

Cylindrical Roller Bearings

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● Designs and Configurations

NACHI Cylindrical Roller Bearings are produced in a wide variety of designs and configurations.

● Conventional Design

Cylindrical Roller Bearings of conventional design are available in 10 configurations as shown in Fig. 1. Configurations N, NU, NN and NNU will not sustain axial loading. These configurations must be used as the float end bearing.

Configurations NF, NJ, NUH are designed with the capability of sustaining axial loading in one direction. Configuration NUH is basically an NU

bearing with an addition of a guide ring (an “L” ring).

The NUH dimensional data is the same as the NH bearing configuration.

Configuration NF, NJ, and NUH can sustain axial loading in one direction.

Configuration NH, NP, and NUP have bi-directional thrust load-carrying-capability.

● The suffix of the bearing number indicates:

E: high capacity

G: polyamide cage

● The bearing with polyamide cage should be used at less than 120°C operating temperature.

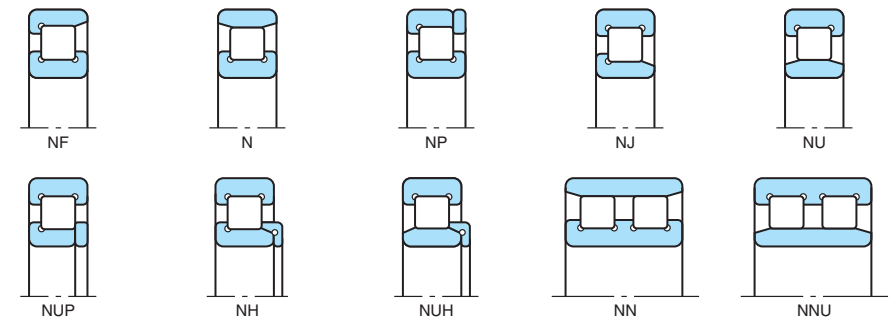


Fig 1. Cylindrical Roller Bearing Configurations

Table 1. Cylindrical Roller Bearing Standard Cage

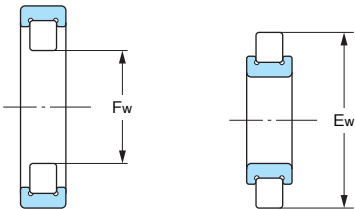
Bearing series	Pressed Steel	Machined Brass
NU10	1007~1038	1040~10/500
NU2	203~ 228	230~ 264
NU22	2204~2226	2228~2252
NU3	304~ 324	326~ 352
NU23	2304~2319	2320~2340
NU4	405~ 416	417~ 430



● Interchangeable Bearings

Interchangeable cylindrical roller bearing means that a separable ring can be replaced by another ring of the bearing with the same bearing number without impairing the function of the bearing.

Table 2. Interchangeable Cylindrical Roller Bearings: Tolerance of Inscribed (Fw) and Circumscribed (Ew) Diameters



Nominal bore dia. d (mm)		Tolerance of Fw		Tolerance of Ew	
Over	Incl.	High	Low	High	Low
—	20	+10	0	0	-10
20	50	+15	0	0	-15
50	120	+20	0	0	-20
120	200	+25	0	0	-25
200	250	+30	0	0	-30
250	315	+35	0	0	-35
315	400	+40	0	0	-40
400	500	+45	0	—	—

Unit: μm

● Radial Internal Clearance

The initial radial internal clearance of the bearing should be determined for optimal bearing operation.

The following procedure should be observed to determine the proper initial radial internal clearance:

- Place the bearing in an upright position with inner/outer ring faces parallel.
- Place thumbs on inner ring bore and oscillate inner ring two or three times, pressing down firmly. This "seats" the inner ring and rollers.
- Position the individual roller assemblies so that a roller is at the top of inner ring - on both sides of the bearing.
- Press the two rollers inward to assure contact with the center guide ring as well as the inner ring raceway.
- With the rollers in correct position, insert a thin feeler gauge between the rollers and the raceway. **Caution : DO NOT ROLL THE BEARING.**
- Move it carefully over the top roller between the roller and outer raceway.
- Repeat this procedure, using progressively thicker feeler gauge until one is found that will not go through.
- The gauge thickness that preceded the "No - GO" gauge is the radial internal clearance.

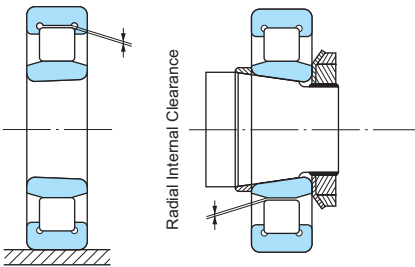
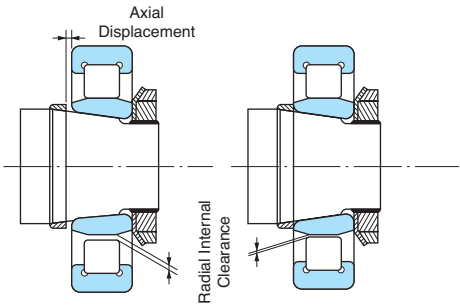


Table 3. Mounting cylindrical roller bearings with tapered bore



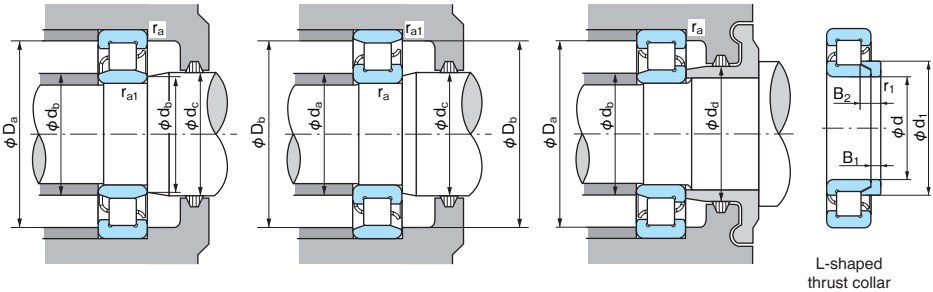
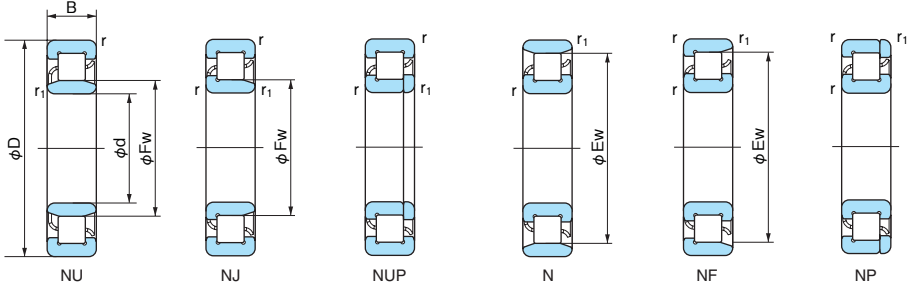
Unit: μm

Bearing Bore Diameter d (mm)		Radial Clearance Reduction (mm)		Axial displacement Taper 1:12			
				Direct Mounting on the shaft (mm)		With Adapter Assemblies (mm)	
Over	Incl.	min	max	min	max	max	min
40	50	0.025	0.030	0.40	0.50	0.55	0.60
50	65	0.030	0.035	0.50	0.55	0.60	0.70
65	80	0.030	0.040	0.50	0.65	0.60	0.75
80	100	0.035	0.045	0.55	0.70	0.70	0.85
100	120	0.040	0.050	0.65	0.80	0.75	0.90
120	140	0.045	0.055	0.70	0.85	0.85	1.00
140	160	0.045	0.060	0.70	0.95	0.85	1.05
160	180	0.050	0.065	0.80	1.00	0.90	1.15
180	200	0.055	0.070	0.85	1.10	1.00	1.20
200	225	0.065	0.080	1.00	1.25	1.15	1.35
225	250	0.070	0.085	1.10	1.30	1.20	1.45
250	280	0.075	0.095	1.15	1.45	1.30	1.60
280	315	0.080	0.100	1.25	1.55	1.35	1.65
315	355	0.095	0.115	1.45	1.75	1.60	1.90
355	400	0.100	0.125	1.55	1.90	1.65	2.05
400	450	0.115	0.140	1.80	2.20	1.90	2.30
450	500	0.130	0.160	2.00	2.50	2.10	2.60

Note: 1. The axial displacement values are applied for mounting on a solid shaft. In case of a hollow shaft, larger axial displacement should be applied.
2. It is imperative to check radial internal clearance after mounting when ;
- The initial unmounted radial internal clearance is in the lower half of the tolerance range.
- There is a temperature difference between the inner and outer rings under operating conditions.
Internal clearance after mounting must be above the values shown in the table.

Cylindrical Roller Bearings

Bore Diameter: 17~30mm

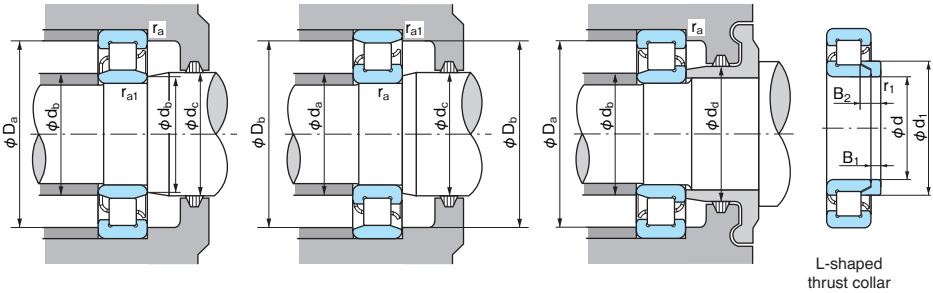
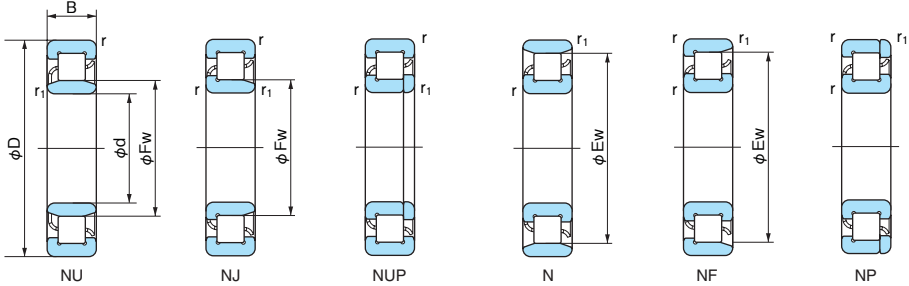


1N=0.102kgf																																				
Boundary dimensions (mm)							Bearing No.						Basic dynamic load rating Cr (N)		Basic static load rating Cor (N)		Limiting speed (min ⁻¹)(¹)		Abutment and fillet dimensions (mm)								Mass (kg)		Dimensions of L-shaped thrust collar (mm)							
d	D	B	Ew	Fw	r (min)	r1 (min)	NU	NJ	NUP	N	NF	NP	load rating Cr (N)	load rating Cor (N)	Grease lubrication	Oil lubrication	da (min)	db (min)	db (max)	dc (min)	dd (min)	Da (max)	Db (max)	ra (min)	ra1 (max)	NU	N	Bearing No.	d	d1 (max)	B1	B2	r1 (min)	Mass (kg) Reference		
17	40	12	33.9	22.9	0.6	0.3	NU 203	NJ	NUP	N	NF	NP	12600	7950	16000	19000		22	19	22	24	25	35	34	34	0.6	0.3	0.082	0.080	—	—	—	—	—	—	—
20	47	14	40	27	1	0.6	NU 204	NJ	NUP	N	NF	NP	15400	12700	15000	18000		26	25	26	29	32	41	42	42	1	0.6	0.112	0.110	HJ 204	20	30	3	6.75	0.6	0.012
	47	14	—	26.5	1	0.6	NU 204 E	NJ	NUP	—	—	—	25700	22600	13000	16000		—	25	26	29	32	41	—	—	1	0.6	0.124	—	HJ 204 E	20	29.8	3	5.5	0.6	0.011
	47	18	—	27	1	0.6	NU 2204	NJ	NUP	—	—	—	20700	18400	14000	17000		—	25	26	29	32	41	—	—	1	0.6	0.144	—	HJ 2204	20	30	3	7.5	0.6	0.012
	47	18	—	26.5	1	0.6	NU 2204 E	NJ	NUP	—	—	—	30500	28300	13000	16000		—	25	26	29	32	41	—	—	1	0.6	0.162	—	HJ 2204 E	20	29.8	3	6.5	0.6	0.011
	52	15	44.5	28.5	1.1	0.6	NU 304	NJ	NUP	N	NF	NP	21400	17300	12000	15000		27	25	27	30	33	45	47	47	1	0.6	0.154	0.150	HJ 304	20	31.8	4	7.5	0.6	0.017
	52	15	—	27.5	1.1	0.6	NU 304 EG	NJ	NUP	—	—	—	31500	26900	12000	15000		—	25	27	30	33	45	—	—	1	0.6	0.150	—	HJ 304 E	20	31.4	4	6.5	0.6	0.016
	52	21	—	28.5	1.1	0.6	NU 2304	NJ	NUP	—	—	—	30500	27200	11000	14000		—	25	27	30	33	45	—	—	1	0.6	0.213	—	HJ 2304	20	31.8	4	8.5	0.6	0.018
	52	21	—	27.5	1.1	0.6	NU 2304 E	NJ	NUP	—	—	—	42000	39000	11000	14000		—	25	27	30	33	45	—	—	1	0.6	0.240	—	HJ 2304 E	20	31.4	4	7.5	0.6	0.017
25	47	12	41.5	30.5	0.6	0.3	NU 1005	—	—	N	—	—	14300	13100	15000	18000		29	27.5	30	32	—	42	45	41.8	0.6	0.3	0.086	0.084	—	—	—	—	—	—	—
	52	15	45	32	1	0.6	NU 205	NJ	NUP	N	NF	NP	17700	15700	13000	16000		31	30	31	34	37	46	47	47	1	0.6	0.133	0.130	HJ 205	25	35	3	7.25	0.6	0.015
	52	15	—	31.5	1	0.6	NU 205 EG	NJ	NUP	—	—	—	29300	27700	12000	14000		—	30	31	34	37	46	—	—	1	0.6	0.140	—	HJ 205 E	25	34.8	3	6	0.6	0.013
	52	18	—	32	1	0.6	NU 2205	NJ	NUP	—	—	—	24300	23500	12000	14000		—	30	31	34	37	46	—	—	1	0.6	0.163	—	HJ 2205	25	35	3	7.5	0.6	0.016
	52	18	—	31.5	1	0.6	NU 2205 EG	NJ	NUP	—	—	—	35000	34500	12000	14000		—	30	31	34	37	46	—	—	1	0.6	0.185	—	HJ 2205 E	25	34.8	3	6.5	0.6	0.015
	62	17	53	35	1.1	1.1	NU 305	NJ	NUP	N	NF	NP	29300	25200	10000	13000		32	32	33	37	40	55	55	55	1	1	0.238	0.230	HJ 305	25	39	4	8	1.1	0.027
	62	17	—	34	1.1	1.1	NU 305 EG	NJ	NUP	—	—	—	41500	37500	10000	12000		—	32	33	37	40	55	—	—	1	1	0.240	—	HJ 305 E	25	38.2	4	7	1.1	0.024
	62	24	—	35	1.1	1.1	NU 2305	NJ	NUP	—	—	—	42500	41000	9300	11000		—	32	33	37	40	55	—	—	1	1	0.340	—	HJ 2305	25	39	4	9	1.1	0.029
62	24	—	34	1.1	1.1	NU 2305 E	NJ	NUP	—	—	—	57000	56000	9000	11000		—	32	33	37	40	55	—	—	1	1	0.390	—	HJ 2305 E	25	38.2	4	8	1.1	0.026	
80	21	62.8	38.8	1.5	1.5	NU 405	NJ	NUP	N	NF	NP	46500	40000	9000	11000		33.5	33.5	38	41	46	71.5	71.5	64	1.5	1.5	0.564	0.550	HJ 405	25	43.6	6	10.5	1.5	0.054	
30	55	13	48.5	36.5	1	0.6	NU 1006	—	—	N	—	—	19700	19600	12000	15000		35	33.5	35	38	—	49	52	49	1	0.6	0.123	0.121	—	—	—	—	—	—	—
	62	16	53.5	38.5	1	0.6	NU 206	NJ	NUP	N	NF	NP	23500	21500	11000	13000		36	35	37	40	44	56	57	56	1	0.6	0.204	0.200	HJ 206	30	41.8	4	8.25	0.6	0.026
	62	16	—	37.5	1	0.6	NU 206 EG	NJ	NUP	—	—	—	39000	37500	9500	12000		—	35	37	40	44	56	—	—	1	0.6	0.210	—	HJ 206 E	30	41.4	4	7	0.6	0.024
	62	20	—	38.5	1	0.6	NU 2206	NJ	NUP	—	—	—	33000	33000	10000	12000		—	35	37	40	44	56	—	—	1	0.6	0.262	—	HJ 2206	30	41.8	4	8.5	0.6	0.026
	62	20	—	37.5	1	0.6	NU 2206 EG	NJ	NUP	—	—	—	49000	50000	9500	12000		—	35	37	40	44	56	—	—	1	0.6	0.295	—	HJ 2206 E	30	41.4	4	7.5	0.6	0.025
	72	19	62	42	1.1	1.1	NU 306	NJ	NUP	N	NF	NP	38500	35000	8500	11000		37	37	40	44	48	65	65	64	1	1	0.357	0.350	HJ 306	30	45.9	5	9.5	1.1	0.044
	72	19	—	40.5	1.1	1.1	NU 306 EG	NJ	NUP	—	—	—	53000	50000	8500	10000		—	37	40	44	48	65	—	—	1	1	0.370	—	HJ 306 E	30	45.1	5	8.5	1.1	0.041
	72	27	—	42	1.1	1.1	NU 2306	NJ	NUP	—	—	—	51500	51000	8200	9800		—	37	40	44	48	65	—	—	1	1	0.500	—	HJ 2306	30	45.9	5	11.5	1.1	0.048
	72	27	—	40.5	1.1	1.1	NU 2306 E	NJ	NUP	—	—	—	74500	77500	8000	9500		—	37	40	44	48	65	—	—	1	1	0.585	—	HJ 2306 E	30	45.1	5	9.5	1.1	0.043
	90	23	73	45	1.5	1.5	NU 406	NJ	NUP	N	NF	NP	62500	55000	7500	9500		38.5	38.5	44	47	52	81.5	81.5	74	1.5	1.5	0.770	0.750	HJ 406	30	50.5	7	11.5	1.5	0.080

Note: (1) The dimension table shows limiting speed for bearings made with machined cages. For bearings made with pressed steel cages, multiply the table limits by 0.8.

Cylindrical Roller Bearings

Bore Diameter: 35~45mm

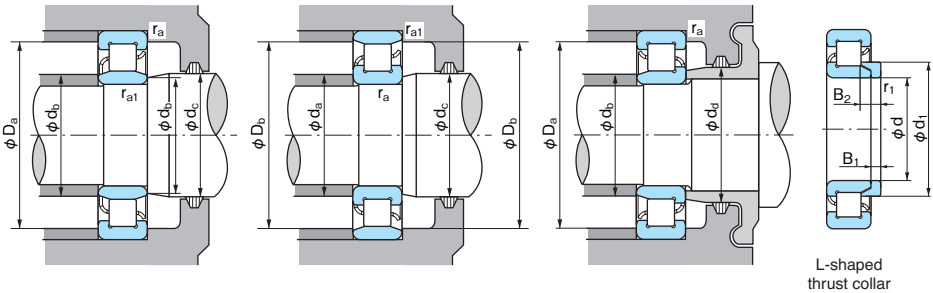
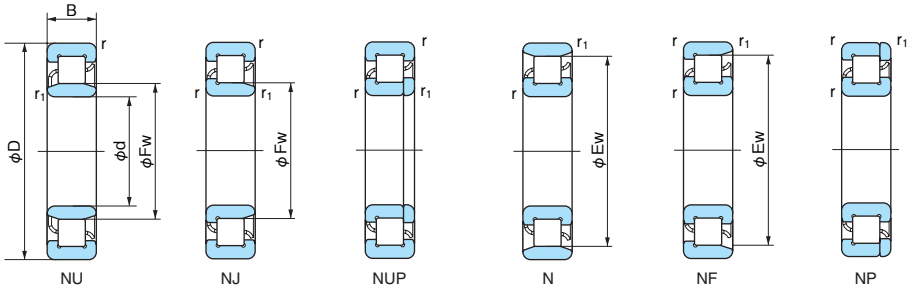


1N=0.102kgf																																				
Boundary dimensions (mm)						Bearing No.						Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min ⁻¹)(¹)		Abutment and fillet dimensions (mm)								Mass (kg)		Dimensions of L-shaped thrust collar (mm)										
d	D	B	Ew	Fw	r (min)	r1 (min)	NU	NJ	NUP	N	NF	NP					da (min)	db (min)	db (max)	dc (min)	dd (min)	Da (max)	Db (max)	Db (min)	ra (max)	ra1 (max)	NU	N	Bearing No.	d	d1 (max)	B1	B2	r1 (min)	Mass (kg) Reference	
35	62	14	55	42	1	0.6	NU 1007	—	—	N	—	—	22600	23200	11000	13000	40	38.5	41	44	—	56	59	55.5	1	0.6	0.185	0.182	—	—	—	—	—	—	—	—
	72	17	61.8	43.8	1.1	0.6	NU 207	NJ	NUP	N	NF	NP	33500	31500	9500	11000	42	40	43	46	50	65	67	64	1	0.6	0.295	0.290	HJ 207	35	47.6	4	8	0.6	0.032	
	72	17	—	44	1.1	0.6	NU 207EG	NJ	NUP	—	—	—	50500	50000	8500	10000	—	40	43	46	50	65	—	—	1	0.6	0.300	—	HJ 207E	35	48.2	4	7	0.6	0.032	
	72	23	—	43.8	1.1	0.6	NU 2207	NJ	NUP	—	—	—	49000	51000	8500	10000	—	40	43	46	50	65	—	—	1	0.6	0.402	—	HJ 2207	35	47.6	4	8.5	0.6	0.033	
	72	23	—	44	1.1	0.6	NU 2207EG	NJ	NUP	—	—	—	61500	65000	8500	10000	—	40	43	46	50	65	—	—	1	0.6	0.446	—	HJ 2207E	35	48.2	4	8.5	0.6	0.035	
	80	21	68.2	46.2	1.5	1.1	NU 307	NJ	NUP	N	NF	NP	49500	47000	8000	9500	43.5	42	45	48	53	71.5	73	71	1.5	1	0.470	0.460	HJ 307	35	50.8	6	11	1.1	0.060	
	80	21	—	46.2	1.5	1.1	NU 307EG	NJ	NUP	—	—	—	66500	65500	7500	9500	—	42	45	48	53	71.5	—	—	1.5	1	0.490	—	HJ 307E	35	51.1	6	9.5	1.1	0.058	
	80	31	—	46.2	1.5	1.1	NU 2307	NJ	NUP	—	—	—	60500	60000	7200	8600	—	42	45	48	53	71.5	—	—	1.5	1	0.696	—	HJ 2307	35	50.8	6	14	1.1	0.067	
	80	31	—	46.2	1.5	1.1	NU 2307E	NJ	NUP	—	—	—	99000	109000	6800	8500	—	42	45	48	53	71.5	—	—	1.5	1	0.780	—	HJ 2307E	35	51.1	6	11	1.1	0.062	
	100	25	83	53	1.5	1.5	NU 407	NJ	NUP	—	NF	NP	75500	69000	6700	8000	43.5	43.5	52	55	61	91.5	91.5	84	1.5	1.5	1.05	1.02	HJ 407	35	59	8	13	1.5	0.120	
40	68	15	61	47	1	0.6	NU 1008	—	—	N	—	—	27300	29000	10000	12000	45	45	46	49	—	62	64	61.5	1	0.6	0.226	0.223	—	—	—	—	—	—	—	
	80	18	70	50	1.1	1.1	NU 208	NJ	NUP	N	NF	NP	43500	43000	8500	10000	47	47	49	52	56	73	73	72	1	1	0.369	0.360	HJ 208	40	54.2	5	9	1.1	0.049	
	80	18	—	49.5	1.1	1.1	NU 208EG	NJ	NUP	—	—	—	55500	55500	9500	9000	—	47	49	52	56	73	—	—	1	1	0.380	—	HJ 208E	40	54.1	5	8.5	1.1	0.047	
	80	23	—	50	1.1	1.1	NU 2208	NJ	NUP	—	—	—	58000	62000	7500	9000	—	47	49	52	56	73	—	—	1	1	0.490	—	HJ 2208	40	54.2	5	9.5	1.1	0.050	
	80	23	—	49.5	1.1	1.1	NU 2208EG	NJ	NUP	—	—	—	72500	77500	7500	9000	—	47	49	52	56	73	—	—	1	1	0.743	—	HJ 2208E	40	54.1	5	9	1.1	0.049	
	90	23	77.5	53.5	1.5	1.5	NU 308	NJ	NUP	N	NF	NP	58500	57000	6700	8500	48.5	48.5	51	55	60	81.5	81.5	80	1.5	1.5	0.665	0.650	HJ 308	40	58.4	7	12.5	1.5	0.090	
	90	23	—	52	1.5	1.5	NU 308EG	NJ	NUP	—	—	—	83000	81500	6700	8000	—	48.5	51	55	60	81.5	—	—	1.5	1.5	0.670	—	HJ 308E	40	57.7	7	11	1.5	0.084	
	90	33	—	53.5	1.5	1.5	NU 2308	NJ	NUP	—	—	—	82500	88000	6500	7800	—	48.5	51	55	60	81.5	—	—	1.5	1.5	0.956	—	HJ 2308	40	58.4	7	14.5	1.5	0.097	
	90	33	—	52	1.5	1.5	NU 2308E	NJ	NUP	—	—	—	114000	122000	6400	7700	—	48.5	51	55	60	81.5	—	—	1.5	1.5	1.05	—	HJ 2308E	40	57.7	7	12.5	1.5	0.090	
	110	27	92	58	2	2	NU 408	NJ	NUP	N	NF	NP	95500	89000	6000	7500	50	50	57	60	67	100	100	93	2	2	1.33	1.30	HJ 408	40	64.8	8	13	2	0.144	
45	75	16	67.5	52.5	1	0.6	NU 1009	—	—	N	—	—	32500	35500	9000	11000	50	50	52	54	—	69	71	68	1	0.6	0.284	0.289	—	—	—	—	—	—	—	
	85	19	75	55	1.1	1.1	NU 209	NJ	NUP	N	NF	NP	46000	47000	7500	9000	52	52	54	57	61	78	78	77	1	1	0.430	0.420	HJ 209	45	59	5	9.5	1.1	0.054	
	85	19	—	54.5	1.1	1.1	NU 209EG	NJ	NUP	—	—	—	63000	66500	7000	8500	—	52	54	57	61	78	—	—	1	1	0.440	—	HJ 209E	45	59.1	5	8.5	1.1	0.053	
	85	23	—	55	1.1	1.1	NU 2209	NJ	NUP	—	—	—	61500	68000	7400	8900	—	52	54	57	61	78	—	—	1	1	0.536	—	HJ 2209	45	59	5	9.5	1.1	0.054	
	85	23	—	54.5	1.1	1.1	NU 2209EG	NJ	NUP	—	—	—	76000	84500	7000	8500	—	52	54	57	61	78	—	—	1	1	0.593	—	HJ 2209E	45	59.1	5	9	1.1	0.054	
	100	25	86.5	58.5	1.5	1.5	NU 309	NJ	NUP	N	NF	NP	78500	77500	6300	7500	53.5	53.5	57	60	66	91.5	91.5	89	1.5	1.5	0.871	0.850	HJ 309	45	64	7	12.5	1.5	0.105	
	100	25	—	58.5	1.5	1.5	NU 309EG	NJ	NUP	—	—	—	97500	98500	6000	7500	—	53.5	57	60	66	91.5	—	—	1.5	1.5	0.910	—	HJ 309E	45	64.5	7	11.5	1.5	0.103	
	100	36	—	58.5	1.5	1.5	NU 2309	NJ	NUP	—	—	—	99000	104000	6100	7300	—	53.5	57	60	66	91.5	—	—	1.5	1.5	1.25	—	HJ 2309	45	64	7	15	1.5	0.115	
	100	36	—	58.5	1.5	1.5	NU 2309E	NJ	NUP	—	—	—	137000	153000	6000	7200	—	53.5	57	60	66	91.5	—	—	1.5	1.5	1.40	—	HJ 2309E	45	64.5	7	13	1.5	0.112	
	120	29	100.5	64.5	2	2	NU 409	NJ	NUP	N	NF	NP	107000	102000	5600	6700	55	55	63	66	74	110	110	102	2	2	1.67	1.64	HJ 409	45	71.8	8	13.5	2	0.176	

Note: (¹) The dimension table shows limiting speed for bearings made with machined cages. For bearings made with pressed steel cages, multiply the table limits by 0.8.

Cylindrical Roller Bearings

Bore Diameter: 95~110mm

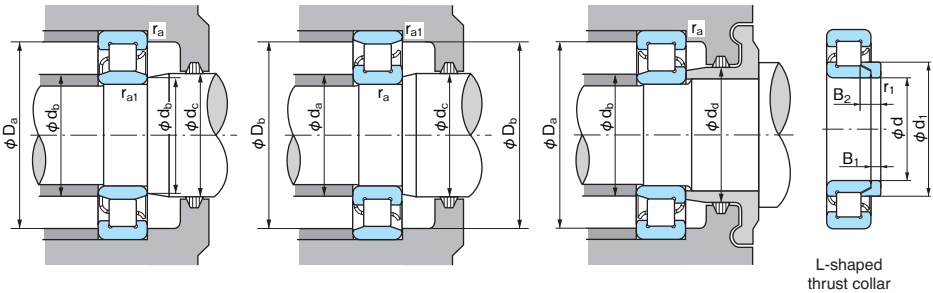
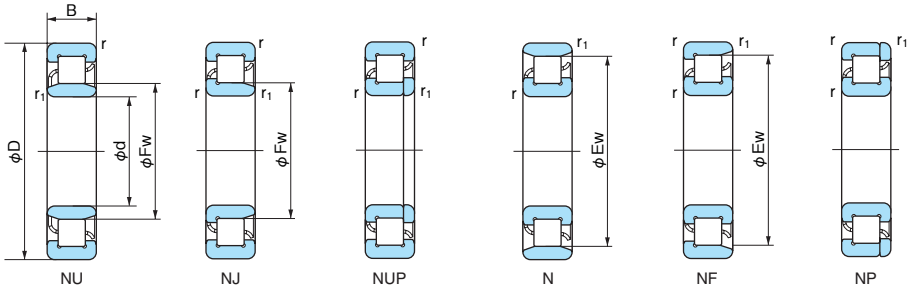


1N=0.102kgf																																			
Boundary dimensions (mm)							Bearing No.						Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min ⁻¹)(¹)		Abutment and fillet dimensions (mm)								Mass (kg)		Dimensions of L-shaped thrust collar (mm)								
d	D	B	Ew	Fw	r (min)	r ₁ (min)	NU	NJ	NUP	N	NF	NP					d _a (min)	d _b (min)	d _c (max)	d _d (min)	D _a (max)	D _b (max)	r _a (min)	r _{a1} (max)	NU	N	Bearing No.	d	d ₁ (max)	B ₁	B ₂	r ₁ (min)	Mass (kg) Reference		
95	145	24	132	108	1.5	1.1	NU 1019	—	—	N	—	—	90500	120000	4500	5300																			
	170	32	151.5	113.5	2.1	2.1	NU 219	NJ	NUP	N	NF	NP	165000	195000	3800	4500																			
	170	32	—	112.5	2.1	2.1	NU 219 E	NJ	NUP	—	—	—	222000	259000	3400	4000																			
	170	43	—	113.5	2.1	2.1	NU 2219	NJ	NUP	—	—	—	230000	298000	3400	4000																			
	170	43	—	112.5	2.1	2.1	NU 2219 E	NJ	NUP	—	—	—	286000	370000	3400	4000																			
	200	45	173.5	121.5	3	3	NU 319	NJ	NUP	N	NF	NP	259000	289000	3000	3600																			
	200	45	—	121.5	3	3	NU 319 E	NJ	NUP	—	—	—	335000	385000	2600	3200																			
	200	67	—	121.5	3	3	NU 2319	NJ	NUP	—	—	—	370000	460000	2600	3400																			
	200	67	—	121.5	3	3	NU 2319 E	NJ	NUP	—	—	—	460000	585000	2600	3200																			
240	55	201.5	133.5	4	4	NU 419	NJ	NUP	N	NF	NP	400000	445000	2600	3200																				
100	150	24	137	113	1.5	1.1	NU 1020	—	—	N	—	—	93000	126000	4300	5300																			
	180	34	160	120	2.1	2.1	NU 220	NJ	NUP	N	NF	NP	183000	217000	3600	4300																			
	180	34	—	119	2.1	2.1	NU 220 E	NJ	NUP	—	—	—	250000	305000	3200	3800																			
	180	46	—	120	2.1	2.1	NU 2220	NJ	NUP	—	—	—	257000	335000	3200	3800																			
	180	46	—	119	2.1	2.1	NU 2220 E	NJ	NUP	—	—	—	335000	445000	3200	3800																			
	215	47	185.5	129.5	3	3	NU 320	NJ	NUP	N	NF	NP	300000	335000	2800	3400																			
	215	47	—	127.5	3	3	NU 320 E	NJ	NUP	—	—	—	380000	425000	2400	3000																			
	215	73	—	129.5	3	3	NU 2320	NJ	NUP	—	—	—	435000	545000	2400	3200																			
	215	73	—	127.5	3	3	NU 2320 E	NJ	NUP	—	—	—	570000	715000	2400	3000																			
	250	58	211	139	4	4	NU 420	NJ	NUP	N	NF	NP	450000	500000	2600	3000																			
105	160	26	145.5	119.5	2	1.1	NU 1021	—	—	N	—	—	109000	149000	4000	4800																			
	190	36	168.8	126.8	2.1	2.1	NU 221	NJ	NUP	N	NF	NP	202000	241000	3400	4000																			
	225	49	195	135	3	3	NU 321	NJ	NUP	N	NF	NP	340000	385000	2600	3200																			
	260	60	220.5	144.5	4	4	NU 421	NJ	NUP	N	NF	NP	495000	555000	2400	3000																			
110	170	28	155	125	2	1.1	NU 1022	—	—	N	—	—	131000	174000	3800	4500																			
	200	38	178.5	132.5	2.1	2.1	NU 222	NJ	NUP	N	NF	NP	240000	290000	3200	3800																			
	200	38	—	132.5	2.1	2.1	NU 222 E	NJ	NUP	—	—	—	293000	365000	2800	3400																			
	200	53	—	132.5	2.1	2.1	NU 2222	NJ	NUP	—	—	—	320000	440000	2800	3400																			
	200	53	—	132.5	2.1	2.1	NU 2222 E	NJ	NUP	—	—	—	385000	515000	2800	3400																			
	240	50	207	143	3	3	NU 322	NJ	NUP	N	NF	NP	380000	435000	2600	3000																			
	240	50	—	143	3	3	NU 322 E	NJ	NUP	—	—	—	450000	525000	2200	2800																			
	240	80	—	143	3	3	NU 2322	NJ	NUP	—	—	—	570000	735000	2200	2800																			
	240	80	—	143	3	3	NU 2322 E	NJ	NUP	—	—	—	670000	880000	2200	2800																			
	280	65	235	155	4	4	NU 422	NJ	NUP	N	NF	NP	550000	620000	2200	2800																			

Note: (¹) The dimension table shows limiting speed for bearings made with machined cages. For bearings made with pressed steel cages, multiply the table limits by 0.8.

Cylindrical Roller Bearings

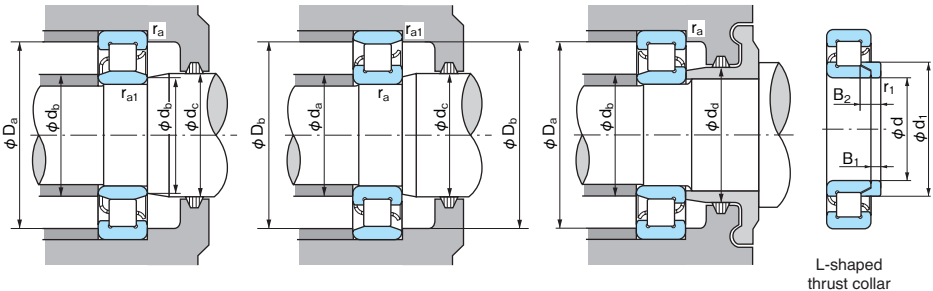
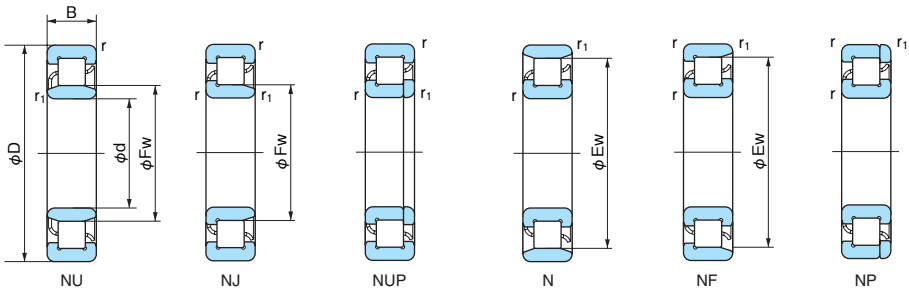
Bore Diameter: 120~140mm



1N=0.102kgf																																				
Boundary dimensions (mm)						Bearing No.						Basic dynamic load rating Cr (N)		Basic static load rating Cor (N)		Limiting speed (min ⁻¹)(¹)		Abutment and fillet dimensions (mm)								Mass (kg)		Dimensions of L-shaped thrust collar (mm)								
d	D	B	Ew	Fw	r (min)	r1 (min)	NU	NJ	NUP	N	NF	NP	load rating	rating	Grease lubrication	Oil lubrication		da (min)	db (min)	dc (max)	dd (min)	Da (max)	Db (max)	ra (min)	ra1 (max)	NU	N	Bearing No.	d	d1 (max)	B1	B2	r1 (min)	Mass (kg) Reference		
120	180	28	165	135	2	1.1	NU 1024	—	—	N	—	—	139000	191000	3400	4300		129	127	134	138	—	170	173.5	166	2	1	2.51	2.47	—	—	—	—	—	—	
	215	40	191.5	143.5	2.1	2.1	NU 224	NJ	NUP	N	NF	NP	260000	320000	3000	3400		132	132	141	146	156	203	203	196	2	2	5.61	5.50	HJ 224	120	153	11	19	2.1	0.700
	215	40	—	143.5	2.1	2.1	NU 224 E	NJ	NUP	—	—	—	335000	420000	2600	3200		—	132	141	146	156	203	—	—	2	2	6.25	—	HJ 224 E	120	153.4	11	17	2.1	0.680
	215	58	—	143.5	2.1	2.1	NU 2224	NJ	NUP	—	—	—	365000	490000	2600	3200		—	132	141	146	156	203	—	—	2	2	8.56	—	HJ 2224	120	153	11	22	2.1	0.749
	215	58	—	143.5	2.1	2.1	NU 2224 E	NJ	NUP	—	—	—	450000	620000	2600	3200		—	132	141	146	156	203	—	—	2	2	9.35	—	HJ 2224 E	120	153.4	11	20	2.1	0.731
	260	55	226	154	3	3	NU 324	NJ	NUP	N	NF	NP	450000	510000	2200	2800		134	134	151	156	171	246	246	230	2.5	2.5	15.4	15.1	HJ 324	120	168.5	14	23.5	3	1.38
	260	55	—	154	3	3	NU 324 E	NJ	NUP	—	—	—	530000	610000	2000	2600		—	134	151	156	171	246	—	—	2.5	2.5	15.2	—	HJ 324 E	120	168.6	14	22.5	3	1.36
	260	86	—	154	3	3	NU 2324	NJ	NUP	—	—	—	710000	920000	2000	2600		—	134	151	156	171	246	—	—	2.5	2.5	23.1	—	HJ 2324	120	168.5	14	28	3	1.51
	260	86	—	154	3	3	NU 2324 E	NJ	NUP	—	—	—	795000	1030000	2000	2600		—	134	151	156	171	246	—	—	2.5	2.5	22.9	—	HJ 2324 E	120	168.6	14	26	3	1.46
	310	72	260	170	5	5	NU 424	NJ	NUP	N	NF	NP	675000	770000	2000	2400		142	142	168	172	190	288	288	262	4	4	28.7	28.0	HJ 424	120	188	17	30.5	5	2.55
130	200	33	182	148	2	1.1	NU 1026	—	—	N	—	—	172000	238000	3200	3800		139	137	146	151	—	190	193.5	183	2	1	3.83	3.77	—	—	—	—	—	—	
	230	40	204	156	3	3	NU 226	NJ	NUP	N	NF	NP	270000	340000	2600	3200		144	144	151	158	168	216	216	208	2.5	2.5	7.60	7.39	HJ 226	130	165.5	11	19	3	0.805
	230	40	—	153.5	3	3	NU 226 E	NJ	NUP	—	—	—	365000	455000	2400	2800		—	144	151	158	168	216	—	—	2.5	2.5	7.50	—	HJ 226 E	130	164.2	11	17	3	0.775
	230	64	—	156	3	3	NU 2226	NJ	NUP	—	—	—	380000	530000	2400	3000		—	144	151	158	168	216	—	—	2.5	2.5	11.2	—	HJ 2226	130	165.5	11	25	3	0.911
	230	64	—	153.5	3	3	NU 2226 E	NJ	NUP	—	—	—	530000	735000	2400	3000		—	144	151	158	168	216	—	—	2.5	2.5	12.5	—	HJ 2226 E	130	164.2	11	21	3	0.833
	280	58	243	167	4	4	NU 326	NJ	NUP	N	NF	NP	555000	665000	2200	2600		148	148	164	169	184	262	262	247	3	3	18.2	17.8	HJ 326	130	182	14	24	4	1.61
	280	58	—	167	4	4	NU 326 E	NJ	NUP	—	—	—	615000	735000	1900	2400		—	148	164	169	184	262	—	—	3	3	18.5	—	HJ 326 E	130	182.3	14	23	4	1.59
	280	93	—	167	4	4	NU 2326	NJ	NUP	—	—	—	840000	1130000	1900	2400		—	148	164	169	184	262	—	—	3	3	29.1	—	HJ 2326	130	182	14	29.5	4	1.78
	280	93	—	167	4	4	NU 2326 E	NJ	NUP	—	—	—	920000	1230000	1900	2400		—	148	164	169	184	262	—	—	3	3	28.5	—	HJ 2326 E	130	182.3	14	28	4	1.75
	340	78	285	185	5	5	NU 426	NJ	NUP	N	NF	NP	825000	955000	1800	2200		152	152	183	187	208	318	318	287	4	4	36.9	36.1	HJ 426	130	205	18	32	5	3.23
140	210	33	192	158	2	1.1	NU 1028	—	—	N	—	—	176000	250000	3000	3600		149	147	156	161	—	200	203.5	193	2	1	4.07	4.00	—	—	—	—	—	—	
	250	42	221	169	3	3	NU 228	NJ	NUP	N	NF	NP	310000	420000	2400	3000		154	154	166	171	182	236	236	228	2.5	2.5	9.49	9.26	HJ 228	140	179.5	11	19	3	0.968
	250	42	—	169	3	3	NU 228 E	NJ	NUP	—	—	—	395000	515000	2200	2600		—	154	166	171	182	236	—	—	2.5	2.5	8.90	—	HJ 228 E	140	180	11	18	3	0.966
	250	68	—	169	3	3	NU 2228	NJ	NUP	—	—	—	465000	670000	2200	2800		—	154	166	171	182	236	—	—	2.5	2.5	14.3	—	HJ 2228	140	179.5	11	25	3	1.09
	250	68	—	169	3	3	NU 2228 E	NJ	NUP	—	—	—	570000	835000	2200	2600		—	154	166	171	182	236	—	—	2.5	2.5	14.9	—	HJ 2228 E	140	180	11	23	3	1.08
	300	62	260	180	4	4	NU 328	NJ	NUP	N	NF	NP	595000	745000	2000	2400		158	158	176	182	198	282	282	268	3	3	22.4	21.8	HJ 328	140	196	15	26	4	2.01
	300	62	—	180	4	4	NU 328 E	NJ	NUP	—	—	—	665000	795000	1800	2200		—	158	176	182	198	282	—	—	3	3	21.8	—	HJ 328 E	140	196	15	25	4	1.97
	300	102	—	180	4	4	NU 2328	NJ	NUP	—	—	—	920000	1250000	1800	2200		—	158	176	182	198	282	—	—	3	3	36.8	—	HJ 2328	140	196	15	33.5	4	2.27
	300	102	—	180	4	4	NU 2328 E	NJ	NUP	—	—	—	1020000	1380000	1800	2200		—	158	176	182	198	282	—	—	3	3	35.9	—	HJ 2328 E	140	196	15	31	4	2.18
	360	82	302	198	5	5	NU 428	NJ	NUP	N	NF	NP	875000	1020000	1700	2000		162	162	195	200	222	338	338	304	4	4	48.0	46.8	HJ 428	140	219	18	33	5	3.70

Note: ⁽¹⁾ The dimension table shows limiting speed for bearings made with machined cages. For bearings made with pressed steel cages, multiply the table limits by 0.8.

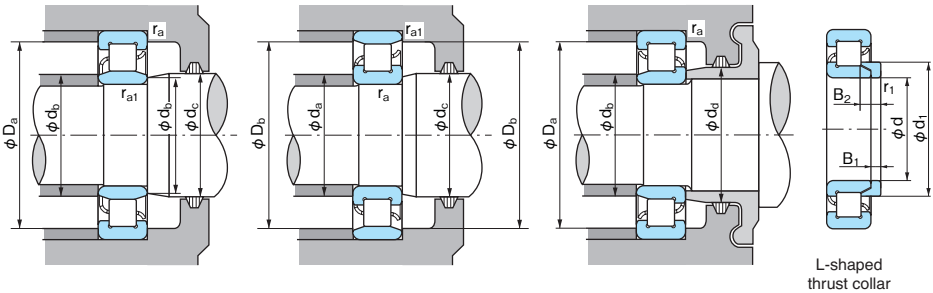
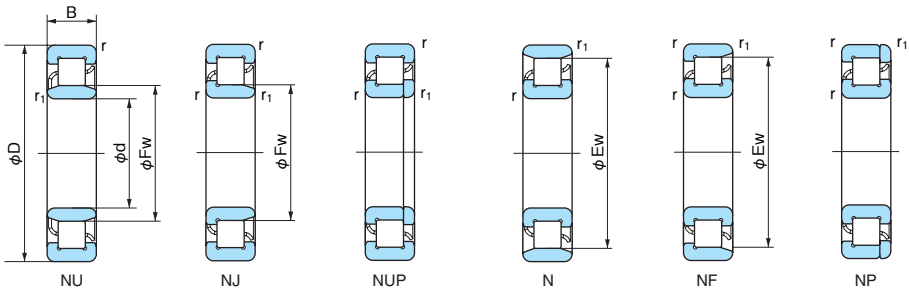
Cylindrical Roller Bearings
Bore Diameter: 150~180mm



1N=0.102kgf																																					
Boundary dimensions (mm)						Bearing No.						Basic dynamic load rating Cr (N)		Basic static load rating Cor (N)		Limiting speed (min ⁻¹)(¹)		Abutment and fillet dimensions (mm)								Mass (kg)		Dimensions of L-shaped thrust collar (mm)									
d	D	B	Ew	Fw	r (min)	r1 (min)	NU	NJ	NUP	N	NF	NP	load rating Cr (N)	load rating Cor (N)	Grease lubrication	Oil lubrication		da (min)	db (min)	db (max)	dc (min)	dd (min)	Da (max)	Db (max)	ra (min)	ra1 (max)	NU	N	Bearing No.	d	d1 (max)	B1	B2	r1 (min)	Mass (kg) Reference		
150	225	35	205.5	169.5	2.1	1.5	NU 1030	—	—	N	—	—	202000	294000	2800	3400		161	158.5	167	173	—	213	217	207	2	1.5	4.90	4.83	—	—	—	—	—	—	—	—
	270	45	238	182	3	3	NU 230	NJ	NUP	N	NF	NP	375000	490000	2200	2800		164	164	179	184	196	256	256	245	2.5	2.5	11.9	11.7	HJ 230	150	193	12	20.5	3	1.22	
	270	45	—	182	3	3	NU 230 E	NJ	NUP	—	—	—	450000	595000	2000	2400		—	164	179	184	196	256	—	—	2.5	2.5	11.5	—	HJ 230 E	150	193.7	12	19.5	3	1.23	
	270	73	—	182	3	3	NU 2230	NJ	NUP	—	—	—	545000	800000	2000	2600		—	164	179	184	196	256	—	—	2.5	2.5	18.7	—	HJ 2230	150	193	12	26.5	3	1.36	
	270	73	—	182	3	3	NU 2230 E	NJ	NUP	—	—	—	660000	990000	2000	2400		—	164	179	184	196	256	—	—	2.5	2.5	18.5	—	HJ 2230 E	150	193.7	12	24.5	3	1.35	
	320	65	277	193	4	4	NU 330	NJ	NUP	N	NF	NP	660000	805000	1800	2200		168	168	190	195	213	302	302	287	3	3	26.5	25.9	HJ 330	150	210	15	26.5	4	2.32	
	320	65	—	193	4	4	NU 330 E	NJ	NUP	—	—	—	755000	920000	1600	2000		—	168	190	195	213	302	—	—	3	3	28.8	—	HJ 330 E	150	210	15	25	4	2.26	
	320	108	—	193	4	4	NU 2330	NJ	NUP	—	—	—	1020000	1400000	1700	2000		—	168	190	195	213	302	—	—	3	3	44.7	—	HJ 2330	150	210	15	34	4	2.62	
	320	108	—	193	4	4	NU 2330 E	NJ	NUP	—	—	—	1160000	1600000	1600	2000		—	168	190	195	213	302	—	—	3	3	48.2	—	HJ 2330 E	150	210	15	31.5	4	2.52	
380	85	317	213	5	5	NU 430	NJ	NUP	N	NF	NP	930000	1120000	1600	2000		172	172	210	216	237	358	358	319	4	4	54.5	53.3	HJ 430	150	234	20	36.5	5	4.61		
160	240	38	220	180	2.1	1.5	NU 1032	—	—	N	—	—	238000	340000	2600	3200		171	168.5	178	184	—	228	232	220	2	1.5	6.01	5.93	—	—	—	—	—	—	—	
	290	48	255	195	3	3	NU 232	NJ	NUP	N	NF	NP	430000	570000	2200	2600		174	174	192	197	210	276	276	262	2.5	2.5	14.5	14.2	HJ 232	160	207	12	21	3	1.44	
	290	48	—	195	3	3	NU 232 E	NJ	NUP	—	—	—	500000	665000	1900	2200		—	174	192	197	210	276	—	—	2.5	2.5	15.6	—	HJ 232 E	160	207.3	12	20	3	1.43	
	290	80	—	195	3	3	NU 2232	NJ	NUP	—	—	—	630000	940000	1900	2400		—	174	192	197	210	276	—	—	2.5	2.5	24.1	—	HJ 2232	160	205	12	28	3	1.50	
	290	80	—	193	3	3	NU 2232 E	NJ	NUP	—	—	—	810000	1190000	1900	2400		—	174	192	197	210	276	—	—	2.5	2.5	25.9	—	HJ 2232 E	160	206.1	12	24.5	3	1.54	
	340	68	292	208	4	4	NU 332	NJ	NUP	N	NF	NP	700000	875000	1700	2000		178	178	200	211	228	322	322	304	3	3	31.2	30.6	HJ 332	160	225	15	28	4	2.71	
	340	68	—	204	4	4	NU 332 E	NJ	NUP	—	—	—	860000	1050000	1700	2000		—	178	200	211	228	322	—	—	3	3	34.1	—	HJ 332 E	160	222.1	15	25	4	2.49	
	340	114	—	208	4	4	NU 2332	NJ	NUP	—	—	—	1070000	1520000	1500	1900		—	178	200	211	228	322	—	—	3	3	52.5	—	HJ 2332	160	225	15	37	4	3.09	
340	114	—	204	4	4	NU 2332 E	NJ	NUP	—	—	—	1310000	1820000	1600	1900		—	178	200	211	228	322	—	—	3	3	57.2	—	HJ 2332 E	160	222.1	15	32	4	2.80		
170	260	42	237	193	2.1	2.1	NU 1034	—	—	N	—	—	287000	415000	2400	2800		181	182	190	197	—	248	249	237	2	2	8.02	7.90	—	—	—	—	—	—	—	
	310	52	272	208	4	4	NU 234	NJ	NUP	N	NF	NP	475000	635000	2000	2400		188	188	204	211	223	292	292	284	3	3	17.9	17.6	HJ 234	170	220.5	12	22	4	1.67	
	310	52	—	207	4	4	NU 234 E	NJ	NUP	—	—	—	605000	800000	1900	2300		—	188	204	211	223	292	—	—	3	3	19.3	—	HJ 234 E	170	220.8	12	20	4	1.64	
	310	86	—	208	4	4	NU 2234	NJ	NUP	—	—	—	725000	1100000	1800	2200		—	188	204	211	223	292	—	—	3	3	29.6	—	HJ 2234	170	219	12	29	4	1.78	
	310	86	—	205	4	4	NU 2234 E	NJ	NUP	—	—	—	970000	1400000	1900	2300		—	188	204	211	223	292	—	—	3	3	31.9	—	HJ 2234 E	170	219.5	12	24	4	1.76	
	360	72	310	220	4	4	NU 334	NJ	NUP	N	NF	NP	795000	1010000	1600	2000		188	188	216	223	241	342	342	314	3	3	37.1	36.1	HJ 334	170	238	16	29.5	4	3.20	
	360	120	—	220	4	4	NU 2334	NJ	NUP	—	—	—	1220000	1750000	1400	1800		—	188	216	223	241	342	—	—	3	3	62.7	—	HJ 2334	170	238	16	38.5	4	3.62	
180	280	46	255	205	2.1	2.1	NU 1036	—	—	N	—	—	355000	510000	2200	2600		191	192	203	209	—	268	269	256	2	2	10.8	10.5	—	—	—	—	—	—	—	
	320	52	282	218	4	4	NU 236	NJ	NUP	N	NF	NP	495000	675000	1900	2200		198	198	214	221	233	302	302	294	3	3	19.3	18.3	HJ 236	180	230.5	12	22	4	1.76	
	320	52	—	217	4	4	NU 236 E	NJ	NUP	—	—	—	625000	850000	1800	2200		—	198	214	221	233	302	—	—	3	3	20.5	—	HJ 236 E	180	230.8	12	20	4	1.73	
	320	86	—	218	4	4	NU 2236	NJ	NUP	—	—	—	775000	1210000	1700	2000		—	198	214	221	233	302	—	—	3	3	30.4	—	HJ 2236	180	229	12	29	4	1.87	
	320	86	—	215	4	4	NU 2236 E	NJ	NUP	—	—	—	1010000	1510000	1800	2200		—	198	214	221	233	302	—	—	3	3	34.5	—	HJ 2236 E	180	229.5	12	24	4	1.85	
	380	75	328	232	4	4	NU 336	NJ	NUP	N	NF	NP	9050000	1150000	1500	1800		198	198	227	235	255	362	362	332	3	3	42.8	41.9	HJ 336	180	252	17	30.5	4	3.80	
	380	126	—	232	4	4	NU 2336	NJ	NUP	—	—	—	1380000	1990000	1300	1700		—	198	227	235	255	362	—	—	3	3	73.1	—	HJ 2336	180	252	17	40	4	4.35	

Note: (¹) The dimension table shows limiting speed for bearings made with machined cages. For bearings made with pressed steel cages, multiply the table limits by 0.8.

Cylindrical Roller Bearings
Bore Diameter: 190~380mm

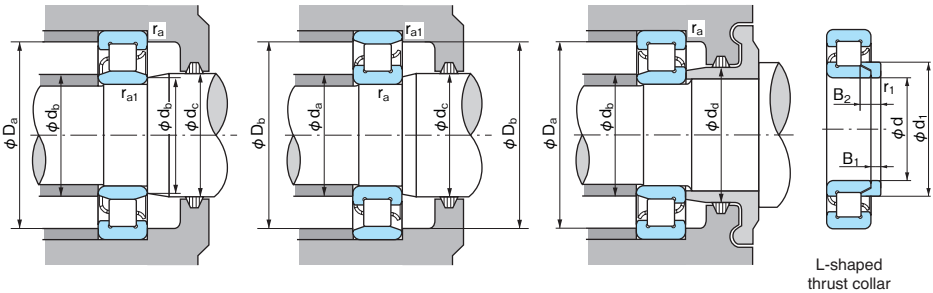
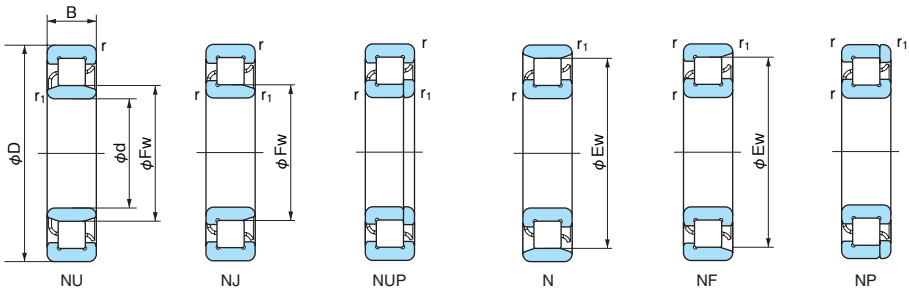


1N=0.102kgf																																					
Boundary dimensions (mm)							Bearing No.						Basic dynamic load rating Cr (N)		Basic static load rating Cor (N)		Limiting speed (min ⁻¹)(¹)		Abutment and fillet dimensions (mm)								Mass (kg)		Dimensions of L-shaped thrust collar (mm)								
d	D	B	Ew	Fw	r (min)	r1 (min)	NU	NJ	NUP	N	NF	NP			Grease lubrication	Oil lubrication		da (min)	db (min)	dc (max)	dd (min)	Da (max)	Db (max)	ra (min)	ra1 (max)	NU	N	Bearing No.	d	d1 (max)	B1	B2	r1 (min)	Mass (kg) Reference			
190	290	46	265	215	2.1	2.1	NU 1038	—	—	N	—	—	365000	535000	2000	2600		201	202	213	219	—	278	279	266	2	2	11.2	10.9	—	—	—	—	—	—	—	—
	340	55	299	231	4	4	NU 238	NJ	NUP	N	NF	NP	555000	770000	1800	2200		208	208	227	234	247	322	322	311	3	3	22.6	22.1	HJ 238	190	244.5	13	23.5	4	2.16	
	340	55	—	230	4	4	NU 238 E	NJ	NUP	—	—	—	695000	955000	1700	2000		—	208	227	234	247	322	—	—	3	3	26.0	—	HJ 238 E	190	244.5	13	21.5	4	2.11	
	340	92	—	231	4	4	NU 2238	NJ	NUP	—	—	—	830000	1290000	1600	2000		—	208	227	234	247	322	—	—	3	3	37.5	—	HJ 2238	190	243	13	31.5	4	2.32	
	340	92	—	228	4	4	NU 2238 E	NJ	NUP	—	—	—	1100000	1670000	1700	2000		—	208	227	234	247	322	—	—	3	3	45.2	—	HJ 2238 E	190	243.2	13	26.5	4	2.28	
	400	78	345	245	5	5	NU 338	NJ	NUP	N	NF	NP	975000	1260000	1400	1700		212	212	240	248	268	378	378	349	4	4	49.4	48.3	HJ 338	190	265	18	32	5	4.36	
400	132	—	245	5	5	NU 2338	NJ	NUP	—	—	—	1520000	2220000	1300	1600		—	212	240	248	268	378	—	—	4	4	85.0	—	HJ 2338	190	265	18	41.5	5	4.92		
200	310	51	281	229	2.1	2.1	NU 1040	—	—	N	—	—	390000	580000	2000	2400		211	212	226	233	—	298	299	283	2	2	14.4	14.1	—	—	—	—	—	—	—	—
	360	58	316	244	4	4	NU 240	NJ	NUP	N	NF	NP	620000	865000	1500	1800		218	218	240	247	261	342	342	328	3	3	26.8	26.2	HJ 240	200	258	14	25	4	2.59	
	360	58	—	243	4	4	NU 240 E	NJ	NUP	—	—	—	765000	1060000	1600	1900		—	218	240	247	261	342	—	—	3	3	29.5	—	HJ 240 E	200	258.2	14	23	4	2.54	
	360	98	—	244	4	4	NU 2240	NJ	NUP	—	—	—	925000	1440000	1500	1800		—	218	240	247	261	342	—	—	3	3	45.4	—	HJ 2240	200	258	14	34	4	2.95	
	360	98	—	241	4	4	NU 2240 E	NJ	NUP	—	—	—	1220000	1870000	1500	1800		—	218	240	247	261	342	—	—	3	3	52.3	—	HJ 2240 E	200	256.9	14	28	4	2.73	
	420	80	360	260	5	5	NU 340	NJ	NUP	N	NF	NP	975000	1270000	1300	1600		222	222	254	263	283	398	398	364	4	4	55.8	54.5	HJ 340	200	280	18	33	5	4.91	
420	138	—	260	5	5	NU 2340	NJ	NUP	—	—	—	1510000	2240000	1200	1500		—	222	254	263	283	398	—	—	4	4	96.8	—	HJ 2340	200	280	18	44.5	5	5.63		
220	340	56	310	250	3	3	NU 1044	—	—	N	—	—	500000	750000	1800	2300		233	234	248	254	—	326	327	311	2.5	2.5	18.8	18.5	—	—	—	—	—	—	—	—
	400	65	350	270	4	4	NU 244	NJ	NUP	N	NF	NP	760000	1080000	1500	1800		238	238	266	273	289	382	382	362	3	3	37.8	37.0	HJ 244	220	286	15	27.5	4	3.53	
	400	108	—	270	4	4	NU 2244	NJ	NUP	—	—	—	1140000	1810000	1400	1700		—	238	266	273	289	382	—	—	3	3	61.8	—	HJ 2244	220	286	15	36.5	4	3.99	
	460	88	396	284	5	5	NU 344	NJ	NUP	N	NF	NP	1200000	1570000	1200	1500		242	242	279	287	307	438	438	400	4	4	73.6	71.7	HJ 344	220	307	20	36	5	6.53	
240	360	56	330	270	3	3	NU 1048	—	—	N	—	—	530000	820000	1700	2100		253	254	268	275	—	346	347	331	2.5	2.5	20.4	20.1	—	—	—	—	—	—	—	—
	440	72	385	295	4	4	NU 248	NJ	NUP	N	NF	NP	935000	1340000	1400	1600		258	258	293	298	316	422	422	397	3	3	51.1	50.0	HJ 248	240	313	16	29.5	4	4.57	
	440	120	—	295	4	4	NU 2248	NJ	NUP	—	—	—	1440000	2320000	1300	1600		—	258	293	298	316	422	—	—	3	3	83.5	—	HJ 2248	240	313	16	38.5	4	5.14	
	500	95	430	310	5	5	NU 348	NJ	NUP	N	NF	NP	1430000	1950000	1100	1300		262	262	305	313	333	478	478	434	4	4	93.0	90.9	HJ 348	240	335	22	39.5	5	8.55	
260	400	65	364	296	4	4	NU 1052	—	—	N	—	—	645000	1000000	1600	1800		278	278	292	300	—	382	382	365	3	3	29.6	29.2	—	—	—	—	—	—	—	—
	480	80	420	320	5	5	NU 252	NJ	NUP	N	NF	NP	1140000	1660000	1300	1500		282	282	318	323	343	458	458	432	4	4	69.0	66.7	HJ 252	260	340	18	33	5	6.12	
	480	130	—	320	5	5	NU 2252	NJ	NUP	—	—	—	1780000	2930000	1100	1300		—	282	318	323	343	458	458	—	4	4	106	—	HJ 2252	260	340	18	40.5	5	6.69	
	540	102	464	336	6	6	NU 352	NJ	NUP	N	NF	NP	1620000	2230000	1000	1200		288	288	331	339	359	512	512	468	5	5	117	114	HJ 352	260	362	24	43	6	8.77	
280	420	65	384	316	4	4	NU 1056	—	—	N	—	—	660000	1050000	1500	1700		298	298	313	320	—	402	402	385	3	3	33.0	32.5	—	—	—	—	—	—	—	—
	500	80	440	340	5	5	NU 256	NJ	NUP	N	NF	NP	1140000	1680000	1200	1400		302	302	336	343	365	478	478	452	4	4	71.5	70.0	HJ 256	280	360	18	33	5	6.52	
300	460	74	420	340	4	4	NU 1060	—	—	N	—	—	885000	1400000	1400	1500		318	318	337	344	—	442	442	421	3	3	44.7	44.1	—	—	—	—	—	—	—	—
	540	85	476	364	5	5	NU 260	NJ	NUP	N	NF	NP	1400000	2070000	1100	1300		322	322	361	368	392	518	518	487	4	4	88.9	87.0	HJ 260	300	387	20	34.5	5	8.33	
320	480	74	440	360	4	4	NU 1064	—	—	N	—	—	905000	1470000	1300	1400		338	338	356	365	—	462	462	441	3	3	49.3	48.4	—	—	—	—	—	—	—	—
	580	92	510	390	5	5	NU 264	NJ	NUP	N	NF	NP	1600000	2390000	1000	1200		342	342	386	393	419	558	558	522	4	4	113	111	HJ 264	320	415	21	37	5	10.3	
340	520	82	475	385	5	5	NU 1068	—	—	N	—	—	1080000	1740000	1200	1300		362	362	381	390	—	498	498	476	4	4	65.9	64.8	—	—	—	—	—	—	—	—
360	540	82	495	405	5	5	NU 1072	—	—	N	—	—	1110000	1830000	1100	1300		382	382	401	410	—	518	518	496	4	4	68.8	67.7	—	—	—	—	—	—	—	—
380	560	82	515	425	5	5	NU 1076	—	—	N	—	—	1140000	1910000	1000	1200		402	402	421	430	—	538	538	516	4	4	72.3	71.1	—	—	—	—	—	—	—	—

Note: (¹) The dimension table shows limiting speed for bearings made with machined cages. For bearings made with pressed steel cages, multiply the table limits by 0.8.

Cylindrical Roller Bearings

Bore Diameter: 400~500mm



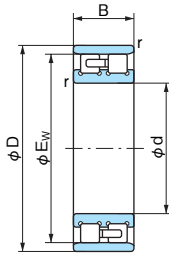
													1N=0.102kgf			
Boundary dimensions (mm)							Bearing No.						Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min ⁻¹)(¹)	
d	D	B	Ew	Fw	r (mm)	r1 (mm)	NU	NJ	NUP	N	NF	NP			Grease lubrication	Oil lubrication
400	600	90	550	450	5	5	NU 1080	—	—	N	—	—	1360000	2280000	950	1100
420	620	90	570	470	5	5	NU 1084	—	—	N	—	—	1390000	2380000	900	1100
440	650	94	597	493	6	6	NU 1088	—	—	N	—	—	1530000	2530000	850	1050
460	680	100	624	516	6	6	NU 1092	—	—	N	—	—	1630000	2740000	800	1000
480	700	100	644	536	6	6	NU 1096	—	—	N	—	—	1620000	2860000	780	950
500	720	100	664	556	6	6	NU 10/500	—	—	N	—	—	1700000	2970000	750	900

Note: (¹) The dimension table shows limiting speed for bearings made with machined cages. For bearings made with pressed steel cages, multiply the table limits by 0.8.

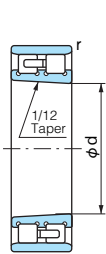
Abutment and fillet dimensions (mm)										Mass (kg)		Dimensions of L-shaped thrust collar (mm)							
da (min)	db (min) (max)		dc (min)	dd (min)	Da (max)	Db (max) (min)		ra (max)	ra1 (max)	NU	N	Bearing No.	d	d1 (max)	B1	B2	r1 (min)	Mass (kg) Reference	
422	422	446	455	—	578	578	551	4	4	92.5	92.4	—	—	—	—	—	—	—	
442	442	466	475	—	598	598	571	4	4	97.6	95.8	—	—	—	—	—	—	—	
468	468	489	498	—	622	622	598	5	5	112	110	—	—	—	—	—	—	—	
488	488	512	520	—	652	652	625	5	5	130	128	—	—	—	—	—	—	—	
508	508	532	541	—	672	672	645	5	5	135	132	—	—	—	—	—	—	—	
528	528	552	561	—	692	692	665	5	5	140	137	—	—	—	—	—	—	—	

Double-row Cylindrical Roller Bearings

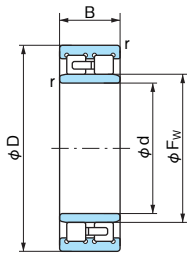
Bore Diameter: 25~180mm



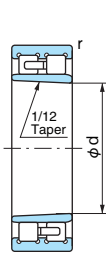
NN
Cylindrical bore



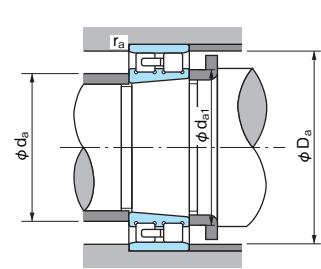
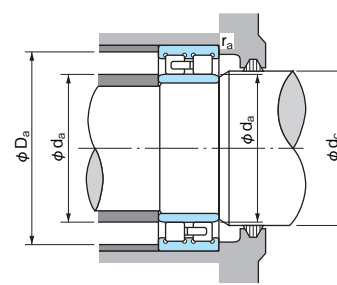
NN
Tapered bore (Taper: 1/12)



NNU
Cylindrical bore



NNU
Tapered bore (Taper: 1/12)

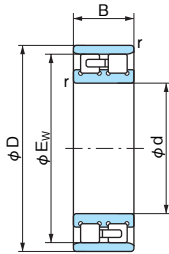


1N=0.102kgf

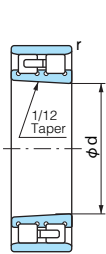
Boundary dimensions (mm)						Bearing No.		Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)		Limiting speed (min ⁻¹)		Abutment and fillet dimensions (mm)							Mass (kg) (Reference Tapered bore)	Bearing No.
d	D	B	Ew	Fw	r (min)	Cylindrical bore	Tapered bore				Grease lubrication	Oil lubrication	da (min)	da (max)	da1 (min)	dc (min)	Da (min)	Da (max)	ra (max)		
25	47	16	41.3	—	0.6	NN3005	NN3005K	25800	30000		15000	17000	30	—	30	—	42	41.8	0.6	0.123	NN3005K
30	55	19	48.5	—	1	NN3006	NN3006K	31000	37000		12000	15000	36	—	37	—	49	49	1	0.199	NN3006K
35	62	20	55	—	1	NN3007	NN3007K	39500	50000		11000	13000	41	—	42	—	56	56	1	0.258	NN3007K
40	68	21	61	—	1	NN3008	NN3008K	43500	55500		9800	11000	46	—	48	—	62	62	1	0.312	NN3008K
45	75	23	67.5	—	1	NN3009	NN3009K	52000	68500		8800	10000	51	—	52	—	69	69	1	0.405	NN3009K
50	80	23	72.5	—	1	NN3010	NN3010K	53000	72500		8200	9600	56	—	58	—	74	74	1	0.454	NN3010K
55	90	26	81	—	1.1	NN3011	NN3011K	69500	96500		7300	8600	62	—	64	—	83	82	1	0.651	NN3011K
60	95	26	86.1	—	1.1	NN3012	NN3012K	73500	106000		6800	8000	67	—	68	—	88	87	1	0.704	NN3012K
65	100	26	91	—	1.1	NN3013	NN3013K	77000	116000		6400	7600	72	—	74	—	93	92	1	0.758	NN3013K
70	110	30	100	—	1.1	NN3014	NN3014K	97500	148000		5700	6800	77	—	78	—	103	101	1	1.04	NN3014K
75	115	30	105	—	1.1	NN3015	NN3015K	96500	149000		5500	6400	82	—	84	—	108	106	1	1.14	NN3015K
80	125	34	113	—	1.1	NN3016	NN3016K	119000	186000		5000	6000	87	—	90	—	118	114	1	1.52	NN3016K
85	130	34	118	—	1.1	NN3017	NN3017K	125000	201000		4800	5600	92	—	96	—	123	119	1	1.61	NN3017K
90	140	37	127	—	1.5	NN3018	NN3018K	143000	228000		4500	5200	98.5	—	100	—	131.5	129	1.5	2.07	NN3018K
95	145	37	132	—	1.5	NN3019	NN3019K	150000	246000		4300	5000	103.5	—	106	—	136.5	134	1.5	2.17	NN3019K
100	140	40	—	113	1.1	NNU4920	NNU4920K	155000	305000		4200	5000	106.5	111	110	115	133.5	—	1	1.77	NNU4920K
	150	37	137	—	1.5	NN3020	NN3020K	157000	265000		4000	4800	108.5	—	112	—	141.5	139	1.5	2.26	NN3020K
105	145	40	—	118	1.1	NNU4921	NNU4921K	161000	325000		4000	4800	111.5	116	115	120	138.5	—	1	1.85	NNU4921K
	160	41	146	—	2	NN3021	NN3021K	198000	320000		3800	4500	115	—	116	—	150	148	2	2.89	NN3021K
110	150	40	—	123	1.1	NNU4922	NNU4922K	167000	335000		3900	4600	116.5	121	120	125	143.5	—	1	1.93	NNU4922K
	170	45	155	—	2	NN3022	NN3022K	229000	375000		3600	4300	120	—	122	—	160	157	2	3.68	NN3022K
120	165	45	—	134.5	1.1	NNU4924	NNU4924K	183000	360000		3500	4200	126.5	133	130	137	158.5	—	1	2.65	NNU4924K
	180	46	165	—	2	NN3024	NN3024K	239000	405000		3300	3900	130	—	132	—	170	167	2	3.98	NN3024K
130	180	50	—	146	1.5	NNU4926	NNU4926K	275000	565000		3200	3800	138	144	142	148	172	—	1.5	3.55	NNU4926K
	200	52	182	—	2	NN3026	NN3026K	284000	475000		3000	3600	140	—	144	—	190	183	2	5.92	NN3026K
140	190	50	—	156	1.5	NNU4928	NNU4928K	283000	585000		3000	3600	148	154	151	158	182	—	1.5	3.80	NNU4928K
	210	53	192	—	2	NN3028	NN3028K	298000	515000		2800	3400	150	—	154	—	200	194	2	6.44	NN3028K
150	210	60	—	168.5	2	NNU4930	NNU4930K	350000	715000		2700	3300	159	166	162	171	201	—	2	5.95	NNU4930K
	225	56	206	—	2.1	NN3030	NN3030K	335000	585000		2600	3100	162	—	164	—	213	208	2	7.81	NN3030K
160	220	60	—	178.5	2	NNU4932	NNU4932K	365000	760000		2600	3100	169	176	172	182	211	—	2	6.25	NNU4932K
	240	60	219	—	2.1	NN3032	NN3032K	375000	660000		2500	2900	172	—	174	—	228	221	2	8.92	NN3032K
170	230	60	—	188.5	2	NNU4934	NNU4934K	375000	805000		2400	2900	179	186	182	192	221	—	2	6.60	NNU4934K
	260	67	236	—	2.1	NN3034	NN3034K	450000	805000		2300	2700	182	—	184	—	248	238	2	12.6	NN3034K
180	250	69	—	202	2	NNU4936	NNU4936K	480000	1020000		2200	2700	189	199	194	205	241	—	2	9.50	NNU4936K
	280	74	255	—	2.1	NN3036	NN3036K	565000	995000		2100	2500	192	—	196	—	268	257	2	16.6	NN3036K

Double-row Cylindrical Roller Bearings

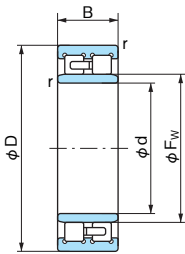
Bore Diameter: 190~320mm



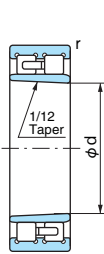
NN
Cylindrical bore



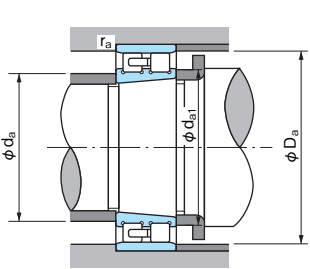
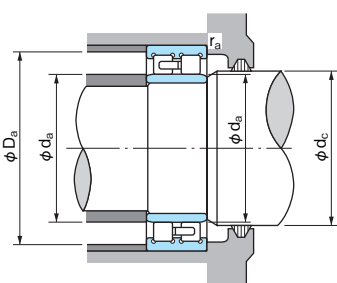
NN
Tapered bore (Taper: 1/12)



NNU
Cylindrical bore



NNU
Tapered bore (Taper: 1/12)



Boundary dimensions (mm)						Bearing No.		Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)		Limiting speed (min ⁻¹)	Abutment and fillet dimensions (mm)							Mass (kg) (Reference Tapered bore)	Bearing No.	
d	D	B	Ew	Fw	r (min)	Cylindrical bore	Tapered bore					Grease lubrication	Oil lubrication	da		da ₁ (min)	dc (min)	Da			ra (max)
											(min)	(max)			(max)	(min)					
190	260	69	—	212	2	NNU4938	NNU4938K	485000	1060000		2100	2600	199	209	204	215	251	—	2	10.0	NNU4938K
	290	75	265	—	2.1	NN3038	NN3038K	595000	1080000		2000	2400	202	—	206	—	278	267	2	17.5	NN3038K
200	280	80	—	225	2.1	NNU4940	NNU4940K	570000	1220000		2000	2400	211	222	214	228	269	—	2	10.1	NNU4940K
	310	82	282	—	2.1	NN3040	NN3040K	655000	1170000		1900	2200	212	—	216	—	298	285	2	21.6	NN3040K
220	300	80	—	245	2.1	NNU4944	NNU4944K	600000	1330000		1800	2200	231	242	234	248	289	—	2	15.5	NNU4944K
	340	90	310	—	3	NN3044	NN3044K	815000	1480000		1700	2000	234	—	238	—	326	313	2.5	28.4	NN3044K
240	320	80	—	265	2.1	NNU4948	NNU4948K	625000	1450000		1700	2000	251	262	254	269	309	—	2	17.0	NNU4948K
	360	92	330	—	3	NN3048	NN3048K	855000	1600000		1600	1900	254	—	256	—	346	333	2.5	31.8	NN3048K
260	360	100	—	292	2.1	NNU4952	NNU4952K	935000	2100000		1500	1800	271	288	276	296	349	—	2	28.3	NNU4952K
	400	104	364	—	4	NN3052	NN3052K	1080000	2070000		1400	1700	278	—	280	—	382	367	3	46.0	NN3052K
280	380	100	—	312	2.1	NNU4956	NNU4956K	960000	2230000		1400	1700	291	308	296	316	369	—	2	30.3	NNU4956K
	420	106	384	—	4	NN3056	NN3056K	1080000	2080000		1300	1600	298	—	300	—	402	387	3	49.6	NN3056K
300	420	118	—	339	3	NNU4960	NNU4960K	1230000	2880000		1300	1500	313	335	320	343	407	—	2.5	46.7	NNU4960K
	460	118	418	—	4	NN3060	NN3060K	1430000	2740000		1200	1400	318	—	325	—	442	421	3	68.7	NN3060K
320	440	118	—	359	3	NNU4964	NNU4964K	1270000	3050000		1200	1400	333	335	340	363	427	—	2.5	49.6	NNU4964K
	480	121	438	—	4	NN3064	NN3064K	1430000	2750000		1200	1400	338	—	345	—	462	442	3	74.0	NN3064K