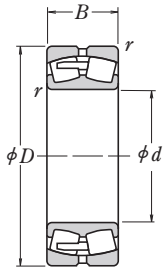
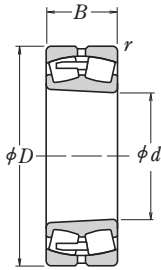


SPHERICAL ROLLER BEARINGS

Bore Diameter 180 – 190 mm



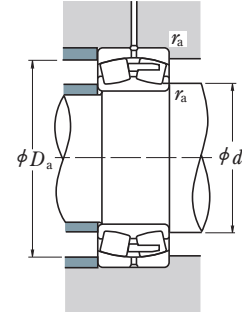
Cylindrical Bore



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.
180	250	52	2	590 000	890 000	2 600	3 000	1 200	1 600	*23936CAME4	*23936CAMKE4	190	—	240	230	2	0.18	5.5	3.7	3.6	7.64
	280	74	2.1	935 000	1 270 000	2 000	2 800	1 200	1 400	*23036CAME4	*23036CAMKE4	192	—	268	249	2	0.24	4.2	2.8	2.8	17.1
	280	74	2.1	935 000	1 270 000	2 000	2 800	1 200	1 400	*23036CDE4	*23036CDKE4	192	202	268	249	2	0.24	4.2	2.8	2.8	17.1
	280	100	2.1	1 210 000	1 750 000	1 500	2 200	950	1 200	*24036CAME4	*24036CAMK30E4	192	—	268	245	2	0.32	3.1	2.1	2.0	22.7
	280	100	2.1	1 210 000	1 750 000	1 500	2 200	950	1 200	*24036CE4	*24036CK30E4	192	200	268	245	2	0.32	3.1	2.1	2.0	22.7
	300	96	3	1 320 000	1 760 000	1 700	2 200	900	1 200	*23136CAME4	*23136CAMKE4	194	—	286	260	2.5	0.31	3.3	2.2	2.2	27.5
	300	96	3	1 320 000	1 760 000	1 700	2 200	900	1 200	*23136CE4	*23136CKE4	194	206	286	260	2.5	0.30	3.4	2.3	2.2	27.5
	300	118	3	1 490 000	2 040 000	1 100	2 000	900	1 200	*24136CAME4	*24136CAMK30E4	194	—	286	255	2.5	0.37	2.7	1.8	1.8	33.1
	300	118	3	1 490 000	2 040 000	1 100	2 000	900	1 200	*24136CE4	*24136CK30E4	194	202	286	255	2.5	0.37	2.7	1.8	1.8	33.1
	320	86	4	1 280 000	1 540 000	2 000	2 600	1 100	1 300	*22236CAME4	*22236CAMKE4	198	—	302	278	3	0.26	3.9	2.6	2.6	30.2
	320	86	4	1 280 000	1 540 000	2 000	2 600	1 100	1 300	*22236CDE4	*22236CDKE4	198	212	302	278	3	0.26	3.9	2.6	2.6	30.2
	320	112	4	1 620 000	2 110 000	1 300	2 000	850	1 100	*23236CAME4	*23236CAMKE4	198	—	302	274	3	0.35	2.9	1.9	1.9	38.9
	320	112	4	1 630 000	2 110 000	1 300	2 000	850	1 100	*23236CE4	*23236CKE4	198	211	302	274	3	0.33	3.0	2.0	2.0	38.9
	380	126	4	2 170 000	2 340 000	1 200	2 000	950	1 200	*22336CAME4	*22336CAMKE4	198	—	362	322	3	0.34	2.9	2.0	1.9	67
	260	52	2	575 000	875 000	2 600	3 000	1 200	1 500	*23938CAME4	*23938CAMKE4	200	—	250	240	2	0.18	5.7	3.8	3.7	8.03
	290	75	2.1	970 000	1 350 000	2 000	2 600	1 100	1 400	*23038CAME4	*23038CAMKE4	202	—	278	261	2	0.24	4.2	2.8	2.8	17.6
	290	100	2.1	1 220 000	1 840 000	1 400	2 200	900	1 200	*24038CAME4	*24038CAMK30E4	202	—	278	253	2	0.32	3.1	2.1	2.0	24
190	290	100	2.1	1 220 000	1 840 000	1 400	2 200	900	1 200	*24038CE4	*24038CK30E4	202	210	278	253	2	0.31	3.2	2.2	2.1	24
	320	104	3	1 480 000	2 020 000	1 600	2 200	850	1 100	*23138CAME4	*23138CAMKE4	204	—	306	276	2.5	0.31	3.2	2.2	2.1	34.5
	320	104	3	1 480 000	2 020 000	1 600	2 200	850	1 100	*23138CE4	*23138CKE4	204	219	306	276	2.5	0.31	3.3	2.2	2.2	34.5
	320	128	3	1 710 000	2 330 000	1 000	1 900	850	1 100	*24138CAME4	*24138CAMK30E4	204	—	306	269	2.5	0.40	2.5	1.7	1.6	41.5
	320	128	3	1 710 000	2 330 000	1 000	1 900	850	1 100	*24138CE4	*24138CK30E4	204	211	306	269	2.5	0.40	2.5	1.7	1.6	41.5
	340	92	4	1 420 000	1 730 000	1 800	2 400	1 000	1 200	*22238CAME4	*22238CAMKE4	208	—	322	296	3	0.26	3.8	2.6	2.5	35.5
	340	120	4	1 800 000	2 350 000	1 200	1 900	800	1 100	*23238CAME4	*23238CAMKE4	208	—	322	288	3	0.35	2.8	1.9	1.9	47.6
	340	120	4	1 800 000	2 350 000	1 200	1 900	800	1 100	*23238CE4	*23238CKE4	208	222	322	288	3	0.35	2.9	1.9	1.9	47.6
	400	132	5	2 370 000	2 590 000	1 200	1 900	900	1 100	*22338CAME4	*22338CAMKE4	212	—	378	338	4	0.34	2.9	2.0	1.9	77.6

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

Remarks

- Bearings denoted by an asterisk (*) are NSKPS bearings; they come standard with an oil groove and holes.
- The recommended fits (shaft tolerances) on Page A164 are different for NSKPS 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 C352 and C358.