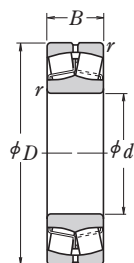
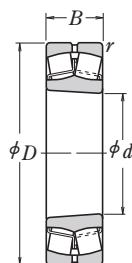


Bore Diameter 95 – 110 mm



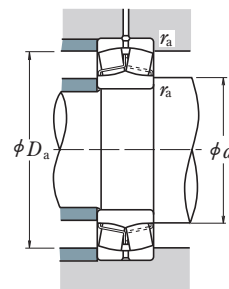
Cylindrical Bore



Tapered Bore



Without an Oil Groove or 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.
95	170	43	2.1	415 000	450 000	3 800	4 500	3 000	3 800	*22219EAE4	*22219EAKE4	107	115	158	152	2	0.24	4.3	2.9	2.8		4.04
	170	55.6	2.1	370 000	525 000	2 600	—	1 700	2 200	*23219CAME4	*23219CAMKE4	107	—	158	146	2	0.32	3.1	2.1	2.0		5.33
	200	45	3	430 000	435 000	3 600	4 800	1 500	2 000	*21319CAME4	*21319CAMKE4	109	—	186	172	2.5	0.22	4.6	3.1	3.0		6.92
	200	45	3	430 000	435 000	3 600	4 800	1 500	2 000	*21319CE4	*21319CKE4	109	127	186	172	2.5	0.22	4.6	3.1	3.0		6.92
	200	67	3	735 000	780 000	2 600	3 000	2 200	2 800	*22319EAE4	*22319EAKE4	109	121	186	172	2.5	0.33	3.1	2.1	2.0		9.91
	150	37	1.5	212 000	335 000	3 200	—	2 200	2 800	23020CDE4	23020CDKE4	109	112	141	136	1.5	0.22	4.6	3.1	3.0		2.31
	150	50	1.5	276 000	470 000	2 800	—	1 800	2 400	24020CE4	24020CK30E4	109	110	141	132	1.5	0.30	3.4	2.3	2.2		3.08
	165	52	2	345 000	530 000	2 800	—	1 700	2 200	23120CE4	23120CKE4	110	113	155	144	2	0.30	3.4	2.3	2.2		4.38
	165	65	2	345 000	535 000	2 400	—	1 700	2 200	24120CAME4	24120CAMK30E4	110	—	155	143	2	0.35	2.9	1.9	1.9		5.42
	180	46	2.1	455 000	490 000	3 600	4 300	2 800	3 600	*22220EAE4	*22220EAKE4	112	119	168	160	2	0.24	4.3	2.9	2.8		4.84
	180	60.3	2.1	525 000	605 000	2 800	3 800	1 600	2 200	*23220CAME4	*23220CAMKE4	112	—	168	155	2	0.32	3.2	2.1	2.1		6.6
	180	60.3	2.1	525 000	605 000	2 800	3 800	1 600	2 200	*23220CE4	*23220CKE4	112	118	168	155	2	0.32	3.2	2.1	2.1		6.6
100	215	47	3	495 000	485 000	3 400	4 500	1 400	1 900	*21320CAME4	*21320CAMKE4	114	—	201	184	2.5	0.23	4.4	3.0	2.9		8.46
	215	47	3	495 000	485 000	3 400	4 500	1 400	1 900	*21320CE4	*21320CKE4	114	133	201	184	2.5	0.21	4.7	3.2	3.1		8.46
	215	73	3	860 000	930 000	—	2 400	1 800	2 400	*22320EAE4	*22320EAKE4	114	130	201	184	2.5	0.33	2.9	1.9	1.9		12.7
	170	45	2	293 000	465 000	3 200	—	2 000	2 400	23022CDE4	23022CDKE4	120	124	160	153	2	0.24	4.2	2.8	2.8		3.76
	170	60	2	380 000	645 000	2 600	—	1 600	2 200	24022CE4	24022CK30E4	120	121	160	148	2	0.32	3.1	2.1	2.1		4.96
	180	56	2	480 000	630 000	3 200	4 000	1 600	2 000	*23122CAME4	*23122CAMKE4	120	—	170	158	2	0.28	3.5	2.4	2.3		5.7
	180	56	2	480 000	630 000	3 200	4 000	1 600	2 000	*23122CE4	*23122CKE4	120	127	170	158	2	0.28	3.5	2.4	2.3		5.7
	180	69	2	575 000	750 000	2 200	3 400	1 600	2 000	*24122CAME4	*24122CAMK30E4	120	—	170	154	2	0.36	2.8	1.9	1.8		6.84
	180	69	2	575 000	750 000	2 200	3 400	1 600	2 000	*24122CE4	*24122CK30E4	120	123	170	154	2	0.36	2.8	1.9	1.8		6.84
	200	53	2.1	605 000	645 000	3 400	3 400	2 600	3 200	*22222EAE4	*22222EAKE4	122	129	188	178	2	0.25	4.0	2.7	2.6		6.99
	200	69.8	2.1	645 000	760 000	2 600	3 400	1 500	1 900	*23222CAME4	*23222CAMKE4	122	—	188	170	2	0.34	3.0	2.0	1.9		9.54
	200	69.8	2.1	645 000	760 000	2 600	3 400	1 500	1 900	*23222CE4	*23222CKE4	122	130	188	170	2	0.34	3.0	2.0	1.9		9.54
	240	50	3	565 000	545 000	3 000	4 300	1 300	1 700	*22322EAE4	*22322EAKE4	124	145	226	206	2.5	0.35	2.9	1.9	1.9		17.6
	240	80	3	1 030 000	1 120 000	—	1 900	1 400	1 900	*22322CE4	*22322CKE4	124	145	226	206	2.5	0.35	2.9	1.9	1.9		17.6

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

Remarks

- Bearings denoted by an asterisk (*) are NSKHPS bearings; they come standard with an oil groove and holes.
- The recommended fits (shaft tolerances) on Page A164 are different for NSKHPS 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 C351 and C357.