

2. Cylindrical Roller Bearings

Features

Cylindrical roller bearings (CRB) feature higher radial rigidity and can take higher radial loads than ball bearings; this makes them especially suitable for applications that require high rigidity such as lathe spindles, and for use as rear end bearings subjected to large belt loads.

The optimized internal design and cage shape of NSK cylindrical roller bearings are the reason why they achieve low heat generation and stable operation in high-speed applications.

Double-row cylindrical roller bearings are also available in "E44" specification for oil lubrication with lubrication holes and oil groove in the center of the outer ring.

Different types and their features

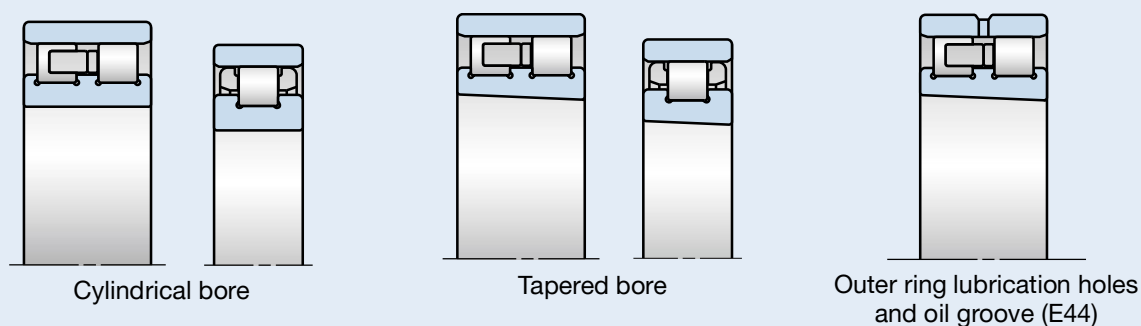
NN type cylindrical roller bearings are equipped with ribs on the inner ring, NNU type bearings with ribs on the outer ring. The NN type is widely used, as initial running-in with grease lubrication is short, and oil is prevented from accumulating inside the bearing with oil lubrication.

Bearing type	Cage	Specification	Available Sizes
NN	MB	Roller guided brass cage	NN3005-NN3048 (NN3008-NN3048)
			NN3920-NN3956 (NN3920-NN3952)
	TB	Roller guided PPS cage	NN4920-NN4948 (NN4920-NN4948)
NNU	MB	Roller guided brass cage	NN3006-NN3032 (NN3008-NN3032)
N	MR	Roller guided brass cage	NN4920-NNU4948 (NNU4920-NNU4948)
NSKROBUST Series	TP	Outer ring guided PEEK cage	N1006-N1044 (N1007-N1044)
			N1009-N1017

The values in brackets indicate bearing sizes for which NSKHPS and APTSURF are available. For further information, please refer to page 25.

Bore Specifications and Lubrication Holes

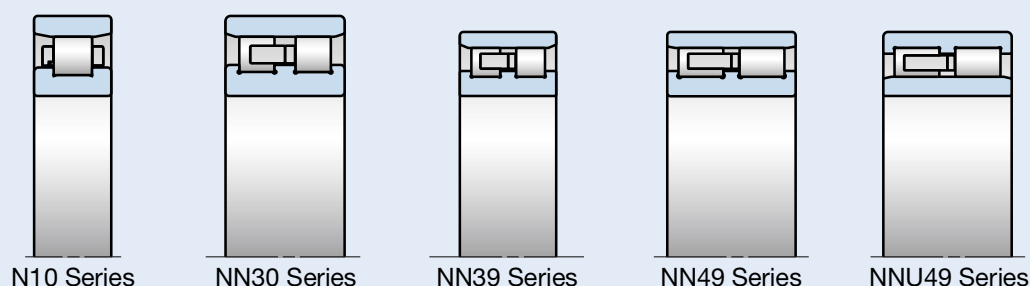
Fig. 2.1



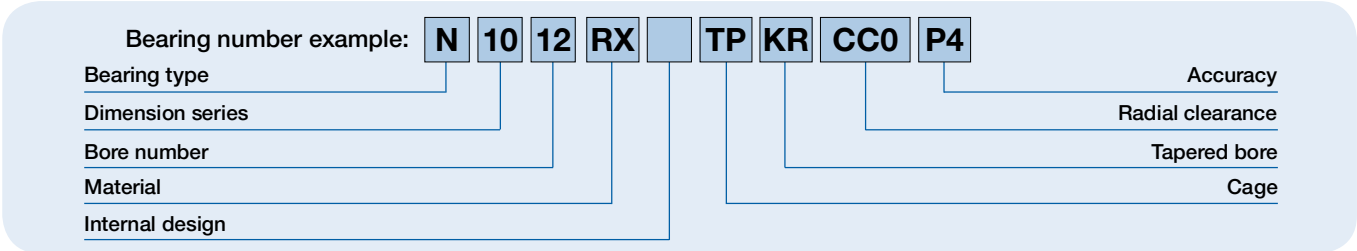
Both cylindrical bore and tapered bore are available. We recommend the latter, as the tapered bore makes it possible to adjust the radial internal clearance after mounting. Thus, dispersion in clearance after assembly may be avoided.

Bearing Types and Dimension Series

Fig. 2.2

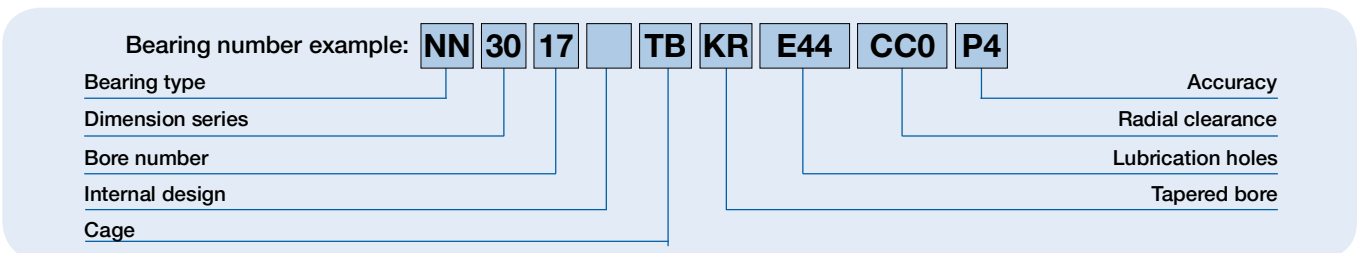


Numbering System of Single-Row Cylindrical Roller Bearings (Standard Series and NSKROBUST Series)



			Reference pages												
N	Bearing type	N: Single-row CRB (inner ring rib type)	46-47, 110												
10	Dimension series	10: 10 Series	46-47, 110												
12	Bore number	Bearing bore = Bore number × 5 (mm)	112-115												
RX	Material	No symbol: Standard CRB (material of inner and outer ring and rollers: SUJ2 bearing steel) RS, RX: Ultra high-speed single-row CRB (NSKROBUST Series)	14-15 24-25												
		<table border="1"> <thead> <tr> <th>Type</th> <th colspan="2">Material</th> </tr> <tr> <td></td> <th>Inner/Outer ring</th> <th>Rollers</th> </tr> </thead> <tbody> <tr> <td>RS</td> <td>Bearing steel (SUJ2)</td> <td>Bearing steel (SUJ2)</td> </tr> <tr> <td>RX</td> <td>Heat resistant steel for highspeed operation (SHX)</td> <td>Heat resistant steel for highspeed operation (SHX)</td> </tr> </tbody> </table>		Type	Material			Inner/Outer ring	Rollers	RS	Bearing steel (SUJ2)	Bearing steel (SUJ2)	RX	Heat resistant steel for highspeed operation (SHX)	Heat resistant steel for highspeed operation (SHX)
		Type		Material											
	Inner/Outer ring	Rollers													
RS	Bearing steel (SUJ2)	Bearing steel (SUJ2)													
RX	Heat resistant steel for highspeed operation (SHX)	Heat resistant steel for highspeed operation (SHX)													
Z	Internal design	No symbol: Standard type Z: Low heat generation type	112-115												
TP	Cage	TP: Outer ring guided PEEK cage No symbol: Rib guided brass cage MR: Roller guided brass cage	19, 24-25												
KR	Tapered bore	No symbol: Cylindrical bore KR (K): 1/12 Tapered bore	226-227												
CC0	Radial clearance	CC1: Standard clearance for cylindrical bore (Non-interchangeable)	46-47												
		CC0: Standard clearance for tapered bore (Non-interchangeable)	112-115												
		CCG: Special radial clearance													
P4	Accuracy	P2: ISO Class 2, P4: ISO Class 4, P5: ISO Class 5 P4Y: Special class (bore diameter and outside diameter are exclusive to NSK, all others are ISO Class 4)	222-225												

Numbering System of Double-Row Cylindrical Roller Bearings (High Rigidity Series)

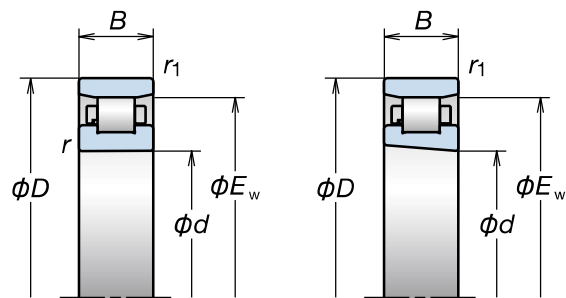


			Reference pages
NN	Bearing type	NN: Double-row CRB (inner ring rib type) NNU: Double-row CRB (outer ring rib type)	46-47, 110
30	Dimension series	30: 30 Series 39: 39 Series 49: 49 Series	46-47, 110
17	Bore number	Bearing bore = Bore number × 5 (mm)	116-127
Z	Internal design	No symbol: Standard type Z: Low heat generation type	116-127
TB	Cage	TB: Roller guided PPS cage No symbol: Rib guided brass cage MB: Roller guided brass cage	19, 24-25
KR	Tapered bore	No symbol: Cylindrical bore KR (K): 1/12 Tapered bore	226-227
E44	Lubrication holes	No symbol: No lubrication holes E44: Outer ring with oil groove and lubrication holes	116-127
CC0	Radial clearance	CC1: Standard clearance for cylindrical bore (Non-interchangeable)	46-47
		CC0: Standard clearance for tapered bore (Non-interchangeable)	116-127
		CCG: Special radial clearance	
P4	Accuracy	P2: ISO Class 2, P4: ISO Class 4, P5: ISO Class 5 P4Y: Special class (bore diameter and outside diameter are exclusive to NSK, all others are ISO Class 4)	222-225

2. Cylindrical Roller Bearings

Bore Diameter **30-70 mm**

Single-Row Cylindrical Roller Bearings



Cylindrical Bore

Tapered Bore

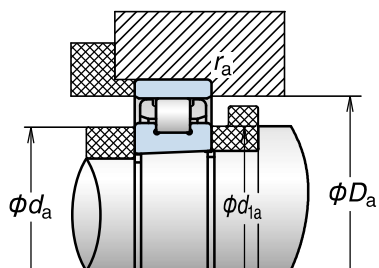
Bearing Numbers ⁽¹⁾ / ₍₂₎	Boundary Dimensions (mm)					Basic Load Ratings (kN)		E_w (mm) (reference)	Mass (kg) (approx.)	Limiting Speeds ⁽³⁾ (min^{-1})	
	d	D	B	r (min.)	r_1 (min.)	C_r (Dynamic)	C_{or} (Static)			Grease	Oil
* N1006MR1KR	30	55	13	1	0.6	19.7	19.6	48.5	0.135	19 000	31 000
* N1007MRKR	35	62	14	1	0.6	26.0	23.2	55	0.172	17 000	27 000
* N1008MRKR	40	68	15	1	0.6	31.5	29.0	61	0.213	15 000	25 000
* N1009MRKR	45	75	16	1	0.6	37.5	35.5	67.5	0.279	14 000	22 000
* N1009RSTPKR	45	75	16	1	0.6	26.9	29.4	67.5	0.243	16 000	23 000
* N1009RXTPKR	45	75	16	1	0.6	26.9	29.4	67.5	0.243	21 000	30 000
* N1009RSZTPKR	45	75	16	1	0.6	16.0	14.7	67.5	0.224	16 000	23 000
* N1009RXZTPKR	45	75	16	1	0.6	16.0	14.7	67.5	0.224	21 000	30 000
* N1010MRKR	50	80	16	1	0.6	37.0	36.0	72.5	0.286	13 000	20 000
* N1010RSTPKR	50	80	16	1	0.6	28.8	33.0	72.5	0.265	15 000	21 000
* N1010RXTPKR	50	80	16	1	0.6	28.8	33.0	72.5	0.265	20 000	27 000
* N1010RSZTPKR	50	80	16	1	0.6	17.1	16.5	72.5	0.244	15 000	21 000
* N1010RXZTPKR	50	80	16	1	0.6	17.1	16.5	72.5	0.244	20 000	27 000
* N1011BMR1KR	55	90	18	1.1	1	43.5	44.0	81	0.425	12 000	18 000
* N1011RSTPKR	55	90	18	1.1	1	35.0	39.5	81	0.383	13 000	19 000
* N1011RXTPKR	55	90	18	1.1	1	35.0	39.5	81	0.383	18 000	25 000
* N1011RSZTPKR	55	90	18	1.1	1	20.7	19.7	81	0.355	13 000	19 000
* N1011RXZTPKR	55	90	18	1.1	1	20.7	19.7	81	0.355	18 000	25 000
* N1012BMR1KR	60	95	18	1.1	1	46.0	48.5	86.1	0.454	11 000	17 000
* N1012RSTPKR	60	95	18	1.1	1	37.5	44.0	86.1	0.411	12 000	18 000
* N1012RXTPKR	60	95	18	1.1	1	37.5	44.0	86.1	0.411	17 000	23 000
* N1012RSZTPKR	60	95	18	1.1	1	22.2	22.1	86.1	0.380	12 000	18 000
* N1012RXZTPKR	60	95	18	1.1	1	22.2	22.1	86.1	0.380	17 000	23 000
* N1013BMR1KR	65	100	18	1.1	1	47.0	51.0	91	0.483	10 000	16 000
* N1013RSTPKR	65	100	18	1.1	1	39.5	49.0	91	0.440	11 000	17 000
* N1013RXTPKR	65	100	18	1.1	1	39.5	49.0	91	0.440	16 000	22 000
* N1013RSZTPKR	65	100	18	1.1	1	23.6	24.5	91	0.406	11 000	17 000
* N1013RXZTPKR	65	100	18	1.1	1	23.6	24.5	91	0.406	16 000	22 000
* N1014BMR1KR	70	110	20	1.1	1	57.5	63.0	100	0.668	9 000	15 000
* N1014RSTPKR	70	110	20	1.1	1	46.5	57.0	100	0.607	10 000	16 000
* N1014RXTPKR	70	110	20	1.1	1	46.5	57.0	100	0.607	15 000	20 000
* N1014RSZTPKR	70	110	20	1.1	1	27.8	28.5	100	0.563	10 000	16 000
* N1014RXZTPKR	70	110	20	1.1	1	27.8	28.5	100	0.563	15 000	20 000

⁽¹⁾ The suffix "K" or "KR" represents bearings with tapered bores (1 : 12). For the cylindrical bore type, eliminate the symbol and leave this symbol blank.

⁽²⁾ GN gauge is available for the bearings denoted by an asterisk (*). For GN gauge, please refer to Page 180.

⁽³⁾ For application of limiting speeds, please refer to Page 216.

⁽⁴⁾ Clearance CC9 is applicable to cylindrical roller bearings with tapered bores in ISO Tolerance Classes 5 and 4.



Abutment and Fillet Dimensions					Clearances in Bearings with Tapered Bores (μm)						Clearances in Bearings with Cylindrical Bores (μm)	
d_a (min.)	d_{1a} (min.)	D_a		r_a (max.)	CC9 (°)		CC0		CC1		CC1	
		(max.)	(min.)		min.	max.	min.	max.	min.	max.	min.	max.
35	36	51	49	0.5	5	10	8	15	10	25	5	15
40	41	58	56	0.5	5	12	8	15	12	25	5	15
45	46	64	62	0.6	5	12	8	15	12	25	5	15
50	51	71	68	0.6	5	15	10	20	15	30	5	18
50	51	71	68	0.6	5	15	10	20	15	30	5	18
50	51	71	68	0.6	5	15	10	20	15	30	5	18
50	51	71	68	0.6	5	15	10	20	15	30	5	18
50	51	71	68	0.6	5	15	10	20	15	30	5	18
55	56	76	73	0.6	5	15	10	20	15	30	5	18
55	56	76	73	0.6	5	15	10	20	15	30	5	18
55	56	76	73	0.6	5	15	10	20	15	30	5	18
55	56	76	73	0.6	5	15	10	20	15	30	5	18
55	56	76	73	0.6	5	15	10	20	15	30	5	18
61.5	63	85	82	1	5	15	10	20	15	35	5	20
61.5	63	85	82	1	5	15	10	20	15	35	5	20
61.5	63	85	82	1	5	15	10	20	15	35	5	20
61.5	63	85	82	1	5	15	10	20	15	35	5	20
61.5	63	85	82	1	5	15	10	20	15	35	5	20
66.5	68	90	87	1	5	15	10	20	15	35	5	20
66.5	68	90	87	1	5	15	10	20	15	35	5	20
66.5	68	90	87	1	5	15	10	20	15	35	5	20
66.5	68	90	87	1	5	15	10	20	15	35	5	20
66.5	68	90	87	1	5	15	10	20	15	35	5	20
71.5	73	95	92	1	5	15	10	20	15	35	5	20
71.5	73	95	92	1	5	15	10	20	15	35	5	20
71.5	73	95	92	1	5	15	10	20	15	35	5	20
71.5	73	95	92	1	5	15	10	20	15	35	5	20
71.5	73	95	92	1	5	15	10	20	15	35	5	20
76.5	78	105	101	1	10	20	15	30	20	40	10	25
76.5	78	105	101	1	10	20	15	30	20	40	10	25
76.5	78	105	101	1	10	20	15	30	20	40	10	25
76.5	78	105	101	1	10	20	15	30	20	40	10	25
76.5	78	105	101	1	10	20	15	30	20	40	10	25

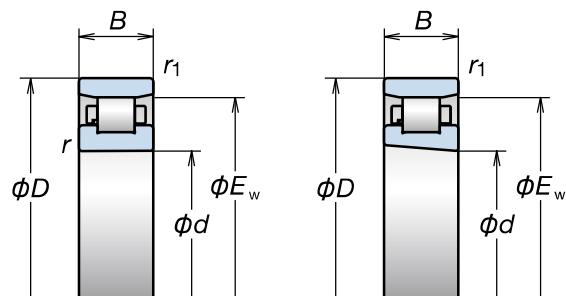
For additional information:

- Dynamic equivalent load P191
- Static equivalent load P198
- Nozzle Position P240
- Recommended Grease Quantities · P257

2. Cylindrical Roller Bearings

Bore Diameter **75-400mm**

Single-Row Cylindrical Roller Bearings



Cylindrical Bore

Tapered Bore

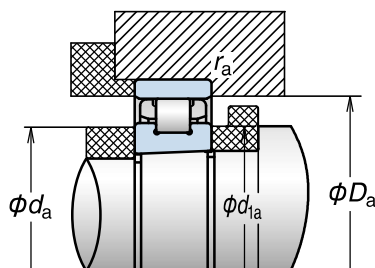
Bearing Numbers ⁽¹⁾ / ₍₂₎	Boundary Dimensions (mm)					Basic Load Ratings (kN)		E _w (mm) (reference)	Mass (kg) (approx.)	Limiting Speeds ⁽³⁾ (min ⁻¹)	
	d	D	B	r (min.)	r ₁ (min.)	C _r (Dynamic)	C _{0r} (Static)			Grease	Oil
* N1015MRKR	75	115	20	1.1	1	69.0	74.5	105	0.700	8 500	13 700
* N1015RSTPKR	75	115	20	1.1	1	49.5	63.0	105	0.645	9 900	15 000
* N1015RXTPKR	75	115	20	1.1	1	49.5	63.0	105	0.645	14 000	19 000
* N1015RSZTPKR	75	115	20	1.1	1	29.6	31.5	105	0.596	9 900	15 000
* N1015RXZTPKR	75	115	20	1.1	1	29.6	31.5	105	0.596	14 000	19 000
* N1016BMR1KR	80	125	22	1.1	1	73.0	82.0	113	0.957	7 900	12 700
* N1016RSTPKR	80	125	22	1.1	1	61.5	78.5	113	0.872	9 200	14 000
* N1016RXTPKR	80	125	22	1.1	1	61.5	78.5	113	0.872	13 000	17 000
* N1016RSZTPKR	80	125	22	1.1	1	36.5	39.5	113	0.805	9 200	14 000
* N1016RXZTPKR	80	125	22	1.1	1	36.5	39.5	113	0.805	13 000	17 000
* N1017BMR1KR	85	130	22	1.1	1	75.0	86.0	118	1.067	7 500	10 300
* N1017RSTPKR	85	130	22	1.1	1	65.0	86.0	118	0.933	8 800	13 000
* N1017RXTPKR	85	130	22	1.1	1	65.0	86.0	118	0.933	12 000	17 000
* N1017RSZTPKR	85	130	22	1.1	1	38.5	43.0	118	0.859	8 800	13 000
* N1017RXZTPKR	85	130	22	1.1	1	38.5	43.0	118	0.859	12 000	17 000
* N1018MRKR	90	140	24	1.5	1.1	101	114	127	1.27	7 000	9 600
* N1019BMR1KR	95	145	24	1.5	1.1	95.0	114	132	1.37	6 700	9 200
* N1020MRKR	100	150	24	1.5	1.1	107	126	137	1.46	6 400	8 800
* N1021BMR1KR	105	160	26	2	1.1	129	155	146	1.79	6 100	8 300
* N1022BMR1KR	110	170	28	2	1.1	144	173	155	2.22	5 800	7 900
* N1024MRKR	120	180	28	2	1.1	159	191	165	2.34	5 400	7 300
* N1026MRKR	130	200	33	2	1.1	198	238	182	3.55	4 900	6 700
* N1028BMR1KR	140	210	33	2	1.1	189	240	192	3.78	4 600	6 300
* N1030BMRKR	150	225	35	2.1	1.5	233	294	206	4.56	4 300	5 100
* N1032BMRKR	160	240	38	2.1	1.5	330	340	219	5.59	4 000	4 800
N1034MRKR	170	260	42	2.1	2.1	330	415	237	7.85	3 600	4 400
N1036MRKR	180	280	46	2.1	2.1	405	510	255	9.76	3 400	4 100
N1038KR	190	290	46	2.1	2.1	415	535	265	10.4	3 200	4 000
N1040MRKR	200	310	51	2.1	2.1	450	580	281	13.5	3 000	3 700
N1044MRKR	220	340	56	3	3	575	750	310	17.4	2 500	3 000
N1048KR	240	360	56	3	3	605	820	330	18.6	2 300	2 800
N1052KR	260	400	65	4	4	645	1 000	364	27.6	2 100	2 600
N1060KR	300	460	74	4	4	885	1 400	420	42.2	1 800	2 200
N1064KR	320	480	74	4	4	905	1 470	440	43.8	1 800	2 100
N1068KR	340	520	82	5	5	1 080	1 740	475	59.8	1 600	2 000
N1072KR	360	540	82	5	5	1 110	1 830	495	61.6	1 600	1 900
N1080KR	400	600	90	5	5	1 360	2 280	550	84.1	1 400	1 700

⁽¹⁾ The suffix "K" or "KR" represents bearings with tapered bores (1 : 12). For the cylindrical bore type, eliminate the symbol and leave this symbol blank.

⁽²⁾ GN gauge is available for the bearings denoted by an asterisk (*). For GN gauge, please refer to Page 180.

⁽³⁾ For application of limiting speeds, please refer to Page 216.

⁽⁴⁾ Clearance CC9 is applicable to cylindrical roller bearings with tapered bores in ISO Tolerance Classes 5 and 4.



Abutment and Fillet Dimensions					Clearances in Bearings with Tapered Bores (μm)						Clearances in Bearings with Cylindrical Bores (μm)	
d_a (min.)	d_{1a} (min.)	D_a		r_a (max.)	CC9 (°)		CC0		CC1		CC1	
		(max.)	(min.)		min.	max.	min.	max.	min.	max.	min.	max.
81.5	83	110	106	1	10	20	15	30	20	40	10	25
81.5	83	110	106	1	10	20	15	30	20	40	10	25
81.5	83	110	106	1	10	20	15	30	20	40	10	25
81.5	83	110	106	1	10	20	15	30	20	40	10	25
81.5	83	110	106	1	10	20	15	30	20	40	10	25
86.5	88	120	115	1	10	20	15	30	20	40	10	25
86.5	88	120	115	1	10	20	15	30	20	40	10	25
86.5	88	120	115	1	10	20	15	30	20	40	10	25
86.5	88	120	115	1	10	20	15	30	20	40	10	25
86.5	88	120	115	1	10	20	15	30	20	40	10	25
91.5	93	125	120	1	10	25	20	35	25	45	10	30
91.5	93	125	120	1	10	25	20	35	25	45	10	30
91.5	93	125	120	1	10	25	20	35	25	45	10	30
91.5	93	125	120	1	10	25	20	35	25	45	10	30
91.5	93	125	120	1	10	25	20	35	25	45	10	30
98	100	133.5	129	1	10	25	20	35	25	45	10	30
103	105	138.5	134	1	10	25	20	35	25	45	10	30
108	110	143.5	139	1	10	25	20	35	25	45	10	30
114	116	153.5	148	1	10	25	20	35	25	50	10	30
119	121	163.5	157	1	10	25	20	35	25	50	10	30
129	131	173.5	167	1	10	25	20	35	25	50	10	30
139	142	193.5	184	1	15	30	25	40	30	60	10	35
149	152	203.5	194	1	15	30	25	40	30	60	10	35
161	164	217	208	1.5	15	35	30	50	35	65	10	35
171	174	232	221	1.5	15	35	30	50	35	65	10	35
181	185	249	239	2	15	35	30	50	35	75	10	40
191	195	269	258	2	15	35	30	50	35	75	10	40
201	205	279	268	2	20	40	30	50	40	80	15	45
211	215	299	284	2	20	40	30	50	40	80	15	45
233	238	327	313	2.5	20	45	35	60	45	90	15	50
253	258	347	333	2.5	25	50	40	65	50	100	15	50
276	281	384	367	3	25	55	40	70	55	110	20	55
316	322	444	424	3	30	60	45	75	60	120	20	60
336	342	464	444	3	30	65	45	80	65	135	20	65
360	367	500	479	4	30	65	45	80	65	135	20	65
380	387	520	499	4	35	75	50	90	75	150	25	75
420	428	580	554.5	4	35	75	50	90	75	150	25	75

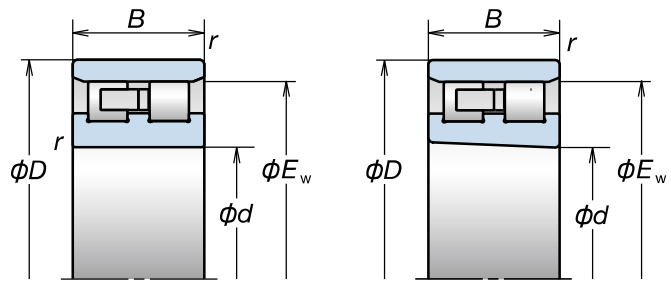
For additional information:

- Dynamic equivalent load P191
- Static equivalent load P198
- Nozzle Position P240
- Recommended Grease Quantities · P257

2. Cylindrical Roller Bearings

Bore Diameter **25-65 mm**

Double-Row Cylindrical Roller Bearings



Cylindrical Bore

Tapered Bore

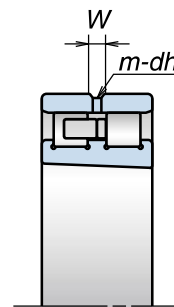
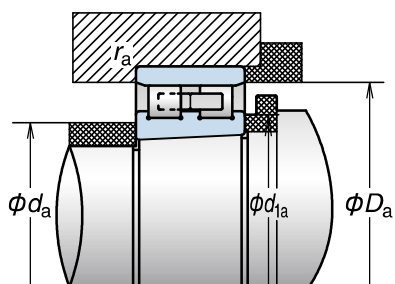
Bearing Numbers ⁽¹⁾ / ₍₂₎	Boundary Dimensions (mm)				Basic Load Ratings (kN)		E _w (mm) (reference)	Mass (kg) (approx.)	Limiting Speeds ⁽³⁾ (min ⁻¹)	
	d	D	B	r (min.)	C _r (Dynamic)	C _{0r} (Static)			Grease	Oil
* NN3005MBKR	25	47	16	0.6	25.8	30.0	41.3	0.121	20 900	25 000
* NN3006MBKR	30	55	19	1	31.0	37.0	48.5	0.186	17 700	21 200
* NN3006TBKR	30	55	19	1	31.0	37.0	48.5	0.171	20 000	23 600
* NN3006ZTBKR	30	55	19	1	18.3	18.6	48.5	0.152	21 000	27 900
* NN3007MBKR	35	62	20	1	39.5	50.0	55	0.297	15 500	18 600
* NN3007TBKR	35	62	20	1	39.5	50.0	55	0.227	17 600	20 700
* NN3007ZTBKR	35	62	20	1	23.3	25.0	55	0.198	18 400	24 500
* NN3008MBKR	40	68	21	1	50.0	55.5	61	0.356	13 900	16 700
* NN3008TBKR	40	68	21	1	50.0	55.5	61	0.269	15 800	18 600
* NN3008ZTBKR	40	68	21	1	29.6	27.7	61	0.234	16 600	22 000
* NN3009MBKR	45	75	23	1	59.5	68.5	67.5	0.471	12 500	15 000
* NN3009TBKR	45	75	23	1	57.5	65.5	67.5	0.348	14 200	16 700
* NN3009ZTBKR	45	75	23	1	34.0	32.5	67.5	0.302	14 900	19 800
* NN3010MBKR	50	80	23	1	61.0	72.5	72.5	0.502	11 600	13 900
* NN3010TBKR	50	80	23	1	61.0	72.5	72.5	0.378	13 100	15 400
* NN3010ZTBKR	50	80	23	1	36.5	36.5	72.5	0.328	13 800	18 300
* NN3011MBKR	55	90	26	1.1	79.5	96.5	81	0.748	10 400	12 500
* NN3011TBKR	55	90	26	1.1	79.5	96.5	81	0.562	11 800	13 800
* NN3011ZTBKR	55	90	26	1.1	47.5	48.5	81	0.488	12 400	16 400
* NN3012MBKR	60	95	26	1.1	84.5	106	86.1	0.804	9 700	11 700
* NN3012TBKR	60	95	26	1.1	84.5	106	86.1	0.602	11 000	13 000
* NN3012ZTBKR	60	95	26	1.1	50.0	53.0	86.1	0.522	11 600	15 400
* NN3013MBKR	65	100	26	1.1	88.5	116	91	0.862	9 100	11 000
* NN3013TBKR	65	100	26	1.1	88.5	116	91	0.644	10 400	12 200
* NN3013ZTBKR	65	100	26	1.1	52.5	58.0	91	0.557	10 900	14 500

⁽¹⁾ The suffix "K" or "KR" represents bearings with tapered bores (1 : 12). For the cylindrical bore type, eliminate the symbol and leave this symbol blank.

⁽²⁾ GN gauge is available for the bearings denoted by an asterisk (*). For GN gauge, please refer to Page 180.

⁽³⁾ For application of limiting speeds, please refer to Page 216.

⁽⁴⁾ Clearance CC9 is applicable to cylindrical roller bearings with tapered bores in ISO Tolerance Classes 5 and 4.



E44 Specification

Abutment and Fillet Dimensions (mm)					Clearances in Bearings with Tapered Bores (μm)						Clearances in Bearings with Cylindrical Bores (μm)		E44 Specification Lubrication Holes Dimensions (mm)		
d_a (min.)	d_{1a} (min.)	D_a		r_a (max.)	CC9 (*)		CC0		CC1		CC1		Hole Dia. dh	Oil Groove Width W	Number of Holes m
		(max.)	(min.)		min.	max.	min.	max.	min.	max.					
29	29	43	42	0.6	5	10	8	15	10	25	5	15	2	3.5	4
35	36	50	50	1	5	10	8	15	10	25	5	15	2	3.5	4
35	36	50	50	1	5	10	8	15	10	25	5	15	2	3.5	4
35	36	50	50	1	5	10	8	15	10	25	5	15	2	3.5	4
40	41	57	56	1	5	12	8	15	12	25	5	15	2	3.5	4
40	41	57	56	1	5	12	8	15	12	25	5	15	2	3.5	4
40	41	57	56	1	5	12	8	15	12	25	5	15	2	3.5	4
45	46	63	62	1	5	12	8	15	12	25	5	15	2	3.5	4
45	46	63	62	1	5	12	8	15	12	25	5	15	2	3.5	4
45	46	63	62	1	5	12	8	15	12	25	5	15	2	3.5	4
50	51	70	69	1	5	15	10	20	15	30	5	18	2	3.5	4
50	51	70	69	1	5	15	10	20	15	30	5	18	2	3.5	4
50	51	70	69	1	5	15	10	20	15	30	5	18	2	3.5	4
55	56	75	74	1	5	15	10	20	15	30	5	18	2	3.5	4
55	56	75	74	1	5	15	10	20	15	30	5	18	2	3.5	4
55	56	75	74	1	5	15	10	20	15	30	5	18	2	3.5	4
61.5	62	83.5	83	1	5	15	10	20	15	35	5	20	2	3.5	4
61.5	62	83.5	83	1	5	15	10	20	15	35	5	20	2	3.5	4
61.5	62	83.5	83	1	5	15	10	20	15	35	5	20	2	3.5	4
66.5	67	88.5	88	1	5	15	10	20	15	35	5	20	2	3.5	4
66.5	67	88.5	88	1	5	15	10	20	15	35	5	20	2	3.5	4
66.5	67	88.5	88	1	5	15	10	20	15	35	5	20	2	3.5	4
71.5	72	93.5	93	1	5	15	10	20	15	35	5	20	2	3.5	4
71.5	72	93.5	93	1	5	15	10	20	15	35	5	20	2	3.5	4
71.5	72	93.5	93	1	5	15	10	20	15	35	5	20	2	3.5	4

For additional information:

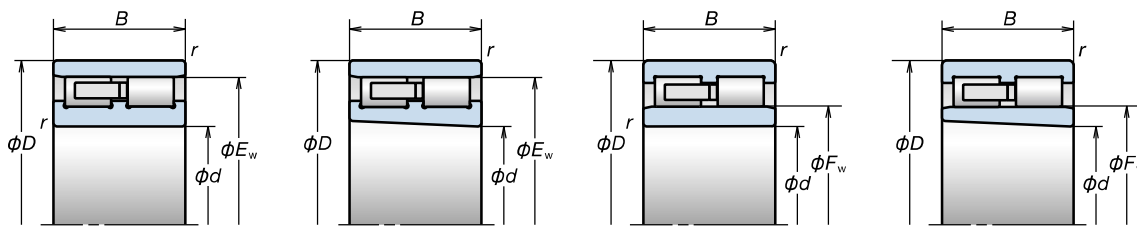
- Dynamic equivalent load P191
- Static equivalent load P198
- Nozzle Position P240
- Recommended Grease Quantities P257

Cylindrical Roller Bearings Double Row

2. Cylindrical Roller Bearings

Bore Diameter **70-105mm**

Double-Row Cylindrical Roller Bearings



NN Cylindrical Bore

NN Tapered Bore

NNU Cylindrical Bore

NNU Tapered Bore

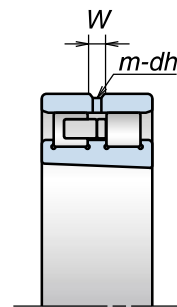
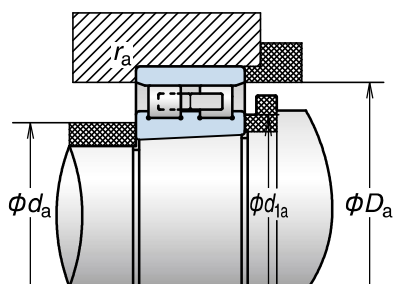
Bearing Numbers ⁽¹⁾ / ₍₂₎	Boundary Dimensions (mm)				Basic Load Ratings (kN)		E _w (F _w in case of NNU type) (mm) (reference)	Mass (kg) (approx.)	Limiting Speeds ⁽³⁾ (min ⁻¹)	
	d	D	B	r (min.)	C _r (Dynamic)	C _{0r} (Static)			Grease	Oil
* NN3014MBKR	70	110	30	1.1	112	148	100	1.23	8 000	10 000
* NN3014TBKR	70	110	30	1.1	112	148	100	0.925	9 500	11 200
* NN3014ZTBKR	70	110	30	1.1	66.5	74.0	100	0.809	9 900	13 200
* NN3015MBKR	75	115	30	1.1	111	149	105	1.28	7 900	9 500
* NN3015TBKR	75	115	30	1.1	111	149	105	0.964	9 000	10 600
* NN3015ZTBKR	75	115	30	1.1	66.0	74.5	105	0.848	9 400	12 500
* NN3016MBKR	80	125	34	1.1	137	186	113	1.77	7 400	8 800
* NN3016TBKR	80	125	34	1.1	137	186	113	1.35	8 300	9 800
* NN3016ZTBKR	80	125	34	1.1	81.5	93.0	113	1.19	8 800	11 700
* NN3017MBKR	85	130	34	1.1	144	201	118	1.87	7 000	8 400
* NN3017TBKR	85	130	34	1.1	144	201	118	1.42	8 000	9 400
* NN3017ZTBKR	85	130	34	1.1	85.5	101	118	1.25	8 400	11 100
* NN3018MBKR	90	140	37	1.5	164	228	127	2.38	6 600	7 900
* NN3018TBKR	90	140	37	1.5	164	228	127	1.82	7 400	8 700
* NN3018ZTBKR	90	140	37	1.5	97.5	114	127	1.61	7 800	10 300
* NN3019MBKR	95	145	37	1.5	173	246	132	2.51	6 300	7 500
* NN3019TBKR	95	145	37	1.5	173	246	132	1.91	7 100	8 400
* NN3019ZTBKR	95	145	37	1.5	103	123	132	1.68	7 500	9 900
NN3920MBKR	100	140	30	1.1	122	182	130	1.32	6 300	7 500
NN4920MBKR	100	140	40	1.1	178	295	130	1.76	6 300	7 500
NNU4920MBKR	100	140	40	1.1	178	295	112	1.75	6 300	7 500
* NN3020MBKR	100	150	37	1.5	180	265	137	2.63	6 000	7 200
* NN3020TBKR	100	150	37	1.5	180	265	137	2.00	6 800	8 000
* NN3020ZTBKR	100	150	37	1.5	107	133	137	1.76	7 200	9 500
NN3921MBKR	105	145	30	1.1	127	194	135	1.50	6 000	7 200
NN4921MBKR	105	145	40	1.1	185	315	135	1.91	6 000	7 200
NNU4921MBKR	105	145	40	1.1	185	315	117	1.83	6 000	7 200
* NN3021MBKR	105	160	41	2	228	320	146	3.40	5 700	6 800
* NN3021TBKR	105	160	41	2	228	320	146	2.52	6 500	7 600
* NN3021ZTBKR	105	160	41	2	135	161	146	2.17	6 800	9 000

⁽¹⁾ The suffix "K" or "KR" represents bearings with tapered bores (1 : 12). For the cylindrical bore type, eliminate the symbol and leave this symbol blank.

⁽²⁾ GN gauge is available for the bearings denoted by an asterisk (*). For GN gauge, please refer to Page 180.

⁽³⁾ For application of limiting speeds, please refer to Page 216.

⁽⁴⁾ Clearance CC9 is applicable to cylindrical roller bearings with tapered bores in ISO Tolerance Classes 5 and 4.



E44 Specification

Abutment and Fillet Dimensions (mm)					Clearances in Bearings with Tapered Bores (μm)						Clearances in Bearings with Cylindrical Bores (μm)		E44 Specification Lubrication Holes Dimensions (mm)		
d_a (min.)	d_{1a} (min.)	D_a		r_a (max.)	CC9 (*)		CC0		CC1		CC1		Hole Dia. dh	Oil Groove Width W	Number of Holes m
		(max.)	(min.)		min.	max.	min.	max.	min.	max.					
76.5	77	103.5	102	1	10	20	15	30	20	40	10	25	2	3.5	4
76.5	77	103.5	102	1	10	20	15	30	20	40	10	25	2	3.5	4
76.5	77	103.5	102	1	10	20	15	30	20	40	10	25	2	3.5	4
81.5	82	108.5	107	1	10	20	15	30	20	40	10	25	2	3.5	4
81.5	82	108.5	107	1	10	20	15	30	20	40	10	25	2	3.5	4
81.5	82	108.5	107	1	10	20	15	30	20	40	10	25	2	3.5	4
86.5	87	118.5	115	1	10	20	15	30	20	40	10	25	2.5	5	4
86.5	87	118.5	115	1	10	20	15	30	20	40	10	25	2.5	5	4
86.5	87	118.5	115	1	10	20	15	30	20	40	10	25	2.5	5	4
91.5	92	123.5	120	1	10	25	20	35	25	45	10	30	2.5	5	4
91.5	92	123.5	120	1	10	25	20	35	25	45	10	30	2.5	5	4
91.5	92	123.5	120	1	10	25	20	35	25	45	10	30	2.5	5	4
98	99	132	129	1.5	10	25	20	35	25	45	10	30	2.5	5	4
98	99	132	129	1.5	10	25	20	35	25	45	10	30	2.5	5	4
98	99	132	129	1.5	10	25	20	35	25	45	10	30	2.5	5	4
103	104	137	134	1.5	10	25	20	35	25	45	10	30	2.5	5	4
103	104	137	134	1.5	10	25	20	35	25	45	10	30	2.5	5	4
103	104	137	134	1.5	10	25	20	35	25	45	10	30	2.5	5	4
106.5	108	133.5	132	1	10	25	20	35	25	45	10	30	2	3.5	4
106.5	108	133.5	132	1	10	25	20	35	25	45	10	30	2.5	5	4
106.5	108	133.5	—	1	10	25	20	35	25	45	10	30	2.5	5	4
108	109	142	139	1.5	10	25	20	35	25	45	10	30	2.5	5	4
108	109	142	139	1.5	10	25	20	35	25	45	10	30	2.5	5	4
108	109	142	139	1.5	10	25	20	35	25	45	10	30	2.5	5	4
111.5	113	138.5	137	1	10	25	20	35	25	50	10	30	2	3.5	4
111.5	113	138.5	137	1	10	25	20	35	25	50	10	30	2.5	5	4
111.5	113	138.5	—	1	10	25	20	35	25	50	10	30	2.5	5	4
114	115	151	148	2	10	25	20	35	25	50	10	30	3	6	4
114	115	151	148	2	10	25	20	35	25	50	10	30	3	6	4
114	115	151	148	2	10	25	20	35	25	50	10	30	3	6	4

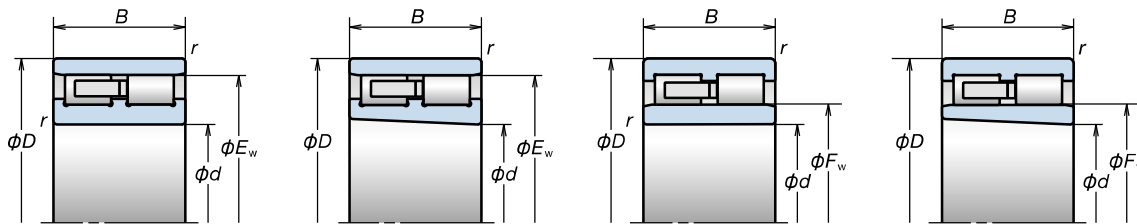
For additional information:

- Dynamic equivalent load P191
- Static equivalent load P198
- Nozzle Position P240
- Recommended Grease Quantities · P257

2. Cylindrical Roller Bearings

Bore Diameter **110-160 mm**

Double-Row Cylindrical Roller Bearings



NN Cylindrical Bore

NN Tapered Bore

NNU Cylindrical Bore

NNU Tapered Bore

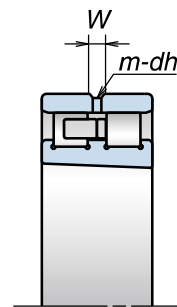
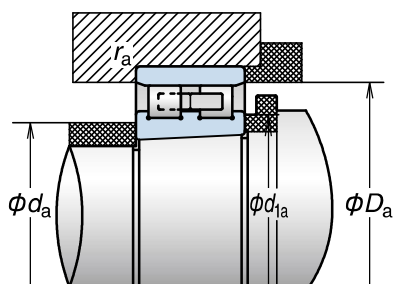
Bearing Numbers ⁽¹⁾ / ₍₂₎	Boundary Dimensions (mm)				Basic Load Ratings (kN)		E _w (F _w in case of NNU type) (mm) (reference)	Mass (kg) (approx.)	Limiting Speeds ⁽³⁾ (min ⁻¹)	
	d	D	B	r (min.)	C _r (Dynamic)	C _{0r} (Static)			Grease	Oil
NN3922MBKR	110	150	30	1.1	131	207	140	1.44	5 800	7 000
NN4922MBKR	110	150	40	1.1	192	335	140	1.92	5 800	7 000
NNU4922MBKR	110	150	40	1.1	192	335	122	1.90	5 800	7 000
* NN3022MBKR	110	170	45	2	263	375	155	4.35	5 400	6 500
* NN3022TBKR	110	170	45	2	263	375	155	3.21	6 100	7 200
* NN3022ZTBKR	110	170	45	2	156	188	155	2.78	6 400	8 500
NN3924MBKR	120	165	34	1.1	158	251	153.5	2.02	5 300	6 400
NN4924MBKR	120	165	45	1.1	211	360	153.5	2.62	5 300	6 400
NNU4924MBKR	120	165	45	1.1	211	360	133.5	2.59	5 300	6 400
* NN3024MBKR	120	180	46	2	275	405	165	4.72	5 000	6 000
* NN3024TBKR	120	180	46	2	275	405	165	3.50	5 700	6 700
* NN3024ZTBKR	120	180	46	2	164	203	165	3.03	6 000	7 900
NN3926MBKR	130	180	37	1.5	199	325	167	2.64	4 900	5 900
NN4926MBKR	130	180	50	1.5	315	545	168	3.51	4 900	5 900
NNU4926MBKR	130	180	50	1.5	315	545	144	3.48	4 900	5 900
* NN3026MBKR	130	200	52	2	325	475	182	5.53	4 600	5 500
* NN3026TBKR	130	200	52	2	325	475	182	5.10	5 200	6 100
* NN3026ZTBKR	130	200	52	2	195	238	182	4.46	5 500	7 200
NN3928MBKR	140	190	37	1.5	232	375	178	2.79	4 600	5 500
NN4928MBKR	140	190	50	1.5	325	585	178	3.73	4 600	5 500
NNU4928MBKR	140	190	50	1.5	325	585	154	3.70	4 600	5 500
* NN3028MBKR	140	210	53	2	345	515	192	5.95	4 300	5 200
* NN3028TBKR	140	210	53	2	345	515	192	5.51	4 900	5 700
* NN3028ZTBKR	140	210	53	2	204	258	192	4.81	5 200	6 800
NN3930MBKR	150	210	45	2	300	490	195	4.47	4 200	5 000
NN4930MBKR	150	210	60	2	405	715	195	5.79	4 200	5 000
NNU4930MBKR	150	210	60	2	405	715	167	5.85	4 200	5 000
* NN3030MBKR	150	225	56	2.1	385	585	206	7.29	4 000	4 800
* NN3030TBKR	150	225	56	2.1	385	585	206	6.70	4 500	5 300
* NN3030ZTBKR	150	225	56	2.1	229	294	206	5.87	4 800	6 300
NN3932MBKR	160	220	45	2	310	520	205	4.72	4 000	4 800
NN4932MBKR	160	220	60	2	420	760	205	6.19	4 000	4 800
NNU4932MBKR	160	220	60	2	420	760	177	6.18	4 000	4 800
* NN3032MBKR	160	240	60	2.1	430	660	219	8.83	3 800	4 500
* NN3032TBKR	160	240	60	2.1	430	660	219	8.18	4 300	5 000
* NN3032ZTBKR	160	240	60	2.1	255	330	219	7.20	4 500	6 000

⁽¹⁾ The suffix "K" or "KR" represents bearings with tapered bores (1 : 12). For the cylindrical bore type, eliminate the symbol and leave this symbol blank.

⁽²⁾ GN gauge is available for the bearings denoted by an asterisk (*). For GN gauge, please refer to Page 180.

⁽³⁾ For application of limiting speeds, please refer to Page 216.

⁽⁴⁾ Clearance CC9 is applicable to cylindrical roller bearings with tapered bores in ISO Tolerance Classes 5 and 4.



E44 Specification

Abutment and Fillet Dimensions (mm)					Clearances in Bearings with Tapered Bores (μm)						Clearances in Bearings with Cylindrical Bores (μm)		E44 Specification Lubrication Holes Dimensions (mm)		
d_a (min.)	d_{1a} (min.)	D_a		r_a (max.)	CC9 (°)		CC0		CC1		CC1		Hole Dia. dh	Oil Groove Width W	Number of Holes m
		(max.)	(min.)		min.	max.	min.	max.	min.	max.					
116.5	118	143.5	142	1	10	25	20	35	25	50	10	30	2	3.5	4
116.5	118	143.5	142	1	10	25	20	35	25	50	10	30	2.5	5	4
116.5	118	143.5	—	1	10	25	20	35	25	50	10	30	2.5	5	4
119	121	161	157	2	10	25	20	35	25	50	10	30	3	6	4
119	121	161	157	2	10	25	20	35	25	50	10	30	3	6	4
119	121	161	157	2	10	25	20	35	25	50	10	30	3	6	4
126.5	128	158.5	156	1	10	25	20	35	25	50	10	30	2.5	5	4
126.5	128	158.5	156	1	10	25	20	35	25	50	10	30	3	6	4
126.5	128	158.5	—	1	10	25	20	35	25	50	10	30	3	6	4
129	131	171	167	2	10	25	20	35	25	50	10	30	3	6	4
129	131	171	167	2	10	25	20	35	25	50	10	30	3	6	4
129	131	171	167	2	10	25	20	35	25	50	10	30	3	6	4
138	140	172	169	1.5	15	30	25	40	30	60	10	35	2.5	5	4
138	140	172	170	1.5	15	30	25	40	30	60	10	35	3	6	4
138	140	172	—	1.5	15	30	25	40	30	60	10	35	3	6	4
139	141	191	185	2	15	30	25	40	30	60	10	35	4	8	4
139	141	191	185	2	15	30	25	40	30	60	10	35	4	8	4
139	141	191	185	2	15	30	25	40	30	60	10	35	4	8	4
148	150	182	180	1.5	15	30	25	40	30	60	10	35	2.5	5	4
148	150	182	180	1.5	15	30	25	40	30	60	10	35	3	6	4
148	150	182	—	1.5	15	30	25	40	30	60	10	35	3	6	4
149	151	201	195	2	15	30	25	40	30	60	10	35	4	8	4
149	151	201	195	2	15	30	25	40	30	60	10	35	4	8	4
149	151	201	195	2	15	30	25	40	30	60	10	35	4	8	4
159	162	201	197	2	15	35	30	50	35	65	10	35	3	6	4
159	162	201	197	2	15	35	30	50	35	65	10	35	4	8	4
159	162	201	—	2	15	35	30	50	35	65	10	35	4	8	4
161	162	214	209	2	15	35	30	50	35	65	10	35	4	8	4
161	162	214	209	2	15	35	30	50	35	65	10	35	4	8	4
161	162	214	209	2	15	35	30	50	35	65	10	35	4	8	4
169	172	211	207	2	15	35	30	50	35	65	10	35	3	6	4
169	172	211	207	2	15	35	30	50	35	65	10	35	4	8	4
169	172	211	—	2	15	35	30	50	35	65	10	35	4	8	4
171	172	229	222	2	15	35	30	50	35	65	10	35	4	8	4
171	172	229	222	2	15	35	30	50	35	65	10	35	4	8	4
171	172	229	222	2	15	35	30	50	35	65	10	35	4	8	4

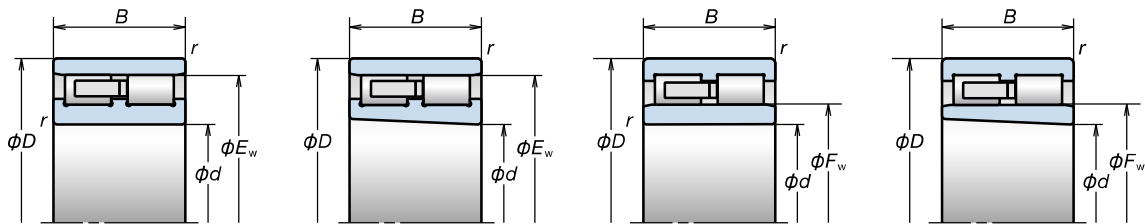
For additional information:

- Dynamic equivalent load P191
- Static equivalent load P198
- Nozzle Position P240
- Recommended Grease Quantities · P257

2. Cylindrical Roller Bearings

Bore Diameter **170-260 mm**

Double-Row Cylindrical Roller Bearings



NN Cylindrical Bore

NN Tapered Bore

NNU Cylindrical Bore

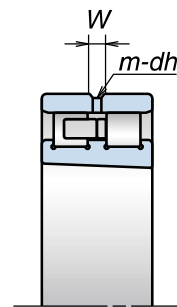
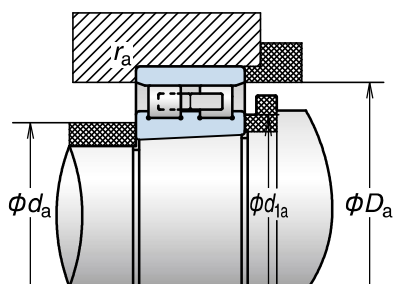
NNU Tapered Bore

Bearing Numbers (°)	Boundary Dimensions (mm)				Basic Load Ratings (kN)		E _w (F _w in case of NNU type) (mm) (reference)	Mass (kg) (approx.)	Limiting Speeds (°) (min ⁻¹)	
	d	D	B	r (min.)	C _r (Dynamic)	C _{0r} (Static)			Grease	Oil
NN3934MBKR	170	230	45	2	320	550	215	5.01	3 800	4 500
NN4934MBKR	170	230	60	2	435	805	215	6.42	3 800	4 500
NNU4934MBKR	170	230	60	2	435	805	187	6.50	3 800	4 500
NN3034MBKR	170	260	67	2.1	520	805	236	12.1	3 500	4 200
NN3936MBKR	180	250	52	2	390	655	232	7.20	3 500	4 200
NN4936MBKR	180	250	69	2	550	1 020	232	9.47	3 500	4 200
NNU4936MBKR	180	250	69	2	550	1 020	200	9.55	3 500	4 200
NN3036MBKR	180	280	74	2.1	650	995	255	15.7	3 300	4 000
NN3938MBKR	190	260	52	2	395	680	243.5	7.57	3 400	4 000
NN4938MBKR	190	260	69	2	555	1 060	243.5	9.72	3 400	4 000
NNU4938MBKR	190	260	69	2	555	1 060	211.5	9.91	3 400	4 000
NN3038MBKR	190	290	75	2.1	685	1 080	265	16.7	3 200	3 800
NN3940MBKR	200	280	60	2.1	480	815	259	10.6	3 200	3 800
NN4940MBKR	200	280	80	2.1	655	1 220	259	14.0	3 200	3 800
NNU4940MBKR	200	280	80	2.1	655	1 220	223	14.0	3 200	3 800
NN3040MBKR	200	310	82	2.1	750	1 170	282	21.3	3 000	3 600
NN3944MBKR	220	300	60	2.1	505	895	279	11.5	2 500	3 100
NN4944MBKR	220	300	80	2.1	690	1 330	279	15.1	2 500	3 100
NNU4944MBK	220	300	80	2.1	690	1 330	243	15.2	2 500	3 100
NN3044MBKR	220	340	90	3	940	1 480	310	27.7	2 400	2 900
NN3948MBKR	240	320	60	2.1	525	975	300	12.3	2 400	2 900
NN4948MBKR	240	320	80	2.1	720	1 450	300	17.8	2 400	2 900
NNU4948MBKR	240	320	80	2.1	720	1 450	263	16.2	2 400	2 900
NN3048MBKR	240	360	92	3	980	1 600	330	30.4	2 200	2 700
NN3952MBKR	260	360	75	2.1	775	1 380	335	21.4	2 100	2 600
NN4952KR	260	360	100	2.1	1 070	2 100	335	28.4	2 100	2 600
NNU4952KR	260	360	100	2.1	1 070	2 100	289	28.3	2 100	2 600
NN3052KR	260	400	104	4	1 030	1 920	364	44.7	2 000	2 500

(°) The suffix "K" or "KR" represents bearings with tapered bores (1 : 12). For the cylindrical bore type, eliminate the symbol and leave this symbol blank.

(°) For application of limiting speeds, please refer to Page 216.

(°) Clearance CC9 is applicable to cylindrical roller bearings with tapered bores in ISO Tolerance Classes 5 and 4.



E44 Specification

Abutment and Fillet Dimensions (mm)					Clearances in Bearings with Tapered Bores (μm)						Clearances in Bearings with Cylindrical Bores (μm)		E44 Specification Lubrication Holes Dimensions (mm)		
d_a (min.)	d_{1a} (min.)	D_a		r_a (max.)	CC9 (°)		CC0		CC1		CC1		Hole Dia. dh	Oil Groove Width W	Number of Holes m
		(max.)	(min.)		min.	max.	min.	max.	min.	max.					
179	182	221	217	2	15	35	30	50	35	75	10	40	3	6	4
179	182	221	217	2	15	35	30	50	35	75	10	40	4	8	4
179	182	221	—	2	15	35	30	50	35	75	10	40	4	8	4
181	183	249	239	2	15	35	30	50	35	75	10	40	5	9	4
189	193	241	234	2	15	35	30	50	35	75	10	40	4	8	4
189	193	241	234	2	15	35	30	50	35	75	10	40	5	9	4
189	193	241	—	2	15	35	30	50	35	75	10	40	5	9	4
191	193	269	258	2	15	35	30	50	35	75	10	40	5	9	4
199	203	251	246	2	20	40	30	50	40	80	15	45	4	8	4
199	203	251	246	2	20	40	30	50	40	80	15	45	5	9	4
199	203	251	—	2	20	40	30	50	40	80	15	45	5	9	4
201	203	279	268	2	20	40	30	50	40	80	15	45	5	9	4
211	214	269	261	2	20	40	30	50	40	80	15	45	4	8	4
211	214	269	261	2	20	40	30	50	40	80	15	45	5	9	4
211	214	269	—	2	20	40	30	50	40	80	15	45	5	9	4
211	214	299	285	2	20	40	30	50	40	80	15	45	6	12	4
231	234	289	281	2	20	45	35	60	45	90	15	50	4	8	4
231	234	289	281	2	20	45	35	60	45	90	15	50	5	9	4
231	234	289	—	2	20	45	35	60	45	90	15	50	5	9	4
233	236	327	313	2.5	20	45	35	60	45	90	15	50	6	12	4
251	254	309	302	2	25	50	40	65	50	100	15	50	4	8	4
251	254	309	302	2	25	50	40	65	50	100	15	50	5	9	4
251	254	309	—	2	25	50	40	65	50	100	15	50	5	9	4
253	256	347	334	2.5	25	50	40	65	50	100	15	50	6	12	4
271	275	349	338	2	25	55	40	70	55	110	20	55	5	9	4
271	275	349	338	2	25	55	40	70	55	110	20	55	6	12	4
271	275	349	—	2	25	55	40	70	55	110	20	55	6	12	4
276	278	384	368	3	25	55	40	70	55	110	20	55	6	12	4

For additional information:

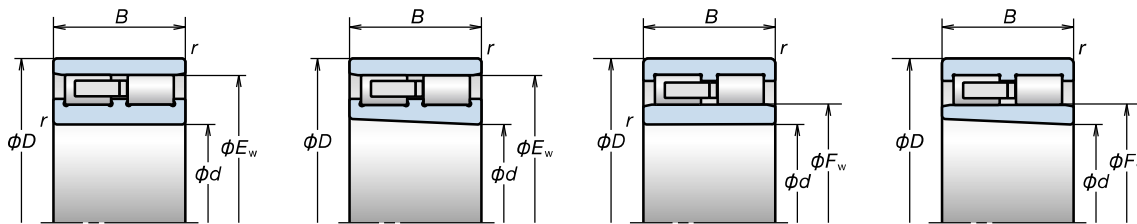
- Dynamic equivalent load P191
- Static equivalent load P198
- Nozzle Position P240
- Recommended Grease Quantities ··· P257

Cylindrical Roller Bearings
Double Row

2. Cylindrical Roller Bearings

Bore Diameter **280-420 mm**

Double-Row Cylindrical Roller Bearings



NN Cylindrical Bore

NN Tapered Bore

NNU Cylindrical Bore

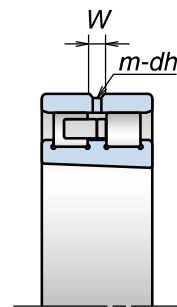
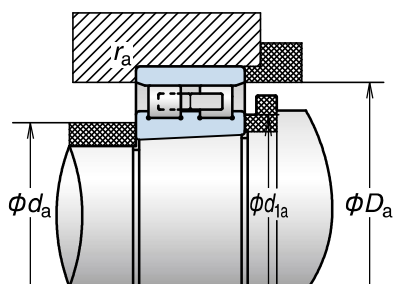
NNU Tapered Bore

Bearing Numbers (1)	Boundary Dimensions (mm)				Basic Load Ratings (kN)		E _w (F _w in case of NNU type) (mm) (reference)	Mass (kg) (approx.)	Limiting Speeds (2) (min ⁻¹)	
	d	D	B	r (min.)	C _r (Dynamic)	C _{or} (Static)			Grease	Oil
NN3956MBKR	280	380	75	2.1	695	1 460	355	22.8	2 000	2 500
NN4956KR	280	380	100	2.1	960	2 230	355	30.1	2 000	2 500
NNU4956KR	280	380	100	2.1	960	2 230	309	33.1	2 000	2 500
NN3056KR	280	420	106	4	1 080	2 080	384	47.7	1 900	2 300
NN3960KR	300	420	90	3	855	1 800	388	36.2	1 800	2 300
NN4960KR	300	420	118	3	1 230	2 870	388	47.6	1 800	2 300
NNU4960KR	300	420	118	3	1 230	2 870	336	47.6	1 800	2 300
NN3060KR	300	460	118	4	1 290	2 460	418	66.5	1 800	2 100
NN3964KR	320	440	90	3	880	1 910	408	38.2	1 800	2 100
NN4964KR	320	440	118	3	1 260	3 050	408	50.3	1 800	2 100
NNU4964KR	320	440	118	3	1 260	3 050	356	50.3	1 800	2 100
NN3064KR	320	480	121	4	1 350	2 670	438	71.8	1 700	2 000
NN4968KR	340	460	118	3	1 350	3 400	428	52.6	1 700	2 000
NNU4968KR	340	460	118	3	1 350	3 400	376	52.9	1 700	2 000
NN3068KR	340	520	133	5	1 670	3 300	473	95.6	1 600	1 900
NN3972KR	360	480	90	3	930	2 130	448	42.1	1 600	1 900
NN4972KR	360	480	118	3	1 390	3 550	448	55.1	1 600	1 900
NNU4972KR	360	480	118	3	1 390	3 550	396	55.2	1 600	1 900
NN3072KR	360	540	134	5	1 700	3 450	493	99.7	1 500	1 800
NN3976KR	380	520	106	4	1 250	2 730	484	63.5	1 500	1 800
NN4976KR	380	520	140	4	1 880	4 600	485	81.3	1 500	1 800
NNU4976KR	380	520	140	4	1 880	4 600	421	88.8	1 500	1 800
NN3076KR	380	560	135	5	1 770	3 700	513	113	1 400	1 700
NN4980KR	400	540	140	4	1 940	4 900	505	84.1	1 400	1 700
NNU4980KR	400	540	140	4	1 940	4 900	441	85.1	1 400	1 700
NN3080KR	400	600	148	5	2 090	4 300	548	138	1 300	1 600
NN4984K	420	560	140	4	2 000	5 150	525	87.9	1 200	1 500
NNU4984K	420	560	140	4	2 000	5 150	461	88.4	1 200	1 500
NN3084K	420	620	150	5	2 130	4 450	568	145	1 100	1 400

(1) The suffix "K" or "KR" represents bearings with tapered bores (1 : 12). For the cylindrical bore type, eliminate the symbol and leave this symbol blank.

(2) For application of limiting speeds, please refer to Page 216.

(3) Clearance CC9 is applicable to cylindrical roller bearings with tapered bores in ISO Tolerance Classes 5 and 4.



E44 Specification

Abutment and Fillet Dimensions (mm)					Clearances in Bearings with Tapered Bores (μm)						Clearances in Bearings with Cylindrical Bores (μm)		E44 Specification Lubrication Holes Dimensions (mm)		
d_a (min.)	d_{1a} (min.)	D_a		r_a (max.)	CC9 (°)		CC0		CC1		CC1		Hole Dia. dh	Oil Groove Width W	Number of Holes m
		(max.)	(min.)		min.	max.	min.	max.	min.	max.					
291	295	369	358	2	25	55	40	70	55	110	20	55	5	9	4
291	295	369	358	2	25	55	40	70	55	110	20	55	6	12	4
291	295	369	—	2	25	55	40	70	55	110	20	55	6	12	4
296	298	404	388	3	25	55	40	70	55	110	20	55	6	12	4
313	318	407	391	2.5	30	60	45	75	60	120	20	60	6	12	4
313	318	407	391	2.5	30	60	45	75	60	120	20	60	6	12	4
313	318	407	—	2.5	30	60	45	75	60	120	20	60	6	12	4
316	319	444	422	3	30	60	45	75	60	120	20	60	6	12	4
333	338	427	411	2.5	30	65	45	80	65	135	20	65	6	12	4
333	338	427	411	2.5	30	65	45	80	65	135	20	65	6	12	4
333	338	427	—	2.5	30	65	45	80	65	135	20	65	6	12	4
336	340	464	442	3	30	65	45	80	65	135	20	65	8	15	4
353	363	447	431	2.5	30	65	45	80	65	135	20	65	6	12	4
353	363	447	—	2.5	30	65	45	80	65	135	20	65	6	12	4
360	365	500	477	4	30	65	45	80	65	135	20	65	8	15	4
373	381	467	451	2.5	35	75	50	90	75	150	25	75	6	12	4
373	383	467	451	2.5	35	75	50	90	75	150	25	75	6	12	4
373	383	467	—	2.5	35	75	50	90	75	150	25	75	6	12	4
380	385	520	497	4	35	75	50	90	75	150	25	75	8	15	4
396	405	504	487	3	35	75	50	90	75	150	25	75	6	12	4
396	408	504	488	3	35	75	50	90	75	150	25	75	8	15	4
396	408	504	—	3	35	75	50	90	75	150	25	75	8	15	4
400	411	540	518	4	35	75	50	90	75	150	25	75	8	15	4
416	428	524	508	3	35	75	50	90	75	150	25	75	8	15	4
416	428	524	—	3	35	75	50	90	75	150	25	75	8	15	4
420	432	580	553	4	35	75	50	90	75	150	25	75	8	15	4
436	448	544	528	3	40	85	60	105	85	170	25	85	8	15	4
436	448	544	—	3	40	85	60	105	85	170	25	85	8	15	4
440	453	600	573	4	40	85	60	105	85	170	25	85	8	15	4

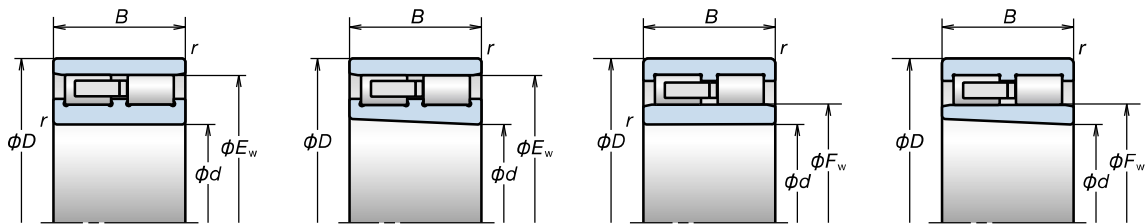
For additional information:

- Dynamic equivalent load P191
- Static equivalent load P198
- Nozzle Position P240
- Recommended Grease Quantities · P257

2. Cylindrical Roller Bearings

Bore Diameter **440-800 mm**

Double-Row Cylindrical Roller Bearings



NN Cylindrical Bore

NN Tapered Bore

NNU Cylindrical Bore

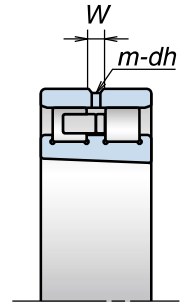
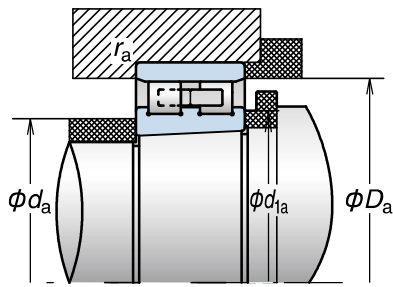
NNU Tapered Bore

Bearing Numbers ⁽¹⁾	Boundary Dimensions (mm)				Basic Load Ratings (kN)		E _w (F _w in case of NNU type) (mm) (reference)	Mass (kg) (approx.)	Limiting Speeds ⁽²⁾ (min ⁻¹)	
	d	D	B	r (min.)	C _r (Dynamic)	C _{0r} (Static)			Grease	Oil
NN4988K	440	600	160	4	2 370	6 000	559	123	1 100	1 400
NNU4988K	440	600	160	4	2 370	6 000	487	123	1 100	1 400
NN3088K	440	650	157	6	2 360	4 900	596	166	1 100	1 300
NN3992K	460	620	118	4	1 610	3 700	578	94.5	1 100	1 300
NN4992K	460	620	160	4	2 400	6 200	579	127	1 100	1 300
NNU4992K	460	620	160	4	2 400	6 200	507	128	1 100	1 300
NN3092K	460	680	163	6	2 550	5 350	623	189	1 000	1 300
NN4996K	480	650	170	5	2 690	7 000	607	151	1 000	1 300
NNU4996K	480	650	170	5	2 690	7 000	531	150	1 000	1 300
NN3096K	480	700	165	6	2 600	5 550	643	211	1 000	1 200
NN49/500K	500	670	170	5	2 720	7 200	627	155	1 000	1 200
NNU49/500K	500	670	170	5	2 720	7 200	551	157	1 000	1 200
NN30/500K	500	720	167	6	2 580	5 600	663	205	900	1 200
NN39/530K	530	710	136	5	2 040	4 900	663	139	900	1 200
NN49/530K	530	710	180	5	3 050	8 150	664	185	900	1 200
NNU49/530K	530	710	180	5	3 050	8 150	584	186	900	1 200
NN30/530K	530	780	185	6	3 200	6 900	715	280	900	1 100
NN49/560K	560	750	190	5	3 250	8 700	701	218	900	1 100
NNU49/560K	560	750	190	5	3 250	8 700	617	230	900	1 100
NN49/600K	600	800	200	5	3 850	10 500	749	273	800	1 000
NNU49/600K	600	800	200	5	3 850	10 500	659	284	800	1 000
NN49/630K	630	850	218	6	4 200	11 400	793	328	800	1 000
NNU49/630K	630	850	218	6	4 200	11 400	697	328	800	1 000
NN49/670K	670	900	230	6	4 150	11 500	838	419	700	900
NNU49/670K	670	900	230	6	4 150	11 500	742	381	700	900
NNU49/710BK	710	950	243	6	4 450	12 600	775	472	700	900
NNU49/750K	750	1 000	250	6	5 500	15 900	826	530	700	800
NNU49/800K	800	1 060	258	6	5 700	16 500	879	573	600	800

⁽¹⁾ The suffix "K" or "KR" represents bearings with tapered bores (1 : 12). For the cylindrical bore type, eliminate the symbol and leave this symbol blank.

⁽²⁾ For application of limiting speeds, please refer to Page 216.

⁽³⁾ Clearance CC9 is applicable to cylindrical roller bearings with tapered bores in ISO Tolerance Classes 5 and 4.



E44 Specification

Abutment and Fillet Dimensions (mm)					Clearances in Bearings with Tapered Bores (μm)						Clearances in Bearings with Cylindrical Bores (μm)		E44 Specification Lubrication Holes Dimensions (mm)		
d_a (min.)	d_{1a} (min.)	D_a		r_a (max.)	CC9 (°)		CC0		CC1		CC1		Hole Dia. dh	Oil Groove Width W	Number of Holes m
		(max.)	(min.)		min.	max.	min.	max.	min.	max.					
456	469	584	562	3	40	85	60	105	85	170	25	85	8	15	4
456	469	584	—	3	40	85	60	105	85	170	25	85	8	15	4
466	479	624	601	5	40	85	60	105	85	170	25	85	8	15	4
476	486	604	581	3	45	95	70	120	95	190	25	95	6	12	4
476	489	604	582	3	45	95	70	120	95	190	25	95	8	15	4
476	489	604	—	3	45	95	70	120	95	190	25	95	8	15	4
486	500	654	628	5	45	95	70	120	95	190	25	95	10	18	4
500	514	630	610	4	45	95	70	120	95	190	25	95	10	18	4
500	514	630	—	4	45	95	70	120	95	190	25	95	10	18	4
506	520	674	648	5	45	95	70	120	95	190	25	95	10	18	4
520	534	650	630	4	45	95	70	120	95	190	25	95	10	18	4
520	534	650	—	4	45	95	70	120	95	190	25	95	10	18	4
526	540	694	668	5	45	95	70	120	95	190	25	95	10	18	4
550	561	690	668	4	50	105	80	135	105	210	30	105	8	15	4
550	565	690	667	4	50	105	80	135	105	210	30	105	10	18	4
550	565	690	—	4	50	105	80	135	105	210	30	105	10	18	4
556	571	754	720	5	50	105	80	135	105	210	30	105	10	18	4
580	596	730	704	4	50	105	80	135	105	210	30	105	10	18	4
580	596	730	—	4	50	105	80	135	105	210	30	105	10	18	4
620	637	780	752	4	55	115	85	145	115	230	30	115	10	18	4
620	637	780	—	4	55	115	85	145	115	230	30	115	10	18	4
656	674	824	796	5	55	115	85	145	115	230	30	115	12	20	4
656	674	824	—	5	55	115	85	145	115	230	30	115	12	20	4
696	715	874	841	5	60	130	90	160	130	260	30	130	12	20	4
696	715	874	—	5	60	130	90	160	130	260	30	130	12	20	4
736	756	924	—	5	60	130	90	160	130	260	30	130	12	20	4
776	797	974	—	5	70	150	110	190	145	290	35	145	12	20	4
826	848	1 034	—	5	70	150	110	190	145	290	35	145	12	20	4

For additional information:

- Dynamic equivalent load P191
- Static equivalent load P198
- Nozzle Position P240
- Recommended Grease Quantities P257

Cylindrical Roller Bearings
Double Row