

5. CYLINDRICAL ROLLER BEARINGS

SINGLE-ROW AND DOUBLE-ROW CYLINDRICAL ROLLER BEARINGS

INTRODUCTION C 126

TECHNICAL DATA

Free Space of Cylindrical Roller Bearings C 130

BEARING TABLES

Single-Row Cylindrical Roller Bearings

Bore Diameter 20 – 500 mm C 132

L-Shaped Thrust Collars For Cylindrical Roller Bearings

Bore Diameter 20 – 320 mm C 156

Double-Row Cylindrical Roller Bearings

Bore Diameter 25 – 360 mm C 158

FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

SINGLE-ROW(NCF), DOUBLE-ROW(NNCF) AND FOR SHEAVES

INTRODUCTION C 162

BEARING TABLES

Single-Row(NCF) Bore Diameter 100 – 800 mm C 166

Double-Row(NNCF) Bore Diameter 100 – 500 mm C 170

For Sheaves: Open Fixed-End Bearings **RS-48E4, RS-49E4**

Free-End Bearings **RSF-48E4, RSF-49E4**

Bore Diameter 50 – 560 mm C 174

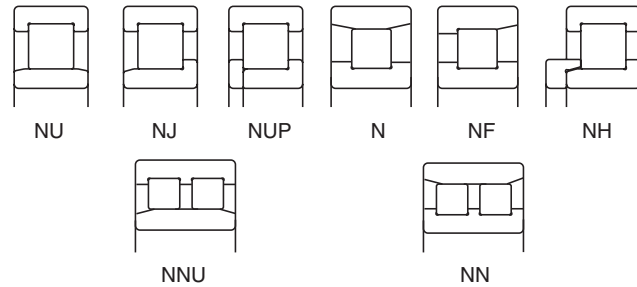
For Sheaves: Prelubricated Type **RS-50, RS-50NR**

Bore Diameter 40 – 400 mm C 178



DESIGN, TYPES, AND FEATURES

Cylindrical roller bearings are classified into the following types depending on whether or not they have ribs on their rings:



Types NU, N, NNU, and NN are suitable as free-end bearings. Types NJ and NF can sustain limited axial loads in one direction. Types NH and NUP can be used as fixed-end bearings.

The NH type consists of NJ-type cylindrical roller bearings and HJ-type L-shaped thrust collars (see Pages C156 and C157).

The inner ring loose rib of the NUP type should be mounted so that the marked side is on the outside.

Features of Single-Row Cylindrical Roller Bearings

Cage Spec.	Material	Steel	Steel	Polyamide 66 resin	L-PPS resin	Brass	
		Pressed		Molded		Machined	
Designation		W	EW	ET	ET7	M	EM
High Load Capacity		○	◎	◎	◎	△	◎
High-Speed		△	○	○	○	○	◎
High-Temperature		○	○	△	○	○	○
Vibration		×	×	×	×	△	○

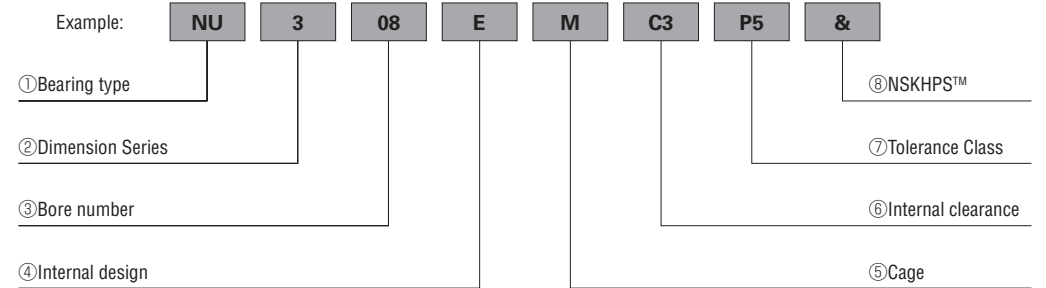
◎ Excellent ○ Good △ Fair × Poor

If a cage is nonstandard for a given bearing number the number of rollers may vary; in such a case, the load rating will differ from that listed in the bearing tables.

Many NN double-row bearings have tapered bores, and they are primarily used in the main spindles of machine tools. Cages are made of either molded polyphenylenesulfide (PPS) or machined brass.

Formulation of Bearing Designations

Single-Row Cylindrical Roller Bearing



- ① Bearing type: NU : Single-row cylindrical roller bearings (Outer ring with both ribs + Inner ring without rib)
Please refer to page C124 for detailed information.
- ② Dimension Series: 10 : 10 Series, 2: 02 Series, 22 : 22 Series, 3 : 03 Series, 23 : 23 Series, 4 : 04 Series,
- ③ Bore number: Less than 03, Bearing bore 01 : 12mm, 02 : 15mm, 03 : 17mm
Over 04, Bearing bore Bore number X 5 (mm)
- ④ Internal design: E : High load capacity
- ⑤ Cage: W : Pressed-steel Cage, M : Machined Brass Cage, No designation : Machined-brass cage (in Series 10)
T : Polyamide 66 resin cage, T7 : L-PPS resin cage
- ⑥ Internal clearance: For All Radial Brgs.
Omitted : CN clearance, C3 : Clearance greater than CN, C4 : Clearance greater than C3, CG : Special Clearance
For Non-Interchangeable Cylindrical Roller Bearings
CC : Normal Clearance, CC3 : Clearance greater than CC, CC4 : Clearance greater than CC3, CCG : Special Clearance
- ⑦ Tolerance class: Omitted : ISO Normal, P6 : ISO Class 6,
P5 : ISO Class 5, P4 : ISO Class 4
- ⑧ NSKHPS™: & : NSKHPS™ Designation
Tolerance Class : ISO Normal

NSKHPS™ Cylindrical Roller Bearings

Features

Compared with conventional bearings ...

- Maximum Bearing Life **60% longer**
- New Product **Wide product lineup**

- Improved reliability
Up to 60% longer life than that of conventional bearings by optimization of the bearing's internal design and improvement of processing technology.
- Wide product lineup
NSK offers a wide lineup of NSKHPS bearings with four types of cages for wide range of sizes, offering a high degree of versatility for various general-purpose applications.
 - Pressed-steel cage with high cost performance
 - Highly reliable machined-brass cage
 - Polyamide-resin cage that excels in heat and chemical resistance

PRECAUTIONS FOR USE OF CYLINDRICAL ROLLER BEARINGS

If the load on cylindrical roller bearings becomes too small during operation, slippage occurs between the rollers and raceways, which may result in smearing. This tendency is prevalent especially with large bearings since the weight of the rollers and cage is high.

In case of strong shock loads or vibration, pressed-steel cages are sometimes inadequate.

If very small bearing loads, strong shock loads, or vibration are expected, please consult with NSK for selection of the bearings.

Bearings with molded polyamide cages (ET type) can be used continuously at temperatures between -40 and 120 °C. If the bearings are to be used in gear oil, nonflammable hydraulic oil, or ester oil at a temperature over 100 °C, please contact NSK beforehand.

TOLERANCES AND RUNNING ACCURACY

CYLINDRICAL ROLLER BEARINGS Table 7.2 (Pages A128 to A131)

NSKHPS CYLINDRICAL ROLLER BEARINGS

Tolerance for Dimensions : ISO Normal

Running Accuracy : ISO Normal

DOUBLE-ROW CYLINDRICAL ROLLER

BEARINGS Table 7.2 (Pages A128 to A131)

Table 2 Tolerances for Roller Inscribed Circle Diameter F_w and Roller Circumscribed Circle Diameter E_w of Cylindrical Roller Bearings With Interchangeable Rings

Units : m

Nominal Bore Diameter d (mm)		Tolerances for F_w of Types NU, NJ, NUP, NH, and NNU ΔF_w		Tolerances for E_w of Types N, NF, and NN ΔE_w	
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	—	—

RECOMMENDED FITS

CYLINDRICAL ROLLER BEARINGS..... Table 8.3 (Page A164)

Table 8.5 (Page A165)

DOUBLE-ROW CYLINDRICAL ROLLER

BEARINGS Table 8.3 (Page A164)

Table 8.5 (Page A165)

INTERNAL CLEARANCES

CYLINDRICAL ROLLER BEARINGS..... Table 8.15 (Page A171)

NSKHPS CYLINDRICAL ROLLER BEARINGS

INTERNAL CLEARANCE DESIGNATION : CN, C3, C4

DOUBLE-ROW CYLINDRICAL ROLLER BEARINGS..... Table 8.15 (Page A171)

PERMISSIBLE MISALIGNMENT

The permissible misalignment of cylindrical roller bearings varies depending on the type and internal specifications, but under normal loads, the angles are approximately as follows:

Cylindrical roller bearings of Width Series 0 or 1 0.0012 radian (4')

Cylindrical roller bearings of Width Series 2 0.0006 radian (2')

For double-row cylindrical roller bearings, nearly no misalignment is allowed.

LIMITING SPEEDS (Mechanical)

In some single-row cylindrical roller bearings, optional cage types are available for special purposes or customer requests. The limiting speeds (mechanical) in the bearing tables reflect values for the standard cage type. Please consult with NSK regarding limiting speeds (mechanical) for optional cages.

LIMITING SPEEDS (Grease/Oil)

The limiting speeds (grease) and limiting speeds (oil) listed in the bearing tables should be adjusted depending on bearing load. Furthermore, higher speeds are attainable by making changes in the lubrication method, cage design, etc. Refer to Page A098 for more detailed information.

■ CYLINDRICAL ROLLER BEARINGS**TECHNICAL DATA****Free Space of Cylindrical Roller Bearings**

Cylindrical roller bearings often employ grease lubrication because it makes maintenance easier and simplifies the peripheral construction of the housing. Select a grease brand appropriate for the operating conditions while noting the grease fill amount and position of the bearing and housing.

Cylindrical roller bearings can be divided into types NU, NJ, N, NF, NH, and NUP according to the collar, collar ring, and position of the inner or outer ring ribs. Even if bearings belong to the same Dimension Series, they may have different amounts of free space depending on whether the cage

provided is made from pressed-steel or from machined high-tension brass. When determining the grease filling amount, please refer to Tables 1 and 2 for the free space of NU type bearings.

For other types, the free space can be determined from a free space ratio based on the NU type, as shown in Table 3. For example, the free space of an NJ310 bearing with a pressed steel cage may be calculated approximately as 47 cm³. This result was obtained by multiplying the free space of the bearing (52 cm³) in Table 1 by the space ratio 0.90 for the NJ type (Table 3).

Table 1 Free Space of Cylindrical Roller Bearings (NU Type) (1) (With Pressed Cage)

Units: cm³

Bearing Bore No.	Bearing Free Space			
	Bearing Series			
	NU2	NU3	NU22	NU23
05	6.6	11	7.8	16
06	9.6	17	12	24
07	14	22	18	35
08	18	31	22	44
09	20	42	23	62
10	23	52	26	80
11	30	68	35	102
12	37	85	45	130
13	44	107	57	156
14	51	124	62	179
15	58	155	70	226
16	71	177	85	260
17	85	210	104	300
18	103	244	134	365
19	132	283	164	415
20	151	335	200	540

Table 2 Free Space of Cylindrical Roller Bearings (NU Type) (2) (With High-Tension Brass Machined Cage)

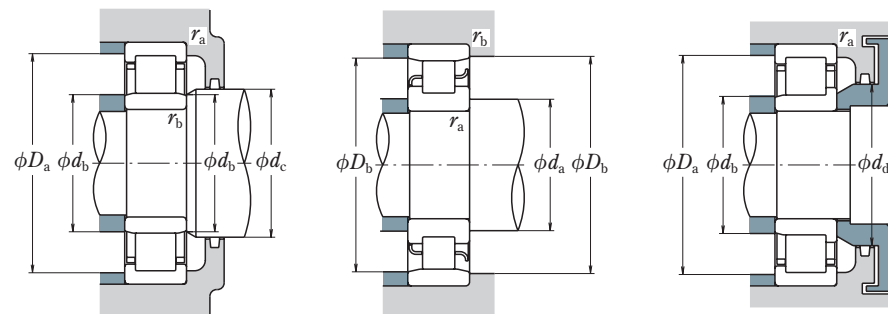
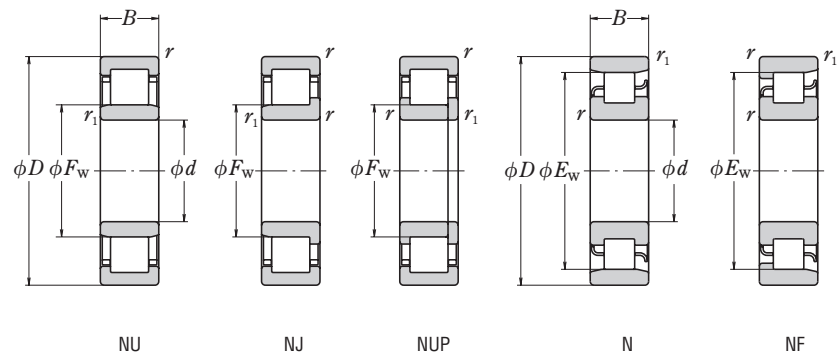
Units: cm³

Bearing Bore No.	Bearing Free Space			
	Bearing Series			
	NU2	NU3	NU22	NU23
05	5.0	7.6	5.7	10
06	7.4	12	7.9	16
07	9.6	16	12	27
08	12	21	15	32
09	15	29	16	45
10	18	38	17	58
11	22	52	24	77
12	26	62	31	88
13	31	74	43	104
14	37	92	44	129
15	42	102	50	149
16	51	122	60	181
17	64	164	74	200
18	79	193	96	279
19	94	218	116	280
20	115	221	137	355

Table 3 Ratio of Free Space in Cylindrical Roller Bearing Types

NU Type	NJ Type	N Type	NF Type
1	0.90	1.05	0.95

Bore Diameter 20 – 30 mm



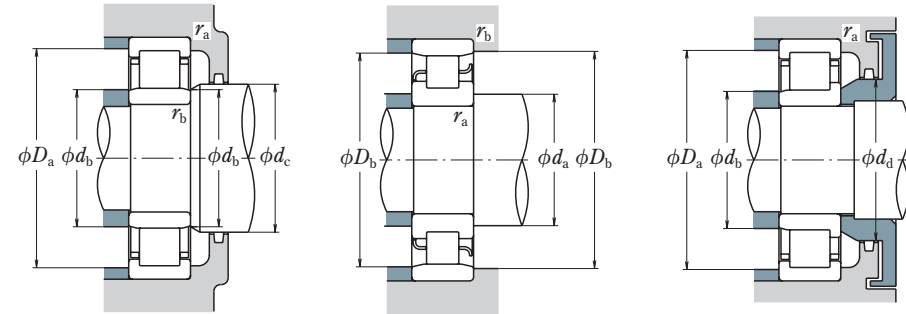
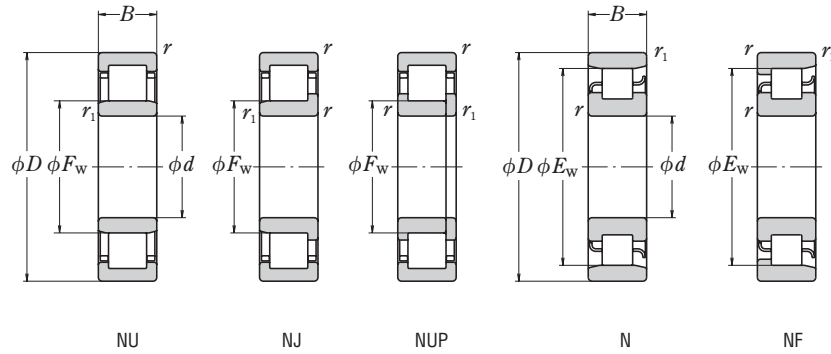
d	Boundary Dimensions (mm)						Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min ⁻¹)		
	D	B	r min.	r ₁ min.	F _w	E _w	C _r	C _{0r}		Limiting Speeds		
										(⁵) Mechanical	Grease	
20	47	14	1	0.6	—	40	15 400	12 700	18 000	—	12 000	
	47	14	1	0.6	26.5	—	25 700	22 600	16 000	—	13 000	
	47	18	1	0.6	27	—	20 700	18 400	19 000	—	11 000	
	52	15	1.1	0.6	—	44.5	21 400	17 300	14 000	—	10 000	
	52	15	1.1	0.6	27.5	—	31 500	26 900	13 000	—	12 000	
	52	21	1.1	0.6	28.5	—	30 500	27 200	14 000	—	11 000	
	52	21	1.1	0.6	27.5	—	42 000	39 000	13 000	—	11 000	
	25	47	12	0.6	0.3	30.5	—	14 300	13 100	15 000	—	15 000
		52	15	1	0.6	—	45	17 700	15 700	16 000	—	10 000
		52	15	1	0.6	31.5	—	33 500	27 700	14 000	17 000	12 000
52		15	1	0.6	31.5	—	29 300	27 700	14 000	17 000	12 000	
52		18	1	0.6	31.5	—	40 000	34 500	14 000	20 000	12 000	
52		18	1	0.6	31.5	—	35 000	34 500	14 000	20 000	12 000	
62		17	1.1	1.1	—	53	29 300	25 200	12 000	—	8 000	
62		17	1.1	1.1	34	—	48 000	37 500	11 000	15 000	10 000	
62		17	1.1	1.1	34	—	41 500	37 500	11 000	15 000	10 000	
62		24	1.1	1.1	34	—	65 500	56 000	11 000	18 000	9 000	
30	62	24	1.1	1.1	34	—	57 000	56 000	11 000	18 000	9 000	
	80	21	1.5	1.5	38.8	62.8	46 500	40 000	9 500	—	7 100	
	55	13	1	0.6	36.5	48.5	19 700	19 600	13 000	—	12 000	
	62	16	1	0.6	—	53.5	24 900	23 300	13 000	—	8 500	
	62	16	1	0.6	37.5	—	45 000	37 500	12 000	14 000	9 500	
	62	16	1	0.6	37.5	—	39 000	37 500	12 000	14 000	9 500	
	62	20	1	0.6	37.5	—	56 500	50 000	12 000	17 000	9 500	
	62	20	1	0.6	37.5	—	49 000	50 000	12 000	17 000	9 500	
	72	19	1.1	1.1	—	62	38 500	35 000	10 000	—	7 100	
	72	19	1.1	1.1	40.5	—	61 000	50 000	9 500	13 000	8 500	
72	19	1.1	1.1	40.5	—	53 000	50 000	9 500	13 000	8 500		
72	27	1.1	1.1	40.5	—	86 000	77 500	9 500	16 000	8 000		
72	27	1.1	1.1	40.5	—	74 500	77 500	9 500	16 000	8 000		
90	23	1.5	1.5	45	73	62 500	55 000	8 500	—	6 000		

Notes (¹) Cage designation (M) is usually omitted from the bearing designation.
 (²) When L-shaped thrust collars (see Pages C156-C157) are used, the bearings are considered the NH type.

Bearing Designations	Abutment and Fillet Dimensions (mm)										Mass (kg)						
	Cage ⁽¹⁾ Standard Option	Cage ⁽²⁾					d _a ⁽³⁾ min.	d _b min.	d _b ⁽⁴⁾ max.	d _c min.		d _d min.	D _a ⁽³⁾ max.	D _b max.	D _b min.	r _a max.	r _b max.
		NU	NJ	NUP	N	NF											
N 204	W	—	—	—	—	N NF	25	—	—	—	—	—	43	42	1	0.6	0.107
NU204E	T	T7	NU	NJ	NUP	—	25	24	25	29	32	42	—	—	1	0.6	0.107
NU2204	W	M	NU	NJ	—	—	25	24	25	29	32	42	—	—	1	0.6	0.144
N 304	W	—	—	—	—	N NF	26.5	—	—	—	—	—	48	46	1	0.6	0.148
NU304E	T	T7	NU	NJ	NUP	—	26.5	24	26	30	33	45.5	—	—	1	0.6	0.145
NU2304	M	—	NU	NJ	NUP	—	26.5	24	27	30	33	45.5	—	—	1	0.6	0.217
NU2304E	T7	—	NU	NJ	NUP	—	26.5	24	26	30	33	45.5	—	—	1	0.6	0.209
NU1005	(M)	—	NU	—	—	—	—	27	30	32	—	43	—	—	0.6	0.3	0.094
N 205	W	M	—	—	—	N NF	30	—	—	—	—	—	48	46	1	0.6	0.135
*NU205E	W	M, T, T7	NU	NJ	NUP	—	30	29	30	34	37	47	—	—	1	0.6	0.136
NU205E	W	M, T, T7	NU	NJ	NUP	—	30	29	30	34	37	47	—	—	1	0.6	0.136
*NU2205E	M	T, T7	NU	NJ	NUP	—	30	29	30	34	37	47	—	—	1	0.6	0.16
NU2205E	M	T, T7	NU	NJ	NUP	—	30	29	30	34	37	47	—	—	1	0.6	0.16
N 305	W	M	—	—	—	N NF	31.5	—	—	—	—	—	55.5	50	1	1	0.233
*NU305E	W	M, T, T7	NU	NJ	NUP	—	31.5	31.5	32	37	40	55.5	—	—	1	1	0.269
NU305E	W	M, T, T7	NU	NJ	NUP	—	31.5	31.5	32	37	40	55.5	—	—	1	1	0.269
*NU2305E	M	T, T7	NU	NJ	NUP	—	31.5	31.5	32	37	40	55.5	—	—	1	1	0.338
NU2305E	M	T, T7	NU	NJ	NUP	—	31.5	31.5	32	37	40	55.5	—	—	1	1	0.338
NU405	W	—	NU	NJ	—	N NF	33	33	37	41	46	72	72	64	1.5	1.5	0.57
NU1006	(M)	—	NU	—	—	N	35	34	36	38	—	50	51	49	1	0.5	0.136
N 206	W	M	—	—	—	N NF	35	—	—	—	—	—	58	56	1	0.6	0.208
*NU206E	W	M, T, T7	NU	NJ	NUP	—	35	34	36	40	44	57	—	—	1	0.6	0.205
NU206E	W	M, T, T7	NU	NJ	NUP	—	35	34	36	40	44	57	—	—	1	0.6	0.205
*NU2206E	M	T, T7	NU	NJ	NUP	—	35	34	36	40	44	57	—	—	1	0.6	0.255
NU2206E	M	T, T7	NU	NJ	NUP	—	35	34	36	40	44	57	—	—	1	0.6	0.255
N 306	W	M	—	—	—	N NF	36.5	—	—	—	—	—	65.5	64	1	1	0.353
*NU306E	W	M, T, T7	NU	NJ	NUP	—	36.5	36.5	39	44	48	65.5	—	—	1	1	0.409
NU306E	W	M, T, T7	NU	NJ	NUP	—	36.5	36.5	39	44	48	65.5	—	—	1	1	0.409
*NU2306E	M	T, T7	NU	NJ	NUP	—	36.5	36.5	39	44	48	65.5	—	—	1	1	0.518
NU2306E	M	T, T7	NU	NJ	NUP	—	36.5	36.5	39	44	48	65.5	—	—	1	1	0.518
NU406	W	M	NU	NJ	—	N NF	38	38	43	47	52	82	82	75	1.5	1.5	0.758

Notes (³) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
 (⁴) d_b (max.) refers to values for adjusting rings for NU and NJ bearings.
 (⁵) The limiting speeds (mechanical) in the bearing tables are for standard cages.
 Remark Bearings denoted by an asterisk (*) are NSKHPS™ cylindrical roller bearings.

Bore Diameter 35 – 40 mm



d	Boundary Dimensions (mm)						Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min ⁻¹)	
	D	B	r	r ₁	F _w	E _w	C _r	C _{0r}		Limiting Speeds	
			min.	min.						(⁵) Mechanical	Grease
35	62	14	1	0.6	42	55	22 600	23 200	11 000	—	11 000
	72	17	1.1	0.6	—	61.8	35 500	34 000	11 000	—	7 500
	72	17	1.1	0.6	44	—	58 000	50 000	10 000	12 000	8 500
	72	17	1.1	0.6	44	—	50 500	50 000	10 000	12 000	8 500
	72	23	1.1	0.6	44	—	71 000	65 500	11 000	15 000	8 500
	72	23	1.1	0.6	44	—	61 500	65 500	11 000	15 000	8 500
	80	21	1.5	1.1	—	68.2	49 500	47 000	9 500	—	6 300
	80	21	1.5	1.1	46.2	—	76 500	65 500	8 500	11 000	7 500
	80	21	1.5	1.1	46.2	—	66 500	65 500	8 500	11 000	7 500
	80	31	1.5	1.1	46.2	—	107 000	101 000	9 000	14 000	6 700
80	31	1.5	1.1	46.2	—	93 000	101 000	9 000	14 000	6 700	
100	25	1.5	1.5	53	83	75 500	69 000	7 500	—	5 300	
40	68	15	1	0.6	47	61	27 300	29 000	10 000	—	10 000
	80	18	1.1	1.1	—	70	43 500	43 000	9 500	—	6 700
	80	18	1.1	1.1	49.5	—	64 000	55 500	9 000	11 000	7 500
	80	18	1.1	1.1	49.5	—	55 500	55 500	9 000	11 000	7 500
	80	23	1.1	1.1	49.5	—	83 000	77 500	9 000	13 000	7 500
	80	23	1.1	1.1	49.5	—	72 500	77 500	9 000	13 000	7 500
	90	23	1.5	1.5	—	77.5	58 500	57 000	8 500	—	5 600
	90	23	1.5	1.5	52	—	95 500	81 500	7 500	10 000	6 700
	90	23	1.5	1.5	52	—	83 000	81 500	7 500	10 000	6 700
	90	33	1.5	1.5	52	—	131 000	122 000	8 000	12 000	6 000
90	33	1.5	1.5	52	—	114 000	122 000	8 000	12 000	6 000	
110	27	2	2	58	92	95 500	89 000	6 700	—	4 800	

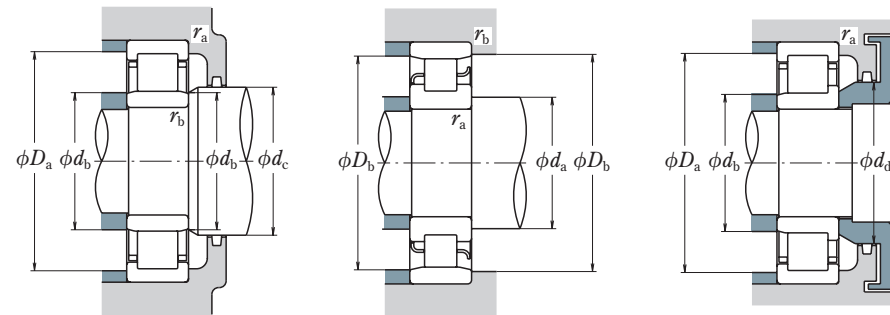
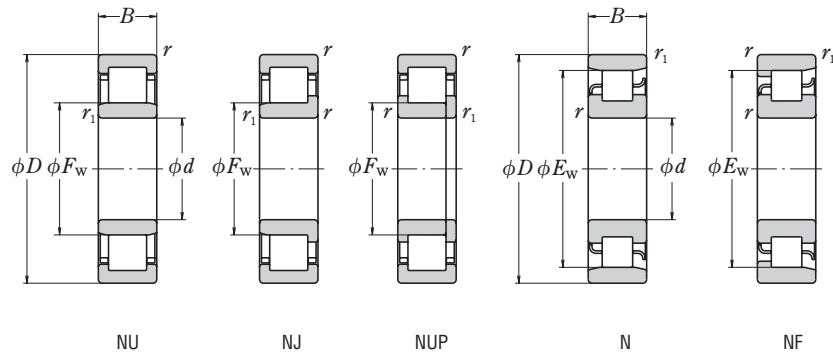
Notes (1) Cage designation (M) is usually omitted from the bearing designation.
 (2) When L-shaped thrust collars (see Pages C156-C157) are used, the bearings are considered the NH type.

Bearing Designations	Abutment and Fillet Dimensions (mm)										Mass (kg)	
	Cage ⁽¹⁾		NU		NJ		NUP		N NF			
	Standard	Option	d _a ⁽²⁾ min.	d _b min.	d _b ⁽⁴⁾ max.	d _c min.	d _d min.	D _a ⁽³⁾ max.	D _b max.	D _b min.		r _a max.
NU1007	(M)	—	40	39	41	44	—	57	58	56	1	0.5
N 207	W	M	41.5	—	—	—	—	68	64	1	0.6	
*NU207E	W	M, T, T7	41.5	39	42	46	50	65.5	—	—	1	0.6
NU207E	W	M, T, T7	41.5	39	42	46	50	65.5	—	—	1	0.6
*NU2207E	M	T, T7	41.5	39	42	46	50	65.5	—	—	1	0.6
NU2207E	M	T, T7	41.5	39	42	46	50	65.5	—	—	1	0.6
N 307	W	M	43	—	—	—	—	73.5	70	1.5	1	
*NU307E	W	M, T, T7	41.5	41.5	44	48	53	72	—	—	1.5	1
NU307E	W	M, T, T7	41.5	41.5	44	48	53	72	—	—	1.5	1
*NU2307E	M	T, T7	43	41.5	44	48	53	72	—	—	1.5	1
NU2307E	M	T, T7	43	41.5	44	48	53	72	—	—	1.5	1
NU407	W	—	43	43	51	55	61	92	92	85	1.5	1.5
NU1008	(M)	—	45	44	46	49	—	63	64	62	1	0.6
N 208	W	M	46.5	—	—	—	—	73.5	72	1	1	
*NU208E	W	M, T, T7	46.5	46.5	48	52	56	73.5	—	—	1	1
NU208E	W	M, T, T7	46.5	46.5	48	52	56	73.5	—	—	1	1
*NU2208E	M	T, T7	46.5	46.5	48	52	56	73.5	—	—	1	1
NU2208E	M	T, T7	46.5	46.5	48	52	56	73.5	—	—	1	1
N 308	W	M	48	—	—	—	—	82	79	1.5	1.5	
*NU308E	W	M, T, T7	48	48	50	55	60	82	—	—	1.5	1.5
NU308E	W	M, T, T7	48	48	50	55	60	82	—	—	1.5	1.5
*NU2308E	M	T, T7	48	48	50	55	60	82	—	—	1.5	1.5
NU2308E	M	T, T7	48	48	50	55	60	82	—	—	1.5	1.5
NU408	W	—	49	49	56	60	67	101	101	94	2	2

Notes (3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
 (4) d_b (max.) refers to values for adjusting rings for NU and NJ bearings.
 (5) The limiting speeds (mechanical) in the bearing tables are for standard cages.
Remark Bearings denoted by an asterisk (*) are NSKHPS™ cylindrical roller bearings.

■ SINGLE-ROW CYLINDRICAL ROLLER BEARINGS

Bore Diameter 45 – 50 mm



d	Boundary Dimensions (mm)						Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min ⁻¹)	
	D	B	r	r ₁	F _w	E _w	C _r	C _{0r}		Limiting Speeds	
			min.	min.						(⁵) Mechanical	Grease
45	75	16	1	0.6	52.5	67.5	32 500	35 500	9 500	—	9 000
	85	19	1.1	1.1	—	75	46 000	47 000	9 000	—	6 300
	85	19	1.1	1.1	54.5	—	72 500	66 500	8 500	10 000	6 700
	85	19	1.1	1.1	54.5	—	63 000	66 500	8 500	10 000	6 700
	85	23	1.1	1.1	54.5	—	87 500	84 500	8 500	12 000	6 700
	85	23	1.1	1.1	54.5	—	76 000	84 500	8 500	12 000	6 700
	100	25	1.5	1.5	—	86.5	79 000	77 500	7 500	—	5 000
	100	25	1.5	1.5	58.5	—	112 000	98 500	7 100	9 000	6 000
	100	25	1.5	1.5	58.5	—	97 500	98 500	7 100	9 000	6 000
	100	36	1.5	1.5	58.5	—	158 000	153 000	7 100	11 000	5 300
	100	36	1.5	1.5	58.5	—	137 000	153 000	7 100	11 000	5 300
	120	29	2	2	64.5	100.5	107 000	102 000	6 300	—	4 300
50	80	16	1	0.6	57.5	72.5	32 000	36 000	8 500	—	8 000
	90	20	1.1	1.1	—	80.4	48 000	51 000	8 500	—	5 600
	90	20	1.1	1.1	59.5	—	79 500	76 500	8 000	9 000	6 300
	90	20	1.1	1.1	59.5	—	69 000	76 500	8 000	9 000	6 300
	90	23	1.1	1.1	59.5	—	96 000	97 000	7 500	11 000	6 300
	90	23	1.1	1.1	59.5	—	83 500	97 000	7 500	11 000	6 300
	110	27	2	2	—	95	87 000	86 000	7 100	—	4 500
	110	27	2	2	65	—	127 000	113 000	6 700	8 000	5 000
	110	27	2	2	65	—	110 000	113 000	6 700	8 000	5 000
	110	40	2	2	65	—	187 000	187 000	6 700	10 000	5 000
	110	40	2	2	65	—	163 000	187 000	6 700	10 000	5 000
	130	31	2.1	2.1	—	110.8	139 000	136 000	5 600	—	4 000
130	31	2.1	2.1	70.8	—	129 000	124 000	5 600	—	4 000	

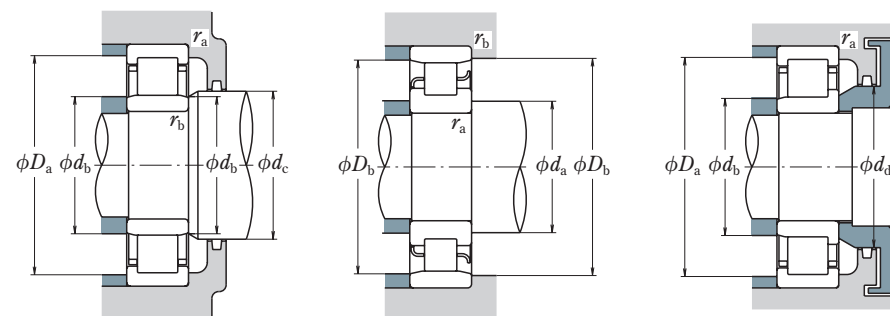
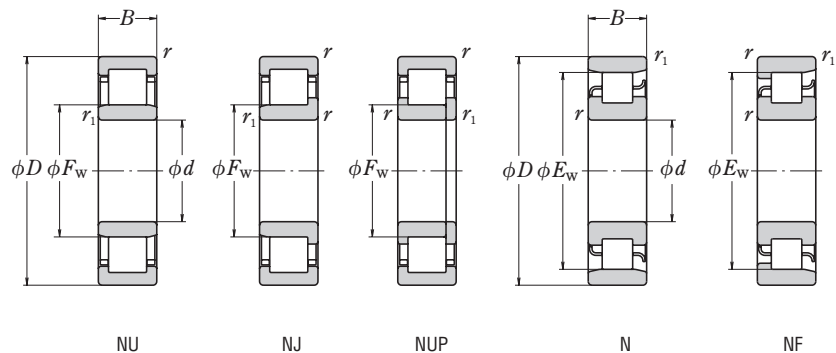
Notes (1) Cage designation (M) is usually omitted from the bearing designation.
 (2) When L-shaped thrust collars (see Pages C156-C157) are used, the bearings are considered the NH type.

Bearing Designations	Abutment and Fillet Dimensions (mm)										Mass (kg)						
	Cage ⁽¹⁾		⁽²⁾		⁽³⁾		⁽⁴⁾		⁽⁵⁾			approx.					
	Standard Option	NU	NJ	NUP	N	NF	d _a min.	d _b min.	d _b max.	d _c min.			d _d min.	D _a max.	D _b max.	D _b min.	r _a max.
NU1009	(M)	—	NU	—	—	N NF	50	49	51	54	—	70	71	68	1	0.6	0.279
N 209	W	M	—	—	—	N NF	51.5	—	—	—	—	—	78.5	77	1	1	0.429
*NU209E	W	M, T, T7	NU	NJ	NUP	—	51.5	51.5	52	57	61	78.5	—	—	1	1	0.438
NU209E	W	M, T, T7	NU	NJ	NUP	—	51.5	51.5	52	57	61	78.5	—	—	1	1	0.438
*NU2209E	M	T, T7	NU	NJ	NUP	—	51.5	51.5	52	57	61	78.5	—	—	1	1	0.521
NU2209E	M	T, T7	NU	NJ	NUP	—	51.5	51.5	52	57	61	78.5	—	—	1	1	0.521
N 309	W	M	—	—	—	N NF	53	—	—	—	—	—	92	77	1.5	1.5	0.869
*NU309E	W	M, T, T7	NU	NJ	NUP	—	53	53	56	60	66	92	—	—	1.5	1.5	1.01
NU309E	W	M, T, T7	NU	NJ	NUP	—	53	53	56	60	66	92	—	—	1.5	1.5	1.01
*NU2309E	M	T, T7	NU	NJ	NUP	—	53	53	56	60	66	92	—	—	1.5	1.5	1.28
NU2309E	M	T, T7	NU	NJ	NUP	—	53	53	56	60	66	92	—	—	1.5	1.5	1.28
NU409	W	—	NU	NJ	NUP	N NF	54	54	62	66	74	111	111	103	2	2	1.62
NU1010	(M)	—	NU	NJ	NUP	N	55	54	56	59	—	75	76	73	1	0.6	0.301
N 210	W	M	—	—	—	N NF	56.5	—	—	—	—	—	83.5	82	1	1	0.483
*NU210E	W	M, T, T7	NU	NJ	NUP	—	56.5	56.5	57	62	67	83.5	—	—	1	1	0.50
NU210E	W	M, T, T7	NU	NJ	NUP	—	56.5	56.5	57	62	67	83.5	—	—	1	1	0.50
*NU2210E	M	T, T7	NU	NJ	NUP	—	56.5	56.5	57	62	67	83.5	—	—	1	1	0.562
NU2210E	M	T, T7	NU	NJ	NUP	—	56.5	56.5	57	62	67	83.5	—	—	1	1	0.562
N 310	W	M	—	—	—	N NF	59	—	—	—	—	—	101	97	2	2	1.11
*NU310E	W	M, T, T7	NU	NJ	NUP	—	59	59	63	67	73	101	—	—	2	2	1.3
NU310E	W	M, T, T7	NU	NJ	NUP	—	59	59	63	67	73	101	—	—	2	2	1.3
*NU2310E	M	T, T7	NU	NJ	NUP	—	59	59	63	67	73	101	—	—	2	2	1.7
NU2310E	M	T, T7	NU	NJ	NUP	—	59	59	63	67	73	101	—	—	2	2	1.7
N 410	W	M	—	—	—	N NF	65	—	—	—	—	—	117	113	2	2	2
NU410	W	M	NU	NJ	NUP	—	61	61	68	73	81	119	119	113.3	2	2	1.99

Notes (3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
 (4) d_b (max.) refers to values for adjusting rings for NU and NJ bearings.
 (5) The limiting speeds (mechanical) in the bearing tables are for standard cages.
Remark Bearings denoted by an asterisk (*) are NSKHPS™ cylindrical roller bearings.

■ SINGLE-ROW CYLINDRICAL ROLLER BEARINGS

Bore Diameter 55 – 60 mm



d	Boundary Dimensions (mm)						Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min ⁻¹)	
	D	B	r	r ₁	F _w	E _w	C _r	C _{0r}		Limiting Speeds	
			min.	min.						(⁵) Mechanical	Grease
55	90	18	1.1	1	64.5	80.5	37 500	44 000	8 000	—	7 500
	100	21	1.5	1.1	—	88.5	58 000	62 500	7 500	—	5 300
	100	21	1.5	1.1	66	—	99 000	98 500	6 700	8 500	5 600
	100	21	1.5	1.1	66	—	86 500	98 500	6 700	8 500	5 600
	100	25	1.5	1.1	66	—	117 000	122 000	6 700	10 000	5 600
	100	25	1.5	1.1	66	—	101 000	122 000	6 700	10 000	5 600
	120	29	2	2	—	104.5	111 000	111 000	6 300	—	4 000
	120	29	2	2	70.5	—	158 000	143 000	6 000	7 500	4 500
	120	29	2	2	70.5	—	137 000	143 000	6 000	7 500	4 500
	120	43	2	2	70.5	—	231 000	233 000	6 000	9 000	4 500
	120	43	2	2	70.5	—	201 000	233 000	6 000	9 000	4 500
	140	33	2.1	2.1	77.2	117.2	139 000	138 000	5 300	—	3 800
60	95	18	1.1	1	69.5	85.5	40 000	48 500	7 500	—	6 700
	110	22	1.5	1.5	—	97.5	68 500	75 000	7 100	—	4 800
	110	22	1.5	1.5	72	—	112 000	107 000	6 300	7 500	5 300
	110	22	1.5	1.5	72	—	97 500	107 000	6 300	7 500	5 300
	110	28	1.5	1.5	72	—	151 000	157 000	6 300	9 500	5 300
	110	28	1.5	1.5	72	—	131 000	157 000	6 300	9 500	5 300
	130	31	2.1	2.1	—	113	124 000	126 000	6 000	—	3 800
	130	31	2.1	2.1	77	—	124 000	126 000	6 000	—	3 800
	130	31	2.1	2.1	77	—	169 000	157 000	5 600	9 500	4 800
	130	31	2.1	2.1	77	—	150 000	157 000	5 600	9 500	4 800
	130	46	2.1	2.1	77	—	251 000	262 000	5 600	8 500	4 300
	130	46	2.1	2.1	77	—	222 000	262 000	5 600	8 500	4 300
150	35	2.1	2.1	83	127	167 000	168 000	5 000	—	3 400	

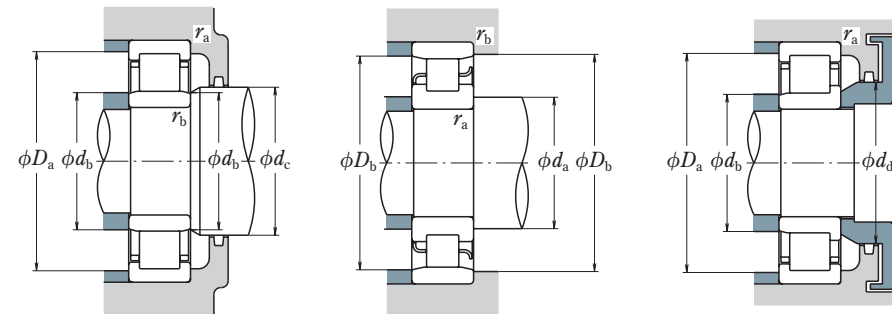
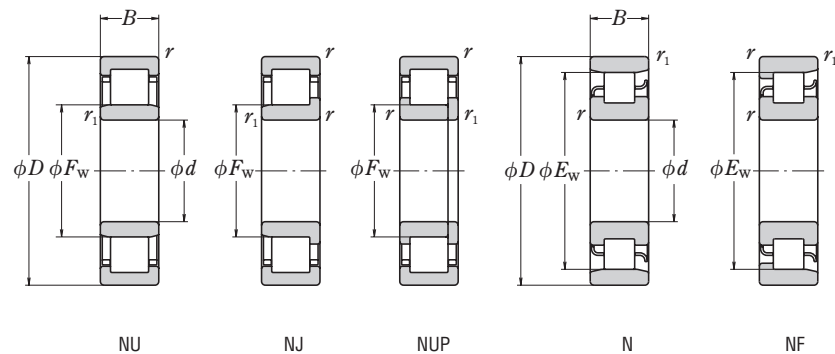
Bearing Designations	Abutment and Fillet Dimensions (mm)												Mass (kg)					
	Cage ⁽¹⁾		⁽²⁾		⁽³⁾		⁽⁴⁾		⁽³⁾		⁽³⁾			approx.				
	Standard	Option	NU	NJ	NUP	N	NF	d _a min.	d _b min.	d _b max.	d _c min.	d _d min.			D _a max.	D _b max.	D _b min.	r _a min.
NU1011	(M)	—	NU	NJ	—	N	—	61.5	60	63	66	—	83.5		85	82	1	1
N 211	W	M	—	—	—	N	NF	63	—	—	—	—	—	93.5	91	1.5	1	0.634
*NU211E	W	M, T, T7	NU	NJ	NUP	—	—	63	61.5	64	68	73	92	—	—	1.5	1	0.669
NU211E	W	M, T, T7	NU	NJ	NUP	—	—	63	61.5	64	68	73	92	—	—	1.5	1	0.669
*NU2211E	M	T, T7	NU	NJ	NUP	—	—	63	61.5	64	68	73	92	—	—	1.5	1	0.783
NU2211E	M	T, T7	NU	NJ	NUP	—	—	63	61.5	64	68	73	92	—	—	1.5	1	0.783
N 311	W	M	—	—	—	N	NF	64	—	—	—	—	—	111	107	2	2	1.42
*NU311E	W	M, T, T7	NU	NJ	NUP	—	—	64	64	68	72	80	111	—	—	2	2	1.64
NU311E	W	M, T, T7	NU	NJ	NUP	—	—	64	64	68	72	80	111	—	—	2	2	1.64
*NU2311E	M	T, T7	NU	NJ	NUP	—	—	64	64	68	72	80	111	—	—	2	2	2.18
NU2311E	M	T, T7	NU	NJ	NUP	—	—	64	64	68	72	80	111	—	—	2	2	2.18
NU411	W	—	NU	NJ	NUP	N	NF	66	66	75	79	87	129	129	119	2	2	2.5
NU1012	(M)	—	NU	NJ	—	N	NF	66.5	65	68	71	—	88.5	90	87	1	1	0.474
N 212	W	M	—	—	—	N	NF	68	—	—	—	—	—	102	100	1.5	1.5	0.823
*NU212E	W	M, T, T7	NU	NJ	NUP	—	—	68	68	70	75	80	102	—	—	1.5	1.5	0.824
NU212E	W	M, T, T7	NU	NJ	NUP	—	—	68	68	70	75	80	102	—	—	1.5	1.5	0.824
*NU2212E	M	T, T7	NU	NJ	NUP	—	—	68	68	70	75	80	102	—	—	1.5	1.5	1.06
NU2212E	M	T, T7	NU	NJ	NUP	—	—	68	68	70	75	80	102	—	—	1.5	1.5	1.06
N 312	W	M	—	—	—	N	NF	71	—	—	—	—	—	119	115	2	2	1.78
NU312	W	M	NU	NJ	NUP	—	—	71	71	75	79	86	119	—	—	2	2	1.82
*NU312E	M	T, T7	NU	NJ	NUP	—	—	71	71	75	79	86	119	—	—	2	2	2.06
NU312E	M	T, T7	NU	NJ	NUP	—	—	71	71	75	79	86	119	—	—	2	2	2.06
*NU2312E	M	T, T7	NU	NJ	NUP	—	—	71	71	75	79	86	119	—	—	2	2	2.7
NU2312E	M	T, T7	NU	NJ	NUP	—	—	71	71	75	79	86	119	—	—	2	2	2.7
NU412	W	M	NU	NJ	NUP	N	NF	71	71	80	85	94	139	139	130	2	2	3.04

Notes ⁽¹⁾ Cage designation (M) is usually omitted from the bearing designation.
⁽²⁾ When L-shaped thrust collars (see Pages C156-C157) are used, the bearings are considered the NH type.

Notes ⁽³⁾ If axial loads are applied, increase d_a and reduce D_a from the values listed above.
⁽⁴⁾ d_b (max.) refers to values for adjusting rings for NU and NJ bearings.
⁽⁵⁾ The limiting speeds (mechanical) in the bearing tables are for standard cages.
Remark Bearings denoted by an asterisk (*) are NSKHPS™ cylindrical roller bearings.

■ SINGLE-ROW CYLINDRICAL ROLLER BEARINGS

Bore Diameter 65 – 70 mm



d	Boundary Dimensions (mm)						Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min ⁻¹)	
	D	B	r	r ₁	F _w	E _w	C _r	C _{0r}		Limiting Speeds	
			min.	min.						(⁵) Mechanical	Grease
65	100	18	1.1	1	74.5	90.5	41 000	51 000	6 700	—	6 300
	120	23	1.5	1.5	—	105.6	84 000	94 500	6 300	—	4 300
	120	23	1.5	1.5	78.5	—	124 000	119 000	6 000	7 100	4 800
	120	23	1.5	1.5	78.5	—	108 000	119 000	6 000	7 100	4 800
	120	31	1.5	1.5	78.5	—	171 000	181 000	6 000	8 500	4 800
	120	31	1.5	1.5	78.5	—	149 000	181 000	6 000	8 500	4 800
	140	33	2.1	2.1	—	121.5	135 000	139 000	5 600	—	3 600
	140	33	2.1	2.1	83.5	—	135 000	139 000	5 600	—	3 600
	140	33	2.1	2.1	82.5	—	204 000	191 000	5 300	8 500	4 300
	140	33	2.1	2.1	82.5	—	181 000	191 000	5 300	8 500	4 300
	140	48	2.1	2.1	82.5	—	263 000	265 000	5 600	7 500	3 800
	140	48	2.1	2.1	82.5	—	233 000	265 000	5 600	7 500	3 800
70	160	37	2.1	2.1	—	135.3	195 000	203 000	4 500	—	4 000
	160	37	2.1	2.1	89.3	—	182 000	186 000	4 800	—	3 200
	110	20	1.1	1	80	100	58 500	70 500	6 300	—	6 000
	125	24	1.5	1.5	—	110.5	83 500	95 000	6 300	—	4 000
	125	24	1.5	1.5	83.5	—	136 000	137 000	5 600	9 000	5 000
	125	24	1.5	1.5	83.5	—	119 000	137 000	5 600	9 000	5 000
	125	31	1.5	1.5	83.5	—	179 000	194 000	5 600	8 000	4 500
	125	31	1.5	1.5	83.5	—	156 000	194 000	5 600	8 000	4 500
	150	35	2.1	2.1	—	130	149 000	156 000	5 600	—	3 200
	150	35	2.1	2.1	90	—	158 000	168 000	5 300	—	3 200
	150	35	2.1	2.1	89	—	231 000	222 000	4 800	8 000	4 000
	150	35	2.1	2.1	89	—	205 000	222 000	4 800	8 000	4 000
	150	51	2.1	2.1	89	—	310 000	325 000	5 000	7 100	3 600
	150	51	2.1	2.1	89	—	274 000	325 000	5 000	7 100	3 600
	180	42	3	3	100	152	228 000	236 000	4 500	—	2 800

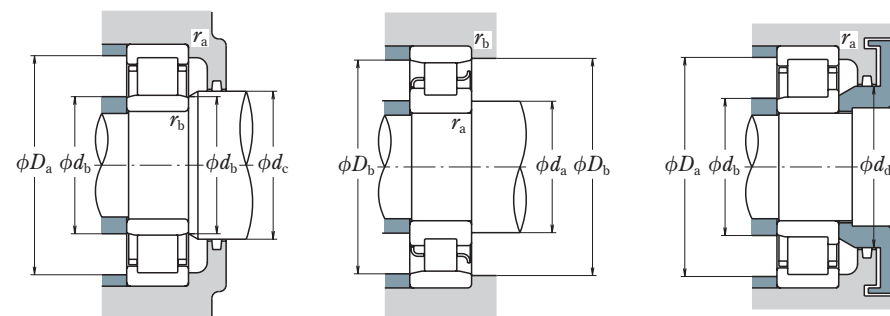
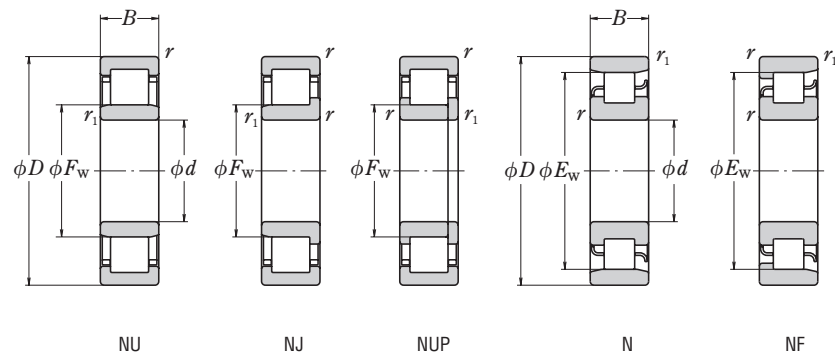
Bearing Designations	Abutment and Fillet Dimensions (mm)											Mass (kg)						
	Cage ⁽¹⁾		⁽²⁾		⁽³⁾		⁽⁴⁾		⁽⁵⁾		r _a		r _b					
	Standard Option	NU	NJ	NUP	N	NF	d _a min.	d _b min.	d _b max.	d _c min.				d _d min.	D _a max.	D _b max.	D _b min.	r _a max.
NU1013	(M)	—	NU	NJ	—	N	NF	71.5	70	73	76	—	93.5	95	92	1	1	0.504
N 213	W	M	—	—	—	N	NF	73	—	—	—	—	—	112	108	1.5	1.5	1.05
*NU213E	W	M, T, T7	NU	NJ	NUP	—	—	73	73	76	81	87	112	—	—	1.5	1.5	1.05
NU213E	W	M, T, T7	NU	NJ	NUP	—	—	73	73	76	81	87	112	—	—	1.5	1.5	1.05
*NU2213E	M	T, T7	NU	NJ	NUP	—	—	73	73	76	81	87	112	—	—	1.5	1.5	1.41
NU2213E	M	T, T7	NU	NJ	NUP	—	—	73	73	76	81	87	112	—	—	1.5	1.5	1.41
N 313	W	M	—	—	—	N	NF	76	—	—	—	—	—	129	125	2	2	2.17
NU313	W	M	NU	NJ	NUP	—	—	76	76	81	85	93	129	—	—	2	2	2.23
*NU313E	M	T, T7	NU	NJ	NUP	—	—	76	76	80	85	93	129	—	—	2	2	2.56
NU313E	M	T, T7	NU	NJ	NUP	—	—	76	76	80	85	93	129	—	—	2	2	2.56
*NU2313E	M	T, T7	NU	NJ	NUP	—	—	76	76	80	85	93	129	—	—	2	2	3.16
NU2313E	M	T, T7	NU	NJ	NUP	—	—	76	76	80	85	93	129	—	—	2	2	3.16
N 413	M	—	—	—	—	N	NF	76	—	—	—	—	—	149	138.8	2	2	3.63
NU413	W	M	NU	NJ	—	—	—	76	76	86	91	100	149	—	—	2	2	3.63
NU1014	(M)	—	NU	NJ	NUP	N	NF	76.5	75	79	82	—	103.5	105	101	1	1	0.693
N 214	W	M	—	—	—	N	NF	78	—	—	—	—	—	117	113	1.5	1.5	1.14
*NU214E	M	T, T7	NU	NJ	NUP	—	—	78	78	81	86	92	117	—	—	1.5	1.5	1.29
NU214E	M	T, T7	NU	NJ	NUP	—	—	78	78	81	86	92	117	—	—	1.5	1.5	1.29
*NU2214E	M	T, T7	NU	NJ	NUP	—	—	78	78	81	86	92	117	—	—	1.5	1.5	1.49
NU2214E	M	T, T7	NU	NJ	NUP	—	—	78	78	81	86	92	117	—	—	1.5	1.5	1.49
N 314	W	M	—	—	—	N	NF	81	—	—	—	—	—	139	133.5	2	2	2.67
NU314	W	M	NU	NJ	NUP	—	—	81	81	87	92	100	139	—	—	2	2	2.75
*NU314E	M	T, T7	NU	NJ	NUP	—	—	81	81	86	92	100	139	—	—	2	2	3.09
NU314E	M	T, T7	NU	NJ	NUP	—	—	81	81	86	92	100	139	—	—	2	2	3.09
*NU2314E	M	T, T7	NU	NJ	NUP	—	—	81	81	86	92	100	139	—	—	2	2	3.92
NU2314E	M	T, T7	NU	NJ	NUP	—	—	81	81	86	92	100	139	—	—	2	2	3.92
NU414	W	M	NU	NJ	NUP	N	NF	83	83	97	102	112	167	167	155	2.5	2.5	5.28

Notes (1) Cage designation (M) is usually omitted from the bearing designation.
 (2) When L-shaped thrust collars (see Pages C156-C157) are used, the bearings are considered the NH type.

Notes (3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
 (4) d_b (max.) refers to values for adjusting rings for NU and NJ bearings.
 (5) The limiting speeds (mechanical) in the bearing tables are for standard cages.
 Remark Bearings denoted by an asterisk (*) are NSKHPS™ cylindrical roller bearings.

■ SINGLE-ROW CYLINDRICAL ROLLER BEARINGS

Bore Diameter 75 mm



d	Boundary Dimensions (mm)						Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min ⁻¹)	
	D	B	r min.	r1 min.	Fw	Ew	Cr	Cor		Limiting Speeds	
										Mechanical	Grease
75	115	20	1.1	1	85	105	60 000	74 500	6 000	—	5 600
	130	25	1.5	1.5	—	116.5	96 500	111 000	6 000	—	3 800
	130	25	1.5	1.5	88.5	—	150 000	156 000	5 300	8 500	4 800
	130	25	1.5	1.5	88.5	—	130 000	156 000	5 300	8 500	4 800
	130	31	1.5	1.5	88.5	—	186 000	207 000	5 300	7 500	4 300
	130	31	1.5	1.5	88.5	—	162 000	207 000	5 300	7 500	4 300
	160	37	2.1	2.1	—	139.5	179 000	189 000	5 000	—	3 000
	160	37	2.1	2.1	95.5	—	179 000	189 000	5 000	—	3 000
	160	37	2.1	2.1	95	—	271 000	263 000	4 500	7 500	3 800
	160	37	2.1	2.1	95	—	240 000	263 000	4 500	7 500	3 800
160	55	2.1	2.1	95	—	370 000	395 000	4 800	6 700	3 400	
	55	2.1	2.1	95	—	330 000	395 000	4 800	6 700	3 400	
	45	3	3	104.5	160.5	262 000	274 000	4 300	—	2 600	

Bearing Designations	Abutment and Fillet Dimensions (mm)														Mass (kg) approx.			
	Cage ⁽¹⁾ Standard Option	Cage ⁽²⁾				da ⁽³⁾ min.	db min.	db ⁽⁴⁾ max.	dc min.	dd min.	Da ⁽³⁾ max.	Db max.	Db min.	ra max.		rb max.		
		NU	NJ	NUP	N												NF	
NU1015	(M)	—	NU	—	—	N	NF	81.5	80	83	87	—	108.5	110	106	1	1	0.731
N 215	W	M	—	—	—	N	NF	83	—	—	—	—	122	119	1.5	1.5	1.23	
*NU215E	M	T, T7	NU	NJ	NUP	—	—	83	83	86	90	96	122	—	—	1.5	1.5	1.44
NU215E	M	T, T7	NU	NJ	NUP	—	—	83	83	86	90	96	122	—	—	1.5	1.5	1.44
*NU2215E	M	T, T7	NU	NJ	NUP	—	—	83	83	86	90	96	122	—	—	1.5	1.5	1.57
NU2215E	M	T, T7	NU	NJ	NUP	—	—	83	83	86	90	96	122	—	—	1.5	1.5	1.57
N 315	W	M	—	—	—	N	NF	86	—	—	—	—	149	143	2	2	3.2	
NU315	W	M	NU	NJ	NUP	—	—	86	86	93	97	106	149	—	—	2	2	3.26
*NU315E	M	T, T7	NU	NJ	NUP	—	—	86	86	92	97	106	149	—	—	2	2	3.73
NU315E	M	T, T7	NU	NJ	NUP	—	—	86	86	92	97	106	149	—	—	2	2	3.73
*NU2315E	M	T, T7	NU	NJ	NUP	—	—	86	86	92	97	106	149	—	—	2	2	4.86
NU2315E	M	T, T7	NU	NJ	NUP	—	—	86	86	92	97	106	149	—	—	2	2	4.86
NU415	W	M	NU	NJ	—	N	NF	88	88	102	107	118	177	164	2.5	2.5	6.27	

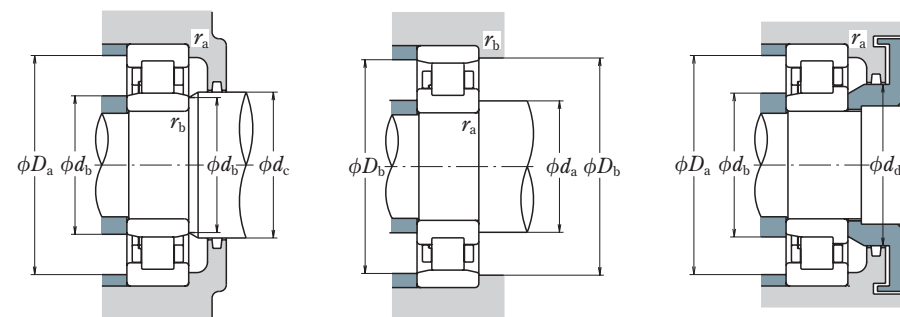
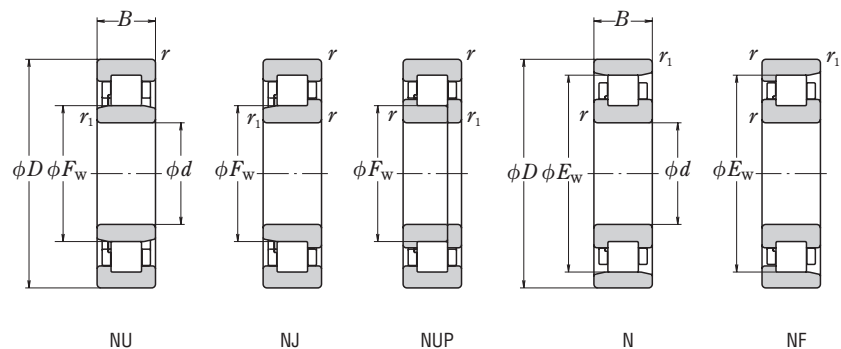
Notes (1) Cage designation (M) is usually omitted from the bearing designation.
 (2) When L-shaped thrust collars (see Pages C156-C157) are used, the bearings are considered the NH type.

Notes (3) If axial loads are applied, increase da and reduce Da from the values listed above.
 (4) db (max.) refers to values for adjusting rings for NU and NJ bearings.
 (5) The limiting speeds (mechanical) in the bearing tables are for standard cages.

Remark Bearings denoted by an asterisk (*) are NSKHPS™ cylindrical roller bearings.

■ SINGLE-ROW CYLINDRICAL ROLLER BEARINGS

Bore Diameter 220 – 500 mm

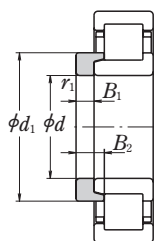


d	Boundary Dimensions (mm)						Basic Load Ratings (N)		Speeds (min ⁻¹)		
	D	B	r	r ₁	F _w	E _w	C _r	C _{0r}	Thermal Reference Speed	Limiting Speeds	
	min.	min.	min.	min.	min.	min.	min.	Mechanical		Grease	
220	340	56	3	3	250	310	500 000	750 000	2 400	—	1 800
	400	65	4	4	—	350	760 000	1 080 000	1 800	—	1 500
	400	65	4	4	268	—	1 110 000	1 250 000	1 800	—	1 500
	400	65	4	4	268	—	905 000	1 250 000	1 800	—	1 500
	400	108	4	4	270	—	1 140 000	1 810 000	1 700	—	1 300
	460	88	5	5	—	396	1 190 000	1 570 000	1 400	—	1 200
460	88	5	5	284	—	1 190 000	1 570 000	1 400	—	1 200	
240	360	56	3	3	270	330	530 000	820 000	2 200	—	1 600
	440	72	4	4	—	385	935 000	1 340 000	1 600	—	1 300
	440	72	4	4	295	—	935 000	1 340 000	1 600	—	1 300
	440	120	4	4	295	—	1 440 000	2 320 000	1 500	—	1 200
	500	95	5	5	—	430	1 360 000	1 820 000	1 200	—	1 100
	500	95	5	5	310	—	1 360 000	1 820 000	1 200	—	1 100
260	400	65	4	4	296	364	645 000	1 000 000	1 900	—	1 500
	480	80	5	5	—	420	1 100 000	1 580 000	1 500	—	1 200
	480	80	5	5	320	—	1 100 000	1 580 000	1 500	—	1 200
	480	130	5	5	320	—	1 710 000	2 770 000	1 300	—	1 100
540	102	6	6	336	—	1 540 000	2 090 000	1 100	—	1 000	
280	420	65	4	4	316	384	660 000	1 050 000	1 800	—	1 400
	500	80	5	5	—	440	1 140 000	1 680 000	1 300	—	1 100
	500	80	5	5	340	—	1 140 000	1 680 000	1 300	—	1 100
300	460	74	4	4	340	420	885 000	1 400 000	1 600	—	1 300
	540	85	5	5	364	—	1 400 000	2 070 000	1 200	—	1 100
320	480	74	4	4	360	440	905 000	1 470 000	1 500	—	1 200
	580	92	5	5	—	510	1 540 000	2 270 000	1 100	—	950
	580	92	5	5	390	—	1 540 000	2 270 000	1 100	—	950
340	520	82	5	5	385	475	1 080 000	1 740 000	1 400	—	1 100
360	540	82	5	5	405	495	1 110 000	1 830 000	1 300	—	1 000
380	560	82	5	5	425	—	1 140 000	1 910 000	1 200	—	1 000
400	600	90	5	5	450	550	1 360 000	2 280 000	1 100	—	900
420	620	90	5	5	470	570	1 390 000	2 380 000	1 100	—	850
440	650	94	6	6	493	—	1 470 000	2 530 000	1 000	—	800
460	680	100	6	6	516	624	1 580 000	2 740 000	950	—	750
480	700	100	6	6	536	644	1 620 000	2 860 000	900	—	750
500	720	100	6	6	556	664	1 660 000	2 970 000	900	—	710

Bearing Designations	Abutment and Fillet Dimensions (mm)											Mass (kg)	
	Cage ⁽¹⁾		NU		NJ		NUP		N		NF		
	Standard	Option	d _a ⁽²⁾ min.	d _b min.	d _b ⁽⁴⁾ max.	d _c min.	d _d min.	D _a ⁽³⁾ max.	D _b max.	D _b min.	r _a max.		r _b max.
NU1044	(M)	—	233	233	247	254	—	327	327	313	2.5	2.5	18.2
N 244	M	—	236	—	—	—	—	—	384	357	3	3	37
*NU244E	M	—	236	236	264	273	289	384	—	—	3	3	37.4
NU244E	M	—	236	236	264	273	289	384	—	—	3	3	37.4
NU2244	M	—	—	236	264	273	289	384	—	—	3	3	61.8
N 344	M	—	240	—	—	—	—	—	440	403	4	4	72.8
NU344	M	—	240	240	278	287	307	440	—	—	4	4	74.6
NU1048	(M)	—	253	253	266	275	—	347	347	333	2.5	2.5	19.5
N 248	M	—	256	—	—	—	—	—	424	392	3	3	49.6
NU248	M	—	256	256	289	298	316	424	—	—	3	3	50.4
NU2248	M	—	—	256	289	298	316	424	—	—	3	3	84.9
N 348	M	—	260	—	—	—	—	—	480	438	4	4	92.3
NU348	M	—	260	260	304	313	333	480	—	—	4	4	94.6
NU1052	(M)	—	276	276	292	300	—	384	384	367	3	3	29.1
N 252	M	—	280	—	—	—	—	—	460	428	4	4	66.2
NU252	M	—	280	280	314	323	343	460	—	—	4	4	67.1
NU2252	M	—	—	280	314	323	343	460	—	—	4	4	111
NU352	M	—	286	286	330	339	359	514	—	—	5	5	118
NU1056	(M)	—	296	296	312	320	—	404	404	387	3	3	30.8
N 256	M	—	300	—	—	—	—	—	480	448	4	4	69.6
NU256	M	—	300	300	334	344	364	480	—	—	4	4	70.7
NU1060	(M)	—	316	316	336	344	—	444	444	424	3	3	43.7
NU260	M	—	320	320	358	368	391	520	—	—	4	4	89.2
NU1064	(M)	—	336	336	356	365	—	464	464	444	3	3	46.1
N 264	M	—	340	—	—	—	—	—	560	519	4	4	110
NU264	M	—	340	340	384	394	420	560	—	—	4	4	112
NU1068	(M)	—	360	360	381	390	—	500	500	479	4	4	61.8
NU1072	(M)	—	380	380	400	410	—	520	520	499	4	4	64.6
NU1076	(M)	—	—	400	420	430	—	540	—	—	4	4	67.5
NU1080	(M)	—	420	420	445	455	—	580	580	554.5	4	4	88.2
NU1084	(M)	—	440	440	465	475	—	600	600	574.5	4	4	91.7
NU1088	(M)	—	—	466	488	498	—	624	—	—	5	5	105
NU1092	(M)	—	486	486	511	521	—	654	654	628.5	5	5	123
NU1096	(M)	—	506	506	531	541	—	674	674	654	5	5	127
NU10/500	(M)	—	526	526	551	558	—	694	694	674	5	5	131

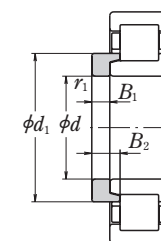
Notes (1) Cage designation (M) is usually omitted from the bearing designation.
 (2) When L-shaped thrust collars (see Pages C156-C157) are used, the bearings are considered the NH type.

Notes (3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
 (4) d_b (max.) refers to values for adjusting rings for NU and NJ bearings.
 Remark Bearings denoted by an asterisk (*) are NSKHPS™ cylindrical roller bearings.

■ CYLINDRICAL ROLLER BEARINGS
L-Shaped Thrust Collars
Bore Diameter 20 – 85 mm


L-Shaped Thrust Collar

Boundary Dimensions (mm)					Bearing Designation	Mass (kg) approx.	
<i>d</i>	<i>d</i> ₁	<i>B</i> ₁	<i>B</i> ₂	<i>r</i> ₁ min.			
20	30	3	6.75	0.6	HJ 204	0.012	
	29.8	3	5.5	0.6	HJ 204 E	0.011	
	30	3	7.5	0.6	HJ 2204	0.012	
	29.8	3	6.5	0.6	HJ 2204 E	0.012	
	31.7	4	7.5	0.6	HJ 304	0.017	
	31.4	4	6.5	0.6	HJ 304 E	0.017	
	31.8	4	8.5	0.6	HJ 2304	0.017	
	31.4	4	7.5	0.6	HJ 2304 E	0.018	
	25	34.8	3	6	0.6	HJ 205 E	0.014
		34.8	3	6.5	0.6	HJ 2205 E	0.014
38.2		4	7	1.1	HJ 305 E	0.025	
38.2		4	8	1.1	HJ 2305 E	0.026	
43.6		6	10.5	1.5	HJ 405	0.057	
30	41.3	4	7	0.6	HJ 206 E	0.025	
	41.4	4	7.5	0.6	HJ 2206 E	0.025	
	45.1	5	8.5	1.1	HJ 306 E	0.042	
	45.1	5	9.5	1.1	HJ 2306 E	0.043	
	50.5	7	11.5	1.5	HJ 406	0.080	
35	48.2	4	7	0.6	HJ 207 E	0.033	
	48.2	4	8.5	0.6	HJ 2207 E	0.035	
	51.1	6	9.5	1.1	HJ 307 E	0.060	
	51.1	6	11	1.1	HJ 2307 E	0.062	
40	59	8	13	1.5	HJ 407	0.12	
	54.1	5	8.5	1.1	HJ 208 E	0.049	
	54.1	5	9	1.1	HJ 2208 E	0.050	
45	57.6	7	11	1.5	HJ 308 E	0.088	
	57.7	7	12.5	1.5	HJ 2308 E	0.091	
	64.8	8	13	2	HJ 408	0.14	
	59.1	5	8.5	1.1	HJ 209 E	0.055	
	59.1	5	9	1.1	HJ 2209 E	0.055	
	64.5	7	11.5	1.5	HJ 309 E	0.11	
	64.5	7	13	1.5	HJ 2309 E	0.113	
	71.7	8	13.5	2	HJ 409	0.175	
50	64.1	5	9	1.1	HJ 210 E	0.061	
	64.1	5	9	1.1	HJ 2210 E	0.061	
	71.4	8	13	2	HJ 310 E	0.151	
	71.4	8	14.5	2	HJ 2310 E	0.155	
	78.8	9	14.5	2.1	HJ 410	0.23	

Bore Diameter 90 – 320 mm


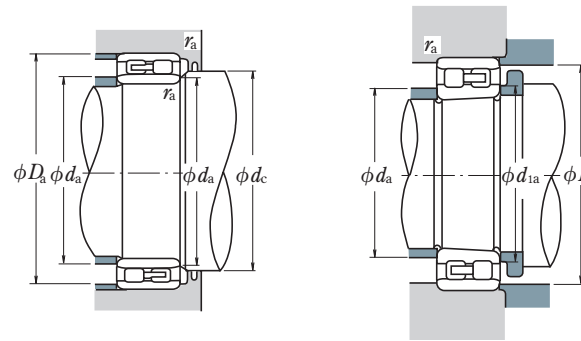
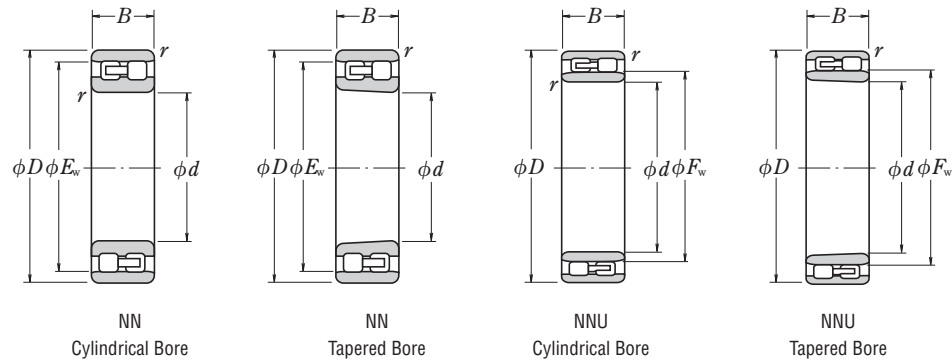
L-Shaped Thrust Collar

Boundary Dimensions (mm)					Bearing Designation	Mass (kg) approx.
<i>d</i>	<i>d</i> ₁	<i>B</i> ₁	<i>B</i> ₂	<i>r</i> ₁ min.		
90	114.3	9	14	2	HJ 218 E	0.32
	114.3	9	15	2	HJ 2218 E	0.325
	124.2	12	18.5	3	HJ 318 E	0.63
	124.2	12	22	3	HJ 2318 E	0.66
95	137	14	24	4	HJ 418	1.05
	120.6	9	14	2.1	HJ 219 E	0.355
	120.6	9	15.5	2.1	HJ 2219 E	0.365
	132.2	13	20.5	3	HJ 319 E	0.785
	132.2	13	24.5	3	HJ 2319 E	0.815
100	147	15	25.5	4	HJ 419	1.3
	127.5	10	15	2.1	HJ 220 E	0.44
	127.5	10	16	2.1	HJ 2220 E	0.45
	139.6	13	20.5	3	HJ 320 E	0.89
	139.6	13	23.5	3	HJ 2320 E	0.92
105	153.5	16	27	4	HJ 420	1.5
	145	13	20.5	3	HJ 321 E	0.97
	159.5	16	27	4	HJ 421	1.65
110	141.7	11	17	2.1	HJ 222 E	0.62
	141.7	11	19.5	2.1	HJ 2222 E	0.645
	155.8	14	22	3	HJ 322 E	1.21
	155.8	14	26.5	3	HJ 2322 E	1.27
120	171	17	29.5	4	HJ 422	2.1
	153.4	11	17	2.1	HJ 224 E	0.71
	153.4	11	20	2.1	HJ 2224 E	0.745
	168.6	14	22.5	3	HJ 324 E	1.41
	168.6	14	26	3	HJ 2324 E	1.46
130	188	17	30.5	5	HJ 424	2.6
	164.2	11	17	3	HJ 226 E	0.79
	164.2	11	21	3	HJ 2226 E	0.84
	182.3	14	23	4	HJ 326 E	1.65
	182.3	14	28	4	HJ 2326 E	1.73
140	205	18	32	5	HJ 426	3.3
	180	11	18	3	HJ 228 E	0.99
	180	11	23	3	HJ 2228 E	1.07
	196	15	25	4	HJ 328 E	2.04
	196	15	31	4	HJ 2328 E	2.14

Boundary Dimensions (mm)					Bearing Designation	Mass (kg) approx.
<i>d</i>	<i>d</i> ₁	<i>B</i> ₁	<i>B</i> ₂	<i>r</i> ₁ min.		
150	193.7	12	19.5	3	HJ 230 E	1.26
	193.7	12	24.5	3	HJ 2230 E	1.35
	210	15	25	4	HJ 330 E	2.35
160	210	15	31.5	4	HJ 2330 E	2.48
	234	20	36.5	5	HJ 430	4.7
170	207.3	12	20	3	HJ 232 E	1.48
	206.1	12	24.5	3	HJ 2232 E	1.55
	222	15	25	4	HJ 332 E	2.59
	222.1	15	32	4	HJ 2332 E	2.76
180	220.8	12	20	4	HJ 234 E	1.7
	219.5	12	24	4	HJ 2234 E	1.79
	238	16	33.5	4	HJ 434	3.25
190	230.8	12	20	4	HJ 236 E	1.79
	229.5	12	24	4	HJ 2236 E	1.88
	252	17	35	4	HJ 436	3.85
200	244.5	13	21.5	4	HJ 238 E	2.19
	243.2	13	26.5	4	HJ 2238 E	2.31
	260.6	18	36.5	5	HJ 438	4.45
220	258.2	14	23	4	HJ 240 E	2.65
	258	14	34	4	HJ 440	2.6
	256.9	14	28	4	HJ 2240 E	2.78
	280	18	30	5	HJ 440 E	5.0
240	286	15	27.5	4	HJ 244	3.55
	286	15	36.5	4	HJ 2244	3.55
	307	20	36	5	HJ 344	7.05
260	313	16	29.5	4	HJ 248	4.65
	313	16	38.5	4	HJ 2248	4.65
	334	22	39.5	5	HJ 348	8.2
280	340	18	33	5	HJ 252	6.2
	340	18	40.5	5	HJ 2252	6.2
	362	24	43	6	HJ 352	11.4
300	360	18	33	5	HJ 256	7.4
	387	20	34.5	5	HJ 260	9.15
320	415	21	37	5	HJ 264	11.3

DOUBLE-ROW CYLINDRICAL ROLLER BEARINGS

Bore Diameter 25 – 140 mm



d	Boundary Dimensions (mm)					Basic Load Ratings (N)		Limiting Speeds (min ⁻¹)	
	D	B	r min.	F _w	E _w	C _r	C _{0r}	Grease	Oil
25	47	16	0.6	—	41.3	25 800	30 000	14 000	17 000
30	55	19	1	—	48.5	31 000	37 000	12 000	14 000
35	62	20	1	—	55	39 500	50 000	10 000	12 000
40	68	21	1	—	61	43 500	55 500	9 000	11 000
45	75	23	1	—	67.5	52 000	68 500	8 500	10 000
50	80	23	1	—	72.5	53 000	72 500	7 500	9 000
55	90	26	1.1	—	81	69 500	96 500	6 700	8 000
60	95	26	1.1	—	86.1	73 500	106 000	6 300	7 500
65	100	26	1.1	—	91	77 000	116 000	6 000	7 100
70	110	30	1.1	—	100	97 500	148 000	5 600	6 700
75	115	30	1.1	—	105	96 500	149 000	5 300	6 300
80	125	34	1.1	—	113	119 000	186 000	4 800	6 000
85	130	34	1.1	—	118	125 000	201 000	4 500	5 600
90	140	37	1.5	—	127	143 000	228 000	4 300	5 000
95	145	37	1.5	—	132	150 000	246 000	4 000	5 000
100	140	40	1.1	112	—	155 000	295 000	4 000	5 000
	150	37	1.5	—	137	157 000	265 000	4 000	4 800
105	145	40	1.1	117	—	161 000	315 000	3 800	4 800
	160	41	2	—	146	198 000	320 000	3 800	4 500
110	150	40	1.1	122	—	167 000	335 000	3 600	4 500
	170	45	2	—	155	229 000	375 000	3 400	4 300
120	165	45	1.1	133.5	—	183 000	360 000	3 200	4 000
	180	46	2	—	165	239 000	405 000	3 200	3 800
130	180	50	1.5	144	—	274 000	545 000	3 000	3 800
	200	52	2	—	182	284 000	475 000	3 000	3 600
140	190	50	1.5	154	—	283 000	585 000	2 800	3 600
	210	53	2	—	192	298 000	515 000	2 800	3 400

Bearing Designations		Abutment and Fillet Dimensions (mm)						Mass (kg)
Cylindrical Bore	Tapered Bore ⁽¹⁾	d _a ⁽²⁾		d _{1a}	d _c	D _a	r _a	approx.
		min.	max.	min.	max.	min.	max.	
NN 3005	NN 3005 KR	29	—	29	—	43	42	0.127
NN 3006	NN 3006 KR	35	—	36	—	50	50	0.198
NN 3007	NN 3007 KR	40	—	41	—	57	56	0.258
NN 3008	NN 3008 KR	45	—	46	—	63	62	0.309
NN 3009	NN 3009 KR	50	—	51	—	70	69	0.407
NN 3010	NN 3010 KR	55	—	56	—	75	74	0.436
NN 3011	NN 3011 KR	61.5	—	62	—	83.5	83	0.647
NN 3012	NN 3012 KR	66.5	—	67	—	88.5	88	0.693
NN 3013	NN 3013 KR	71.5	—	72	—	93.5	93	0.741
NN 3014	NN 3014 KR	76.5	—	77	—	103.5	102	1.06
NN 3015	NN 3015 KR	81.5	—	82	—	108.5	107	1.11
NN 3016	NN 3016 KR	86.5	—	87	—	118.5	115	1.54
NN 3017	NN 3017 KR	91.5	—	92	—	123.5	120	1.63
NN 3018	NN 3018 KR	98	—	99	—	132	129	2.09
NN 3019	NN 3019 KR	103	—	104	—	137	134	2.19
NNU 4920	NNU 4920 KR	106.5	111	108	115	133.5	—	1.9
NN 3020	NN 3020 KR	108	—	109	—	142	139	2.28
NNU 4921	NNU 4921 KR	111.5	116	113	120	138.5	—	1.99
NN 3021	NN 3021 KR	114	—	115	—	151	148	2.88
NNU 4922	NNU 4922 KR	116.5	121	118	125	143.5	—	2.07
NN 3022	NN 3022 KR	119	—	121	—	161	157	3.71
NNU 4924	NNU 4924 KR	126.5	133	128	137	158.5	—	2.85
NN 3024	NN 3024 KR	129	—	131	—	171	167	4.04
NNU 4926	NNU 4926 KR	138	143	140	148	172	—	3.85
NN 3026	NN 3026 KR	139	—	141	—	191	185	5.88
NNU 4928	NNU 4928 KR	148	153	150	158	182	—	4.08
NN 3028	NN 3028 KR	149	—	151	—	201	195	6.34

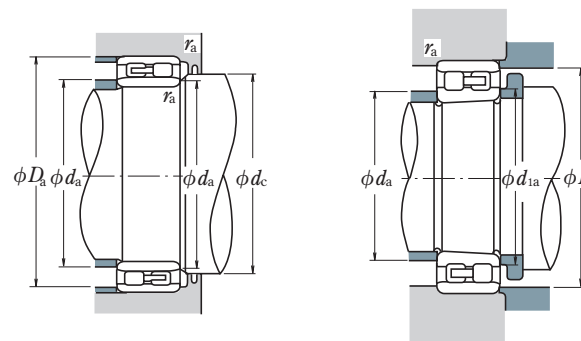
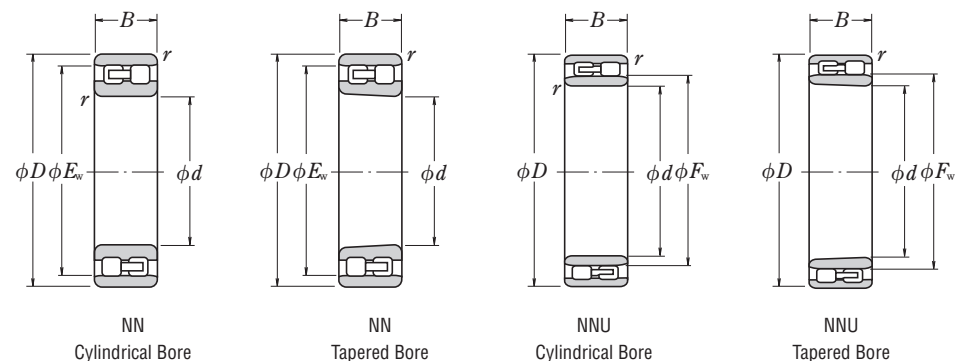
Note ⁽¹⁾ Suffix KR represents bearings with tapered bores (taper 1 : 12).

Remark Double-row cylindrical roller bearings are generally produced in high precision classes (Class 5 or better).

Note ⁽²⁾ d_a (max.) refers to values for adjusting rings for NNU bearings.

DOUBLE-ROW CYLINDRICAL ROLLER BEARINGS

Bore Diameter 150 – 360 mm



d	Boundary Dimensions (mm)					Basic Load Ratings (N)		Limiting Speeds (min ⁻¹)	
	D	B	r min.	F _w	E _w	C _r	C _{0r}	Grease	Oil
150	210	60	2	167	—	350 000	715 000	2 600	3 200
	225	56	2.1	—	206	335 000	585 000	2 600	3 000
160	220	60	2	177	—	365 000	760 000	2 400	3 000
	240	60	2.1	—	219	375 000	660 000	2 400	2 800
170	230	60	2	187	—	375 000	805 000	2 400	2 800
	260	67	2.1	—	236	450 000	805 000	2 200	2 600
180	250	69	2	200	—	480 000	1 020 000	2 200	2 600
	280	74	2.1	—	255	565 000	995 000	2 000	2 400
190	260	69	2	211.5	—	485 000	1 060 000	2 000	2 600
	290	75	2.1	—	265	595 000	1 080 000	2 000	2 400
200	280	80	2.1	223	—	570 000	1 220 000	1 900	2 400
	310	82	2.1	—	282	655 000	1 170 000	1 800	2 200
220	300	80	2.1	243	—	600 000	1 330 000	1 700	2 200
	340	90	3	—	310	815 000	1 480 000	1 700	2 000
240	320	80	2.1	263	—	625 000	1 450 000	1 600	2 000
	360	92	3	—	330	855 000	1 600 000	1 500	1 800
260	360	100	2.1	289	—	935 000	2 100 000	1 400	1 800
	400	104	4	—	364	1 030 000	1 920 000	1 400	1 700
280	380	100	2.1	309	—	960 000	2 230 000	1 300	1 700
	420	106	4	—	384	1 080 000	2 080 000	1 300	1 500
300	420	118	3	336	—	1 230 000	2 870 000	1 200	1 500
	460	118	4	—	418	1 290 000	2 460 000	1 200	1 400
320	440	118	3	356	—	1 260 000	3 050 000	1 100	1 400
	480	121	4	—	438	1 350 000	2 670 000	1 100	1 300
340	520	133	5	—	473	1 670 000	3 300 000	1 000	1 200
360	540	134	5	—	493	1 700 000	3 450 000	950	1 200

Bearing Designations		Abutment and Fillet Dimensions (mm)							Mass (kg)
Cylindrical Bore	Tapered Bore ⁽¹⁾	d _a ⁽²⁾		d _{1a}	d _c	D _a	r _a	approx.	
		min.	max.	min.	min.	max.	min.		
NNU 4930 NN 3030	NNU 4930 KR NN 3030 KR	159	166	162	171	201	—	2	6.39
		161	—	162	—	214	209	2	7.77
NNU 4932 NN 3032	NNU 4932 KR NN 3032 KR	169	176	172	182	211	—	2	6.76
		171	—	172	—	229	222	2	9.41
NNU 4934 NN 3034	NNU 4934 KR NN 3034 KR	179	186	182	192	221	—	2	7.12
		181	—	183	—	249	239	2	12.8
NNU 4936 NN 3036	NNU 4936 KR NN 3036 KR	189	199	193	205	241	—	2	10.4
		191	—	193	—	269	258	2	16.8
NNU 4938 NN 3038	NNU 4938 KR NN 3038 KR	199	211	203	217	251	—	2	10.9
		201	—	203	—	279	268	2	17.8
NNU 4940 NN 3040	NNU 4940 KR NN 3040 KR	211	222	214	228	269	—	2	15.3
		211	—	214	—	299	285	2	22.7
NNU 4944 NN 3044	NNU 4944 KR NN 3044 KR	231	242	234	248	289	—	2	16.6
		233	—	236	—	327	313	2.5	29.6
NNU 4948 NN 3048	NNU 4948 KR NN 3048 KR	251	262	254	269	309	—	2	18
		253	—	256	—	347	334	2.5	32.7
NNU 4952 NN 3052	NNU 4952 KR NN 3052 KR	271	288	275	295	349	—	2	31.1
		276	—	278	—	384	368	3	47.7
NNU 4956 NN 3056	NNU 4956 KR NN 3056 KR	291	308	295	315	369	—	2	33
		296	—	298	—	404	388	3	51.1
NNU 4960 NN 3060	NNU 4960 KR NN 3060 KR	313	335	318	343	407	—	2.5	51.9
		316	—	319	—	444	422	3	70.7
NNU 4964 NN 3064	NNU 4964 KR NN 3064 KR	333	355	338	363	427	—	2.5	54.9
		336	—	340	—	464	442	3	76.6
NN 3068	NN 3068 KR	360	—	365	—	500	477	4	102
NN 3072	NN 3072 KR	380	—	385	—	520	497	4	106

Note ⁽¹⁾ Suffix KR represents bearings with tapered bores (taper 1 : 12).

Remark Double-row cylindrical roller bearings are generally produced in high precision classes (Class 5 or better).

Note ⁽²⁾ d_a (max.) refers to values for adjusting rings for NNU bearings.

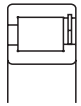
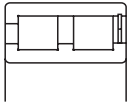
FULL COMPLEMENT SINGLE-ROW (NCF) / DOUBLE-ROW (NNCF) CYLINDRICAL ROLLER BEARINGS

Design, Types, and Features

Cageless, full complement cylindrical roller bearings have the maximum possible number of rollers and can sustain much heavier loads than cylindrical roller bearings of the same size with cages. On the other hand, high-speed capability is inferior to the bearings with cages.

Open single- and double-row bearings are mostly used in general industrial applications at low speed and under heavy load, while shielded double-row bearings are often used in crane sheaves.

Table 1 Features of Full Complement Cylindrical Roller Bearings

Appearance	Type	Design and Features
	NCF	The outer and inner rings and rollers are inseparable since a retaining snap ring is installed at the side opposite the outer ring rib. It can sustain axial loads in only one direction.
	NNCF	NNCF is a double-row version of NCF. It can sustain heavy radial loads.

Tolerances and Running AccuracyTable 7.2 (Pages A128 to A131)

Single-Row
Double-Row

Recommended Fits

Single-Row
Double-Row

Inner Ring RotationTable 8.3 (Page A164)
Table 8.5 (Page A165)

Outer Ring RotationTable 2 below

Table 2 Fits and Internal Clearances for Full Complement Cylindrical Roller Bearings

Operating Conditions		Fitting Between Inner Ring and Shaft	Fitting Between Outer Ring and Housing Bore	Recommended Internal Clearance
Outer Ring Rotation	Thin-walled housings and heavy loads	g6 or h6	P7	C 3
	Normal to heavy loads	g6 or h6	N7	C 3
	Light or fluctuating loads	g6 or h6	M7	CN

Permissible Misalignment

The permissible misalignment of full complement single-row cylindrical roller bearings is generally 0.0006 radian (2') under normal load. For double-row bearings, nearly no misalignment is allowed.

FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS FOR SHEAVES

DESIGN, TYPES, AND FEATURES

Cylindrical roller bearings for sheaves are specially designed thin-walled, broad-width, full complement double-row bearings. They are also widely used in general industrial machines running at low speed and under heavy loads. There are several Series, as shown in Table 1.

Table 1 Series of Cylindrical Roller Bearings for Sheaves

Bearing Type		Fixed-End	Free-End
Open Type	Without Snap Ring	RS-48E4 RS-49E4	RSF-48E4 RSF-49E4
	Shielded Type	Without Snap Ring With Snap Ring	RS-50 RS-50NR

All bearings are inseparable, and the RSF type can be used as a free-end bearing. In this case, please refer to the permissible axial displacement in the bearing tables.

Since these cylindrical roller bearings are double-row and full complement, they can withstand heavy shock loads and moments and have sufficient axial load capacity for use in sheaves.

Shielded bearing units allow for the reduction of the number of parts surrounding the bearing, therefore allowing for a simple, compact design.

The surface of these bearings is treated with a rust preventive.

Table 2 Features of Full Complement Cylindrical Roller Bearings for Sheaves

Diagram	Type	Design and Features
	RS-48E4 RS-49E4	These types feature a double-row outer ring with center rib and two single-row inner rings with ribs. The outer and inner rings and rollers are inseparable since there are two retaining snap rings at the sides of the outer ring. They can sustain an axial load in either direction, so they may be used as fixed-end bearings. An oil groove and holes are located at the center of the outer ring.
	RSF-48E4 RSF-49E4	These types feature a double-row outer ring without ribs and a double-row inner ring with three ribs. The outer and inner rings and rollers are inseparable since there is a retaining snap ring at the middle of the outer ring. They can be used as free-end bearings, and permissible axial movement is listed in the bearing tables. An oil groove and holes are located at the center of the outer ring.
	RS-50 RS-50NR	These types are shielded on both sides and feature a double-row outer ring with center rib and two inner rings with ribs. They can sustain an axial load in either direction. They are prelubricated, but it is possible to replenish the grease through an oil groove and hole. The RS-50NR type is designated if there are snap rings at the outside of the outer ring. Surfaces are treated with a rust preventive.

TOLERANCES AND RUNNING ACCURACY..... Table 7.2 (Pages A128 to A131)

RECOMMENDED FITS AND INTERNAL CLEARANCES

When used with outer ring rotation for sheaves or wheels, the fit and radial internal clearance should conform to Table 3.

Table 3 Fits and Internal Clearances for Cylindrical Roller Bearings for Sheaves

Operating Conditions		Fitting Between Inner Ring and Shaft	Fitting Between Outer Ring and Housing Bore	Recommended Internal Clearance
Outer Ring Rotation	Thin-walled housings and heavy loads	g6 or h6	P7	C3
	Normal to heavy loads	g6 or h6	N7	C3
	Light or fluctuating loads	g6 or h6	M7	CN

The fits listed in Tables 8.3 (Page A164) and 8.5 (Page A165) apply when used with inner ring rotation in general applications, and internal clearance should conform to Table 4.

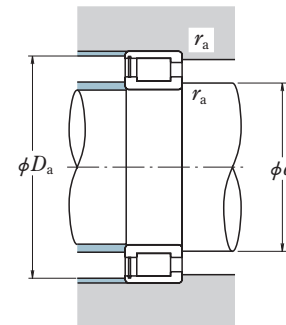
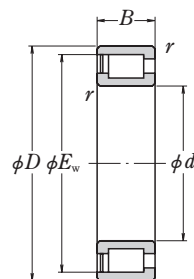
Table 4 Units : m

Nominal Bore Dia. d (mm)	Clearances			
	CN		C3	
over incl.	min.	max.	min.	max.
30 40	15	50	35	70
40 50	20	55	40	75
50 65	20	65	45	90
65 80	25	75	55	105
80 100	30	80	65	115
100 120	35	90	80	135
120 140	40	105	90	155
140 160	50	115	100	165
160 180	60	125	110	175
180 200	65	135	125	195
200 225	75	150	140	215
225 250	90	165	155	230
250 280	100	180	175	255
280 315	110	195	195	280
315 355	125	215	215	305
355 400	140	235	245	340
400 450	155	275	270	390
450 500	180	300	300	420

■ FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

NCF Type, Single-Row

Bore Diameter 100 – 260 mm



d	Boundary Dimensions (mm)				Basic Load Ratings (kN)		Bearing Designation
	D	B	r min.	E _W	C _r	C _{0r}	
100	140	24	1.1	130.5	132	209	NCF2920V
	150	37	1.5	139.7	209	310	NCF3020V
110	150	24	1.1	141	138	229	NCF2922V
	170	45	2	156.3	278	405	NCF3022V
120	165	27	1.1	154	177	305	NCF2924V
	180	46	2	167.58	293	440	NCF3024V
130	180	30	1.5	166.5	210	370	NCF2926V
	200	52	2	183.81	415	615	NCF3026V
140	190	30	1.5	179.4	227	395	NCF2928V
	210	53	2	197.82	435	680	NCF3028V
150	210	36	2	195	289	505	NCF2930V
	225	56	2.1	206.82	460	710	NCF3030V
160	220	36	2	207	310	535	NCF2932V
	240	60	2.1	224.8	520	810	NCF3032V
170	215	22	1.5	203.5	149	272	NCF1834V
	230	36	2	218	320	570	NCF2934V
	260	67	2.1	242.87	675	1 070	NCF3034V
180	225	22	1.5	215	154	290	NCF1836V
	250	42	2	231.5	390	695	NCF2936V
	280	74	2.1	260.3	785	1 260	NCF3036V
190	240	24	1.5	228.7	178	335	NCF1838V
	260	42	2	243.6	435	785	NCF2938V
	290	75	2.1	269.9	805	1 320	NCF3038V
200	250	24	1.5	237	182	350	NCF1840V
	280	48	2.1	261	530	955	NCF2940V
	310	82	2.1	287.8	910	1 510	NCF3040V
220	270	24	2	257.7	191	385	NCF1844V
	300	48	2.1	282	555	1 050	NCF2944V
	340	90	3	312.3	1 100	1 820	NCF3044V
240	300	28	2	283	236	470	NCF1848V
	320	48	2.1	303	580	1 140	NCF2948V
	360	92	3	335.25	1 160	1 990	NCF3048V
260	320	28	2	307	247	510	NCF1852V
	360	60	2.1	333.2	750	1 460	NCF2952V
	400	104	4	376.1	1 570	2 600	NCF3052V

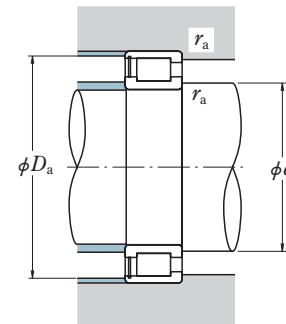
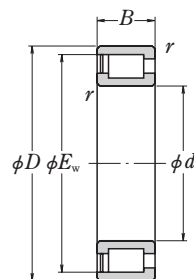
Abutment and Fillet Dimensions (mm)			Mass (kg) approx.
d _a	D _a	r _a max.	
109	131	1	1.0
111	140	1.5	2.1
119	142	1	1.1
122	157	2	3.3
130	155	1	1.7
132	168	2	3.6
141	168	1.5	2.2
142	187	2	5.6
151	180	1.5	2.3
152	198	2	5.9
163	196	2	3.7
165	209	2	7.1
173	208	2	3.8
175	225	2	8.6
182	204	1.5	1.8
183	219	2	4.1
185	244	2	11.9
192	216	1.5	1.8
193	236	2	6.0
195	263	2	15.8
202	229	1.5	2.4
203	245	2	6.5
206	273	2	16.7
213	238	1.5	2.5
216	263	2	8.9
216	293	2	21.4
234	258	2	2.7
236	283	2	9.6
238	320	2.5	28.2
254	285	2	4.2
257	304	2	10.4
259	340	2.5	31.2
275	308	2	4.5
277	342	2	18.1
282	377	3	45.3

Remark Full complement cylindrical roller bearings are designed for specific applications; when using them, please contact NSK.

■ FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

NCF Type, Single-Row

Bore Diameter 300 – 800 mm



<i>d</i>	Boundary Dimensions (mm)				Basic Load Ratings (kN)		Bearing Designation
	<i>D</i>	<i>B</i>	<i>r</i> min.	<i>E_w</i>	<i>C_r</i>	<i>C_{0r}</i>	
300	380	38	2.5	359	445	870	NCF1860V
	420	72	3	389.6	1 120	2 200	NCF2960V
	460	118	4	431.7	1 980	3 500	NCF3060V
320	400	38	2.1	380	460	925	NCF1864V
	440	72	3	410	1 150	2 340	NCF2964V
	480	121	4	449.6	2 170	3 900	NCF3064V
340	420	38	2.1	401	475	985	NCF1868V
	460	72	3	430.3	1 190	2 470	NCF2968V
	520	133	5	485.8	2 480	4 350	NCF3068V
360	440	38	2.5	422	490	1 040	NCF1872V
	480	72	3	450.7	1 220	2 610	NCF2972V
	540	134	5	503.6	2 550	4 600	NCF3072V
380	480	46	2.5	452.8	575	1 230	NCF1876V
	520	82	4	486.7	1 600	3 350	NCF2976V
	560	135	5	521.4	2 610	4 800	NCF3076V
400	500	46	2.5	475.7	590	1 300	NCF1880V
	540	82	4	511	1 650	3 550	NCF2980V
	600	148	5	558.7	3 050	5 750	NCF3080AV
420	520	46	2.1	491	600	1 340	NCF1884V
	560	82	4	523.2	1 680	3 650	NCF2984V
	620	150	5	577.7	3 000	5 650	NCF3084V
440	540	46	2.1	514	615	1 410	NCF1888V
	600	95	4	562	2 070	4 300	NCF2988V
	580	56	3	552.7	920	1 950	NCF1892V
460	620	95	4	576.5	2 100	4 450	NCF2992V
	600	56	3	573	940	2 040	NCF1896V
	650	100	5	615	2 380	5 100	NCF2996V
500	620	56	3	593.5	960	2 120	NCF18/500V
	670	100	5	630.2	2 420	5 250	NCF29/500V
	650	56	3	624	990	2 240	NCF18/530V
560	680	56	3	654.7	1 020	2 360	NCF18/560V
	820	195	6	770	5 600	11 300	NCF30/560V
	730	60	3	695.5	1 140	2 680	NCF18/600V
600	800	118	5	752	3 050	7 300	NCF29/600V
	780	69	4	742	1 470	3 400	NCF18/630V
	820	69	4	780	1 520	3 550	NCF18/670V
710	870	74	4	832.5	1 650	3 900	NCF18/710V
750	920	78	5	882.3	1 930	4 600	NCF18/750V
800	980	82	5	936	2 110	5 100	NCF18/800V

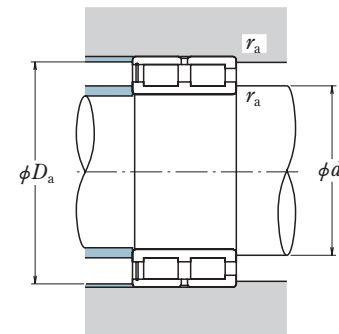
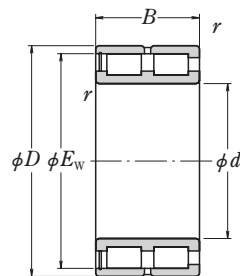
Abutment and Fillet Dimensions (mm)			Mass (kg)
<i>d_a</i>	<i>D_a</i>	<i>r_a</i> max.	approx.
319	360	2	9.7
320	398	2.5	30.7
323	435	3	67.6
338	381	2	10.3
340	418	2.5	33
343	454	3	73
359	402	2	10.7
361	438	2.5	34.1
368	490	4	97
380	423	2	11.5
381	457	2.5	36
388	509	4	102
400	458	2	18.6
404	493	3	52
408	529	4	108
421	478	2	19.5
425	513	3	53.4
429	568	4	139
440	498	2	20.5
445	533	3	55.7
449	588	4	147
461	518	2	21.3
466	572	3	78.2
483	555	2.5	32.5
486	591	3	81.2
503	575	2.5	33.8
510	617	4	95.1
524	594	2.5	35
531	637	4	98.4
554	625	2.5	36.9
585	655	2.5	39.3
598	778	5	332.5
626	702	2.5	48.9
633	764	4	164.9
659	748	3	68.8
700	787	3	72.7
741	836	3	87.6
786	883	4	103.3
832	950	4	123.1

Remark Full complement cylindrical roller bearings are designed for specific applications; when using them, please contact NSK.

■ FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

NNCF Type, Double-Row

Bore Diameter 100 – 260 mm



<i>d</i>	Boundary Dimensions (mm)				Basic Load Ratings (kN)		Bearing Designation
	<i>D</i>	<i>B</i>	<i>r</i> min.	<i>E_w</i>	<i>C_r</i>	<i>C_{0r}</i>	
100	140	40	1.1	129.8	194	400	NNCF4920V
	150	67	1.5	139.7	360	615	NNCF5020V
110	150	40	1.1	138.4	202	430	NNCF4922V
	170	80	2	156.3	490	840	NNCF5022V
120	165	45	1.1	153.8	226	480	NNCF4924V
	180	80	2	167.58	500	885	NNCF5024V
130	180	50	1.5	165.7	262	555	NNCF4926V
	200	95	2	183.81	710	1 230	NNCF5026V
140	190	50	1.5	176.2	272	595	NNCF4928V
	210	95	2	197.82	750	1 360	NNCF5028V
150	210	60	2	191.6	390	865	NNCF4930V
	225	100	2.1	206.82	785	1 420	NNCF5030V
160	220	60	2	204.1	410	930	NNCF4932V
	240	109	2.1	224.8	895	1 620	NNCF5032V
170	230	60	2	212.4	415	975	NNCF4934V
	260	122	2.1	242.87	1 160	2 140	NNCF5034V
180	250	69	2	230.5	550	1 230	NNCF4936V
	280	136	2.1	260.3	1 340	2 510	NNCF5036V
190	260	69	2	240.7	565	1 290	NNCF4938V
	290	136	2.1	269.9	1 380	2 630	NNCF5038V
200	250	50	1.5	235.9	320	825	NNCF4840V
	280	80	2.1	259.5	665	1 500	NNCF4940V
	310	150	2.1	287.75	1 560	3 000	NNCF5040V
220	270	50	1.5	256.9	340	905	NNCF4844V
	300	80	2.1	277	695	1 620	NNCF4944V
	340	160	3	312.3	1 890	3 650	NNCF5044V
240	300	60	2	282.6	495	1 340	NNCF4848V
	320	80	2.1	300	725	1 770	NNCF4948V
	360	160	3	335.25	1 990	4 000	NNCF5048V
260	320	60	2	303.6	515	1 450	NNCF4852V
	360	100	2.1	331.5	1 050	2 530	NNCF4952V
	400	190	4	376.1	2 690	5 200	NNCF5052V

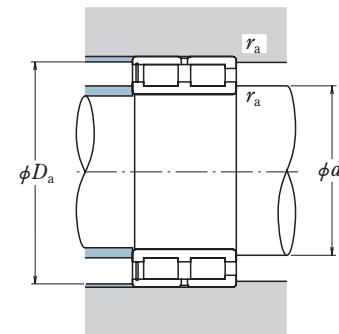
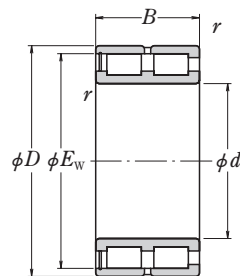
Abutment and Fillet Dimensions (mm)			Mass (kg) approx.
<i>d_a</i>	<i>D_a</i>	<i>r_a</i> max.	
109	130	1	2.0
111	140	1.5	3.8
119	140	1	2.1
122	157	2	6.1
130	155	1	2.9
132	168	2	6.5
141	168	1.5	3.9
142	187	2	10.3
151	178	1.5	4.2
152	198	2	10.8
163	196	2	6.6
165	209	2	13
173	206	2	7.0
175	225	2	15.8
183	216	2	7.3
185	244	2	22.1
193	236	2	10.7
195	263	2	29.4
203	245	2	11.1
206	273	2	30.8
213	237	1.5	5.9
216	263	2	15.7
216	293	2	39.7
233	257	1.5	6.4
236	283	2	17
238	320	2.5	50.7
254	285	2	10.3
257	302	2	18.4
259	340	2.5	54.3
275	304	2	11
277	342	2	32
282	377	3	82.7

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■ FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

NNCF Type, Double-Row

Bore Diameter 280 – 500 mm



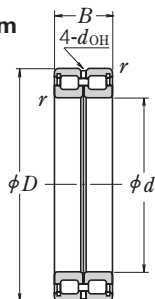
d	Boundary Dimensions (mm)				Basic Load Ratings (kN)		Bearing Designation
	D	B	r min.	E _W	C _r	C _{0r}	
280	350	69	2	332.5	685	1 860	NNCF4856V
	380	100	2.1	352.5	1 090	2 720	NNCF4956V
	420	190	4	390.5	2 770	5 450	NNCF5056V
300	380	80	2.1	357.2	805	2 160	NNCF4860V
	420	118	3	386.5	1 580	3 800	NNCF4960V
	460	218	4	431.7	3 400	7 000	NNCF5060V
320	400	80	2.1	380.2	835	2 310	NNCF4864V
	440	118	3	404.5	1 620	4 000	NNCF4964V
	480	218	4	446.9	3 500	7 350	NNCF5064V
340	420	80	2.1	397.4	855	2 430	NNCF4868V
	460	118	3	431	1 690	4 300	NNCF4968V
	520	243	5	485.8	4 250	8 750	NNCF5068V
360	440	80	2.1	420.4	885	2 580	NNCF4872V
	480	118	3	449	1 730	4 500	NNCF4972V
	540	243	5	503.6	4 350	9 150	NNCF5072V
380	480	100	2.1	450.6	1 260	3 600	NNCF4876V
	520	140	4	482.5	2 180	5 650	NNCF4976V
	560	243	5	521.4	4 500	9 600	NNCF5076V
400	500	100	2.1	471.7	1 290	3 750	NNCF4880V
	540	140	4	503	2 240	5 900	NNCF4980V
	600	272	5	558.7	5 050	10 900	NNCF5080V
420	520	100	2.1	492	1 320	3 950	NNCF4884V
	560	140	4	523	2 290	6 200	NNCF4984V
	620	272	5	577.7	5 150	11 300	NNCF5084V
440	540	100	2.1	513	1 350	4 150	NNCF4888V
	600	160	4	560.5	3 000	7 850	NNCF4988V
460	580	118	3	549.2	1 730	5 150	NNCF4892V
	620	160	4	573	3 050	8 050	NNCF4992V
480	600	118	3	565.8	1 760	5 300	NNCF4896V
	650	170	5	603	3 350	8 900	NNCF4996V
500	620	118	3	590.7	1 810	5 600	NNCF48/500V
	670	170	5	629	3 400	9 350	NNCF49/500V

Abutment and Fillet Dimensions (mm)			Mass (kg) approx.
d _a	D _a	r _a max.	
295	334	2	16
297	361	2	34
302	395	3	87.7
318	361	2	23
320	398	2.5	52
323	435	3	125
338	381	2	24.3
340	418	2.5	55
343	454	3	131
359	400	2	25.6
361	438	2.5	58
368	490	4	177
379	421	2	27
381	457	2.5	61
388	509	4	186
399	459	2	45.5
404	493	3	90.5
408	529	4	194
420	479	2	47.5
425	513	3	94.5
429	568	4	256
440	498	2	49.5
445	533	3	98.5
449	588	4	267
461	518	2	51.5
466	572	3	136
483	555	2.5	77.5
486	591	3	142
503	575	2.5	80.5
510	617	4	167
524	594	2.5	83.5
531	637	4	173

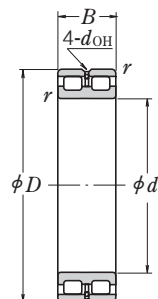
Remark Full complement cylindrical roller bearings are designed for specific applications; when using them, please contact NSK.

■ FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS FOR SHEAVES

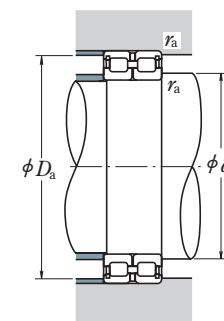
RS-48 · RS-49 Types
RSF-48 · RSF-49 Types
Bore Diameter 50 – 220 mm



Fixed-End Bearing
RS



Free-End Bearing
RSF



Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min ⁻¹)	
<i>d</i>	<i>D</i>	<i>B</i>	<i>r</i> min.	<i>C_r</i>	<i>C_{0r}</i>	Grease	Oil
50	72	22	0.6	48 000	75 500	2 000	4 000
60	85	25	1	68 500	118 000	1 600	3 200
65	90	25	1	70 500	125 000	1 600	3 200
70	100	30	1	102 000	168 000	1 400	2 800
80	110	30	1	109 000	191 000	1 300	2 600
90	125	35	1.1	147 000	268 000	1 100	2 200
100	125	25	1	87 500	189 000	1 100	2 200
	140	40	1.1	194 000	400 000	1 000	2 000
105	130	25	1	89 000	196 000	1 000	2 000
	145	40	1.1	199 000	420 000	950	1 900
110	140	30	1	114 000	260 000	950	1 900
	150	40	1.1	202 000	430 000	900	1 800
120	150	30	1	119 000	283 000	900	1 800
	165	45	1.1	226 000	480 000	800	1 600
130	165	35	1.1	162 000	390 000	800	1 600
	180	50	1.5	262 000	555 000	750	1 500
140	175	35	1.1	167 000	415 000	750	1 500
	190	50	1.5	272 000	595 000	710	1 400
150	190	40	1.1	235 000	575 000	670	1 400
	210	60	2	390 000	865 000	670	1 300
160	200	40	1.1	243 000	615 000	630	1 300
	220	60	2	410 000	930 000	600	1 200
170	215	45	1.1	265 000	650 000	600	1 200
	230	60	2	415 000	975 000	600	1 200
180	225	45	1.1	272 000	685 000	560	1 100
	250	69	2	495 000	1 130 000	530	1 100
190	240	50	1.5	315 000	785 000	530	1 100
	260	69	2	510 000	1 180 000	500	1 000
200	250	50	1.5	320 000	825 000	500	1 000
	280	80	2.1	665 000	1 500 000	480	950
220	270	50	1.5	340 000	905 000	450	900
	300	80	2.1	695 000	1 620 000	430	850

Remark Cylindrical roller bearings for sheaves are designed for specific applications; when using them, please contact NSK.

Bearing Designations ⁽¹⁾		Dimensions (mm)		Abutment and Fillet Dimensions (mm)			Mass (kg)
Fixed-End Bearing	Free-End Bearing	<i>d</i> _{OH} ⁽²⁾	Axial Disp. ⁽³⁾	<i>d</i> _a min.	<i>D</i> _a max.	<i>r</i> _a max.	approx.
RS-4910E4	RSF-4910E4	2.5	1.5	54	68	0.6	0.30
RS-4912E4	RSF-4912E4	2.5	1.5	65	80	1	0.46
RS-4913E4	RSF-4913E4	2.5	2	70	85	1	0.50
RS-4914E4	RSF-4914E4	3	2	75	95	1	0.79
RS-4916E4	RSF-4916E4	3	2	85	105	1	0.89
RS-4918E4	RSF-4918E4	3	2	96.5	118.5	1	1.35
RS-4820E4	RSF-4820E4	2.5	1.5	105	120	1	0.74
RS-4920E4	RSF-4920E4	3	2	106.5	133.5	1	1.97
RS-4821E4	RSF-4821E4	2.5	1.5	110	125	1	0.77
RS-4921E4	RSF-4921E4	3	2	111.5	138.5	1	2.05
RS-4822E4	RSF-4822E4	3	2	115	135	1	1.09
RS-4922E4	RSF-4922E4	3	2	116.5	143.5	1	2.15
RS-4824E4	RSF-4824E4	3	2	125	145	1	1.28
RS-4924E4	RSF-4924E4	4	3	126.5	158.5	1	2.95
RS-4826E4	RSF-4826E4	3	2	136.5	158.5	1	1.9
RS-4926E4	RSF-4926E4	5	3.5	138	172	1.5	3.95
RS-4828E4	RSF-4828E4	3	2	146.5	168.5	1	2.03
RS-4928E4	RSF-4928E4	5	3.5	148	182	1.5	4.25
RS-4830E4	RSF-4830E4	3	2	156.5	183.5	1	2.85
RS-4930E4	RSF-4930E4	5	3.5	159	201	2	6.65
RS-4832E4	RSF-4832E4	3	2	166.5	193.5	1	3.05
RS-4932E4	RSF-4932E4	5	3.5	169	211	2	7.0
RS-4834E4	RSF-4834E4	4	3	176.5	208.5	1	4.1
RS-4934E4	RSF-4934E4	4	3.5	179	221	2	7.35
RS-4836E4	RSF-4836E4	4	3	186.5	218.5	1	4.3
RS-4936E4	RSF-4936E4	6	4.5	189	241	2	10.7
RS-4838E4	RSF-4838E4	5	3.5	198	232	1.5	5.65
RS-4938E4	RSF-4938E4	6	4.5	199	251	2	11.1
RS-4840E4	RSF-4840E4	5	3.5	208	242	1.5	5.95
RS-4940E4	RSF-4940E4	7	5	211	269	2	15.7
RS-4844E4	RSF-4844E4	5	3.5	228	262	1.5	6.45
RS-4944E4	RSF-4944E4	7	5	231	289	2	17

Notes ⁽¹⁾ Suffix E4 indicates that the outer ring contains oil holes and an oil groove.

⁽²⁾ *d*_{OH} represents the oil hole diameter in the outer ring.

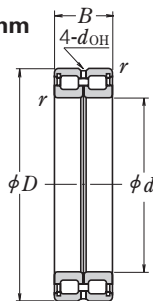
⁽³⁾ Axial Disp. refers to permissible axial displacement for free-end bearings.

■ FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS FOR SHEAVES

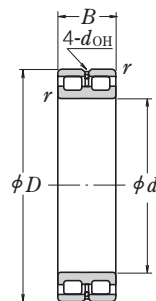
RS-48 · RS-49 Types

RSF-48 · RSF-49 Types

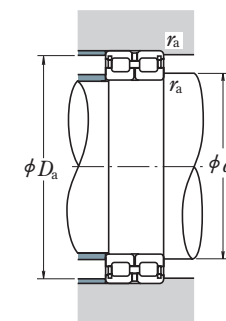
Bore Diameter 240 – 560 mm



Fixed-End Bearing
RS



Free-End Bearing
RSF



d	Boundary Dimensions (mm)			Basic Load Ratings (N)		Limiting Speeds (min ⁻¹)	
	D	B	r min.	C _r	C _{0r}	Grease	Oil
240	300	60	2	495 000	1 340 000	430	850
	320	80	2.1	725 000	1 770 000	400	800
260	320	60	2	515 000	1 450 000	380	750
	360	100	2.1	1 050 000	2 530 000	360	710
280	350	69	2	610 000	1 690 000	340	710
	380	100	2.1	1 090 000	2 720 000	340	670
300	380	80	2.1	805 000	2 160 000	320	630
	420	118	3	1 460 000	3 400 000	300	600
320	400	80	2.1	835 000	2 310 000	300	600
	440	118	3	1 500 000	3 600 000	280	560
340	420	80	2.1	855 000	2 430 000	280	560
	460	118	3	1 560 000	3 900 000	260	530
360	440	80	2.1	885 000	2 580 000	260	530
	480	118	3	1 600 000	4 050 000	260	500
380	480	100	2.1	1 260 000	3 600 000	240	500
	520	140	4	2 040 000	5 200 000	240	450
400	500	100	2.1	1 290 000	3 750 000	240	480
	540	140	4	2 100 000	5 450 000	220	450
420	520	100	2.1	1 320 000	3 950 000	220	450
	560	140	4	2 150 000	5 700 000	200	430
440	540	100	2.1	1 350 000	4 150 000	200	430
	600	160	4	2 840 000	7 350 000	190	380
460	580	118	3	1 730 000	5 150 000	190	380
	620	160	4	2 870 000	7 500 000	190	380
480	600	118	3	1 760 000	5 300 000	190	380
	650	170	5	3 200 000	8 500 000	180	360
500	620	118	3	1 810 000	5 600 000	180	360
	670	170	5	3 300 000	8 900 000	170	340
530	710	180	5	3 400 000	9 200 000	160	320
	750	190	5	3 800 000	10 100 000	150	300

Remark Cylindrical roller bearings for sheaves are designed for specific applications; when using them, please contact NSK.

Bearing Designations ⁽¹⁾		Dimensions (mm)		Abutment and Fillet Dimensions (mm)			Mass (kg) approx.
Fixed-End Bearing	Free-End Bearing	d _{OH} ⁽²⁾	Axial Disp. ⁽³⁾	d _a min.	D _a max.	r _a max.	
RS-4848E4	RSF-4848E4	5	3.5	249	291	2	10.3
RS-4948E4	RSF-4948E4	7	5	251	309	2	18.4
RS-4852E4	RSF-4852E4	5	3.5	269	311	2	11
RS-4952E4	RSF-4952E4	8	6	271	349	2	32
RS-4856E4	RSF-4856E4	6	4.5	289	341	2	16
RS-4956E4	RSF-4956E4	8	6	291	369	2	34
RS-4860E4	RSF-4860E4	6	5	311	369	2	23
RS-4960E4	RSF-4960E4	9	7	313	407	2.5	52
RS-4864E4	RSF-4864E4	6	5	331	389	2	24.3
RS-4964E4	RSF-4964E4	9	7	333	427	2.5	55
RS-4868E4	RSF-4868E4	6	5	351	409	2	25.6
RS-4968E4	RSF-4968E4	9	7	353	447	2.5	58
RS-4872E4	RSF-4872E4	6	5	371	429	2	27
RS-4972E4	RSF-4972E4	9	7	373	467	2.5	61
RS-4876E4	RSF-4876E4	8	6	391	469	2	45.5
RS-4976E4	RSF-4976E4	11	8	396	504	3	90.5
RS-4880E4	RSF-4880E4	8	6	411	489	2	47.5
RS-4980E4	RSF-4980E4	11	8	416	524	3	94.5
RS-4884E4	RSF-4884E4	8	6	431	509	2	49.5
RS-4984E4	RSF-4984E4	11	8	436	544	3	98.5
RS-4888E4	RSF-4888E4	8	6	451	529	2	51.5
RS-4988E4	RSF-4988E4	11	8	456	584	3	136
RS-4892E4	RSF-4892E4	9	7	473	567	2.5	77.5
RS-4992E4	RSF-4992E4	11	8	476	604	3	142
RS-4896E4	RSF-4896E4	9	7	493	587	2.5	80.5
RS-4996E4	RSF-4996E4	12	9	500	630	4	167
RS-48/500E4	RSF-48/500E4	9	7	513	607	2.5	83.5
RS-49/500E4	RSF-49/500E4	12	9	520	650	4	173
RS-49/530E4	RSF-49/530E4	12	11	550	690	4	206
RS-49/560E4	RSF-49/560E4	12	11	580	730	4	231

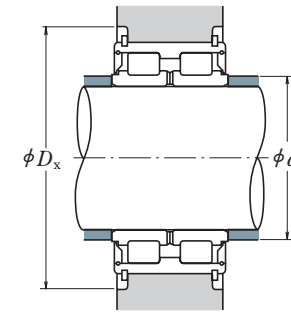
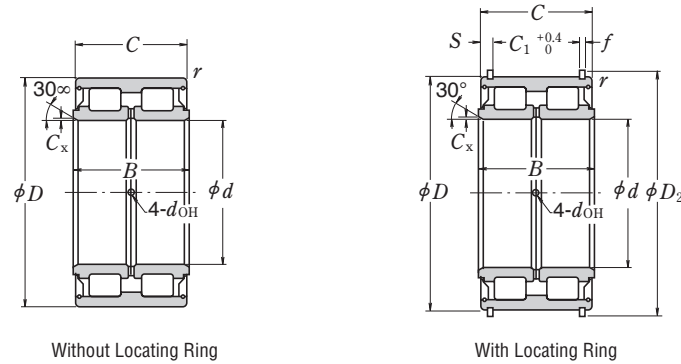
Notes ⁽¹⁾ Suffix E4 indicates that the outer ring contains oil holes and an oil groove.

⁽²⁾ d_{OH} represents the oil hole diameter in the outer ring.

⁽³⁾ Axial Disp. refers to permissible axial displacement for free-end bearings.

■ FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS FOR SHEAVES

RS-50 Type (Prelubricated)
Bore Diameter 40 – 400 mm



Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min ⁻¹) Grease
d	D	B	C	C _x ⁽¹⁾ min.	r min.	C _r	C _{0r}	
40	68	38	37	0.4	0.6	79 500	116 000	2 400
45	75	40	39	0.4	0.6	95 500	144 000	2 200
50	80	40	39	0.4	0.6	100 000	158 000	2 000
55	90	46	45	0.6	0.6	118 000	193 000	1 800
60	95	46	45	0.6	0.6	123 000	208 000	1 700
65	100	46	45	0.6	0.6	128 000	224 000	1 600
70	110	54	53	0.6	0.6	171 000	285 000	1 400
75	115	54	53	0.6	0.6	179 000	305 000	1 400
80	125	60	59	0.6	0.6	251 000	430 000	1 200
85	130	60	59	0.6	0.6	256 000	445 000	1 200
90	140	67	66	1	0.6	305 000	540 000	1 100
95	145	67	66	1	0.6	310 000	565 000	1 100
100	150	67	66	1	0.6	320 000	585 000	1 000
110	170	80	79	1.1	1	385 000	695 000	900
120	180	80	79	1.1	1	400 000	750 000	850
130	200	95	94	1.1	1	535 000	1 000 000	750
140	210	95	94	1.1	1	550 000	1 040 000	710
150	225	100	99	1.3	1	620 000	1 210 000	670
160	240	109	108	1.3	1.1	695 000	1 370 000	630
170	260	122	121	1.3	1.1	860 000	1 680 000	600
180	280	136	135	1.3	1.1	980 000	1 910 000	530
190	290	136	135	1.3	1.1	1 120 000	2 230 000	500
200	310	150	149	1.3	1.1	1 310 000	2 650 000	480
220	340	160	159	1.5	1.1	1 510 000	3 100 000	430
240	360	160	159	1.5	1.1	1 570 000	3 350 000	400
260	400	190	189	2	1.5	2 130 000	4 500 000	360
280	420	190	189	2	1.5	2 170 000	4 700 000	340
300	460	218	216	2	1.5	2 670 000	5 850 000	300
320	480	218	216	2	1.5	2 720 000	6 100 000	300
340	520	243	241	2.1	2	3 350 000	7 550 000	260
360	540	243	241	2.1	2	3 450 000	7 850 000	260
380	560	243	241	2.1	2	3 550 000	8 400 000	240
400	600	272	270	2.1	2	4 250 000	9 950 000	220

Note ⁽¹⁾ These values represent chamfer dimensions of the inner ring in the radial direction.

- Remarks 1. Quality grease is prepacked in the bearings.
2. Grease can be supplied through oil holes in the inner rings.

Bearing Designations		Locating Ring Dimensions (mm)				Oil Holes (mm) d _{OH}	Abutment and Fillet Dimensions (mm)		Mass (kg) approx.
Without Locating Ring	With Locating Ring	C ₁	S	D ₂	f		d _a min.	D _x min.	
RS-5008	RS-5008NR	28	4.5	71.8	2	2.5	43.5	77.5	0.56
RS-5009	RS-5009NR	30	4.5	78.8	2	2.5	48.5	84.5	0.70
RS-5010	RS-5010NR	30	4.5	83.8	2	2.5	53.5	89.5	0.76
RS-5011	RS-5011NR	34	5.5	94.8	2.5	3	60	101	1.17
RS-5012	RS-5012NR	34	5.5	99.8	2.5	3	65	106	1.25
RS-5013	RS-5013NR	34	5.5	104.8	2.5	3	70	111	1.32
RS-5014	RS-5014NR	42	5.5	114.5	2.5	3	75	121	1.87
RS-5015	RS-5015NR	42	5.5	119.5	2.5	3	80	126	2.0
RS-5016	RS-5016NR	48	5.5	129.5	2.5	3	85	136	2.65
RS-5017	RS-5017NR	48	5.5	134.5	2.5	3	90	141	2.75
RS-5018	RS-5018NR	54	6	145.4	2.5	4	96	153.5	3.75
RS-5019	RS-5019NR	54	6	150.4	2.5	4	101	158.5	3.95
RS-5020	RS-5020NR	54	6	155.4	2.5	4	106	163.5	4.05
RS-5022	RS-5022NR	65	7	175.4	2.5	5	116.5	183.5	6.1
RS-5024	RS-5024NR	65	7	188	3	5	126.5	197	7.0
RS-5026	RS-5026NR	77	8.5	207	3	5	136.5	217	10.6
RS-5028	RS-5028NR	77	8.5	217	3	5	146.5	227	11.3
RS-5030	RS-5030NR	81	9	232	3	6	157	242	13.7
RS-5032	RS-5032NR	89	9.5	247	3	6	167	257	16.8
RS-5034	RS-5034NR	99	11	270	4	6	177	285	22.2
RS-5036	RS-5036NR	110	12.5	294	5	6	187	318	30
RS-5038	RS-5038NR	110	12.5	304	5	6	197	328	32
RS-5040	RS-5040NR	120	14.5	324	5	6	207	352	41
RS-5044	RS-5044NR	130	14.5	356	6	7	228.5	382	53
RS-5048	RS-5048NR	130	14.5	376	6	7	248.5	402	57
RS-5052	RS-5052NR	154	17.5	416	7	8	270	444	86
RS-5056	RS-5056NR	154	17.5	436	7	8	290	472	92
RS-5060	RS-5060NR	178	19	476	7	8	310	512	130
RS-5064	—	—	—	—	—	8	330	—	135
RS-5068	—	—	—	—	—	10	352	—	185
RS-5072	—	—	—	—	—	10	372	—	192
RS-5076	—	—	—	—	—	10	392	—	196
RS-5080	—	—	—	—	—	10	412	—	280

- Remarks 3. Cylindrical roller bearings for sheaves are designed for specific applications; when using them, please contact NSK.
4. For shields with outside diameters larger than 180 mm, the above figure is different from the actual shape. For detailed drawings, please contact NSK.