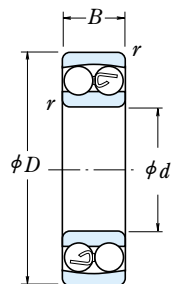
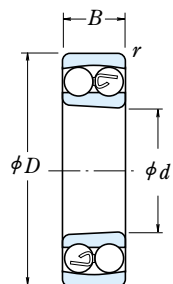


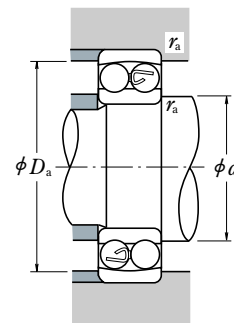
Bore Diameter 5 – 30 mm



Cylindrical Bore



Tapered Bore



Dynamic Equivalent Load

$$P = XF_r + YF_a$$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_3	0.65	Y_2

Static Equivalent Load

$$P_0 = F_r + Y_0 F_a$$

The values of e , Y_2 , Y_3 , and Y_0

are listed in the table below.

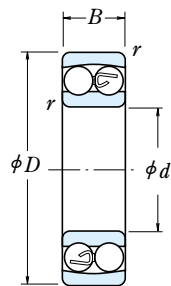
Boundary Dimensions (mm)				Basic Load Ratings (N)				Limiting Speeds (min ⁻¹)		Bearing
d	D	B	r min.	C_r	C_{0r}	{kgf}		Grease	Oil	
5	19	6	0.3	2 530	475	258	49	30 000	36 000	135
6	19	6	0.3	2 530	475	258	49	30 000	36 000	126
7	22	7	0.3	2 750	600	280	61	26 000	32 000	127
8	22	7	0.3	2 750	600	280	61	26 000	32 000	108
9	26	8	0.6	4 150	895	425	91	26 000	30 000	129
10	30	9	0.6	5 550	1 190	570	121	22 000	28 000	1200
	30	14	0.6	7 450	1 590	760	162	24 000	28 000	2200
	35	11	0.6	7 350	1 620	750	165	20 000	24 000	1300
	35	17	0.6	9 200	2 010	935	205	18 000	22 000	2300
12	32	10	0.6	5 700	1 270	580	130	22 000	26 000	1201
	32	14	0.6	7 750	1 730	790	177	22 000	26 000	2201
	37	12	1	9 650	2 160	985	221	18 000	22 000	1301
	37	17	1	12 100	2 730	1 240	278	17 000	22 000	2301
15	35	11	0.6	7 600	1 750	775	179	18 000	22 000	1202
	35	14	0.6	7 800	1 850	795	188	18 000	22 000	2202
	42	13	1	9 700	2 290	990	234	16 000	20 000	1302
	42	17	1	12 300	2 910	1 250	296	14 000	18 000	2302
17	40	12	0.6	8 000	2 010	815	205	16 000	20 000	1203
	40	16	0.6	9 950	2 420	1 010	247	16 000	20 000	2203
	47	14	1	12 700	3 200	1 300	325	14 000	17 000	1303
	47	19	1	14 700	3 550	1 500	365	13 000	16 000	2303
20	47	14	1	10 000	2 610	1 020	266	14 000	17 000	1204
	47	18	1	12 800	3 300	1 310	340	14 000	17 000	2204
	52	15	1.1	12 600	3 350	1 280	340	12 000	15 000	1304
	52	21	1.1	18 500	4 700	1 880	480	11 000	14 000	2304
25	52	15	1	12 200	3 300	1 250	335	12 000	14 000	1205
	52	18	1	12 400	3 450	1 270	350	12 000	14 000	2205
	62	17	1.1	18 200	5 000	1 850	510	10 000	13 000	1305
	62	24	1.1	24 900	6 600	2 530	675	9 500	12 000	2305
30	62	16	1	15 800	4 650	1 610	475	10 000	12 000	1206
	62	20	1	15 300	4 550	1 560	460	10 000	12 000	2206
	72	19	1.1	21 400	6 300	2 190	645	8 500	11 000	1306
	72	27	1.1	32 000	8 750	3 250	895	8 000	10 000	2306

Numbers	Abutment and Fillet Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)
	Tapered Bore ⁽¹⁾	d_a min.	D_a max.		r_a max.	e	Y_2	
—	7	17	0.3	0.34	2.9	1.9	1.9	0.009
—	8	17	0.3	0.34	2.9	1.9	1.9	0.008
—	9	20	0.3	0.31	3.1	2.0	2.1	0.013
—	10	20	0.3	0.31	3.1	2.0	2.1	0.016
—	13	22	0.6	0.32	3.1	2.0	2.1	0.021
—	14	26	0.6	0.32	3.1	2.0	2.1	0.033
—	14	26	0.6	0.64	1.5	0.98	1.0	0.042
—	14	31	0.6	0.35	2.8	1.8	1.9	0.057
—	14	31	0.6	0.71	1.4	0.89	0.93	0.077
—	16	28	0.6	0.36	2.7	1.8	1.8	0.039
—	16	28	0.6	0.58	1.7	1.1	1.1	0.048
—	17	32	1	0.33	2.9	1.9	2.0	0.066
—	17	32	1	0.60	1.6	1.1	1.1	0.082
—	19	31	0.6	0.32	3.1	2.0	2.1	0.051
—	19	31	0.6	0.50	1.9	1.3	1.3	0.055
—	20	37	1	0.33	2.9	1.9	2.0	0.093
—	20	37	1	0.51	1.9	1.2	1.3	0.108
—	21	36	0.6	0.31	3.1	2.0	2.1	0.072
—	21	36	0.6	0.50	1.9	1.3	1.3	0.085
—	22	42	1	0.32	3.1	2.0	2.1	0.13
—	22	42	1	0.51	1.9	1.2	1.3	0.15
1204 K	25	42	1	0.29	3.4	2.2	2.3	0.12
2204 K	25	42	1	0.47	2.1	1.3	1.4	0.133
1304 K	26.5	45.5	1	0.29	3.4	2.2	2.3	0.165
2304 K	26.5	45.5	1	0.50	1.9	1.2	1.3	0.193
1205 K	30	47	1	0.28	3.5	2.3	2.4	0.14
2205 K	30	47	1	0.41	2.4	1.5	1.6	0.15
1305 K	31.5	55.5	1	0.28	3.5	2.3	2.4	0.255
2305 K	31.5	55.5	1	0.47	2.1	1.4	1.4	0.319
1206 K	35	57	1	0.25	3.9	2.5	2.6	0.22
2206 K	35	57	1	0.38	2.5	1.6	1.7	0.249
1306 K	36.5	65.5	1	0.26	3.7	2.4	2.5	0.385
2306 K	36.5	65.5	1	0.44	2.2	1.4	1.5	0.48

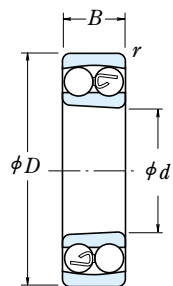
Note ⁽¹⁾ The suffix K represents bearings with tapered bores (1 : 12)

Remarks For the dimensions related to adapters, refer to Page B354.

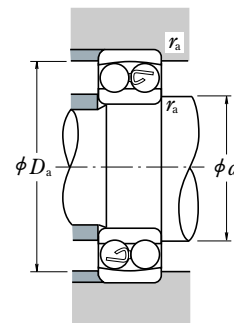
Bore Diameter 35 – 70 mm



Cylindrical Bore



Tapered Bore



Dynamic Equivalent Load

$$P = XF_r + YF_a$$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_3	0.65	Y_2

Static Equivalent Load

$$P_0 = F_r + Y_0 F_a$$

The values of e , Y_2 , Y_3 , and Y_0

are listed in the table below.

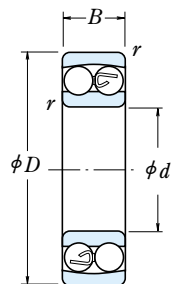
Boundary Dimensions (mm)				Basic Load Ratings (N)				Limiting Speeds (min ⁻¹)		Bearing
d	D	B	r min.	C_r	C_{0r}	(kgf)		Grease	Oil	
						C_r	C_{0r}			Cylindrical Bore
35	72	17	1.1	15 900	5 100	1 620	520	8 500	10 000	1207 2207 1307 2307
	72	23	1.1	21 700	6 600	2 210	675	8 500	10 000	
	80	21	1.5	25 300	7 850	2 580	800	7 500	9 500	
	80	31	1.5	40 000	11 300	4 100	1 150	7 100	9 000	
40	80	18	1.1	19 300	6 500	1 970	665	7 500	9 000	1208 2208 1308 2308
	80	23	1.1	22 400	7 350	2 290	750	7 500	9 000	
	90	23	1.5	29 800	9 700	3 050	990	6 700	8 500	
	90	33	1.5	45 500	13 500	4 650	1 380	6 300	8 000	
45	85	19	1.1	22 000	7 350	2 240	750	7 100	8 500	1209 2209 1309 2309
	85	23	1.1	23 300	8 150	2 380	830	7 100	8 500	
	100	25	1.5	38 500	12 700	3 900	1 300	6 000	7 500	
	100	36	1.5	55 000	16 700	5 600	1 700	5 600	7 100	
50	90	20	1.1	22 800	8 100	2 330	830	6 300	8 000	1210 2210 1310 2310
	90	23	1.1	23 300	8 450	2 380	865	6 300	8 000	
	110	27	2	43 500	14 100	4 450	1 440	5 600	6 700	
	110	40	2	65 000	20 200	6 650	2 060	5 000	6 300	
55	100	21	1.5	26 900	10 000	2 750	1 020	6 000	7 100	1211 2211 1311 2311
	100	25	1.5	26 700	9 900	2 720	1 010	6 000	7 100	
	120	29	2	51 500	17 900	5 250	1 820	5 000	6 300	
	120	43	2	76 500	24 000	7 800	2 450	4 800	6 000	
60	110	22	1.5	30 500	11 500	3 100	1 180	5 300	6 300	1212 2212 1312 2312
	110	28	1.5	34 000	12 600	3 500	1 290	5 300	6 300	
	130	31	2.1	57 500	20 800	5 900	2 130	4 500	5 600	
	130	46	2.1	88 500	28 300	9 000	2 880	4 300	5 300	
65	120	23	1.5	31 000	12 500	3 150	1 280	4 800	6 000	1213 2213 1313 2313
	120	31	1.5	43 500	16 400	4 450	1 670	4 800	6 000	
	140	33	2.1	62 500	22 900	6 350	2 330	4 300	5 300	
	140	48	2.1	97 000	32 500	9 900	3 300	3 800	4 800	
70	125	24	1.5	35 000	13 800	3 550	1 410	4 800	5 600	1214 2214 1314 2314
	125	31	1.5	44 000	17 100	4 500	1 740	4 500	5 600	
	150	35	2.1	75 000	27 700	7 650	2 830	4 000	5 000	
	150	51	2.1	111 000	37 500	11 300	3 850	3 600	4 500	

Note (1) The suffix K represents bearings with tapered bores (1 : 12)

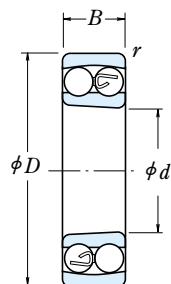
Remarks For the dimensions related to adapters, refer to Page B354 and B355.

Numbers	Abutment and Fillet Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)	
	Tapered Bore(1)	d_a min.	D_a max.		r_a max.	e	Y_2		Y_3
1207 K 2207 K 1307 K 2307 K		41.5	65.5	1	0.23	4.2	2.7	2.8	0.32
		41.5	65.5	1	0.37	2.6	1.7	1.8	0.378
		43	72	1.5	0.26	3.8	2.5	2.6	0.51
		43	72	1.5	0.46	2.1	1.4	1.4	0.642
1208 K 2208 K 1308 K 2308 K		46.5	73.5	1	0.22	4.3	2.8	2.9	0.415
		46.5	73.5	1	0.33	3.0	1.9	2.0	0.477
		48	82	1.5	0.24	4.0	2.6	2.7	0.715
		48	82	1.5	0.43	2.3	1.5	1.5	0.889
1209 K 2209 K 1309 K 2309 K		51.5	78.5	1	0.21	4.7	3.0	3.1	0.465
		51.5	78.5	1	0.30	3.2	2.1	2.2	0.522
		53	92	1.5	0.25	4.0	2.6	2.7	0.955
		53	92	1.5	0.41	2.4	1.5	1.6	1.2
1210 K 2210 K 1310 K 2310 K		56.5	83.5	1	0.21	4.7	3.1	3.2	0.525
		56.5	83.5	1	0.28	3.4	2.2	2.3	0.564
		59	101	2	0.23	4.2	2.7	2.8	1.25
		59	101	2	0.42	2.3	1.5	1.6	1.58
1211 K 2211 K 1311 K 2311 K		63	92	1.5	0.20	4.9	3.2	3.3	0.705
		63	92	1.5	0.28	3.5	2.3	2.4	0.746
		64	111	2	0.23	4.2	2.7	2.8	1.6
		64	111	2	0.41	2.4	1.5	1.6	2.03
1212 K 2212 K 1312 K 2312 K		68	102	1.5	0.18	5.3	3.4	3.6	0.90
		68	102	1.5	0.28	3.5	2.3	2.4	1.03
		71	119	2	0.23	4.3	2.8	2.9	2.03
		71	119	2	0.40	2.4	1.6	1.6	2.57
1213 K 2213 K 1313 K 2313 K		73	112	1.5	0.17	5.7	3.7	3.8	1.15
		73	112	1.5	0.28	3.5	2.3	2.4	1.4
		76	129	2	0.23	4.2	2.7	2.9	2.54
		76	129	2	0.39	2.5	1.6	1.7	3.2
— — — —		78	117	1.5	0.18	5.3	3.4	3.6	1.3
		78	117	1.5	0.26	3.7	2.4	2.5	1.52
		81	139	2	0.22	4.4	2.8	3.0	3.19
		81	139	2	0.38	2.6	1.7	1.8	3.9

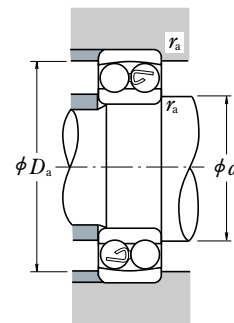
Bore Diameter 75 – 110 mm



Cylindrical Bore



Tapered Bore



Dynamic Equivalent Load

$$P = XF_r + YF_a$$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_3	0.65	Y_2

Static Equivalent Load

$$P_0 = F_r + Y_0 F_a$$

The values of e , Y_2 , Y_3 , and Y_0

are listed in the table below.

Boundary Dimensions (mm)				Basic Load Ratings (N)				Limiting Speeds (min ⁻¹)		Bearing Cylindrical Bore
d	D	B	r min.	C_r	C_{0r}	C_r (kgf)	C_{0r} (kgf)	Grease	Oil	
75	130	25	1.5	39 000	15 700	4 000	1 600	4 300	5 300	1215
	130	31	1.5	44 500	17 800	4 550	1 820	4 300	5 300	2215
	160	37	2.1	80 000	30 000	8 150	3 050	3 800	4 500	1315
	160	55	2.1	125 000	43 000	12 700	4 400	3 400	4 300	2315
80	140	26	2	40 000	17 000	4 100	1 730	4 000	5 000	1216
	140	33	2	49 000	19 900	5 000	2 030	4 000	5 000	2216
	170	39	2.1	89 000	33 000	9 100	3 400	3 600	4 300	1316
	170	58	2.1	130 000	45 000	13 200	4 600	3 200	4 000	* 2316
85	150	28	2	49 500	20 800	5 050	2 120	3 800	4 500	1217
	150	36	2	58 500	23 600	5 950	2 400	3 800	4 800	2217
	180	41	3	98 500	38 000	10 000	3 850	3 400	4 000	1317
	180	60	3	142 000	51 500	14 500	5 250	3 000	3 800	2317
90	160	30	2	57 500	23 500	5 850	2 400	3 600	4 300	1218
	160	40	2	70 500	28 700	7 200	2 930	3 600	4 300	2218
	190	43	3	117 000	44 500	12 000	4 550	3 200	3 800	* 1318
	190	64	3	154 000	57 500	15 700	5 850	2 800	3 600	2318
95	170	32	2.1	64 000	27 100	6 550	2 770	3 400	4 000	1219
	170	43	2.1	84 000	34 500	8 550	3 500	3 400	4 000	2219
	200	45	3	129 000	51 000	13 200	5 200	3 000	3 600	* 1319
	200	67	3	161 000	64 500	16 400	6 550	2 800	3 400	* 2319
100	180	34	2.1	69 500	29 700	7 100	3 050	3 200	3 800	1220
	180	46	2.1	94 500	38 500	9 650	3 900	3 200	3 800	2220
	215	47	3	140 000	57 500	14 300	5 850	2 800	3 400	* 1320
	215	73	3	187 000	79 000	19 100	8 050	2 400	3 200	* 2320
105	190	36	2.1	75 000	32 500	7 650	3 300	3 000	3 600	1221
	190	50	2.1	109 000	45 000	11 100	4 550	3 000	3 600	2221
	225	49	3	154 000	64 500	15 700	6 600	2 600	3 200	* 1321
	225	77	3	200 000	87 000	20 400	8 850	2 400	3 000	* 2321
110	200	38	2.1	87 000	38 500	8 900	3 950	2 800	3 400	1222
	200	53	2.1	122 000	51 500	12 500	5 250	2 800	3 400	* 2222
	240	50	3	161 000	72 000	16 400	7 300	2 400	3 000	* 1322
	240	80	3	211 000	94 500	21 600	9 650	2 200	2 800	* 2322

Numbers	Abutment and Fillet Dimensions (mm)			Constant e	Axial Load Factors			Mass (kg) approx.	
	Tapered Bore ⁽¹⁾	d_a min.	D_a max.		r_a max.	Y_2	Y_3		Y_0
1215 K		83	122	1.5	0.17	5.6	3.6	3.8	1.41
2215 K		83	122	1.5	0.25	3.9	2.5	2.6	1.6
1315 K		86	149	2	0.22	4.4	2.8	2.9	3.65
2315 K		86	149	2	0.38	2.5	1.6	1.7	4.77
1216 K		89	131	2	0.16	6.0	3.9	4.1	1.73
2216 K		89	131	2	0.25	3.9	2.5	2.7	1.97
1316 K		91	159	2	0.22	4.5	2.9	3.1	4.31
* 2316 K		91	159	2	0.39	2.5	1.6	1.7	5.54
1217 K		94	141	2	0.17	5.7	3.7	3.8	2.09
2217 K		94	141	2	0.25	3.9	2.5	2.6	2.48
1317 K		98	167	2.5	0.21	4.6	2.9	3.1	5.13
2317 K		98	167	2.5	0.37	2.6	1.7	1.8	6.56
1218 K		99	151	2	0.17	5.8	3.8	3.9	2.55
2218 K		99	151	2	0.27	3.7	2.4	2.5	3.13
* 1318 K		103	177	2.5	0.22	4.3	2.8	2.9	5.94
2318 K		103	177	2.5	0.38	2.6	1.7	1.7	7.76
1219 K		106	159	2	0.17	5.8	3.7	3.9	3.21
2219 K		106	159	2	0.27	3.7	2.4	2.5	3.87
* 1319 K		108	187	2.5	0.23	4.3	2.8	2.9	6.84
* 2319 K		108	187	2.5	0.38	2.6	1.7	1.8	9.01
1220 K		111	169	2	0.17	5.6	3.6	3.8	3.82
2220 K		111	169	2	0.27	3.7	2.4	2.5	4.53
* 1320 K		113	202	2.5	0.24	4.1	2.7	2.8	8.46
* 2320 K		113	202	2.5	0.38	2.6	1.7	1.8	11.6
—		116	179	2	0.18	5.5	3.6	3.7	4.52
—		116	179	2	0.28	3.5	2.3	2.4	5.64
—		118	212	2.5	0.23	4.2	2.7	2.9	10
—		118	212	2.5	0.38	2.6	1.7	1.7	14.4
1222 K		121	189	2	0.17	5.7	3.7	3.9	5.33
* 2222 K		121	189	2	0.28	3.5	2.2	2.3	6.64
* 1322 K		123	227	2.5	0.22	4.4	2.8	3.0	12
* 2322 K		123	227	2.5	0.37	2.6	1.7	1.8	17.4

Notes ⁽¹⁾ The suffix K represents bearings with tapered bores (1 : 12)

(*) The balls of the bearings marked * protrude slightly from the bearing face. The protrusion amounts are shown on

Page B73.

Remarks For the dimensions related to adapters, refer to Pages B356 and B357.