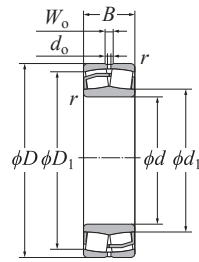
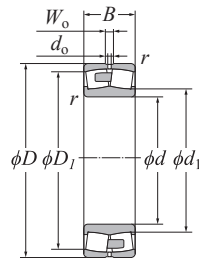


● Spherical Roller Bearings

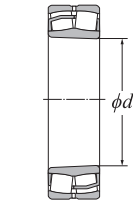
NTN



Cylindrical bore
[Type EA]



Cylindrical bore
[Type EM]



Tapered bore

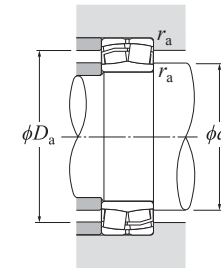
d 130–160 mm

Boundary dimensions					Basic load rating			Fatigue load limit	Allowable speed		Bearing numbers ¹⁾	
mm					dynamic	static	kN C _u	min ⁻¹		Cylindrical bore	Tapered bore ²⁾	
d	D	B	r _{s min} ³⁾	W _o	d _o	C _r		C _{0r}	Grease lubrication			Oil lubrication
130	200	69	2	9	4	682	936	42.2	1 900	2 400	*24026EMD1	*24026EMK30D1
	210	64	2	10	4.5	710	906	47.1	1 900	2 400	*23126EAD1	*23126EAKD1
	210	64	2	10	4.5	710	906	47.1	1 900	2 400	*23126EMD1	*23126EMKD1
	210	80	2	10	4.5	803	1 080	45.0	1 800	2 400	*24126EMD1	*24126EMK30D1
	230	64	3	13	6	808	898	56.6	2 200	2 800	*22226EAD1	*22226EAKD1
	230	64	3	13	6	808	898	56.6	2 200	2 800	*22226EMD1	*22226EMKD1
	230	80	3	12	5	958	1 130	55.4	1 700	2 300	*23226EMD1	*23226EMMKD1
	280	93	4	19	9	1 330	1 400	77.8	1 600	2 000	*22326EAD1	*22326EAKD1
280	93	4	19	9	1 330	1 400	77.8	1 600	2 000	*22326EMD1	*22326EMKD1	
140	210	53	2	9	4	597	783	47.5	2 100	2 700	*23028EAD1	*23028EAKD1
	210	53	2	9	4	597	783	47.5	2 100	2 700	*23028EMD1	*23028EMKD1
	210	69	2	9	4	709	990	46.0	1 800	2 200	*24028EMD1	*24028EMK30D1
	225	68	2.1	11	5	802	1 030	53.1	1 800	2 200	*23128EAD1	*23128EAKD1
	225	68	2.1	11	5	802	1 030	53.1	1 800	2 200	*23128EMD1	*23128EMKD1
	225	85	2.1	10	4.5	951	1 280	53.3	1 700	2 200	*24128EMD1	*24128EMK30D1
	250	68	3	14	7	912	1 010	65.8	2 000	2 500	*22228EAD1	*22228EAKD1
	250	68	3	14	7	912	1 010	65.8	2 000	2 500	*22228EMD1	*22228EMKD1
	250	88	3	13	6	1 140	1 370	64.2	1 600	2 100	*23228EMD1	*23228EMKD1
300	102	4	19	9	1 540	1 720	88.8	1 500	1 900	*22328EAD1	*22328EAKD1	
300	102	4	19	9	1 540	1 720	88.8	1 500	1 900	*22328EMD1	*22328EMKD1	
150	225	56	2.1	10	4.5	660	893	52.9	2 000	2 500	*23030EAD1	*23030EAKD1
	225	56	2.1	10	4.5	660	893	52.9	2 000	2 500	*23030EMD1	*23030EMKD1
	225	75	2.1	10	4.5	789	1 140	51.2	1 700	2 100	*24030EMD1	*24030EMK30D1
	250	80	2.1	13	6	1 060	1 350	65.1	1 600	2 000	*23130EAD1	*23130EAKD1
	250	80	2.1	13	6	1 060	1 350	65.1	1 600	2 000	*23130EMD1	*23130EMKD1
	250	100	2.1	12	6	1 180	1 590	62.8	1 600	2 000	*24130EMD1	*24130EMK30D1
	270	73	3	15	7	1 080	1 220	74.4	1 800	2 300	*22230EAD1	*22230EAKD1
	270	73	3	15	7	1 080	1 220	74.4	1 800	2 300	*22230EMD1	*22230EMKD1
270	96	3	14	6	1 340	1 620	74.0	1 500	1 900	*23230EMD1	*23230EMKD1	
320	108	4	20	9	1 740	1 890	98.9	1 400	1 700	*22330EMD1	*22330EMKD1	
160	220	45	2	9	4	455	683	45.6	1 900	2 400	*23932EMD1	*23932EMKD1
	240	60	2.1	11	5	748	1 000	59.1	1 800	2 300	*23032EAD1	*23032EAKD1
	240	60	2.1	11	5	748	1 000	59.1	1 800	2 300	*23032EMD1	*23032EMKD1
	240	80	2.1	10	5	901	1 290	56.8	1 600	2 000	*24032EMD1	*24032EMK30D1
	270	86	2.1	14	6	1 220	1 580	73.6	1 500	1 900	*23132EAD1	*23132EAKD1
270	86	2.1	14	6	1 220	1 580	73.6	1 500	1 900	*23132EMD1	*23132EMKD1	

1) Bearing numbers with "*" are ULTAGE™ series and have outer ring oil inlets and oil grooves as standard. 2) Bearings appended with "K" have a tapered bore ratio of 1:12; bearings appended with "K30" have a tapered bore ratio of 1:30. 3) Smallest allowable dimension for chamfer dimension r.

● Spherical Roller Bearings

NTN



Dynamic 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 equivalent radial load

$$P_{0r} = F_r + Y_0 F_a$$

For values of e, Y₁, Y₂
and Y₀ see the table below.

Installation-related dimensions				Constant	Axial load factors				Mass (approx.)	
d ₁	d _a Min.	mm D _a Max.	D ₁	r _{as} Max.	e	Y ₁	Y ₂	Y ₀	Cylindrical bore kg	Tapered bore
143	139	191	178	2	0.31	2.20	3.27	2.15	7.82	7.71
148	141	199	189	2	0.27	2.51	3.74	2.45	8.45	8.19
148	141	199	189	2	0.27	2.51	3.74	2.45	8.51	8.25
146	141	199	183	2	0.34	1.96	2.92	1.92	10.7	10.5
151	144	216	206	3	0.25	2.69	4.00	2.63	11	10.7
151	144	216	206	3	0.25	2.69	4.00	2.63	11.1	10.9
150	144	216	203	3	0.32	2.12	3.15	2.07	13.8	13.4
164	147	263	243	4	0.33	2.06	3.06	2.01	27.2	26.6
164	147	263	243	4	0.33	2.06	3.06	2.01	28	27.5
155	149	201	193	2	0.22	3.14	4.67	3.07	6.32	6.13
155	149	201	193	2	0.22	3.14	4.67	3.07	6.37	6.18
153	149	201	188	2	0.28	2.37	3.53	2.32	8.27	8.15
159	152	213	203	2.1	0.26	2.55	3.80	2.50	10.3	9.94
159	152	213	203	2.1	0.26	2.55	3.80	2.50	10.3	10
156	152	213	198	2.1	0.34	1.98	2.94	1.93	12.9	12.8
163	154	236	224	3	0.25	2.74	4.08	2.68	13.9	13.6
163	154	236	224	3	0.25	2.74	4.08	2.68	14.2	13.9
162	154	236	220	3	0.33	2.06	3.06	2.01	18.2	17.7
181	157	283	261	4	0.33	2.03	3.02	1.98	34.4	33.7
181	157	283	261	4	0.33	2.03	3.02	1.98	35.4	34.7
167	161	214	207	2.1	0.21	3.20	4.77	3.13	7.68	7.45
167	161	214	207	2.1	0.21	3.20	4.77	3.13	7.73	7.5
165	161	214	202	2.1	0.29	2.32	3.45	2.26	10.4	10.3
171	162	238	223	2.1	0.29	2.35	3.50	2.30	15.7	15.2
171	162	238	223	2.1	0.29	2.35	3.50	2.30	15.8	15.3
168	162	238	216	2.1	0.36	1.85	2.76	1.81	19.7	19.4
177	164	256	242	3	0.25	2.74	4.08	2.68	17.6	17.3
177	164	256	242	3	0.25	2.74	4.08	2.68	18	17.7
174	164	256	237	3	0.33	2.03	3.02	1.98	23.6	22.9
188	167	303	279	4	0.34	2.00	2.98	1.96	42.2	41.3
175	169	211	205	2	0.17	3.90	5.81	3.81	5.09	4.94
177	171	229	221	2.1	0.21	3.20	4.77	3.13	9.32	9.03
177	171	229	221	2.1	0.21	3.20	4.77	3.13	9.37	9.09
175	171	229	215	2.1	0.29	2.32	3.45	2.26	12.6	12.4
185	172	258	240	2.1	0.29	2.35	3.50	2.30	20.1	19.5
185	172	258	240	2.1	0.29	2.35	3.50	2.30	20.2	19.6