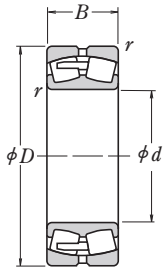
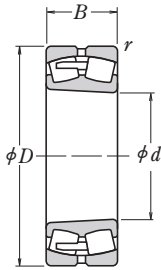


SPHERICAL ROLLER BEARINGS

Bore Diameter 200 – 220 mm



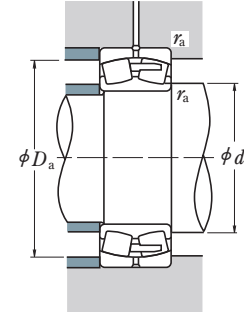
Cylindrical Bore



Tapered Bore



Without an Oil Groove and Holes


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	0.67	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 given in the table below.

Boundary Dimensions (mm)				Basic Load Ratings (N)		Speeds (min ⁻¹) Limiting Speeds				Bearing Designations		Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors				Mass (kg)
d	D	B	r min.	C_r	C_{0r}	Thermal Speed Rating (Oil Bath)	Mechanical (Forced Oil Circulation)	Grease	Oil (Oil Bath)	Cylindrical Bore	Tapered Bore ⁽¹⁾	d_a min.	d_a max.	D_a max.	D_a min.	r_a max.	e	Y_2	Y_3	Y_0	approx.
200	280	60	2.1	710 000	1 060 000	2 400	2 600	1 100	1 400	*23940CAME4	*23940CAMKE4	212	—	268	258	2	0.20	5.1	3.4	3.3	11
	310	82	2.1	1 180 000	1 700 000	1 800	2 400	1 000	1 300	*23040CAME4	*23040CAMKE4	212	—	298	279	2	0.25	4.0	2.7	2.6	22.6
	310	109	2.1	1 420 000	2 120 000	1 300	2 000	850	1 100	*24040CAME4	*24040CAMK30E4	212	—	298	271	2	0.33	3.0	2.0	2.0	30.4
	310	109	2.1	1 430 000	2 120 000	1 300	2 000	850	1 100	*24040CE4	*24040CK30E4	212	223	298	271	2	0.32	3.1	2.1	2.0	30.4
	340	112	2.1	1 700 000	2 330 000	1 500	2 000	800	1 000	*23140CAME4	*23140CAMKE4	214	—	326	293	2.5	0.32	3.2	2.1	2.1	42.7
	340	112	3	1 700 000	2 330 000	1 500	2 000	800	1 000	*23140CE4	*23140CKE4	214	232	326	293	2.5	0.31	3.2	2.2	2.1	42.7
	340	140	3	1 960 000	2 660 000	950	1 800	800	1 000	*24140CAME4	*24140CAMK30E4	214	—	326	290	2.5	0.39	2.5	1.7	1.7	51.3
	340	140	3	1 960 000	2 670 000	950	1 800	800	1 000	*24140CE4	*24140CK30E4	214	226	326	290	2.5	0.39	2.6	1.8	1.7	51.3
	360	98	4	1 620 000	2 010 000	1 700	2 200	950	1 200	*22240CAME4	*22240CAMKE4	218	—	342	315	3	0.26	3.8	2.6	2.5	42.6
	360	128	4	2 070 000	2 750 000	1 100	1 800	750	1 000	*23240CAME4	*23240CAMKE4	218	—	342	307	3	0.35	2.9	1.9	1.9	57.1
	360	128	4	2 070 000	2 750 000	1 100	1 800	750	1 000	*23240CE4	*23240CKE4	218	237	342	307	3	0.34	2.9	2.0	1.9	57.1
	420	138	5	2 500 000	2 990 000	1 100	1 700	850	1 000	*22340CAME4	*22340CAMKE4	222	—	398	352	4	0.34	2.9	2.0	1.9	92.6
220	300	60	2.1	785 000	1 240 000	2 200	2 600	1 000	1 300	*23944CAME4	*23944CAMKE4	232	—	288	278	2	0.18	5.7	3.8	3.7	12.2
	340	90	3	1 360 000	1 980 000	1 600	2 200	950	1 200	*23044CAME4	*23044CAMKE4	234	—	326	302	2.5	0.24	4.1	2.8	2.7	29.7
	340	118	3	1 640 000	2 490 000	1 200	1 900	750	1 000	*24044CAME4	*24044CAMK30E4	234	—	326	296	2.5	0.32	3.2	2.1	2.1	40.5
	340	118	3	1 700 000	2 600 000	1 200	1 900	750	1 000	*24044CE4	*24044CK30E4	234	244	326	296	2.5	0.31	3.2	2.1	2.1	40.5
	370	120	4	1 960 000	2 710 000	1 300	1 800	710	950	*23144CAME4	*23144CAMKE4	238	—	352	320	3	0.31	3.3	2.2	2.2	53
	370	120	4	1 960 000	2 710 000	1 300	1 800	710	950	*23144CE4	*23144CKE4	238	254	352	320	3	0.30	3.3	2.2	2.2	53
	370	150	4	2 250 000	3 200 000	850	1 600	710	950	*24144CAME4	*24144CAMK30E4	238	—	352	313	3	0.39	2.6	1.7	1.7	66.7
	370	150	4	2 250 000	3 200 000	850	1 600	710	950	*24144CE4	*24144CK30E4	238	248	352	313	3	0.39	2.6	1.7	1.7	66.7
	400	108	4	1 960 000	2 430 000	1 500	2 000	850	1 000	*22244CAME4	*22244CAMKE4	238	—	382	348	3	0.27	3.7	2.5	2.4	59
	400	144	4	2 520 000	3 400 000	1 000	1 600	670	900	*23244CAME4	*23244CAMKE4	238	—	382	337	3	0.36	2.8	1.9	1.8	80.4
	400	144	4	2 520 000	3 400 000	1 000	1 600	670	900	*23244CE4	*23244CKE4	238	260	382	337	3	0.35	2.9	1.9	1.9	80.4
	460	145	5	2 940 000	3 400 000	950	1 600	750	950	*22344CAME4	*22344CAMKE4	242	—	438	391	4	0.33	3.0	2.0	2.0	116

 Note ⁽¹⁾ Suffixes K and K30 represent bearings with tapered bores (taper 1:12 or 1:30).

- Remarks**
- Bearings denoted by an asterisk (*) are NSK HPS bearings; they come standard with an oil groove and holes.
 - The recommended fits (shaft tolerances) on Page A164 are different for NSK HPS bearings, with light loads defined as $\leq 0.05C_r$, normal loads as 0.05 to $0.10C_r$, and heavy loads as $> 0.10C_r$.
 - For the dimensions of adapters and withdrawal sleeves, refer to Pages C353 and C359.