

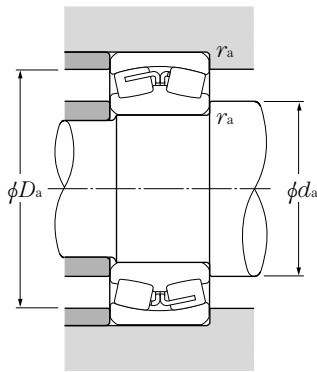
Cylindrical bore

Tapered bore

d 25 ~ 75mm

Boundary dimensions				Basic load ratings				Limiting speeds ¹⁾		Bearing numbers ⁴⁾	
mm				dynamic	static	dynamic	static	min ⁻¹		cylindrical bore	tapered ²⁾ bore
d	D	B	r _{s min} ³⁾	C _r	C _{or}	C _r	C _{or}	grease	oil		
25	52	18	1	36.5	36	3 750	3 650	8 500	11 000	22205C	22205CK
30	62	20	1	49	49	5 000	5 000	7 500	9 500	22206C	22206CK
35	72	23	1.1	69.5	71	7 050	7 200	6 500	8 500	22207C	22207CK
40	80	23	1.1	79	88.5	8 050	9 000	6 000	7 600	LH-22208C	LH-22208CK
	90	23	1.5	88	90	8 950	9 150	4 900	6 400	21308C	21308CK
	90	33	1.5	121	128	12 300	13 000	4 500	5 900	22308C	22308CK
45	85	23	1.1	82.5	95	8 400	9 700	5 300	6 800	LH-22209C	LH-22209CK
	100	25	1.5	102	106	10 400	10 800	4 400	5 700	21309C	21309CK
	100	36	1.5	148	167	15 100	17 000	4 100	5 300	22309C	22309CK
50	90	23	1.1	86	102	8 750	10 400	4 900	6 300	LH-22210C	LH-22210CK
	110	27	2	118	127	12 000	12 900	4 000	5 200	21310C	21310CK
	110	40	2	186	212	19 000	21 600	3 700	4 800	22310C	22310CK
55	100	25	1.5	118	144	12 000	14 700	4 400	5 800	LH-22211E	LH-22211EK
	100	25	1.5	93.5	110	9 500	11 200	4 500	5 800	LH-22211B	LH-22211BK
	120	29	2	145	163	14 800	16 600	3 700	4 800	21311	21311K
	120	43	2	204	234	20 800	23 900	3 400	4 400	22311B	22311BK
60	110	28	1.5	150	182	15 300	18 500	4 000	5 300	LH-22212E	LH-22212EK
	110	28	1.5	115	147	11 700	15 000	4 100	5 300	LH-22212B	LH-22212BK
	130	31	2.1	167	191	17 100	19 500	3 400	4 400	21312	21312K
	130	46	2.1	238	273	24 300	27 800	3 100	4 000	22312B	22312BK
65	120	31	1.5	177	217	18 000	22 200	3 800	5 000	LH-22213E	LH-22213EK
	120	31	1.5	143	179	14 600	18 300	3 900	5 000	LH-22213B	LH-22213BK
	140	33	2.1	194	228	19 800	23 200	3 100	4 000	21313	21313K
	140	48	2.1	265	320	27 100	32 500	2 800	3 700	22313B	22313BK
70	125	31	1.5	184	232	18 700	23 600	3 400	4 600	LH-22214E	LH-22214EK
	125	31	1.5	154	201	15 700	20 500	3 500	4 600	LH-22214B	LH-22214BK
	150	35	2.1	220	262	22 400	26 800	2 900	3 800	21314	21314K
	150	51	2.1	325	380	33 000	39 000	2 700	3 500	22314B	22314BK
75	130	31	1.5	190	246	19 400	25 100	3 200	4 200	LH-22215E	LH-22215EK

1) This value was achieved with machined cages and molded resin cages; for pressed cages, 75% of this value is allowable.
 2) "K" indicates bearings have tapered bore with a taper ratio of 1: 12. 3) Smallest allowable dimension for chamfer dimension r.
 4) Bearing number with the prefix LH indicates LH series.



Equivalent radial load

dynamic
 $P_r = XF_r + YF_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

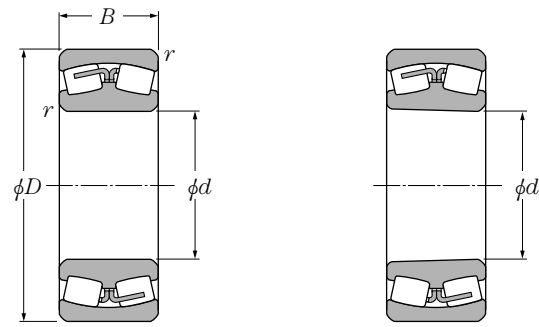
static

$P_{or} = F_r + Y_o F_a$

For values of e , Y_2 and Y_o
 see the table below.

Abutment and fillet dimensions					Constant	Axial load factors			Mass (approx.)	
mm					e	Y_1	Y_2	Y_o	kg	
min	max	min	max	max					cylindrical bore	tapered bore
31	—	—	46	1	0.35	1.92	2.86	1.88	0.186	0.182
36	—	—	56	1	0.33	2.07	3.09	2.03	0.287	0.282
42	—	—	65	1	0.32	2.09	3.11	2.04	0.446	0.437
47	—	—	73	1	0.29	2.35	3.50	2.30	0.526	0.515
48.5	—	—	81.5	1.5	0.26	2.55	3.80	2.50	0.705	0.694
48.5	—	—	81.5	1.5	0.38	1.76	2.62	1.72	0.974	0.951
52	—	—	78	1	0.27	2.50	3.72	2.44	0.584	0.572
53.5	—	—	91.5	1.5	0.26	2.60	3.87	2.54	0.927	0.912
53.5	—	—	91.5	1.5	0.36	1.86	2.77	1.82	1.33	1.3
57	—	—	83	1	0.25	2.69	4.01	2.63	0.63	0.616
60	—	—	100	2	0.26	2.64	3.93	2.58	1.21	1.19
60	—	—	100	2	0.37	1.80	2.69	1.76	1.79	1.75
63.5	67	89.5	91.5	1.5	0.24	2.83	4.21	2.76	0.808	0.79
63.5	—	—	91.5	1.5	0.28	2.42	3.61	2.37	0.85	0.832
65	—	—	110	2	0.25	2.69	4.01	2.63	1.71	1.69
65	—	—	110	2	0.40	1.68	2.50	1.64	2.3	2.25
68.5	72	98	101.5	1.5	0.25	2.75	4.09	2.69	1.09	1.07
68.5	—	—	101.5	1.5	0.27	2.49	3.71	2.44	1.15	1.13
72	—	—	118	2	0.25	2.69	4.00	2.63	2.1	2.07
72	—	—	118	2	0.42	1.62	2.42	1.59	2.9	2.83
73.5	78.5	107	111.5	1.5	0.25	2.71	4.04	2.65	1.43	1.4
73.5	—	—	111.5	1.5	0.28	2.42	3.60	2.37	1.5	1.47
77	—	—	128	2	0.25	2.69	4.00	2.63	2.55	2.51
77	—	—	128	2	0.38	1.79	2.67	1.75	3.45	3.37
78.5	83.5	112.5	116.5	1.5	0.24	2.86	4.25	2.79	1.51	1.47
78.5	—	—	116.5	1.5	0.26	2.55	3.80	2.50	1.55	1.52
82	—	—	138	2	0.25	2.69	4.00	2.63	3.18	3.14
82	—	—	138	2	0.37	1.81	2.70	1.77	4.22	4.12
83.5	89	117.5	121.5	1.5	0.22	3.00	4.47	2.94	1.59	1.55

Note: Upon request, bearings with oil inlets and oil grooves on the outer ring can also be manufactured. In such cases, please add the suffix "D1" to the end of the bearing number. (Example: 22214BD1)



Cylindrical bore

Tapered bore

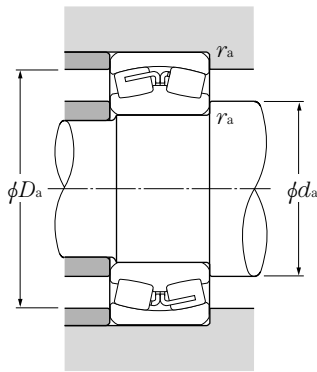
d 75 ~ 120mm

Boundary dimensions				Basic load ratings				Limiting speeds ¹⁾		Bearing numbers ⁴⁾	
mm				dynamic	static	dynamic	static	min ⁻¹		cylindrical bore	tapered ²⁾ bore
<i>d</i>	<i>D</i>	<i>B</i>	<i>r</i> _{s min³⁾}	<i>C_r</i>	<i>C_{or}</i>	<i>C_r</i>	<i>C_{or}</i>	grease	oil		
75	130	31	1.5	166	223	16 900	22 800	3 200	4 200	LH-22215B	LH-22215BK
	160	37	2.1	239	287	24 300	29 300	2 700	3 500	21315	21315K
	160	55	2.1	330	410	33 500	42 000	2 500	3 200	22315B	22315BK
80	140	33	2	213	277	21 700	28 200	3 000	4 000	LH-22216E	LH-22216EK
	140	33	2	179	239	18 300	24 400	3 100	4 000	LH-22216B	LH-22216BK
	170	39	2.1	260	315	26 500	32 000	2 500	3 300	21316	21316K
	170	58	2.1	385	470	39 500	48 000	2 300	3 000	22316B	22316BK
85	150	36	2	251	320	25 600	33 000	2 800	3 800	LH-22217E	LH-22217EK
	150	36	2	206	272	21 000	27 800	2 900	3 800	LH-22217B	LH-22217BK
	180	41	3	289	355	29 500	36 000	2 400	3 100	21317	21317K
	180	60	3	415	510	42 500	52 000	2 200	2 900	22317B	22317BK
90	160	40	2	292	385	29 800	39 500	2 600	3 500	LH-22218E	LH-22218EK
	160	40	2	256	345	26 200	35 000	2 700	3 500	LH-22218B	LH-22218BK
	160	52.4	2	315	455	32 500	46 500	2 200	2 800	23218B	23218BK
	190	43	3	320	400	32 500	40 500	2 300	3 000	21318	21318K
	190	64	3	480	590	49 000	60 000	2 100	2 700	22318B	22318BK
95	170	43	2.1	294	390	30 000	39 500	2 500	3 300	22219B	22219BK
	200	45	3	335	420	34 000	43 000	2 100	2 700	21319	21319K
	200	67	3	500	615	51 000	63 000	1 900	2 500	22319B	22319BK
100	165	52	2	310	470	31 500	47 500	2 000	2 600	23120B	23120BK
	180	46	2.1	315	415	32 000	42 500	2 400	3 200	22220B	22220BK
	180	60.3	2.1	405	580	41 500	59 000	1 900	2 500	23220B	23220BK
	215	47	3	370	465	37 500	47 500	2 000	2 600	21320	21320K
	215	73	3	605	755	61 500	77 000	1 800	2 400	22320B	22320BK
110	170	45	2	282	455	28 800	46 500	2 200	2 800	23022B	23022BK
	180	56	2	370	580	37 500	59 500	1 800	2 400	23122B	23122BK
	180	69	2	450	755	46 000	77 000	1 800	2 400	24122B	24122BK30
	200	53	2.1	410	570	42 000	58 000	2 200	2 800	22222B	22222BK
	200	69.8	2.1	515	760	52 500	77 500	1 700	2 200	23222B	23222BK
	240	50	3	495	615	50 500	62 500	1 800	2 300	21322	21322K
	240	80	3	745	930	76 000	95 000	1 700	2 200	22322B	22322BK
120	180	46	2	296	495	30 000	50 500	2 000	2 600	23024B	23024BK

1) This value was achieved with machined cages and molded resin cages; for pressed cages, 75% of this value is allowable.

2) Bearings appended with "K" have a tapered bore ratio of 1:12. 3) Smallest allowable dimension for chamfer dimension *r*.

4) Bearing number with the prefix LH indicates LH series.



Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

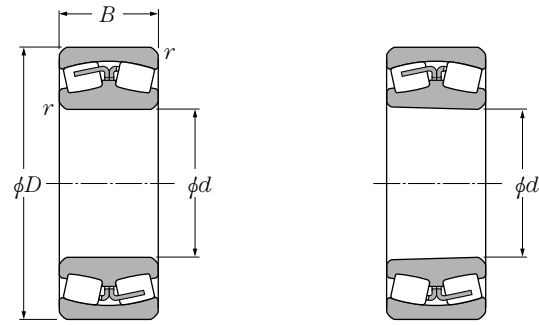
static

$$P_{or} = F_r + Y_0 F_a$$

For values of e , Y_2 and Y_0
see the table below.

Abutment and fillet dimensions					Constant	Axial load factors			Mass (approx.)	
d_a		D_a		r_{as}	e	Y_1	Y_2	Y_0	kg	
min	max	min	max	max					cylindrical bore	tapered bore
83.5	—	—	121.5	1.5	0.24	2.81	4.19	2.75	1.65	1.61
87	—	—	148	2	0.24	2.84	4.23	2.78	3.81	3.76
87	—	—	148	2	0.37	1.80	2.69	1.76	5.25	5.13
90	94.5	125.5	130	2	0.22	3.01	4.48	2.94	1.99	1.94
90	—	—	130	2	0.26	2.64	3.93	2.58	2.15	2.11
92	—	—	158	2	0.23	2.95	4.39	2.88	4.53	4.47
92	—	—	158	2	0.37	1.80	2.69	1.76	6.05	5.91
95	100.5	135	140	2	0.23	2.96	4.41	2.90	2.49	2.43
95	—	—	140	2	0.26	2.60	3.88	2.55	2.66	2.61
99	—	—	166	2.5	0.25	2.69	4.00	2.63	5.35	5.28
99	—	—	166	2.5	0.37	1.82	2.71	1.78	7.1	6.94
100	107.5	144	150	2	0.24	2.86	4.25	2.79	3.24	3.16
100	—	—	150	2	0.26	2.55	3.80	2.49	3.5	3.42
100	—	—	150	2	0.33	2.04	3.03	1.99	4.45	4.32
104	—	—	176	2.5	0.24	2.83	4.22	2.77	6.3	6.21
104	—	—	176	2.5	0.37	1.80	2.69	1.76	8.35	8.16
107	—	—	158	2	0.26	2.63	3.92	2.57	4.1	4.01
109	—	—	186	2.5	0.23	3.00	4.46	2.93	7.1	7
109	—	—	186	2.5	0.37	1.80	2.69	1.76	9.76	9.54
110	—	—	155	2	0.32	2.12	3.15	2.07	4.3	4.16
112	—	—	168	2	0.26	2.55	3.80	2.49	4.95	4.84
112	—	—	168	2	0.34	1.98	2.94	1.93	6.47	6.28
114	—	—	201	2.5	0.22	3.01	4.48	2.94	8.89	8.78
114	—	—	201	2.5	0.37	1.80	2.69	1.76	12.4	12.1
120	—	—	160	2	0.26	2.59	3.85	2.53	3.71	3.58
120	—	—	170	2	0.31	2.17	3.24	2.13	5.4	5.22
120	—	—	170	2	0.38	1.76	2.63	1.73	7.07	6.96
122	—	—	188	2	0.27	2.51	3.74	2.46	7.2	7.04
122	—	—	188	2	0.35	1.91	2.84	1.86	9.71	9.43
124	—	—	226	2.5	0.21	3.20	4.77	3.13	11.2	11.1
124	—	—	226	2.5	0.36	1.87	2.79	1.83	17.1	16.7
130	—	—	170	2	0.25	2.69	4.01	2.63	4.05	3.9

Note: Upon request, bearings with oil inlets and oil grooves on the outer ring can also be manufactured. In such cases, please add the suffix "D1" to the end of the bearing number. (Example: 23024BD1)



Cylindrical bore

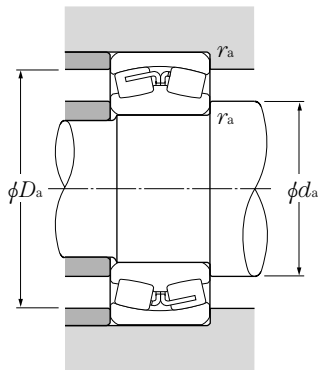
Tapered bore

d 120 ~ 160mm

Boundary dimensions	mm			Basic load ratings				Limiting speeds ¹⁾		Bearing numbers ⁴⁾	
	<i>d</i>	<i>D</i>	<i>B</i>	dynamic kN	static <i>C</i> _{or}	dynamic kgf	static <i>C</i> _{or}	grease	oil	cylindrical bore	tapered ²⁾ bore
120	180	60	2	390	670	39 500	68 500	1 800	2 300	24024B	24024BK30
	180	60	2	395	695	40 000	71 000	1 800	2 300	24024C	24024CK30
	200	62	2	455	705	46 500	71 500	1 600	2 100	23124B	23124BK
	200	80	2	575	945	58 500	96 500	1 600	2 100	24124B	24124BK30
	215	58	2.1	485	700	49 500	71 500	2 000	2 600	22224B	22224BK
	215	76	2.1	585	880	59 500	89 500	1 500	2 000	23224B	23224BK
	260	86	3	880	1 120	89 500	114 000	1 500	2 000	22324B	22324BK
130	200	52	2	375	620	38 500	63 500	1 800	2 300	23026B	23026BK
	200	69	2	505	895	51 500	91 000	1 600	2 100	24026B	24026BK30
	200	69	2	490	860	50 000	87 500	1 600	2 100	24026C	24026CK30
	210	64	2	495	795	50 500	81 000	1 500	2 000	23126B	23126BK
	210	80	2	585	995	60 000	102 000	1 500	2 000	24126B	24126BK30
	230	64	3	570	790	58 000	80 500	1 800	2 400	22226B	22226BK
	230	80	3	685	1 060	70 000	108 000	1 500	1 900	23226B	23226BK
	280	93	4	1 000	1 290	102 000	131 000	1 400	1 800	22326B	22326BK
140	210	53	2	405	690	41 000	70 500	1 700	2 200	23028B	23028BK
	210	69	2	510	945	52 000	96 500	1 500	1 900	24028B	24028BK30
	210	69	2	520	940	53 000	95 500	1 500	1 900	24028C	24028CK30
	225	68	2.1	540	895	55 000	91 000	1 400	1 800	23128B	23128BK
	225	85	2.1	670	1 150	68 500	117 000	1 400	1 800	24128B	24128BK30
	250	68	3	685	975	70 000	99 500	1 700	2 200	22228B	22228BK
	250	88	3	805	1 270	82 000	129 000	1 300	1 700	23228B	23228BK
	300	102	4	1 130	1 460	115 000	149 000	1 300	1 700	22328B	22328BK
150	225	56	2.1	445	775	45 500	79 000	1 500	2 000	23030B	23030BK
	225	75	2.1	585	1 060	59 500	108 000	1 400	1 800	24030B	24030BK30
	225	75	2.1	600	1 090	61 000	111 000	1 400	1 800	24030C	24030CK30
	250	80	2.1	730	1 190	74 500	121 000	1 300	1 700	23130B	23130BK
	250	100	2.1	885	1 520	90 500	155 000	1 300	1 700	24130B	24130BK30
	270	73	3	775	1 160	79 000	119 000	1 600	2 000	22230B	22230BK
	270	96	3	935	1 460	95 000	149 000	1 200	1 600	23230B	23230BK
	320	108	4	1 270	1 750	130 000	179 000	1 200	1 600	22330B	22330BK
160	220	45	2	320	610	33 000	62 500	1 500	2 000	23932	23932K
	240	60	2.1	505	885	51 500	90 000	1 500	1 900	23032B	23032BK
	240	80	2.1	650	1 200	66 500	122 000	1 300	1 700	24032B	24032BK30
	240	80	2.1	665	1 250	67 500	127 000	1 300	1 700	24032C	24032CK30

1) This value was achieved with machined cages and molded resin cages; for pressed cages, 75% of this value is allowable.

2) Bearings appended with "K" have a tapered bore ratio of 1:12. 3) Smallest allowable dimension for chamfer dimension *r*.



Equivalent radial load

dynamic
 $P_r = XF_r + YF_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

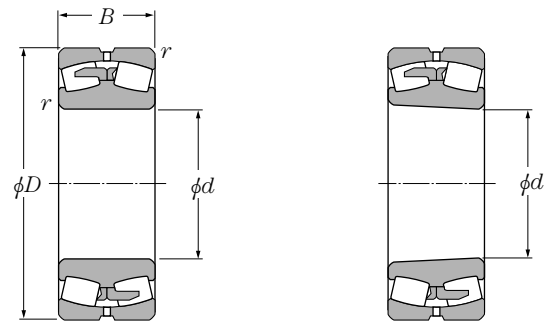
static

$P_{or} = F_r + Y_0 F_a$

For values of e , Y_2 and Y_0 see the table below.

Abutment and fillet dimensions			Constant	Axial load factors			Mass (approx.)	
d_a	D_a	r_{as}	e	Y_1	Y_2	Y_0	cylindrical bore	tapered bore
min	max	max					kg	
130	170	2	0.33	2.06	3.07	2.02	5.48	5.39
130	170	2	0.32	2.12	3.15	2.07	5.48	4.91
130	190	2	0.31	2.17	3.24	2.13	7.7	7.46
130	190	2	0.40	1.68	2.50	1.64	10.3	10.1
132	203	2	0.27	2.47	3.68	2.42	9.1	8.89
132	203	2	0.36	1.89	2.82	1.85	12.1	11.7
134	246	2.5	0.37	1.80	2.69	1.76	21.5	21
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140	190	2	0.26	2.63	3.92	2.57	5.9	5.69
140	190	2	0.34	1.98	2.95	1.94	8.08	7.95
140	190	2	0.32	2.12	3.15	2.07	7.91	7.78
140	200	2	0.30	2.23	3.32	2.18	8.47	8.2
140	200	2	0.38	1.78	2.65	1.74	11	10.8
144	216	2.5	0.28	2.39	3.56	2.33	11.2	10.9
144	216	2.5	0.35	1.92	2.86	1.88	14.3	13.9
148	262	3	0.37	1.81	2.69	1.77	26.8	26.2
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150	200	2	0.25	2.73	4.06	2.67	6.35	6.12
150	200	2	0.32	2.09	3.12	2.05	8.57	8.43
150	200	2	0.30	2.23	3.32	2.18	8.48	7.66
152	213	2	0.30	2.25	3.35	2.20	10.2	9.86
152	213	2	0.38	1.80	2.68	1.76	13.3	13.1
154	236	2.5	0.28	2.39	3.55	2.33	14	13.7
154	236	2.5	0.36	1.90	2.83	1.86	18.8	18.2
158	282	3	0.37	1.80	2.69	1.76	33.8	33
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162	213	2	0.24	2.76	4.11	2.70	7.73	7.45
162	213	2	0.33	2.06	3.07	2.02	10.7	10.5
162	213	2	0.30	2.25	3.34	2.20	10.5	10.3
162	238	2	0.32	2.11	3.15	2.06	15.6	15.1
162	238	2	0.40	1.69	2.51	1.65	20.2	20
164	256	2.5	0.27	2.46	3.66	2.4	18.1	17.7
164	256	2.5	0.36	1.88	2.79	1.83	24.1	23.4
168	302	3	0.35	1.92	2.86	1.88	42.7	41.8
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170	210	2	0.18	3.69	5.49	3.61	5.5	5.33
172	228	2	0.25	2.74	4.09	2.68	9.42	9.09
172	228	2	0.32	2.10	3.13	2.06	13	12.8
172	228	2	0.31	2.18	3.24	2.13	12	11.8

Note: An oil groove is provided for outer rings of bearings with an outer diameter (D dimension) of 320 mm or more. See page B-212 on dimensions. We can make bearings with oil hole or oil groove in the outer ring, per your request, for an outer diameter of 320mm or less. Such bearings are indicated by attaching "D1" to the end of the bearing number. (ex. 23032BD1)



Cylindrical bore

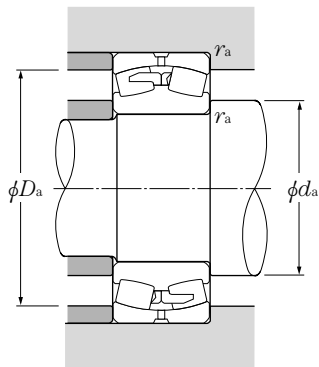
Tapered bore

d 160 ~ 200mm

d	Boundary dimensions			dynamic C _r	Basic load ratings		Limiting speeds ¹⁾		Bearing numbers ⁴⁾		
	D	B	r _{s min} ³⁾		static C _{or}	dynamic C _r	grease	oil	cylindrical bore	tapered ²⁾ bore	
160	270	86	2.1	840	1 370	85 500	140 000	1 200	1 600	23132B	23132BK
	270	109	2.1	1 040	1 780	106 000	181 000	1 200	1 600	24132B	24132BK30
	290	80	3	870	1 290	88 500	132 000	1 500	1 900	22232B	22232BK
	290	104	3	1 050	1 660	107 000	170 000	1 200	1 500	23232B	23232BK
	340	114	4	1 410	1 990	144 000	203 000	1 200	1 500	22332B	22332BK
170	230	45	2	330	650	34 000	66 000	1 500	1 900	23934	23934K
	260	67	2.1	630	1 080	64 000	110 000	1 400	1 800	23034B	23034BK
	260	90	2.1	800	1 470	81 500	150 000	1 200	1 600	24034B	24034BK30
	260	90	2.1	815	1 500	83 000	153 000	1 200	1 600	24034C	24034CK30
	280	88	2.1	885	1 490	90 500	152 000	1 200	1 500	23134B	23134BK
	280	109	2.1	1 080	1 880	110 000	191 000	1 200	1 500	24134B	24134BK30
	310	86	4	1 000	1 520	102 000	155 000	1 400	1 800	22234B	22234BK
	310	110	4	1 180	1 960	120 000	200 000	1 100	1 400	23234B	23234BK
360	120	4	1 540	2 180	157 000	223 000	1 100	1 400	22334B	22334BK	
180	250	52	2	440	835	45 000	85 000	1 400	1 800	23936	23936K
	280	74	2.1	740	1 290	75 500	132 000	1 300	1 700	23036B	23036BK
	280	100	2.1	965	1 770	98 500	181 000	1 200	1 500	24036B	24036BK30
	280	100	2.1	965	1 770	98 500	181 000	1 200	1 500	24036C	24036CK30
	300	96	3	1 030	1 730	105 000	176 000	1 100	1 400	23136B	23136BK
	300	118	3	1 250	2 210	127 000	225 000	1 100	1 400	24136B	24136BK30
	320	86	4	1 040	1 610	106 000	164 000	1 300	1 700	22236B	22236BK
	320	112	4	1 230	2 000	125 000	204 000	1 000	1 300	23236B	23236BK
380	126	4	1 740	2 560	177 000	261 000	1 000	1 300	22336B	22336BK	
190	260	52	2	460	890	47 000	91 000	1 300	1 700	23938	23938K
	290	75	2.1	755	1 350	77 000	138 000	1 200	1 600	23038B	23038BK
	290	100	2.1	995	1 850	102 000	188 000	1 100	1 400	24038B	24038BK30
	290	100	2.1	970	1 820	98 500	186 000	1 100	1 400	24038C	24038CK30
	320	104	3	1 190	2 020	122 000	206 000	1 000	1 300	23138B	23138BK
	320	128	3	1 420	2 480	144 000	253 000	1 000	1 300	24138B	24138BK30
	340	92	4	1 160	1 810	118 000	185 000	1 200	1 600	22238B	22238BK
	340	120	4	1 400	2 330	143 000	237 000	920	1 200	23238B	23238BK
400	132	5	1 870	2 790	191 000	284 000	920	1 200	22338B	22338BK	
200	280	60	2.1	545	1 100	56 000	112 000	1 200	1 600	23940	23940K
	310	82	2.1	915	1 620	93 000	165 000	1 200	1 500	23040B	23040BK
	310	109	2.1	1 160	2 140	118 000	219 000	1 000	1 300	24040B	24040BK30

1) This value was achieved with machined cages and molded resin cages; for pressed cages, 75% of this value is allowable.

2) Bearings appended with "K" have a tapered bore ratio of 1:12. 3) Smallest allowable dimension for chamfer dimension r.



Equivalent radial load

$$P_r = XF_r + YF_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

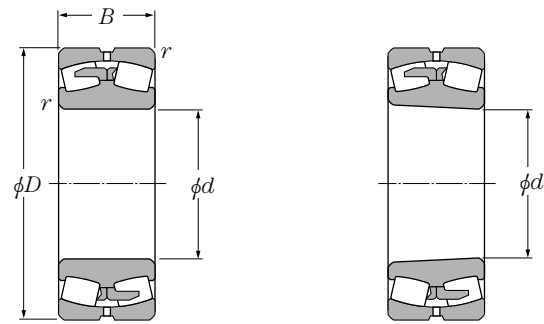
static

$$P_{or} = F_r + Y_0 F_a$$

For values of e , Y_2 and Y see the table below.

Abutment and fillet dimensions			Constant	Axial load factors			Mass (approx.)	
d_a	D_a	r_{as}	e	Y_1	Y_2	Y_0	kg	kg
min	max	max					cylindrical bore	tapered bore
172	258	2	0.32	2.11	3.15	2.07	19.8	19.2
172	258	2	0.40	1.67	2.48	1.63	26	25.6
174	276	2.5	0.28	2.42	3.60	2.37	22.7	22.2
174	276	2.5	0.36	1.86	2.77	1.82	30	29.1
178	322	3	0.35	1.94	2.89	1.90	50.8	49.7
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180	220	2	0.17	3.91	5.83	3.83	5.8	5.62
182	248	2	0.25	2.66	3.96	2.60	12.7	12.3
182	248	2	0.34	1.98	2.95	1.94	17.7	17.4
182	248	2	0.31	2.16	3.22	2.12	17.4	17.1
182	268	2	0.31	2.15	3.21	2.11	21.5	20.8
182	268	2	0.39	1.74	2.59	1.70	27.2	26.8
188	292	3	0.28	2.39	3.56	2.34	28	27.3
188	292	3	0.36	1.87	2.79	1.83	36.8	35.7
188	342	3	0.34	1.96	2.91	1.91	59.8	58.5
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190	240	2	0.19	3.52	5.25	3.45	8.21	7.95
192	268	2	0.26	2.59	3.85	2.53	16.7	16.1
192	268	2	0.35	1.91	2.85	1.87	23.3	22.9
192	268	2	0.33	2.04	3.04	2.00	23	22.6
194	286	2.5	0.32	2.11	3.15	2.07	25.1	24.2
194	286	2.5	0.39	1.72	2.56	1.68	34.3	33.8
198	302	3	0.27	2.49	3.70	2.43	29.3	28.6
198	302	3	0.35	1.91	2.84	1.86	39	37.8
198	362	3	0.34	1.97	2.93	1.92	70	68.5
<hr/>								
200	250	2	0.18	3.81	5.67	3.73	8.6	8.34
202	278	2	0.26	2.65	3.94	2.59	17.7	17.1
202	278	2	0.33	2.03	3.02	1.98	24.3	23.9
202	278	2	0.31	2.16	3.22	2.12	23	22.6
204	306	2.5	0.33	2.07	3.09	2.03	35.3	34.2
204	306	2.5	0.40	1.69	2.51	1.65	42.8	42.2
208	322	3	0.27	2.47	3.68	2.42	36.6	35.8
208	322	3	0.36	1.89	2.82	1.85	47.6	46.2
212	378	4	0.34	1.97	2.94	1.93	81	79.3
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212	268	2	0.17	3.91	5.82	3.82	12.1	11.7
212	298	2	0.26	2.59	3.85	2.53	22.7	21.9
212	298	2	0.35	1.94	2.89	1.90	31	30.5

Note: An oil groove is provided for outer rings of bearings with an outer diameter (D dimension) of 320 mm or more. See page B-220 on dimensions. We can make bearings with oil hole or oil groove in the outer ring, per your request, for an outer diameter of 320mm or less. Such bearings are indicated by attaching "D1" to the end of the bearing number. (ex. 23032BD1)



Cylindrical bore

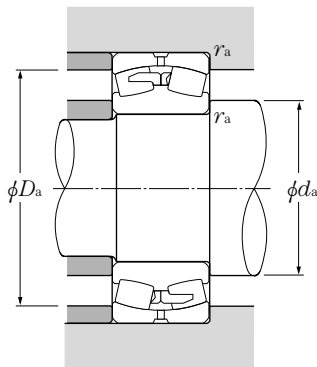
Tapered bore

d 200 ~ 280mm

d	Boundary dimensions			dynamic C _r	Basic load ratings		dynamic C _r	static C _{or}	Limiting speeds		Bearing numbers ³⁾	
	D	B	r _{s min} ²⁾		static C _{or}	static C _{or}			grease	oil	cylindrical bore	tapered ¹⁾ bore
200	340	112	3	1 350	2 270	137 000	231 000	920	1 200	23140B	23140BK	
	340	140	3	1 630	2 900	166 000	295 000	920	1 200	24140B	24140BK30	
	360	98	4	1 310	2 010	134 000	205 000	1 100	1 500	22240B	22240BK	
	360	128	4	1 610	2 640	165 000	269 000	920	1 200	23240B	23240BK	
	420	138	5	2 040	3 050	208 000	310 000	850	1 100	22340B	22340BK	
220	300	60	2.1	565	1 170	57 500	119 000	1 100	1 400	23944	23944K	
	340	90	3	1 060	1 920	108 000	195 000	1 000	1 300	23044B	23044BK	
	340	118	3	1 350	2 570	138 000	262 000	920	1 200	24044B	24044BK30	
	370	120	4	1 540	2 670	157 000	272 000	850	1 100	23144B	23144BK	
	370	150	4	1 880	3 400	192 000	345 000	850	1 100	24144B	24144BK30	
	400	108	4	1 580	2 460	161 000	251 000	1 000	1 300	22244B	22244BK	
	400	144	4	2 010	3 350	205 000	340 000	770	1 000	23244B	23244BK	
460	145	5	2 350	3 500	240 000	360 000	770	1 000	22344B	22344BK		
240	320	60	2.1	565	1 190	58 000	121 000	1 000	1 300	23948	23948K	
	360	92	3	1 130	2 140	116 000	219 000	920	1 200	23048B	23048BK	
	360	118	3	1 410	2 770	144 000	282 000	850	1 100	24048B	24048BK30	
	400	128	4	1 730	3 050	177 000	310 000	770	1 000	23148B	23148BK	
	400	160	4	2 110	3 800	215 000	390 000	770	1 000	24148B	24148BK30	
	440	120	4	1 940	3 100	198 000	315 000	920	1 200	22248B	22248BK	
	440	160	4	2 430	4 100	247 000	420 000	720	940	23248B	23248BK	
500	155	5	2 720	4 100	278 000	420 000	720	930	22348B	22348BK		
260	360	75	2.1	760	1 580	77 500	161 000	920	1 200	23952	23952K	
	400	104	4	1 420	2 620	144 000	267 000	850	1 100	23052B	23052BK	
	400	140	4	1 830	3 550	186 000	365 000	750	980	24052B	24052BK30	
	440	144	4	2 140	3 850	219 000	395 000	710	920	23152B	23152BK	
	440	180	4	2 510	4 600	256 000	470 000	710	920	24152B	24152BK30	
	480	130	5	2 230	3 600	228 000	365 000	850	1 100	22252B	22252BK	
	480	174	5	2 760	4 700	281 000	480 000	660	860	23252B	23252BK	
540	165	6	3 100	4 750	320 000	485 000	650	850	22352B	22352BK		
280	380	75	2.1	830	1 750	84 500	179 000	850	1 100	23956	23956K	
	420	106	4	1 510	2 920	154 000	297 000	770	1 000	23056B	23056BK	
	420	140	4	1 950	3 950	199 000	405 000	690	900	24056B	24056BK30	
	460	146	5	2 300	4 250	234 000	435 000	650	850	23156B	23156BK	
	460	180	5	2 730	5 200	278 000	530 000	650	850	24156B	24156BK30	
500	130	5	2 310	3 800	236 000	390 000	770	1 000	22256B	22256BK		

1) Bearings appended with "K" have a tapered bore ratio of 1:12; bearings appended with "K30" have a tapered bore ratio of 1:30.

2) Smallest allowable dimension for chamfer dimension r.



Equivalent radial load

dynamic
 $P_r = XF_r + YF_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

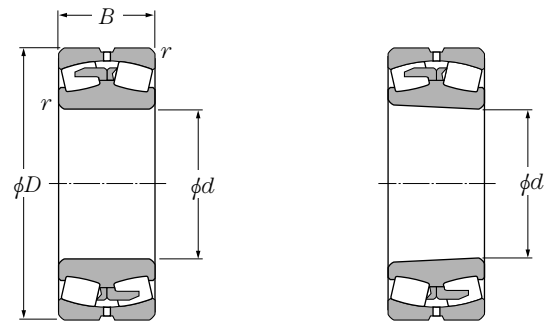
static

$P_{or} = F_r + Y_0 F_a$

For values of e , Y_2 and Y_0 see the table below.

Abutment and fillet dimensions			Constant	Axial load factors			Mass (approx.)	
d_a	D_a	r_{as}	e	Y_1	Y_2	Y_0	kg cylindrical bore	kg tapered bore
min	max	max						
214	326	2.5	0.33	2.05	3.05	2.00	43.3	42
214	326	2.5	0.41	1.64	2.44	1.60	53.4	52.6
218	342	3	0.28	2.45	3.64	2.39	44	43
218	342	3	0.36	1.88	2.79	1.83	57.2	55.5
222	398	4	0.34	1.98	2.95	1.94	93.2	91.2
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232	288	2	0.19	3.62	5.39	3.54	13.1	12.7
234	326	2.5	0.26	2.59	3.85	2.53	29.9	28.8
234	326	2.5	0.34	1.97	2.94	1.93	40.2	39.6
238	352	3	0.33	2.07	3.09	2.03	53.3	51.6
238	352	3	0.41	1.66	2.47	1.62	67	66
238	382	3	0.27	2.46	3.66	2.40	60.4	59.1
238	382	3	0.36	1.85	2.76	1.81	80	77.6
242	438	4	0.33	2.06	3.07	2.02	117	115
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252	308	2	0.16	4.13	6.15	4.04	14	13.6
254	346	2.5	0.25	2.69	4.01	2.63	33.4	32.2
254	346	2.5	0.32	2.09	3.12	2.05	43	42.3
258	382	3	0.32	2.11	3.15	2.07	65.8	63.8
258	382	3	0.40	1.69	2.51	1.65	82.2	80.9
258	422	3	0.28	2.43	3.62	2.38	81.7	80
258	422	3	0.37	1.83	2.72	1.79	108	105
262	478	4	0.32	2.10	3.13	2.06	148	145
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272	348	2	0.19	3.53	5.26	3.45	24	23.3
278	382	3	0.26	2.63	3.92	2.57	48.5	46.8
278	382	3	0.34	1.96	2.91	1.91	65.2	64.1
278	422	3	0.33	2.05	3.06	2.01	91.4	88.6
278	422	3	0.41	1.63	2.43	1.60	114	112
282	458	4	0.28	2.45	3.64	2.39	106	104
282	458	4	0.37	1.83	2.72	1.79	141	137
288	512	5	0.32	2.13	3.18	2.09	183	179
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292	368	2	0.17	3.88	5.78	3.79	26.4	25.6
298	402	3	0.25	2.73	4.06	2.67	52.4	50.6
298	402	3	0.33	2.06	3.07	2.02	69	67.9
302	438	4	0.32	2.13	3.18	2.09	97.7	94.6
302	438	4	0.39	1.73	2.58	1.69	120	118
302	478	4	0.26	2.57	3.83	2.51	112	110

Note: Please refer to page B-220 for outer ring oil inlet and oil groove dimensions.



Cylindrical bore

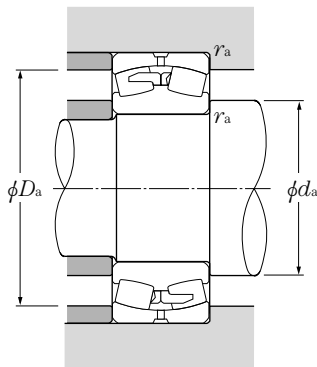
Tapered bore

d 280 ~ 380mm

Boundary dimensions	mm			dynamic C_r	Basic load ratings		dynamic C_r	static C_{or}	Limiting speeds		Bearing numbers	
	d	D	B		static C_{or}	kgf			static C_{or}	grease	oil	cylindrical bore
280	500	176	5	2 930	5 150	298 000	525 000	610	790	23256B	23256BK	
	580	175	6	3 500	5 350	360 000	545 000	600	780	22356B	22356BK	
300	420	90	3	1 110	2 320	113 000	237 000	770	1 000	23960	23960K	
	460	118	4	1 890	3 550	193 000	365 000	720	940	23060B	23060BK	
	460	160	4	2 450	4 950	250 000	505 000	650	840	24060B	24060BK30	
	500	160	5	2 750	5 000	280 000	510 000	600	780	23160B	23160BK	
	500	200	5	3 300	6 400	340 000	650 000	600	780	24160B	24160BK30	
	540	140	5	2 670	4 350	272 000	440 000	720	930	22260B	22260BK	
	540	192	5	3 450	6 000	355 000	615 000	560	730	23260B	23260BK	
620	185	7.5	3 600	5 400	365 000	550 000	550	720	22360B	22360BK		
320	440	90	3	1 140	2 460	116 000	251 000	720	930	23964	23964K	
	480	121	4	1 960	3 850	200 000	395 000	680	880	23064B	23064BK	
	480	160	4	2 510	5 200	255 000	530 000	600	780	24064B	24064BK30	
	540	176	5	3 100	5 800	320 000	590 000	560	730	23164B	23164BK	
	540	218	5	3 850	7 300	390 000	745 000	560	730	24164B	24164BK30	
	580	150	5	3 100	5 050	315 000	515 000	660	860	22264B	22264BK	
580	208	5	4 000	7 050	410 000	720 000	520	680	23264B	23264BK		
340	460	90	3	1 220	2 650	124 000	270 000	650	870	23968	23968K	
	520	133	5	2 310	4 550	235 000	465 000	630	820	23068B	23068BK	
	520	180	5	3 000	6 200	305 000	630 000	550	720	24068B	24068BK30	
	580	190	5	3 600	6 600	365 000	670 000	520	680	23168B	23168BK	
	580	243	5	4 600	8 950	470 000	910 000	520	680	24168B	24168BK30	
620	224	6	4 450	8 000	455 000	815 000	490	630	23268B	23268BK		
360	480	90	3	1 320	2 930	135 000	298 000	630	820	23972	23972K	
	540	134	5	2 370	4 700	242 000	480 000	590	770	23072B	23072BK	
	540	180	5	3 100	6 600	320 000	675 000	520	680	24072B	24072BK30	
	600	192	5	3 750	7 050	385 000	715 000	490	630	23172B	23172BK	
	600	243	5	4 600	9 150	470 000	935 000	490	630	24172B	24172BK30	
	650	232	6	4 850	8 700	495 000	885 000	450	590	23272B	23272BK	
380	520	106	4	1 560	3 550	159 000	360 000	590	770	23976	23976K	
	560	135	5	2 510	5 150	256 000	525 000	550	720	23076B	23076BK	
	560	180	5	3 250	7 100	330 000	725 000	490	640	24076B	24076BK30	
	620	194	5	3 900	7 500	400 000	765 000	450	590	23176B	23176BK	
	620	243	5	4 800	9 650	490 000	985 000	450	590	24176B	24176BK30	

1) Bearings appended with "K" have a tapered bore ratio of 1:12; bearings appended with "K30" have a tapered bore ratio of 1:30.

2) Smallest allowable dimension for chamfer dimension r .



Equivalent radial load

dynamic
 $P_r = XF_r + YF_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

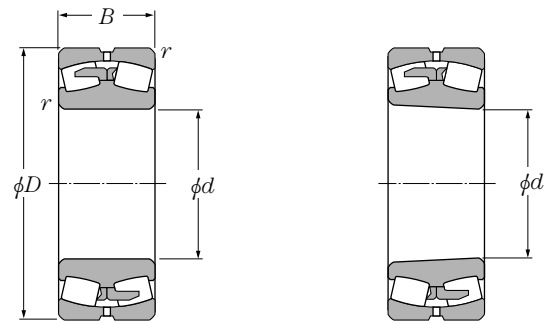
static

$P_{or} = F_r + Y_0 F_a$

For values of e , Y_2 and Y_0 see the table below.

Abutment and fillet dimensions			Constant	Axial load factors			Mass (approx.)	
d_a	D_a	r_{as}	e	Y_1	Y_2	Y_0	kg cylindrical bore	kg tapered bore
min	max	max						
302	478	4	0.36	1.90	2.83	1.86	150	145
308	552	5	0.31	2.16	3.22	2.12	224	220
314	406	2.5	0.20	3.34	4.98	3.27	40	38.7
318	442	3	0.25	2.66	3.96	2.60	72.4	70.2
318	442	3	0.34	1.97	2.93	1.92	98	96.4
322	478	4	0.32	2.11	3.15	2.07	131	127
322	478	4	0.40	1.69	2.51	1.65	161	159
322	518	4	0.26	2.57	3.83	2.51	141	138
322	518	4	0.36	1.88	2.79	1.83	193	187
336	584	6	0.32	2.13	3.17	2.08	270	265
334	426	2.5	0.19	3.50	5.21	3.42	43	41.7
338	462	3	0.25	2.73	4.06	2.67	78.2	75.5
338	462	3	0.33	2.06	3.07	2.02	103	101
342	518	4	0.33	2.06	3.07	2.02	167	162
342	518	4	0.40	1.67	2.48	1.63	207	204
342	558	4	0.26	2.57	3.83	2.51	172	168
342	558	4	0.36	1.86	2.77	1.82	243	236
354	446	2.5	0.17	3.91	5.83	3.83	44.7	43.3
362	498	4	0.25	2.68	3.99	2.62	104	100
362	498	4	0.34	1.98	2.95	1.94	140	138
362	558	4	0.33	2.05	3.06	2.01	210	204
362	558	4	0.42	1.61	2.39	1.57	269	265
368	592	5	0.37	1.84	2.75	1.80	300	291
374	466	2.5	0.17	3.99	5.93	3.90	47.2	45.7
382	518	4	0.24	2.78	4.14	2.72	110	106
382	518	4	0.33	2.06	3.07	2.02	147	145
382	578	4	0.32	2.11	3.15	2.07	222	215
382	578	4	0.40	1.67	2.48	1.63	281	277
388	622	5	0.36	1.87	2.78	1.83	339	329
398	502	3	0.19	3.54	5.27	3.46	69.9	67.7
402	538	4	0.24	2.87	4.27	2.80	115	111
402	538	4	0.30	2.23	3.32	2.18	153	150
402	598	4	0.31	2.16	3.22	2.12	235	228
402	598	4	0.39	1.73	2.58	1.69	292	287

Note: Please refer to page B-220 for outer ring oil inlet and oil groove dimensions.



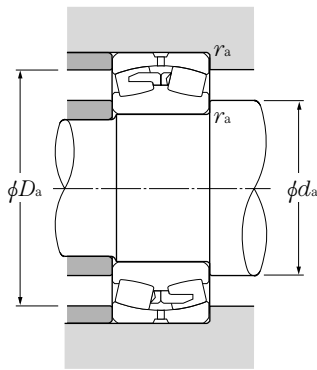
Cylindrical bore

Tapered bore

d 380 ~ 500mm

Boundary dimensions	mm			dynamic kN	Basic load ratings		static kgf	Limiting speeds		Bearing numbers	
	d	D	B		$r_{s \min}^{(2)}$	static C_{or}		dynamic C_r	grease	oil	cylindrical bore
380	680	240	6	5 200	9 650	530 000	985 000	430	550	23276B	23276BK
	540	106	4	1 580	3 650	161 000	370 000	550	720	23980	23980K
400	600	148	5	2 980	6 050	305 000	615 000	520	680	23080B	23080BK
	600	200	5	3 850	8 400	390 000	855 000	460	600	24080B	24080BK30
	650	200	6	4 200	8 050	425 000	820 000	430	560	23180B	23180BK
	650	250	6	5 100	10 300	520 000	1 060 000	430	560	24180B	24180BK30
	720	256	6	5 850	10 600	595 000	1 080 000	400	520	23280B	23280BK
420	560	106	4	1 630	3 850	166 000	390 000	530	690	23984	23984K
	620	150	5	3 100	6 400	315 000	650 000	490	640	23084B	23084BK
	620	200	5	3 850	8 450	395 000	865 000	440	570	24084B	24084BK30
	700	224	6	5 200	9 950	530 000	1 020 000	410	530	23184B	23184BK
	700	280	6	6 150	12 200	625 000	1 240 000	410	530	24184B	24184BK30
760	272	7.5	6 550	12 000	665 000	1 230 000	380	490	23284B	23284BK	
440	600	118	4	2 030	4 700	207 000	480 000	500	650	23988	23988K
	650	157	6	3 300	6 850	335 000	695 000	470	610	23088B	23088BK
	650	212	6	4 300	9 450	440 000	960 000	420	540	24088B	24088BK30
	720	226	6	5 200	10 100	530 000	1 030 000	390	500	23188B	23188BK
	720	280	6	6 450	13 100	660 000	1 330 000	390	500	24188B	24188BK30
790	280	7.5	6 900	12 800	705 000	1 310 000	360	470	23288B	23288BK	
460	620	118	4	2 100	4 950	214 000	505 000	480	620	23992	23992K
	680	163	6	3 600	7 450	365 000	760 000	450	580	23092B	23092BK
	680	218	6	4 600	10 200	470 000	1 040 000	390	510	24092B	24092BK30
	760	240	7.5	5 700	11 400	585 000	1 160 000	360	470	23192B	23192BK
	760	300	7.5	7 100	14 500	725 000	1 480 000	360	470	24192B	24192BK30
830	296	7.5	7 750	14 500	790 000	1 470 000	340	440	23292B	23292BK	
480	650	128	5	2 330	5 500	238 000	565 000	450	590	23996	23996K
	700	165	6	3 650	7 700	370 000	785 000	420	550	23096B	23096BK
	700	218	6	4 650	10 500	475 000	1 070 000	380	490	24096B	24096BK30
	790	248	7.5	6 200	12 300	635 000	1 260 000	350	450	23196B	23196BK
	790	308	7.5	7 450	15 300	760 000	1 560 000	350	450	24196B	24196BK30
870	310	7.5	8 300	15 500	845 000	1 580 000	320	420	23296B	23296BK	
500	670	128	5	2 370	5 600	242 000	570 000	430	560	239/500	239/500K
	720	167	6	3 850	8 300	390 000	845 000	410	530	230/500B	230/500BK

1) Bearings appended with "K" have a tapered bore ratio of 1:12; bearings appended with "K30" have a tapered bore ratio of 1:30.
 2) Smallest allowable dimension for chamfer dimension r .



Equivalent radial load

dynamic
 $P_r = XF_r + YF_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

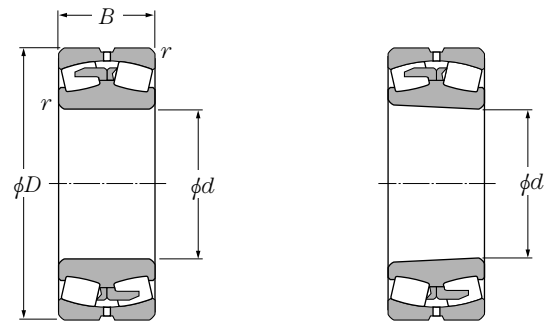
static

$P_{or} = F_r + Y_0 F_a$

For values of e , Y_2 and Y_0 see the table below.

Abutment and fillet dimensions			Constant	Axial load factors			Mass (approx.)	
d_a	D_a	r_{as}	e	Y_1	Y_2	Y_0	kg cylindrical bore	kg tapered bore
min	max	max						
408	652	5	0.36	1.89	2.82	1.85	380	369
418	522	3	0.18	3.71	5.53	3.63	73	70.7
422	578	4	0.24	2.80	4.16	2.73	149	144
422	578	4	0.32	2.09	3.11	2.04	202	200
428	622	5	0.31	2.21	3.28	2.16	264	256
428	622	5	0.38	1.77	2.63	1.73	329	324
428	692	5	0.37	1.81	2.69	1.77	457	443
438	542	3	0.17	3.95	5.88	3.86	76.2	73.8
442	598	4	0.24	2.85	4.24	2.78	157	152
442	598	4	0.32	2.13	3.18	2.09	210	207
448	672	5	0.32	2.11	3.15	2.07	354	343
448	672	5	0.40	1.69	2.51	1.65	440	433
456	724	6	0.36	1.86	2.77	1.82	544	528
458	582	3	0.18	3.66	5.46	3.58	101	98
468	622	5	0.24	2.85	4.24	2.78	181	175
468	622	5	0.32	2.11	3.15	2.07	245	241
468	692	5	0.31	2.15	3.21	2.11	370	358
468	692	5	0.39	1.75	2.61	1.71	456	449
476	754	6	0.36	1.88	2.80	1.84	600	582
478	602	3	0.17	3.95	5.88	3.86	107	104
488	652	5	0.23	2.88	4.29	2.82	206	200
488	652	5	0.31	2.15	3.21	2.11	276	272
496	724	6	0.31	2.14	3.19	2.10	443	429
496	724	6	0.39	1.71	2.55	1.67	550	541
496	794	6	0.36	1.87	2.78	1.83	704	683
502	628	4	0.18	3.85	5.73	3.76	123	119
508	672	5	0.23	2.94	4.38	2.88	217	209
508	672	5	0.30	2.22	3.30	2.17	285	280
516	754	6	0.31	2.15	3.21	2.11	492	477
516	754	6	0.39	1.74	2.59	1.70	608	600
516	834	6	0.36	1.87	2.78	1.83	814	790
522	648	4	0.17	4.02	5.98	3.93	131	127
528	692	5	0.23	2.98	4.44	2.91	226	218

Note: Please refer to page B-220 for outer ring oil inlet and oil groove dimensions.



Cylindrical bore

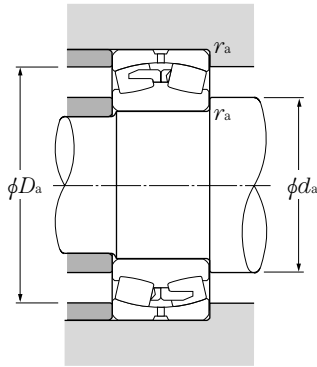
Tapered bore

d 500 ~ 670mm

Boundary dimensions	mm			dynamic C_r	Basic load ratings		dynamic C_r	static C_{or}	Limiting speeds		Bearing numbers	
	d	D	B		static kN	dynamic kgf			grease	oil	cylindrical bore	tapered ¹⁾ bore
500	720	218	6	4 750	10 900	485 000	1 110 000	350	460	240/500B	240/500BK30	
	830	264	7.5	6 950	13 700	705 000	1 400 000	330	430	231/500B	231/500BK	
	830	325	7.5	8 050	16 700	825 000	1 700 000	330	430	241/500B	241/500BK30	
	920	336	7.5	9 400	17 800	960 000	1 820 000	310	400	232/500B	232/500BK	
530	710	136	5	2 640	6 450	269 000	655 000	400	520	239/530	239/530K	
	780	185	6	4 400	9 350	445 000	955 000	380	490	230/530B	230/530BK	
	780	250	6	5 600	12 700	570 000	1 290 000	330	430	240/530B	240/530BK30	
	870	272	7.5	7 000	14 200	715 000	1 450 000	310	400	231/530B	231/530BK	
	870	335	7.5	8 300	17 400	850 000	1 770 000	310	400	241/530B	241/530BK30	
	980	355	9.5	10 400	19 800	1 060 000	2 020 000	280	370	232/530B	232/530BK	
560	750	140	5	2 830	6 700	288 000	680 000	380	490	239/560	239/560K	
	820	195	6	4 800	10 500	490 000	1 070 000	350	450	230/560B	230/560BK	
	820	258	6	6 100	14 100	620 000	1 440 000	310	400	240/560B	240/560BK30	
	920	280	7.5	7 650	15 500	780 000	1 580 000	280	370	231/560B	231/560BK	
	920	355	7.5	9 950	20 800	1 010 000	2 120 000	280	370	241/560B	241/560BK30	
	1 030	365	9.5	11 100	21 100	1 130 000	2 150 000	260	340	232/560B	232/560BK	
600	800	150	5	3 150	7 800	325 000	795 000	350	450	239/600	239/600K	
	870	200	6	5 250	12 000	535 000	1 220 000	310	420	230/600B	230/600BK	
	870	272	6	6 450	15 600	655 000	1 590 000	280	370	240/600B	240/600BK30	
	980	300	7.5	9 000	18 400	920 000	1 880 000	260	340	231/600B	231/600BK	
	980	375	7.5	10 700	23 200	1 090 000	2 360 000	260	340	241/600B	241/600BK30	
	1 090	388	9.5	12 200	23 700	1 240 000	2 420 000	250	320	232/600B	232/600BK	
630	850	165	6	3 700	9 250	375 000	945 000	320	420	239/630	239/630K	
	920	212	7.5	5 900	13 000	600 000	1 330 000	310	400	230/630B	230/630BK	
	920	290	7.5	7 550	17 900	770 000	1 830 000	270	350	240/630B	240/630BK30	
	1 030	315	7.5	9 600	19 900	975 000	2 030 000	250	320	231/630B	231/630BK	
	1 030	400	7.5	11 600	25 000	1 180 000	2 550 000	250	320	241/630B	241/630BK30	
	1 150	412	12	13 700	26 800	1 400 000	2 740 000	230	300	232/630B	232/630BK	
670	900	170	6	4 100	10 300	420 000	1 050 000	300	390	239/670	239/670K	
	980	230	7.5	6 550	14 600	665 000	1 490 000	280	360	230/670B	230/670BK	
	980	308	7.5	8 650	20 600	885 000	2 100 000	250	320	240/670B	240/670BK30	
	1 090	336	7.5	11 000	22 800	1 120 000	2 330 000	230	300	231/670B	231/670BK	
	1 090	412	7.5	12 700	28 000	1 300 000	2 850 000	230	300	241/670B	241/670BK30	
	1 220	438	12	16 100	32 000	1 640 000	3 250 000	220	280	232/670B	232/670BK	

1) Bearings appended with "K" have a tapered bore ratio of 1:12; bearings appended with "K30" have a tapered bore ratio of 1:30.

2) Smallest allowable dimension for chamfer dimension r .



Equivalent radial load

dynamic
 $P_r = XF_r + YF_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

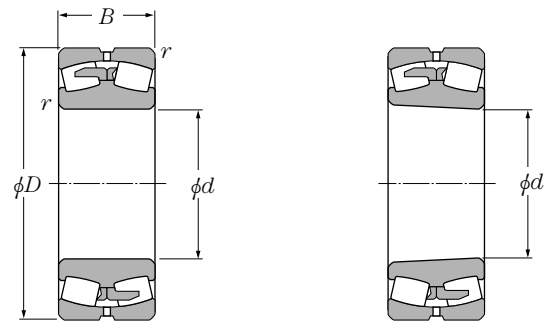
static

$P_{or} = F_r + Y_0 F_a$

For values of e , Y_2 and Y_0 see the table below.

Abutment and fillet dimensions			Constant	Axial load factors			Mass (approx.)	
d_a	D_a	r_{as}	e	Y_1	Y_2	Y_0	kg	kg
min	max	max					cylindrical bore	tapered bore
528	692	5	0.30	2.28	3.40	2.23	295	290
536	794	6	0.32	2.12	3.16	2.08	584	566
536	794	6	0.39	1.72	2.57	1.69	716	705
536	884	6	0.39	1.74	2.59	1.70	1 000	971
552	688	4	0.17	3.94	5.87	3.86	157	152
558	752	5	0.22	3.03	4.52	2.97	306	295
558	752	5	0.30	2.24	3.33	2.19	413	406
566	834	6	0.30	2.22	3.30	2.17	653	633
566	834	6	0.38	1.79	2.67	1.75	800	788
574	936	8	0.39	1.74	2.59	1.70	1 200	1 170
582	728	4	0.16	4.09	6.09	4.00	182	176
588	792	5	0.22	3.03	4.51	2.96	353	340
588	792	5	0.30	2.29	3.40	2.24	467	459
596	884	6	0.30	2.27	3.38	2.22	752	729
596	884	6	0.39	1.75	2.61	1.71	948	934
604	986	8	0.36	1.88	2.80	1.84	1 360	1 320
622	778	4	0.18	3.85	5.73	3.76	218	211
628	842	5	0.21	3.17	4.72	3.10	400	386
628	842	5	0.29	2.33	3.47	2.28	544	535
636	944	6	0.30	2.22	3.30	2.17	908	880
636	944	6	0.37	1.81	2.70	1.77	1 130	1 110
644	1 046	8	0.36	1.86	2.77	1.82	1 540	1 490
658	822	5	0.18	3.66	5.45	3.58	277	268
666	884	6	0.22	3.14	4.67	3.07	481	464
666	884	6	0.30	2.28	3.40	2.23	657	646
666	994	6	0.30	2.27	3.38	2.22	1 050	1 020
666	994	6	0.38	1.78	2.66	1.74	1 330	1 310
684	1 096	10	0.36	1.87	2.78	1.83	1 900	1 840
698	872	5	0.18	3.76	5.59	3.67	317	307
706	944	6	0.22	3.07	4.57	3.00	594	573
706	944	6	0.29	2.29	3.41	2.24	794	781
706	1 054	6	0.30	2.22	3.30	2.17	1 250	1 210
706	1 054	6	0.37	1.83	2.73	1.79	1 530	1 510
724	1 166	10	0.36	1.89	2.81	1.85	2 270	2 200

Note: Please refer to page B-220 for outer ring oil inlet and oil groove dimensions.



Cylindrical bore

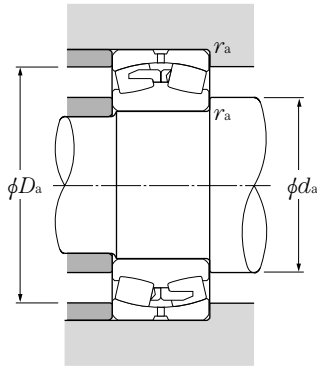
Tapered bore

d 710 ~ 1060mm

d	Boundary dimensions			dynamic C _r	Basic load ratings		dynamic C _r	static C _{or}	Limiting speeds		Bearing numbers	
	D	B	r _{s min} ²⁾		static C _{or}	static C _{or}			grease	oil	cylindrical bore	tapered ¹⁾ bore
710	950	180	6	4 450	11 500	450 000	1 170 000	280	370	239/710	239/710K	
	1 030	236	7.5	7 200	16 200	730 000	1 650 000	260	340	230/710B	230/710BK	
	1 030	315	7.5	9 300	22 500	945 000	2 300 000	230	300	240/710B	240/710BK30	
	1 150	345	9.5	11 600	24 900	1 190 000	2 540 000	220	280	231/710B	231/710BK	
	1 150	438	9.5	14 500	32 000	1 470 000	3 250 000	220	280	241/710B	241/710BK30	
	1 280	450	12	16 300	32 500	1 660 000	3 300 000	200	260	232/710B	232/710BK	
750	1 000	185	6	5 000	13 000	510 000	1 330 000	260	340	239/750	239/750K	
	1 090	250	7.5	8 150	18 300	835 000	1 860 000	250	320	230/750B	230/750BK	
	1 090	335	7.5	10 100	24 600	1 030 000	2 500 000	220	280	240/750B	240/750BK30	
	1 220	365	9.5	12 800	27 200	1 310 000	2 780 000	200	260	231/750B	231/750BK	
	1 360	475	15	18 200	36 500	1 860 000	3 750 000	180	240	232/750B	232/750BK	
800	1 060	195	6	5 400	13 700	550 000	1 400 000	240	310	239/800	239/800K	
	1 150	258	7.5	8 400	19 500	860 000	1 990 000	220	290	230/800B	230/800BK	
	1 150	345	7.5	11 200	27 800	1 140 000	2 840 000	200	260	240/800B	240/800BK30	
	1 280	375	9.5	14 400	31 000	1 460 000	3 150 000	180	240	231/800B	231/800BK	
850	1 120	200	6	5 850	15 100	595 000	1 540 000	220	290	239/850	239/850K	
	1 220	272	7.5	9 750	22 700	995 000	2 310 000	210	270	230/850B	230/850BK	
	1 220	365	7.5	12 500	31 500	1 270 000	3 200 000	180	240	240/850B	240/850BK30	
	1 360	400	12	15 500	34 000	1 580 000	3 500 000	170	220	231/850B	231/850BK	
900	1 180	206	6	6 650	17 300	675 000	1 770 000	210	270	239/900	239/900K	
	1 280	280	7.5	10 300	24 700	1 050 000	2 520 000	190	250	230/900B	230/900BK	
	1 280	375	7.5	13 200	33 500	1 350 000	3 450 000	170	220	240/900B	240/900BK30	
	1 420	412	12	16 800	38 000	1 720 000	3 850 000	150	200	231/900B	231/900BK	
950	1 250	224	7.5	7 750	20 500	790 000	2 090 000	190	250	239/950	239/950K	
	1 360	300	7.5	11 500	28 400	1 180 000	2 900 000	180	230	230/950B	230/950BK	
	1 360	412	7.5	15 500	40 000	1 580 000	4 100 000	160	210	240/950B	240/950BK30	
1000	1 320	236	7.5	8 600	22 700	875 000	2 310 000	180	230	239/1000	239/1000K	
	1 420	308	7.5	12 400	30 000	1 260 000	3 050 000	170	220	230/1000B	230/1000BK	
	1 420	412	7.5	16 000	42 000	1 640 000	4 250 000	150	190	240/1000B	240/1000BK30	
1060	1 400	250	7.5	9 300	24 700	950 000	2 520 000	160	210	239/1060	239/1060K	
	1 500	325	9.5	13 600	33 500	1 390 000	3 400 000	150	200	230/1060B	230/1060BK	
	1 500	438	9.5	17 800	47 000	1 810 000	4 800 000	140	180	240/1060B	240/1060BK30	

1) Bearings appended with "K" have a tapered bore ratio of 1:12; bearings appended with "K30" have a tapered bore ratio of 1:30.

2) Smallest allowable dimension for chamfer dimension r.



Equivalent radial load

dynamic

$$P_r = XF_r + YF_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

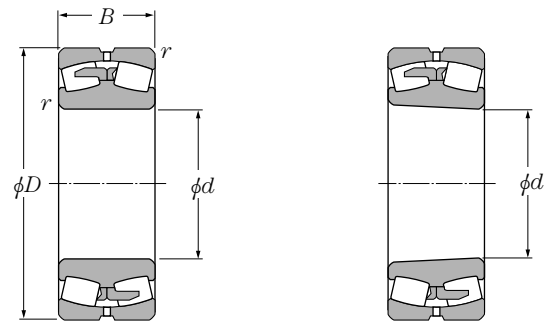
static

$$P_{or} = F_r + Y_0 F_a$$

For values of e , Y_2 and Y_0 see the table below.

Abutment and fillet dimensions			Constant	Axial load factors			Mass (approx.)	
d_a	D_a	r_{as}	e	Y_1	Y_2	Y_0	kg	
min	max	max					cylindrical bore	tapered bore
738	922	5	0.18	3.85	5.73	3.76	375	363
746	994	6	0.22	3.02	4.50	2.96	663	640
746	994	6	0.29	2.36	3.51	2.31	884	870
754	1 106	8	0.29	2.32	3.45	2.27	1 420	1 380
754	1 106	8	0.37	1.80	2.69	1.76	1 800	1 770
764	1 226	10	0.35	1.91	2.84	1.87	2 540	2 470
<hr/>								
778	972	5	0.17	3.90	5.81	3.81	412	399
786	1 054	6	0.21	3.20	4.76	3.13	790	763
786	1 054	6	0.29	2.35	3.49	2.29	1 060	1 040
794	1 176	8	0.29	2.32	3.45	2.27	1 700	1 650
814	1 296	12	0.35	1.92	2.86	1.88	3 050	2 960
<hr/>								
828	1 032	5	0.17	4.05	6.04	3.96	487	471
836	1 114	6	0.21	3.15	4.69	3.08	890	859
836	1 114	6	0.28	2.41	3.59	2.36	1 190	1 170
844	1 236	8	0.29	2.32	3.45	2.27	1 890	1 830
<hr/>								
878	1 092	5	0.16	4.25	6.32	4.15	550	532
886	1 184	6	0.20	3.32	4.95	3.25	1 050	1 010
886	1 184	6	0.28	2.42	3.61	2.37	1 410	1 390
904	1 306	10	0.28	2.37	3.54	2.32	2 270	2 200
<hr/>								
928	1 152	5	0.16	4.32	6.44	4.23	623	603
936	1 244	6	0.20	3.32	4.95	3.25	1 170	1 130
936	1 244	6	0.27	2.48	3.70	2.43	1 570	1 540
954	1 366	10	0.28	2.42	3.60	2.36	2 500	2 420
<hr/>								
986	1 214	6	0.16	4.20	6.26	4.11	774	749
986	1 324	6	0.21	3.26	4.85	3.18	1 430	1 380
986	1 324	6	0.28	2.39	3.56	2.34	1 970	1 940
<hr/>								
1 036	1 284	6	0.16	4.21	6.26	4.11	916	887
1 036	1 384	6	0.20	3.37	5.02	3.29	1 580	1 520
1 036	1 384	6	0.27	2.51	3.73	2.45	2 110	2 080
<hr/>								
1 096	1 364	6	0.16	4.28	6.37	4.19	1 090	1 060
1 104	1 456	8	0.20	3.36	5.00	3.28	1 850	1 790
1 104	1 456	8	0.27	2.49	3.71	2.44	2 450	2 140

Note: Please refer to page B-220 for outer ring oil inlet and oil groove dimensions.



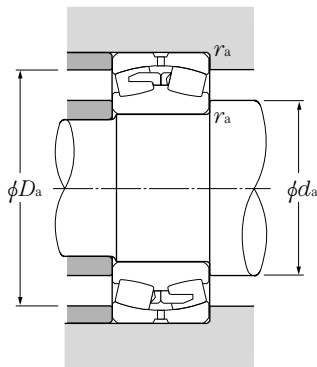
Cylindrical bore

Tapered bore

d 1120 ~ 1400mm

	Boundary dimensions			dynamic C_r	Basic load ratings		dynamic C_r	static C_{or}	Limiting speeds		Bearing numbers	
	mm				static kN	static kgf			grease	oil	cylindrical bore	tapered ¹⁾ bore
<i>d</i>	<i>D</i>	<i>B</i>	$r_{s\ min}^{2)}$									
1120	1 460	250	7.5	9 850	26 700	1 000 000	2 720 000	150	200	239/1120	239/1120K	
	1 580	345	9.5	15 600	39 000	1 590 000	4 000 000	150	190	230/1120B	230/1120BK	
	1 580	462	9.5	19 500	52 500	1 990 000	5 350 000	120	160	240/1120B	240/1120BK30	
1180	1 540	272	7.5	11 000	29 800	1 120 000	3 050 000	140	180	239/1180	239/1180K	
1250	1 630	280	7.5	12 100	33 500	1 230 000	3 400 000	120	160	239/1250	239/1250K	
1320	1 720	300	7.5	13 600	38 000	1 390 000	3 900 000	120	150	239/1320	239/1320K	
1400	1 820	315	9.5	15 100	43 000	1 540 000	4 400 000	100	130	239/1400	239/1400K	

1) "K" indicates bearings have tapered bore with a taper ratio of 1: 12.
 2) Smallest allowable dimension for chamfer dimension *r*.



Equivalent radial load

dynamic
 $P_r = XF_r + YF_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

static

$P_{or} = F_r + Y_0 F_a$

For values of e , Y_2 and Y_0 see the table below.

Abutment and fillet dimensions			Constant	Axial load factors			Mass (approx.)	
d_a	D_a	r_{as}	e	Y_1	Y_2	Y_0	cylindrical bore	tapered bore
min	max	max					kg	
1 156	1 424	6	0.15	4.42	6.58	4.32	1 140	1 100
1 164	1 536	8	0.21	3.29	4.80	3.21	2 160	2 090
1 164	1 536	8	0.27	2.50	3.72	2.44	2 890	2 840
1 216	1 504	6	0.15	4.40	6.55	4.30	1 390	1 340
1 286	1 594	6	0.15	4.42	6.58	4.32	1 600	1 550
1 356	1 684	6	0.16	4.34	6.46	4.24	1 900	1 840
1 444	1 776	8	0.15	4.39	6.54	4.29	2 230	2 160

Note: Please refer to page B-220 for outer ring oil inlet and oil groove dimensions.

