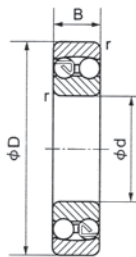


Self-Aligning Ball Bearings

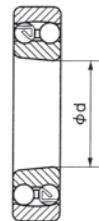
Self-aligning ball bearing features two raceways in inner ring and a common spherical raceway in outer ring. The bearing is consequently self-aligning and resistant to angular misalignment of the shaft relative to the housing. It's designed for applications where considerable shaft misalignment occurs by incorrect manufacturing or mounting process.



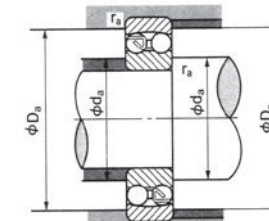
d: 10 ~ 60 mm



Cylindrical bore

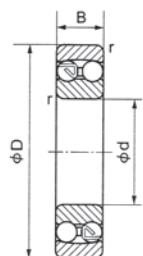


Taper bore (Taper: 1/12)

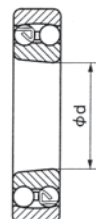


Principal Dimensions (mm)				r (mm)	Bearing Designations		Basic Load Ratings (N)				Limiting Speed (rpm)		Axial Load Factors			Constant e	Abutment and Fillet Dimensions (mm)			Weight (kg)
d	D	B	B ₁		Cylindrical Bore	Tapered Bore	Dynamic Cr	Static Cor			Grease	Oil	Y1	Y2	Y3		d _a (min)	D _a (max)	r _a (max)	
10	30	9		0.6	1200		5500	1200			23000	28000	1.92	2.97	2.01	0.33	14	26	0.6	0.034
	30	14		0.6	2200		7400	1600			23000	28000	1.07	1.65	1.12	0.59	14	26	0.6	0.047
12	32	10		0.6	1201		5600	1250			21000	26000	1.89	2.93	1.98	0.33	16	28	0.6	0.040
	32	14		0.6	2201		7650	1750			21000	26000	1.18	1.83	1.24	0.53	16	28	0.6	0.053
	37	12		1	1301		9400	2150			19000	23000	1.77	2.74	1.86	0.36	17	32	1.0	0.067
	37	17		1	2301		9700	2300			17000	21000	1.17	1.81	1.23	0.54	17	32	1.0	0.095
15	35	11		0.6	1202		7450	1750			18000	22000	1.90	2.95	2.00	0.33	19	31	0.6	0.049
	35	14		0.6	2202		7700	1850			18000	22000	1.27	1.97	1.33	0.50	19	31	0.6	0.060
	42	13		1	1302		9550	2300			16000	20000	1.86	2.88	1.95	0.34	20	37	1.0	0.094
	42	17		1	2302		12100	2900			14000	18000	1.27	1.96	1.33	0.50	20	37	1.0	0.114
17	40	12		0.6	1203		7900	2000			16000	20000	2.03	3.14	2.12	0.31	21	36	0.6	0.073
	40	16		0.6	2203		9800	2400			16000	20000	1.27	1.96	1.33	0.50	21	36	0.6	0.088
	47	14		1	1303		12500	3200			14000	17000	1.92	2.97	2.01	0.33	22	42	1.0	0.130
	47	19		1	2303		14500	3600			12000	16000	1.28	1.98	1.34	0.49	22	42	1.0	0.158
20	47	14		1	1204	1204K	9900	2600			13000	17000	2.16	3.35	2.27	0.29	25	42	1.0	0.120
	47	18		1	2204	2204K	12600	3300			13000	17000	1.31	2.05	1.37	0.48	25	42	1.0	0.140
	52	15		1.1	1304	1304K	12400	3300			12000	15000	2.12	3.28	2.22	0.30	26.5	45.5	1.0	0.163
	52	21		1.1	2304	2304K	18000	4700			11000	14000	1.29	2.00	1.35	0.49	26.5	45.5	1.0	0.209
25	52	15		1	1205	1205K	12100	3300			12000	14000	2.28	3.52	2.39	0.28	30	47	1.0	0.141
	52	18		1	2205	2205K	12600	3300			12000	14000	1.58	2.45	1.66	0.40	30	47	1.0	0.163
	62	17		1.1	1305	1305K	18000	5000			10000	13000	2.31	3.57	2.41	0.27	31.5	55.5	1.0	0.257
	62	24		1.1	2305	2305K	24400	6600			10000	13000	1.36	2.10	1.42	0.46	31.5	55.5	1.0	0.335
30	62	16		1	1206	1206K	15600	4650			10000	12000	2.55	3.94	2.67	0.25	35	57	1.0	0.220
	62	20		1	2206	2206K	15600	4650			10000	12000	2.55	3.94	1.87	0.35	35	57	1.0	0.260
	72	19		1.1	1306	1306K	21300	6300			9000	11000	2.40	3.72	2.52	0.26	36.5	65.5	1.0	0.387
	72	27		1.1	2306	2306K	31400	8750			8000	10000	1.44	2.23	1.51	0.44	36.5	65.5	1.0	0.500
35	72	17		1.1	1207	1207K	15800	5100			8600	10000	2.71	4.20	2.84	0.23	41.5	65.5	1.0	0.323
	72	23		1.1	2207	2207K	21600	6600			8600	10000	1.71	2.65	1.79	0.37	41.5	65.5	1.0	0.403
	80	21		1.5	1307	1307K	25100	7850			7900	9700	2.48	3.84	2.60	0.25	43	72	1.5	0.510
	80	31		1.5	2307	2307K	39400	11300			7000	8800	1.39	2.15	1.46	0.45	43	72	1.5	0.675
40	80	18		1.1	1208	1208K	19200	6500			7600	9300	2.83	4.38	2.97	0.22	46.5	73.5	1.0	0.417
	80	23		1.1	2208	2208K	22400	7400			7600	9300	1.92	2.96	2.01	0.33	46.5	73.5	1.0	0.505
	90	23		1.5	1308	1308K	29500	9700			7000	8500	2.57	3.98	2.69	0.25	48	82	1.5	0.715
	90	33		1.5	2308	2308K	44900	13500			6200	7800	1.47	2.27	1.54	0.43	48	82	1.5	0.925
45	85	19		1.1	1209	1209K	21800	7350			7000	8500	2.94	4.56	3.09	0.21	51.5	78.5	1.0	0.465
	85	23		1.1	2209	2209K	23300	8150			7000	8500	2.09	3.23	2.19	0.30	51.5	78.5	1.0	0.545
	100	25		1.5	1309	1309K	38100	12700			6200	7600	2.56	3.95	2.68	0.25	53	92	1.5	0.957
	100	36		1.5	2309	2309K	54400	16700			5500	6900	1.51	2.33	1.58	0.42	53	92	1.5	1.230
50	90	20		1.1	1210	1210K	22700	8100			6500	7900	3.07	4.76	3.22	0.21	56.5	83.5	1.0	0.525
	90	23		1.1	2210	2210K	23300	8500			6500	7900	2.33	1	2.45	0.27	56.5	83.5	1.0	0.590
	110	27		2	1310	1310K	43400	14100			5600	6900	2.70	4.17	2.86	0.23	59	101	2.0	1.210
	110	40		2	2310	2310K	64600	20300			5000	6200	1.56	2.41	1.63	0.40	59	101	2.0	1.640
55	100	21		1.5	1211	1211K	26800	10000			5800	7100	3.19	4.94	3.34	0.20	63	92	1.5	0.705
	100	25		1.5	2211	2211K	26800	10000			5800	7100	2.35	3.64	2.47	0.20	63	92	1.5	0.810
	120	29		2	1311	1311K	51300	17900			5100	6200	2.70	4.18	2.83	0.23	64	111	2.0	1.580
	120	43		2	2311	2311K	75300	24000			4500	5700	1.53	2.37	1.60	0.41	64	111	2.0	2.100
60	110	22		1.5	1212	1212K	30200	11500			5300	6400	3.37	5.22	3.53	0.19	68	102	1.5	0.900
	110	28		1.5	2212	2212K	34100	12600			5300	6400	2.26	3.49	2.36	0.28	68	102	1.5	1.090
	130	31		2.1	1312	1312K	57200	20800			4700	5700	2.91	4.50	3.05	0.22	71	119	2.0	1.960
	130	46		2.1	2312	2312K	87200	28300			4100	5200	1.62	2.51	1.70	0.39	71	119	2.0	2.600

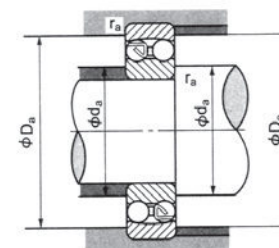
d: 65 ~ 110 mm



Cylindrical bore



Taper bore (Taper: 1:12)



Principal Dimensions (mm)				r (mm)	Bearing Designations		Basic Load Ratings (N)				Limiting Speed (rpm)		Axial Load Factors			Constant e	Abutment and Fillet Dimensions (mm)			Weight (kg)
d	D	B	B ₁		Cylindrical Bore	Tapered Bore	Dynamic Cr	Static Cor			Grease	Oil	Y1	Y2	Y3		d _a (min)	D _a (max)	r _a (max)	
65	120	23		1.5	1213	1213K	31000	12500			4800	5900	3.7	5.7	3.8	0.17	74	111	1.5	1.15
	120	31		1.5	2213	2213K	43500	16400			4800	5900	2.3	3.5	2.4	0.28	74	111	1.5	1.46
	140	33		2.1	1313	1313K	62000	22800			4300	5300	2.8	4.3	2.9	0.23	77	128	2	2.45
	140	48		2.1	2313	2313K	96000	32500			3800	4800	1.5	2.4	1.7	0.38	77	128	2	3.23
70	125	24		1.5	1214		34600	13800			4500	5600	3.5	5.3	3.6	0.18	79	116	1.5	1.26
	125	31		1.5	2214		44000	17100			4500	5600	2.4	3.7	2.5	0.27	79	116	1.5	1.52
	150	35		2.1	1314		74500	27700			4000	4900	2.8	4.4	3.0	0.22	82	138	2	2.99
	150	51		2.1	2314		107000	37500			3500	4400	1.5	2.4	1.6	0.41	82	138	2	4.25
75	130	25		1.5	1215	1215K	39000	15700			4300	5300	3.5	5.5	3.7	0.18	84	121	1.5	1.36
	130	31		1.5	2215	2215K	44000	17800			4300	5300	2.5	3.9	2.6	0.25	84	121	1.5	1.62
	160	37		2.1	1315	1315K	79000	30000			3700	4500	2.8	4.3	2.9	0.23	87	148	2	3.56
	160	55		2.1	2315	2315K	121000	43000			3300	4100	1.5	2.4	1.6	0.41	87	148	2	5.17
80	140	26		2	1216	1216K	39500	17000			4000	4900	3.9	6.0	4.1	0.16	90	130	2	1.67
	140	33		2	2216	2216K	49000	19900			4000	4900	2.5	3.9	2.6	0.25	90	130	2	2.04
	170	39		2.1	1316	1316K	88500	33000			3500	4200	2.9	4.6	3.1	0.21	92	158	2	4.18
	170	58		2.1	2316	2316K	126000	45500			3100	3900	1.6	2.4	1.6	0.40	92	158	2	6.12
85	150	28		2	1217	1217K	49000	20700			3700	4500	3.6	5.6	3.8	0.17	95	140	2	2.07
	150	36		2	2217	2217K	58000	23500			3700	4500	2.5	3.9	2.6	0.25	95	140	2	2.52
	180	41		3	1317	1317K	97500	38000			3200	4000	2.9	4.5	3.1	0.22	99	100	2.5	4.98
	180	60		3	2317	2317K	140000	51000			2900	3600	1.7	2.7	1.8	0.37	99	166	2.5	7.17
90	160	30		2	1218	1218K	57000	23400			3500	4200	3.8	5.8	3.9	0.17	100	150	2	2.52
	160	40		2	2218	2218K	70000	28600			3500	4200	2.4	3.7	2.4	0.27	100	150	2	3.43
	190	43	45	3	1318	1318K	116000	44500			3100	3700	2.8	4.3	2.9	0.23	104	176	2.5	5.80
	190	64		3	2318	2318K	152000	57500			2700	3400	1.7	2.6	1.8	0.37	104	176	2.5	8.48
95	170	32		2.1	1219	1219K	64000	27100			3200	4000	3.7	5.7	3.8	0.17	107	158	2	3.21
	170	43		2.1	2219	2219K	83500	34500			3200	4000	2.3	3.6	2.4	0.27	107	158	2	3.87
	200	45	48	3	1319	1319K	132000	50500			2900	3500	2.8	4.3	2.9	0.23	109	186	2.5	6.69
	200	67		3	2319	2319K	164000	64000			2600	3200	1.7	2.7	1.8	0.37	109	186	2.5	9.80
100	180	34		2.1	1220	1220K	69000	29700			3100	3700	3.6	5.6	3.8	0.17	112	168	2	3.70
	180	46		2.1	2220	2220K	94000	38500			3100	3700	2.3	3.6	2.4	0.27	112	168	2	4.98
	215	47	52	3	1320	1320K	143000	57000			2700	3300	2.7	4.1	2.8	0.27	114	201	2.5	8.30
	215	73		3	2320	2320K	192000	79000			2400	3000	1.7	2.6	1.8	0.37	114	201	2.5	12.5
105	190	36		2.1	1221		74500	32500			2900	3500	3.5	5.5	3.7	0.18	117	178	2	4.37
	190	50		2.1	2221		109000	44500			2900	3500	2.3	3.5	2.4	0.28	117	178	2	6.06
	225	49	54	3	1321		156000	64500			2500	3100	2.7	4.2	2.9	0.23	119	211	2.5	10.0
	225	77		3	2321		205000	88500			2300	2800	1.7	2.6	1.7	0.38	119	211	2.5	14.3
110	200	38		2.1	1222	1222K	88500	38500			2700	3300	3.4	5.3	3.6	0.18	122	188	2	5.15
	200	53		2.1	2222	2222K	125000	52000			2700	3300	2.2	3.4	2.3	0.29	122	188	2	7.20
	240	50	55	3	1322	1322K	165000	72000			2400	2900	2.8	4.3	2.9	0.23	124	226	2.5	11.8
	240	80		3	2322	2322K	217000	94500			2100	2600	1.7	2.7	1.8	0.37	124	226	2.5	17.2

Notes: 1) Tapered bore bearing with suffix "K", Taper 1:12;
2) B1: The width of ball assembly which exceed the width range of rings.