215K	3.6	5.58	3.77	0.17	83	122	1.5	1.36
75	130	31	-	1.5	44.20	17.80	4300	5300	2215	2215K	2.49	3.85	2.61	0.25	83	122	1.5	1.62



Cylindrical bore



Tapered bore (Taper: 1/12)



Boundary Dimensions					Basic Load Rating		Limiting Speed		Bearing Designation	Axial Load Factor	Constant e	Abutment and Fillet Dimensions			Mass Approx			
(mm)					(KN)		(rpm)					(mm)			(kg)			
d	D	B	B ₁	r (min)	Cr	Cor	Grease	Oil	Cylindrical Bore	Y ₁	Y ₂	Y ₀	d _a (min)	D _a (max)	r _a (max)	(Reference) Cylindrical Bore		
75	160	37	-	2.1	78.90	29.90	4000	4900									1315	1315K
75	160	55	-	2.1	103.00	36.80	3400	4600	2315	2315K	1.86	2.88	1.95	0.34	86	149	2	5.13
80	140	26	-	2	39.80	17.00	4000	4900	1216	1216K	3.9	6.03	4.08	0.16	89	131	2	1.67
80	140	33	-	2	49.00	19.90	4100	5000	2216	2216K	2.42	3.75	2.54	0.26	89	131	2	2.01
80	170	39	-	2.1	88.10	33.10	3500	4300	1316	1316K	2.9	4.49	3.04	0.22	91	159	2	4.18
80	170	58	-	2.1	129.00	45.70	3100	4300	2316	2316K	1.87	2.9	1.96	0.34	91	159	2	6.1
85	150	28	-	2	49.20	20.80	3800	4600	1217	1217K	3.61	5.59	3.78	0.17	94	141	2	2.07
85	150	36	-	2	58.30	23.60	3800	4600	2217	2217K	2.49	3.85	2.61	0.25	94	141	2	2.52
85	180	41	-	3	97.30	37.80	3300	4000	1317	1317K	2.93	4.53	3.07	0.22	98	167	2.5	4.98
85	180	60	-	3	141.00	51.50	3000	4100	1317	1317K	1.82	2.82	1.91	0.35	98	167	2.5	7.05
90	160	30	-	2	56.80	23.40	3500	4300	1218	1218K	3.69	5.7	3.86	0.17	99	151	2	2.52
90	160	40	-	2	67.70	27.20	3500	4300	2218	2218K	2.39	3.71	2.51	0.26	99	151	2	3.4
90	190	43	-	3	116.00	44.40	3100	3800	1318	1318K	2.81	4.35	2.94	0.22	103	177	2.5	5.8
90	190	64	-	3	153.00	57.90	2800	3900	2318	2318K	1.84	2.85	1.93	0.34	103	177	2.5	8.44
95	170	32	-	2.1	57.00	24.30	3300	4000	1219	1219K	3.63	5.62	3.8	0.17	106	159	2	3.1
95	170	43	-	2.1	82.70	34.30	3300	4000	2219	2219K	2.43	3.76	2.55	0.26	106	159	2	4.1
95	200	45	48.2	3	132.00	50.80	2900	3600	1319	1319K	2.73	4.23	2.86	0.23	108	187	2.5	6.69
95	200	67	-	3	166.00	64.80	2700	3700	2319	2319K	1.82	2.82	1.91	0.35	108	187	2.5	9.79
100	180	34	-	2.1	69.00	29.70	3100	3800	1220	1220K	3.62	5.6	3.79	0.17	111	169	2	3.7
100	180	46	-	2.1	80.90	34.00	3100	3800	2220	2220K	2.57	3.98	2.7	0.24	111	169	2	4.98
100	215	47	52	3	143.00	57.30	2800	3400	1320	1320K	2.66	4.11	2.78	0.24	113	202	2.5	8.3
100	215	73	-	3	183.00	73.40	2400	3400	2320	2320K	1.84	2.85	1.93	0.34	113	202	2.5	12.4
105	190	36	-	2.1	77.00	34.00	2900	3600	1221	-	3.56	5.51	3.73	0.18	116	179	2	4.37
105	190	50	-	2.1	94.90	40.10	3000	3600	2221	-	2.43	3.76	2.55	0.26	116	179	2	6.07
105	225	49	54	3	149.00	60.20	2600	3200	1321	-	2.73	4.22	2.86	0.23	118	212	2.5	10
105	225	77	-	3	187.00	78.00	2300	3200	2321	-	1.75	2.71	1.83	0.36	118	212	2.5	14.3
110	200	38	-	2.1	80.20	35.20	2800	3400	1222	1222K	3.64	5.63	3.81	0.17	121	189	2	5.15
110	200	53	-	2.1	120.00	48.90	2800	3400	2222	2222K	2.41	3.73	2.53	0.26	121	189	2	7.1
110	240	50	55.2	3	150.00	63.20	2400	3000	1322	1322K	2.82	4.37	2.96	0.22	123	227	2.5	11.8
110	240	80	-	3	200.00	85.70	2200	3000	2322	2322K	1.82	2.82	1.91	0.35	123	227	2.5	17.3