

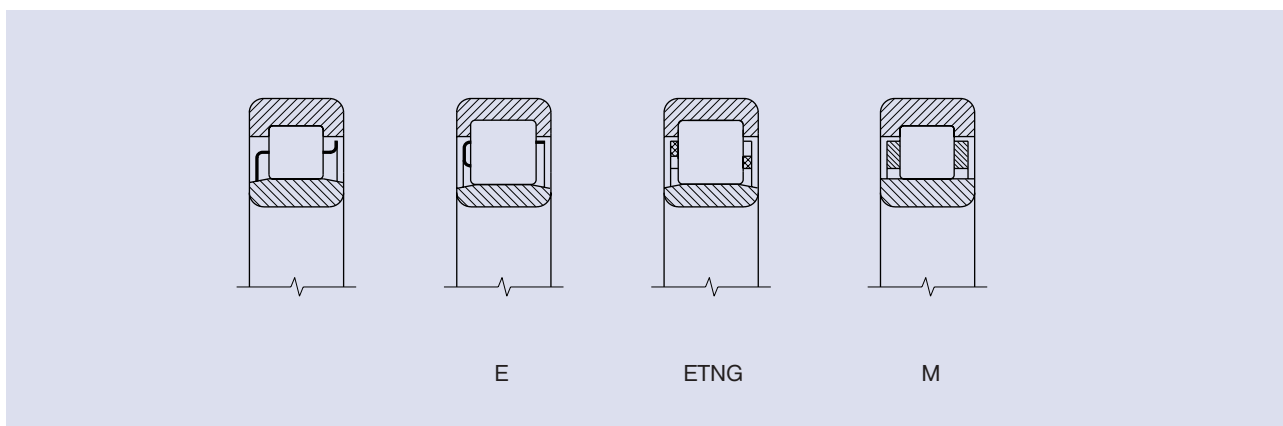
Cylindrical Roller and Needle Roller Bearings



Single Row Cylindrical Roller Bearings

These bearings are separable and are produced in several designs.

Design NU has cylindrical rollers guided between guiding ribs of the outer ring, the design N between guiding ribs of the inner ring. Both designs enable mutual bearing rings displacement in both directions.



Design NJ has two guiding ribs on the outer ring and one on the inner ring, which enables to accommodate the axial forces in one direction.

NUP design has a loose inner rib creating the second guiding rib of the inner ring and this enables the bearing to carry limited axial forces in both directions. Axial guiding in both directions can be achieved by means of angle rings HJ for bearings in NJ design and in one direction in NU design.

Single row cylindrical roller bearings have in comparison with single row ball bearings of the same size higher basic load rating and are suitable for arrangements with high radial load, high rotational speed and when tight fitting of both rings is desirable.

The bearings in the "E" design show the basic dynamic load rating on the average by 30 % higher than the bearings in the basic design.

Boundary Dimensions

Boundary dimensions comply with the standard ISO 15 and are shown in the dimension tables of this publication.

Designation

Bearing designation in standard design is in the dimension tables.

Difference from standard design is designated by additional symbols:

Symbol	Example of designation	Meaning
R	RNU205	Bearing without one (separable) ring
L	LNU206	Removable ring of separable bearing
C2	NU206 C2	Radial clearance smaller than normal
C3	NJ311 C3	Radial clearance greater than normal
C4	NU222 C4	Radial clearance greater than C3
C5	NH417 C5	Radial clearance greater than C4
R...	NU210 R70-90	Radial clearance in non-standardized range (range in μm)
E	NU2209E	Modification of internal design, higher load rating
M	NJ219M	Solid brass or bronze cage centered on cylindrical rollers
MA	NU324MA	Solid brass or bronze cage centered on outer ring
MAS	NJ2307EMAS	Solid brass or bronze cage centered on outer ring with lubrication grooves
MB	N313MB	Solid brass or bronze cage centered on inner ring
TNG	NU306ETNG	Solid polyamide cage centered on cylindrical roller
V	NFD2915V	Bearing without cage, full complement bearing
N	NU207N	Snap ring groove on outer ring
NR	NU206NR	Snap ring groove on outer ring and inserted snap ring
NA	NU224 C3NA	Cylindrical roller bearings with non-interchangeable rings always indicated after the symbol of a radial clearance group
P6	NU217 P6	Tolerance class higher than normal
S0	NU220 C3S0	Stabilization for operation at temperature up to 150 °C
S1	NU220 C3S1	Stabilization for operation at temperature up to 200 °C
S2	NU220 C3S2	Stabilization for operation at temperature up to 250 °C
S3	NU220 C3S3	Stabilization for operation at temperature up to 300 °C
S4	NU220 C3S4	Stabilization for operation at temperature up to 350 °C
S5	NU220 C3S5	Stabilization for operation at temperature up to 400 °C

Cages

Bearings in standard design are equipped with a cage according to dimension tables. Material symbol and symbol of the cage design are not indicated by bearings with pressed steel cage.

For special arrangements bearings with plastic or brass cages are produced.

Bearing Type	Bearings with Pressed Steel Cage Bearing Size	Bearings with Reinforced Solid Plastic Cage	Bearings with Machined Brass or Steel Cage
NU10	-	-	16 - 40
NU/NJ/NUP/N2	05 - 28	-	48
NU/NJ/NUP/N2E	09, 15	04 - 24	22 - 40
NU/NJ/NUP22	05 - 07, 10, 11, 13, 14, 19	-	06 - 36
NU/NJ/NUP22E	09, 15, 17	40 - 20	22 - 30
NU/NJ/NUP/N3	05 - 24	-	26 - 30
NU/NJ/NUP/N3E	-	04 - 17	18 - 30
NU/NJ/NUP23	07, 12, 13, 15	-	-
NU/NJ/NUP23E	09	04 - 17	07, 08, 10, 14 18 - 30
NU/NJ/NUP/N4	06 - 12, 14 - 16	-	13, 17 - 24

Tolerances

Bearings are commonly produced in normal tolerance class P0 which is not indicated. Bearings for more demanding arrangements are delivered in tolerance classes P6, P5 and P4.

Radial Clearance

Commonly produced bearings have normal radial clearance which is not indicated. For special arrangements bearings with smaller clearance C2 or greater radial clearance C3, C4 and C5 are delivered.

The symbols for a tolerance class and radial clearance are grouped together in the basic designation, e. g.:

P6 + C3 = P63

P6 + C4 = P64 etc.

Bearings with Angle Rings

Angle rings – type HJ2, HJ2E, HJ3, HJ3E and HJ4 can be used for bearings in NJ and NU designs.

Examples of bearing designation:

NJ2 + HJ2 = NH2

NJ3 + HJ3 = NH3

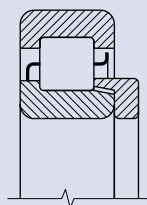
NJ4 + HJ4 = NH4

NU2 + HJ2 = NUJ2

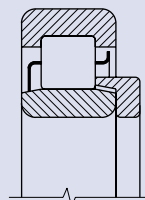
NU3 + HJ3 = NUJ3

NU4 + HJ4 = NUJ4

Pictures of individual basic designs and combinations are in the dimension tables of the publication.



NH

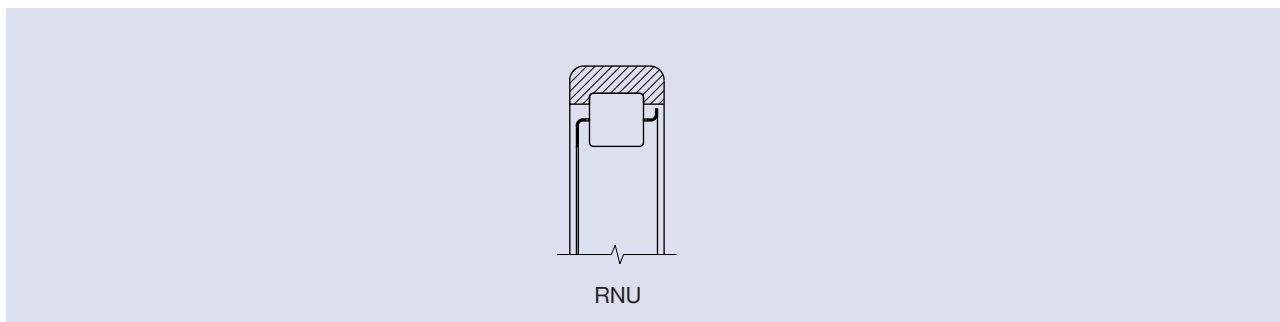


NUJ

Bearings without Inner Ring

For arrangements with limited space for bearing mounting, single row cylindrical roller bearings without inner ring designated RNU are delivered.

The inner bearing ring raceway is created directly by the hardened and ground journal.



Dimension tolerance on the journal is usually "g6" for normal radial clearance, "f6" for greater radial clearance and "h5" for smaller radial clearance. Ovality and cylindricity deviations of the "raceway" on this journal must not be greater than deviations for tolerance class IT3. Surface roughness for this surface should be $R_a = 0.2$ and for less demanding arrangements $R_a = 0.4$.

Basic load rating C_r and C_{or} values shown in the dimension tables, are valid for bearings RNU if the journal surface hardness will be in the range 59 to 65 HRC. With decreasing hardness value also load rating values C_r decrease. It must be multiplied by the factor f_h from following table. Minimum depth of journal hardening after grinding depends on the cylindrical roller diameter and load magnitude and should be 1 to 3 mm.

Hardness HRC	58	56	54	51	48	45	40	35	30
Factor f_h	0,9	0,8	0,7	0,6	0,5	0,4	0,3	0,25	0,2

Misalignment

Mutual bearing ring misalignment of single row cylindrical roller bearings is very small. Permissible misalignment values are in the table.

Bearing Type	Load	
	small ($F_r < 0,1C_{or}$)	great ($F_r \geq 0,1C_{or}$)
NU10, NU2, NU3, NU4	2' - 3'	5' - 7'
NU22, NU23	1' - 3'	3' - 4'
Designs NJ, NUP, N ¹⁾ of all dimension series	1' - 2'	3' - 4'

1) Smaller values of the number pair are valid for bearings of width series 2 and higher

Radial Equivalent Dynamic Load

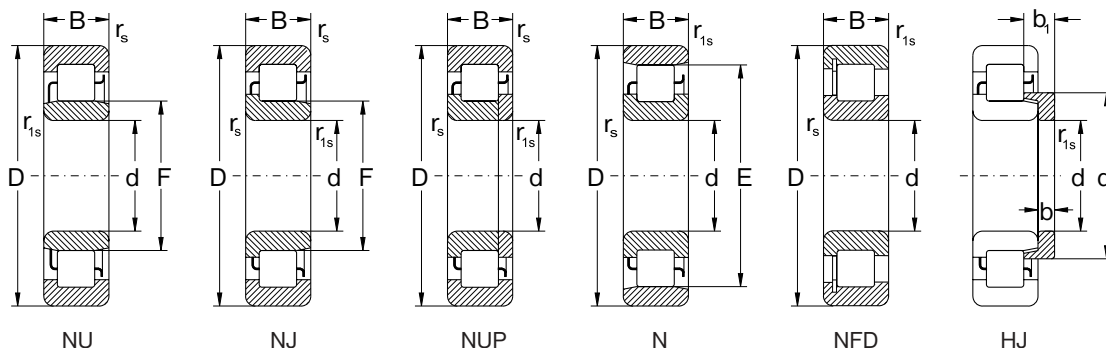
$$P_r = F_r \quad [\text{kN}]$$

Radial Equivalent Static Load

$$P_{or} = F_r \quad [\text{kN}]$$

Single Row Cylindrical Roller Bearings

d = 15 – 30 mm



d	Dimensions							Basic load rating				Limiting speed for lubrication with grease oil	Bearing designation				Angle Ring HJ	Mass				
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r		C _{0r}	NU	NJ	NUP		N/NFD	Bearing	Angle Ring		
mm													kN		min ⁻¹						kg	
15	35	11,00	1,00	0,2	19,2						17,40	15,30	20 000	24 000	NU202ETNG ²⁾				0,047			
20	47	14,00	1,00	0,6	27,0	40,0	30,0	3	6,75	1,4	15,40	12,60	14 000	17 000	NU204	NJ204	NUP204	N204	HJ204	0,110	0,01	
	47	14,00	1,10	0,6	27,0					1,4	15,40	12,60	14 000	17 000	NJ204MA				0,130			
	47	14,00	1,00	0,6	27,0					1,2	27,40	24,70	14 000	17 000	NU204ETNG	NJ204ETNG				0,170		
	47	18,00	1,10	1,1	27,0					2,0	20,60	18,40	14 000	17 000	NJ2204				0,150			
25	52	15,00	1,00	0,6	28,5					1,2	21,30	17,30	13 000	16 000	NU304	NJ304				0,150		
	52	15,00	1,00	0,6	32,0	45,0	35,0	3	7,25	1,5	17,60	15,60	12 600	15 000	NU205	NJ205	NUP205	N205	HJ205	0,130	0,02	
	52	15,00	1,10	0,6	32,0					1,5	17,60	15,60	12 600	15 000	NJ205MAS				0,160			
	52	15,00	1,00	0,6	31,5		34,9	3	6,00	1,4	29,30	27,70	12 600	15 000	NU205E	NJ205E	NUP205E		HJ205E	0,128	0,02	
	52	15,00	1,00	0,6	31,5	46,5	34,9	3	6,00	1,4	31,00	29,80	12 600	15 000	NU205ETNG	NJ205ETNG	NUP205ETNG	N205ETNG	HJ205E	0,128	0,02	
	52	18,00	1,00	0,6	31,5					2,2	34,80	34,60	12 000	14 000	NU2205E	NJ2205E				0,500		
	52	18,00	1,10	0,6	31,5					2,2	36,90	37,30	12 000	14 000	NUP2205ETNG				0,170			
	52	18,00	1,00	0,6	32,0					1,6	23,60	22,80	12 600	15 000	NU2205	NJ2205	NUP2205				0,160	
	62	24,00	1,10	1,1	35,0					2,2	42,60	40,90	11 000	13 500	NU2305	NJ2305				0,350		
	62	17,00	1,10	1,1	35,0	53,0	39,3	4	8,00	1,4	29,20	25,20	10 000	12 000	NU305	NJ305	NUP305	N305	HJ305	0,240	0,03	
	62	17,00	1,10	1,1	35,0					1,4	29,20	25,20	10 000	12 000	NU305M				0,280			
	62	17,00	1,10	1,1	34,0		38,3	4	7,00	1,4	41,50	37,40	10 000	12 000	NU305EMAS	NJ305EMAS	NUP305EMAS		HJ305E	0,255	0,03	
	62	17,00	1,10	1,1	34,0	54,0	38,3	4	7,00	1,4	44,30	40,80	10 000	12 000	NU305ETNG	NJ305ETNG	NUP305ETNG	N305ETNG	HJ305E	0,237	0,03	
	80	21,00	1,50	1,5	38,8					1,4	44,60	37,70	8 400	10 000	NU405	NJ405				0,565		
30	62	16,00	1,00	0,6	38,5	53,5	42,2	4	8,25	1,5	23,40	21,50	10 600	12 600	NU206	NJ206	NUP206	N206	HJ206	0,200	0,03	
	62	16,00	1,10	0,6	38,5					1,5	23,40	21,50	10 600	12 600	NU206MA				0,340			
	62	16,00	1,10	0,6	37,5					1,4	39,10	37,30	10 600	12 600	NU206E	NJ206E	NUP206E			0,220		
	62	16,00	1,00	0,6	37,5	55,5	41,4	4	7,00	1,4	41,30	40,20	10 600	12 600	NU206ETNG	NJ206ETNG	NUP206ETNG	N206ETNG	HJ206E	0,198	0,03	
	62	20,00	1,00	0,6	38,5					1,6	32,70	33,10	10 600	12 600	NU2206	NJ2206	NUP2206			0,260		
	62	20,00	1,10	0,6	38,5					1,6	32,70	33,10	10 600	12 600	NU2206MA				0,300			
	62	20,00	1,10	0,6	37,5					1,7	51,70	53,60	10 600	12 600	NU2206ETNG				0,270			
	72	27,00	1,10	1,1	42,0					3,2	51,40	50,80	9 500	11 500	NJ2306				0,530			
	72	27,00	1,10	1,1	40,5					2,0	72,50	74,90	9 500	11 500	NU2306EMA				0,610			
	72	19,00	1,10	1,1	42,0	62,0	46,6	5	9,50	1,4	38,60	35,10	8 900	10 600	NU306	NJ306	NUP306	N306	HJ306	0,360	0,04	
	72	19,00	1,10	1,1	42,0					1,4	38,60	35,10	8 900	10 600	NU306MA				0,400			
	72	19,00	1,10	1,1	40,5		45,1	5	8,50	1,4	50,90	47,50	8 400	10 000	NU306E	NJ306E	NUP306E		HJ306E	0,357	0,04	
	72	19,00	1,10	1,1	40,5					1,4	50,90	47,50	8 400	10 000	NJ306EM				0,420			
	72	19,00	1,10	1,1	40,5	62,5	45,1	5	8,50	1,4	54,00	51,40	8 400	10 000	NU306ETNG	NJ306ETNG	NUP306ETNG	N306ETNG	HJ306E	0,357	0,04	
	90	23,00	1,50	1,5	45,0		51,4	7	11,50	1,5	60,40	52,40	7 100	8 400	NU406	NJ406	NUP406		HJ406	0,750	0,08	
	90	23,00	1,70	1,7	45,0					1,5	60,40	52,40	7 100	8 400	NU406M				0,87			

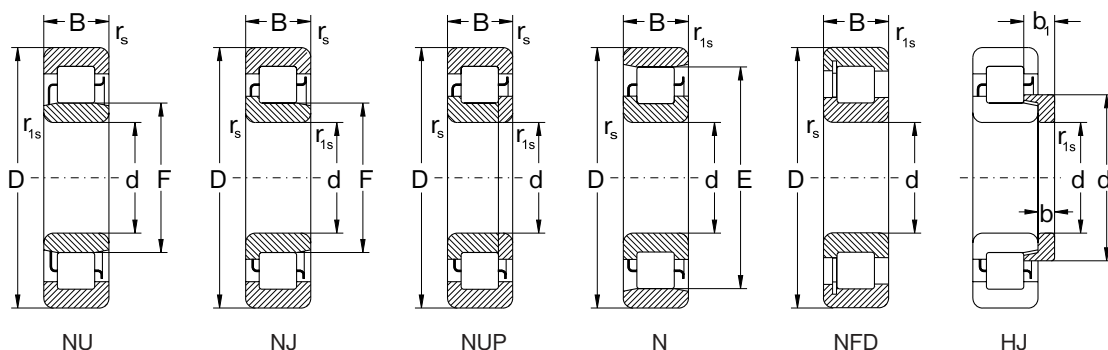
1) Permissible axial displacement out of central position

2) Identification symbol of the producer: S

Identification symbol of the producer: N

Single Row Cylindrical Roller Bearings

d = 35 – 40 mm



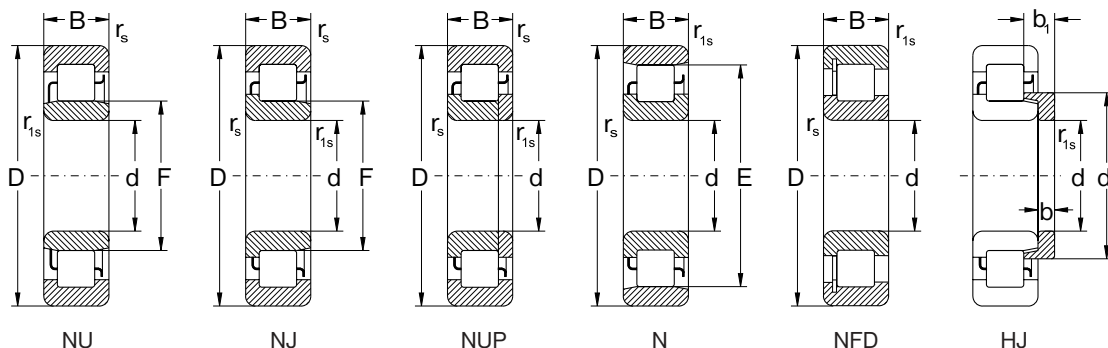
d	Dimensions										Basic load rating		Limiting speed		Bearing designation				Mass					
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r	C _{0r}	for lubrication with grease	oil	NU	NJ	NUP	N/NFD	Angle Ring HJ	Bearing	Angle Ring			
	mm										kN		min ⁻¹						kg					
35	62	20,00	1,10							2,0	48,00	55,50	2 800	5 000							0,250			
	72	17,00	1,10	0,6	43,8	61,8	48,1	4	8,00	1,5	33,50	31,50	9 400	11 000	NU207	NJ207	NUP207	N207	HJ207	0,290	0,04			
	72	17,00	1,10	0,6	43,8					1,5	33,50	31,50	9 400	11 000		NJ207MA					0,350			
	72	17,00	1,10	0,6	44,0		48,3	4	7,00	1,4	50,20	50,20	8 900	10 600	NU207E	NJ207E	NUP207E		HJ207E	0,292	0,04			
	72	17,00	1,10	0,6	44,0	64,0	48,3	4	7,00	1,4	52,90	53,70	8 900	10 600	NU207ETNG	NJ207ETNG	NUP207ETNG	N207ETNG	HJ207E	0,292	0,04			
	72	23,00	1,10	0,6	43,8					1,6	48,20	47,30	9 400	11 000	NU2207	NJ2207	NUP2207					0,400		
	72	23,00	1,10	0,6	44,0					1,6	48,90	51,20	8 900	10 600	NU2207ETNG	NJ2207ETNG	NUP2207ETNG					0,385		
	80	31,00	1,70	1,1	46,2					4,0	58,30	57,60	8 000	9 500	NU2307	NJ2307							0,720	
	80	21,00	1,50	1,1	46,2	68,2	51,2	6	11,00	1,4	44,20	40,40	7 900	9 400	NU307	NJ307	NUP307	N307	HJ307	0,480	0,06			
	80	21,00	1,70	1,1	46,2					1,4	47,20	44,10	7 900	9 400	NU307MA	NJ307MA							0,55	
	80	21,00	1,50	1,1	46,2		51,2	6	9,50	1,4	64,20	62,30	7 500	8 900	NU307E	NJ307E	NUP307E		HJ307E	0,466	0,06			
	80	31,00	1,50	1,1	46,2					2,7	90,90	95,70	7 100	8 400	NU2307EMAS	NJ2307EMAS	NUP2307EMAS					0,751		
	100	25,00	1,50	1,5	53,0	83,0	59,9	8	13,00	1,5	75,20	68,90	6 300	7 500	NU407	NJ407	NUP407	N407	HJ407	1,000	0,13			
100	25,00	1,70	1,7	53					1,5	75,20	68,90	6 300	7 500	NU407MAS	NJ407MAS							1,160		
40	80	18,00	1,10	1,1	50,0	70,0	54,6	5	9,00	1,5	43,70	42,90	7 900	9 400	NU208	NJ208	NUP208	N208	HJ208	0,370	0,05			
	80	18,00	1,10	1,1	50					1,5	43,70	42,90	7 900	9 400	NU208M	NJ208M							0,430	
	80	18,00	1,10	1,1	49,5		54,1	5	8,50	1,4	53,10	52,10	7 900	9 400	NU208E	NJ208E	NUP208E		HJ208E	0,380	0,05			
	80	23,00	1,10	1,1	49,5					2,0	71,00	75,00	7 500	8 900	NU2208E	NJ2208E							0,520	
	80	23,00	1,10	1,1	50,0					1,6	58,20	62,00	7 900	9 400	NU2208								0,738	
	80	23,00	1,10							1,0	81,00	90,00	2 200	4 100									0,540	
	80	30,16	1,00	1,5	49,3					3,0	57,00	98,10	7 500	8 900	NU5208M								0,738	
	90	23,00	1,50	1,5	53,5	77,5	59,0	7	12,50	1,4	56,10	53,80	7 100	8 400	NU308	NJ308	NUP308	N308	HJ308	0,660	0,09			
	90	23,00	1,50	1,5	52,0		57,7	7	11,00	1,4	80,30	78,00	6 700	7 900	NU308E	NJ308E	NUP308E		HJ308E	0,670	0,08			
	90	23,00	1,70	1,7	52,0					1,4	80,30	78,00	6 700	7 900	NU308EMA	NJ308EMA							0,77	
	90	23,00	1,50	1,5	52,0	80,0	57,7	7	11,00	1,4	84,10	77,90	6 700	7 900	NU308ETNG	NJ308ETNG	NUP308ETNG	N308ETNG	HJ308E	0,829	0,08			
	90	33,00	1,50	1,5	52,0					2,9	111,00	119,00	6 300	7 500	NU2308EMAS	NJ2308EMAS	NUP2308EMAS					1,000		
	110	27,00	2,00	2,0	58,0	92,0	65,8	8	13,00	1,5	93,80	86,70	5 600	6 700	NU408	NJ408	NUP408	N408	HJ408	1,300	0,14			

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Single Row Cylindrical Roller Bearings

d = 45 – 50 mm



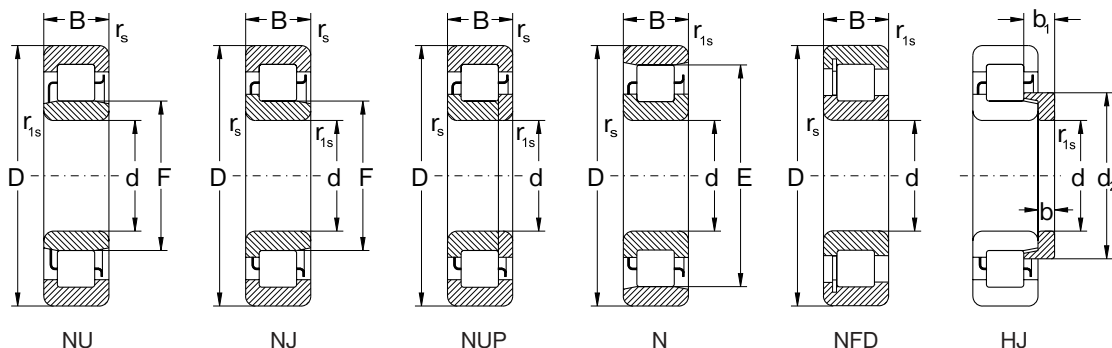
d	Dimensions										Basic load rating		Limiting speed		Bearing designation					Mass		
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r	C _{0r}	grease	oil	NU	NJ	NUP	N/NFD	Angle Ring HJ	Bearing	Angle Ring	
mm											kN		min ⁻¹							kg		
45	85	19,0	1,1	1,1	55,0	75,0	59,6	5	9,5	1,5	46,00	46,90	7 500	8 900	NU209	NJ209	NUP209	N209	HJ209	0,430	0,05	
	85	19,0	1,1	1,1	54,5		59,1	5	8,5	1,4	60,30	62,80	7 500	8 900	NU209E	NJ209E	NUP209E		HJ209E	0,450	0,05	
	85	19,0	1,1	1,1	54,5	76,5	59,1	5	8,5	1,4	63,30	67,00	7 500	8 900	NU209ETNG	NJ209ETNG	NUP209ETNG	N209ETNG	HJ209E	0,425	0,05	
	85	23,0	1,1	1,1	54,5					1,6	73,50	80,90	7 100	8 400	NU2209E	NJ2209E	NUP2209E			0,550		
	85	23,0	1,1	1,1	54,5					1,6	73,50	80,90	7 100	8 400	NU2209ETNG	NJ2209ETNG	NUP2209ETNG			0,520		
	85	23,0	1,7							1,0	80,00	96,00	2 100	3 700					NFD2209V		0,590	
	85	30,16	1,0	1,5	55,5					4,0	89,10	117,70	6 700	7 900	NU5209M						0,797	
	100	25,0	1,5	1,5	58,5	86,5	65,0	7	12,5	1,4	71,00	67,80	6 300	7 500	NU309	NJ309	NUP309	N309	HJ309	0,870	0,10	
	100	25,0	1,7	1,7	58,5					1,4	75,90	73,90	6 300	7 500	NU309M	NJ309M					1,050	
	100	25,0	1,5	1,5	58,5		64,6	7	11,5	1,4	97,30	98,10	6 000	7 100	NU309E	NJ309E	NUP309E		HJ309E	0,890	0,10	
	100	36,0	1,5	1,5	58,5					2,9	137,00	152,00	5 600	6 700	NU2309E	NJ2309E	NUP2309E			1,360		
	120	29,0	2,0	2,0	64,5	100,5	72,8	8	13,5	1,5	105,00	99,00	5 300	6 300	NU409	NJ409	NUP409	N409	HJ409	1,650	0,18	
120	29,0	2,1	2,1	64,5					1,5	113,00	109,00	5 300	6 300	NU409M	NJ409M					1,860		
50	90	20,0	1,1	1,1	60,4	80,4	65,0	5	10,0	1,5	48,20	50,90	7 100	8 400	NU210	NJ210	NUP210	N210	HJ210	0,480	0,06	
	90	20,0	1,1	1,1	59,5		64,6	5	9,0	1,6	63,10	68,00	6 700	7 900	NU210E	NJ210E	NUP210E		HJ210E	0,490	0,06	
	90	20,0	1,1	1,1	59,5	81,5				1,6	66,00	72,20	6 700	7 900	NU210ETNG	NJ210ETNG				0,500		
	90	23,0	1,1	1,1	60,4					1,6	64,10	73,60	7 100	8 400	NU2210	NJ2210	NUP2210			0,580		
	90	23,0	1,1	1,1	59,5					1,6	84,10	90,90	6 700	7 900	NU2210E	NJ2210E	NUP2210E			0,590		
	90	23,0	1,7							1,0	91,00	109,00	2 000	3 400					NFD2210V		0,620	
	90	23,0	1,1	1,1	59,5	81,5				1,7	80,00	93,00	6 300	7 500	NU2210ETNG	NJ2210ETNG					0,610	
	90	30,16	1,0	1,5	60,4					4,5	92,60	128,00	6 300	7 500	NU5210M						0,877	
	110	27,0	2,0	2,0	65,0	95,0	71,9	8	14,0	1,5	86,90	86,20	5 600	6 700	NU310	NJ310	NUP310	N310	HJ310	1,150	0,15	
	110	27,0	2,1	2,1	65					1,5	86,90	86,20	5 600	6 700	NU310M	NJ310M					1,290	
	110	27,0	2,0	2,0	65,0	97,0	71,4	8	13,0	1,5	116,00	121,00	5 300	6 300	NU310ETNG	NJ310ETNG	NUP310ETNG	N310ETNG	HJ310E	1,130	0,14	
	110	40,0	2,0	2,0	65,0					3,0	120,00	131,00	5 600	6 700	NU2310	NJ2310	NUP2310			0,170		
	110	40,0	2,0	2,0	65,0					3,0	163,00	187,00	5 000	6 000	NU2310EMAS	NJ2310EMAS	NUP2310EMAS			1,830		
	130	31,0	2,1	2,1	70,8	110,8	80,0	9	14,5	2,0	129,00	123,00	4 700	5 600	NU410	NJ410	NUP410	N410	HJ410	2,000	0,23	
	130	31,0	2,1	2,1	70,8					2,0	138,00	135,00	4 700	5 600	NU410M	NJ410M					2,310	

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Single Row Cylindrical Roller Bearings

d = 55 – 60 mm



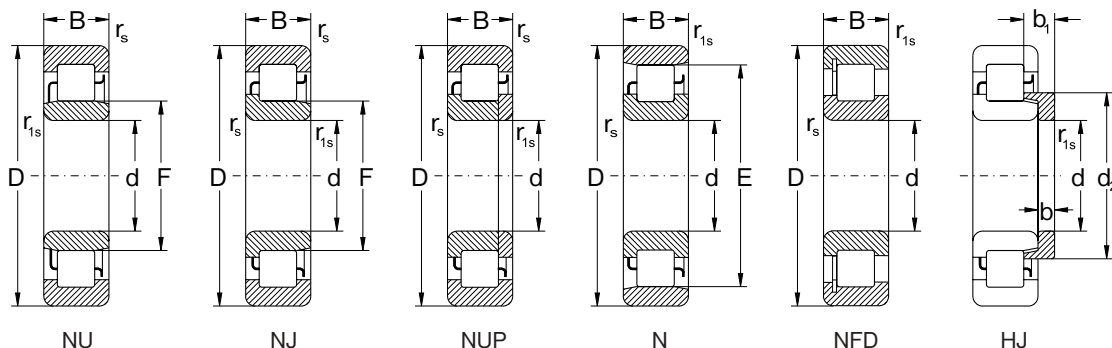
d	Dimensions										Basic load rating		Limiting speed		Bearing designation				Mass			
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r	C _{or}	for lubrication with grease	oil	NU	NJ	NUP	N/NFD	Angle Ring HJ	Bearing	Angle Ring	
mm											kN		min ⁻¹						kg			
55	100	21,00	1,5	1,1	66,5	88,5	71,5	6	11,0	1,6	57,20	63,70	6 300	7 500	NU211	NJ211	NUP211	N211	HJ211	0,640	0,08	
	100	21,00	1,7	1,1	66,5					1,6	57,20	63,70	6 300	7 500	NU211MAS	NJ211MAS					0,740	
	100	21,00	1,5	1,1	66,0		71,0	6	9,5	1,6	83,10	94,10	6 300	7 500	NU211E	NJ211E	NUP211E		HJ211E	0,660	0,08	
	100	25,00	1,5	1,1	66,5					1,6	76,40	82,50	6 300	7 500	NU2211	NJ2211	NUP2211			0,780		
	100	25,00	1,5	1,5	66,0					1,7	98,00	116,00	5 600	6 700	NU2211E	NJ2211E					0,810	
	100	33,34	1,5	2,1	66,9					4,5	119,00	171,00	5 600	6 700	NU5211M						1,200	
	120	29,00	2,0	2,0	70,5	104,5	78,4	9	15,0	1,5	108,00	108,40	5 300	6 300	NU311	NJ311	NUP311	N311	HJ311	1,450	0,19	
	120	29,00	2,1	2,1	70,5					1,5	108,00	108,00	5 300	6 300	NU311M	NJ311M					1,66	
	120	29,00	2,0	2,0	70,5		77,7	9	14,0	1,5	136,00	128,00	4 700	5 600	NU311E	NJ311E	NUP311E		HJ311E	1,380	0,18	
	120	29,00	2,0	2,0	70,5	106,5				1,5	135,00	139,00	4 700	5 600	NU311ETNG	NJ311ETNG					1,900	
	140	33,00	2,1	2,1	77,2	117,2	86,4	10	16,6	3,0	139,00	138,00	4 500	5 300	NU411	NJ411	NUP411	N411	HJ411	2,500	0,30	
	140	33,00	2,1	2,1	77,2					3,0	139,00	138,00	4 500	5 300		NJ411M					2,810	
	60	95	26,00	1,1						2,0	91,00	109,00	2 000	3 400					NFD3012V		0,660	
		110	22,00	1,5	1,5	73,5	97,5	79,0	6	11,0	1,6	68,80	75,50	5 600	6 700	NU212	NJ212	NUP212	N212	HJ212	0,820	0,11
110		22,00	1,5	1,5	72,0					1,2	98,00	108,00	5 600	6 700		NJ212ETNG	NUP212ETNG				0,880	
110		22,00	1,5	1,5	72,0					1,2	94,00	102,00	5 600	6 700	NU212EM	NJ212EM					0,950	
110		28,00	1,5	1,5	72,0					1,2	133,00	161,00	5 300	6 300		NJ212ETNG	NUP212ETNG				1,170	
110		28,00	1,5	1,5	73,5					1,6	98,10	119,00	5 600	6 700	NU2212	NJ2212	NUP2212				1,050	
110		28,00	1,7	1,7	73,5					1,6	98,10	119,00	5 600	6 700	NU2212M						1,200	
110		36,50	1,5	2,0	72,3					4,5	150,00	211,00	5 300	6 300	NU5212M						1,590	
130		31,00	2,1	2,1	77,0	113,0	85,3	9	15,5	1,5	121,00	123,00	4 700	5 600	NU312	NJ312	NUP312	N312	HJ312	1,850	0,22	
130		31,00	2,1	2,1	77					1,5	121,00	123,00	4 700	5 600	NU312M	NJ312M					2,080	
130		31,00	2,1	2,1	77					1,5	149,00	156,00	4 500	5 300	NU312EM						2,100	
130		46,00	2,1	2,1	77,0					4,5	166,00	184,00	4 700	5 600	NU2312	NJ2312	NUP2312				2,700	
150		35,00	2,1	2,1	83,0	127,0	93,1	10	16,5	2,0	167,00	168,00	4 200	5 000	NU412	NJ412	NUP412	N412	HJ412	3,000	0,34	
150		35,00	2,1	2,1	83					2,0	178,00	183,00	4 200	5 000	NU412MA	NJ412MA					3,500	

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Single Row Cylindrical Roller Bearings

d = 65 – 70 mm



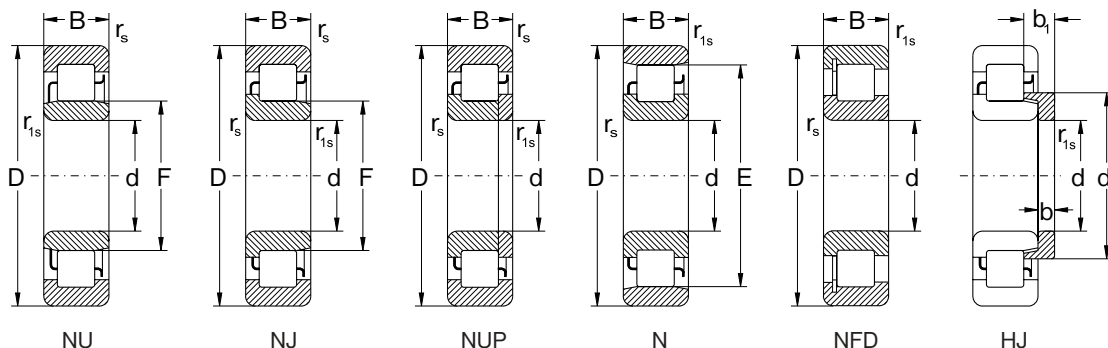
d	Dimensions										Basic load rating		Limiting speed		Bearing designation				Mass			
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r	C _{or}	for lubrication with grease	oil	NU	NJ	NUP	N/NFD	Angle Ring HJ	Bearing	Angle Ring	
mm											kN		min ⁻¹						kg			
65	120	23,0	1,5	1,5	79,6	105,6	85,6	6	11,0	1,6	80,50	89,60	5 300	6 300	NU213	NJ213	NUP213	N213	HJ213	1,050	0,13	
	120	23,0	1,5	1,5	78,5					1,2	107,00	118,00	5 000	6 000	NU213E	NJ213E					1,100	
	120	23,0	1,7	1,7	78,5					1,2	107,00	118,00	5 000	6 000	NU213EMA						1,200	
	120	31,0	1,5	1,5	79,6					1,6	117,00	136,00	5 300	6 300	NU2213	NJ2213	NUP2213				1,450	
	120	31,0	1,5	1,5	78,5					1,7	149,00	180,00	4 700	5 600	NU2213E	NJ2213E				1,500		
	120	38,10	1,7	1,7	80,4					4,5	139,00	196,00	4 700	5 600	NU5213				1,880			
	140	33,00	2,1	2,1	83,5	121,5	92,2	10	17,0	1,5	134,00	138,00	4 500	5 300	NU313	NJ313	NUP313	N313	HJ313	2,250	0,29	
	140	33,00	2,1	2,1	83,5					1,5	134,00	138,00	4 500	5 300	NU313M	NJ313M				2,260		
	140	33,00	2,1	2,1	82,5		90,7	10	15,5	1,5	181,00	178,00	4 200	5 000	NU313E	NJ313E	NUP313E		HJ313E	2,350	0,27	
	140	33,00	2,1	2,1	82,5	124,5				1,5	180,00	191,00	4 000	4 700	NU313EM	NJ313EM		N313EM		2,660		
	140	48,00	2,1	2,1	83,5					4,5	187,00	212,00	4 500	5 300	NU2313	NJ2313	NUP2313				3,250	
	140	48,00	2,1	2,1	83,5					4,5	187,00	212,00	4 500	5 300	NU2313M						3,550	
	140	48,00	2,1	2,1	82,5					3,5	247,00	287,00	4 000	4 700	NU2313E	NJ2313E				3,460		
	160	37,00	2,1	2,1	89,3					2,0	182,00	185,00	3 800	4 500		NJ413				3,700		
	160	37,00	2,1	2,1	89,3		99,9	11	18,0	2,0	194,00	202,00	3 800	4 500	NU413MAS	NJ413MAS	NUP413MAS		HJ413	3,600	0,43	
	70	125	24,00	1,5	1,5	84,5	110,5	90,5	7	12,5	1,6	80,10	90,40	5 600	6 700	NU214	NJ214	NUP214	N214	HJ214	1,150	0,16
125		24,00	1,5	1,5						1,2	125,00	147,00	5 000	6 000			NUP214ETNG				1,270	
125		31,00	1,5	1,5	84,5					1,6	116,00	145,00	5 000	6 000	NU2214	NJ2214	NUP2214				1,500	
125		31,00	1,5	1,5	83,5	113,5				1,7	162,00	205,00	4 500	5 300	NU2214ETNG	NJ2214ETNG				1,530		
125		39,69	1,5	2,2	84,8					4,5	178,00	261,00	4 700	5 600	NU5214M				2,220			
150		35,00	2,1	2,1	90,0	130,0	99,2	10	17,5	1,5	149,00	155,00	4 200	5 000	NU314	NJ314	NUP314	N314	HJ314	2,750	0,34	
150		35,00	2,1	2,1	90,0					1,5	158,00	168,00	4 400	5 200	NU314MA	NJ314MA				3,140		
150		35,00	2,1	2,1	89,0					1,5	204,00	222,00	4 200	5 000			NUP314EMA				3,200	
150		51,00	2,1	2,1	90,0					4,1	210,00	241,00	4 200	5 000	NU2314	NJ2314	NUP2314				5,250	
150		51,00	2,1	2,1	89,0					4,1	273,00	322,00	3 800	4 500	NU2314EMAS	NJ2314EMAS	NUP2314EMAS				4,210	
180		42,00	3,0	3,0	100,0	152,0	112,0	12	20,0	2,0	224,00	229,00	3 300	4 000	NU414	NJ414	NUP414	N414	HJ414	5,250	0,61	
180		42,00	4	4	100,0					2,0	238,00	250,00	3 300	4 000	NU414M	NJ414M				5,970		

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Single Row Cylindrical Roller Bearings

d = 75 – 80 mm



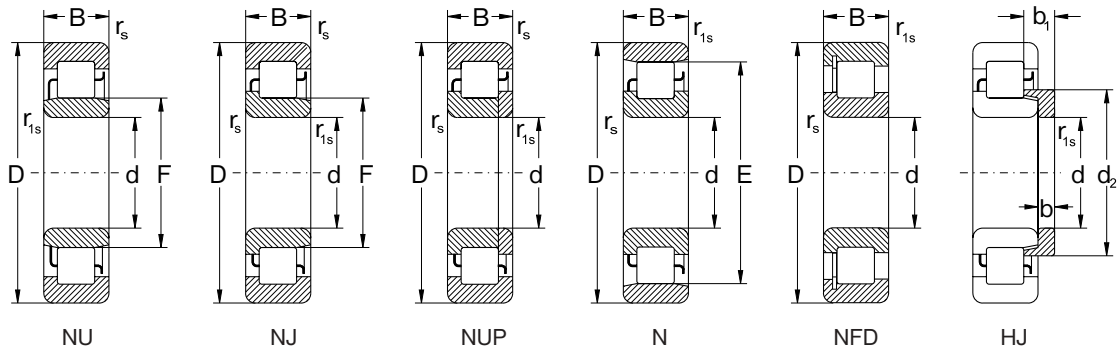
d	Dimensions											Basic load rating		Limiting speed		Bearing designation				Mass				
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r	C _{or}	for grease	with oil	NU	NJ	NUP	N/NFD	Angle Ring HJ	Bearing	Angle Ring			
mm											kN		min ⁻¹						kg					
75	105	19,0	1,1							1,0	81,00	100,00	1 300	2 600							0,410			
	130	25,0	1,5	1,5	88,5	116,5	94,9	7	12,5	1,6	92,80	105,00	4 700	5 600	NU215	NJ215	NUP215	N215	HJ215	1,250	0,17			
	130	25,0	1,5	1,5	88,5		94,6	7	11,0	1,6	130,00	156,00	4 500	5 300	NU215E	NJ215E	NUP215E		HJ215E	1,300	0,16			
	130	25,0	1,5	1,5	88,5					1,6	135,00	165,00	4 500	5 300	NU215ETNG	NJ215ETNG					1,250			
	130	25,0	1,7	1,7	88,5					1,6	130,00	156,00	4 500	5 300	NU215EMA	NJ215EMA					1,460			
	130	31,0	1,5	1,5	88,5					2,1	161,00	207,00	4 500	5 300	NU2215E	NJ2215E	NUP2215E					1,650		
	130	31,0	1,5	1,5	88,5	118,5				2,1	168,00	218,00	4 500	5 300	NU2215ETNG	NJ2215ETNG					1,620			
	130	41,28	1,5	1,5	89,0					4,5	196,00	299,00	4 500	5 300	NU5215M							2,410		
	160	37,00	2,1	2,1	95,5	139,5	105,6	11	18,5	1,5	179,00	188,00	3 800	4 500	NU315	NJ315	NUP315	N315	HJ315	3,250	0,40			
	160	37,00	2,1	2,1	95,5					1,5	190,00	204,00	3 800	4 500	NU315M	NJ315M	NUP315M					3,800		
	160	37,00	2,1	2,1	95,0	143,0				2,7	254,00	283,00	3 500	4 200	NU315ETNG	NJ315ETNG					4,200			
	160	37,00	2,1	2,1	95,0	143,0				2,7	240,00	263,00	3 500	4 200	NU315EM	NJ315EM		N315EM			3,800			
	160	37,00	2,1	2,1	95,0					2,7	240,00	263,00	3 500	4 200	NU315EMA	NJ315EMA					3,800			
	160	55,00	2,1	2,1	95,5					4,5	258,00	302,00	3 800	4 500	NU2315	NJ2315	NUP2315					4,850		
	160	55,00	2,1	2,1	95,5					4,5	274,00	327,00	3 800	4 500	NU2315MA							5,45		
	190	45,00	3,0	2,0	104,5	160,5	117,0	13	21,5	2,0	257,00	267,00	3 200	3 800	NU415	NJ415	NUP415	N415	HJ415	6,250	0,80			
190	45,00	4	4	104,5					2,0	274,00	291,00	3 200	3 800	NU415MAS							7,100			
190	45,00	4	4	100,5					1,2	329,00	340,00	3 000	3 500		NJ415EM				HJ415E		7,700			
80	125	22,0	1,1	1,0	91,5				1,2	71,30	89,30	5 000	6 000	NU1016M							0,990			
	140	26,00	2,0	2,0	95,3	125,3	102,2	8	13,5	2,0	106,00	122,00	4 500	5 300	NU216	NJ216	NUP216	N216	HJ216	1,500	0,21			
	140	26,00	2,0	2,0	95,3					1,7	139,00	167,00	4 200	5 000	NU216E	NJ216E					1,640			
	140	26,00	2,0	2,0	95,3	127,3				1,7	139,00	167,00	4 200	5 000	NU216EM	NJ216EM		N216EM			1,810			
	140	33,00	2,0	2,0	95,3					2,5	147,00	178,00	4 500	5 300	NU2216	NJ2216	NUP2216					1,950		
	140	33,00	2,0	2,0	95,3					2,5	186,00	243,00	4 200	5 000	NU2216E							2,050		
	140	44,45	2,1	2,1	95,2					5,0	185,00	282,00	4 200	5 000	NU5216M							2,910		
	170	58,00	2,1	2,1	103,0					4,5	274,00	331,00	3 500	4 200	NU2316	NJ2316							6,040	
	170	58,00	2,1	2,1	103,0					4,5	274,00	331,00	3 500	4 200		NJ2316M							6,500	
	170	39,00	2,1	2,1	103,0	147,0	113,1	11	19,5	1,5	190,00	207,00	3 500	4 200	NU316	NJ316	NUP316	N316	HJ316	3,900	0,49			
	170	39,00	2,1	2,1	103,0					1,5	190,00	207,00	3 500	4 200	NU316M	NJ316M	NUP316M					4,330		
	170	39,00	2,1	2,1	101,0					0,6	251,00	275,00	3 300	4 000	NU316E	NJ316E					4,100			
	170	39,00	2,1	2,1	101,0	151,0				0,6	251,00	275,00	3 300	4 000	NU316EM	NJ316EM		N316EM			4,580			
	170	39,00	2,1	2,1	101,0					0,6	251,00	275,00	3 300	4 000	NU316EMA	NJ316EMA					4,580			
	200	48,00	4,0	4,0	110,0					0,6	294,00	308,00	3 000	3 500	NU416	NJ416							7,450	
	200	48,00	3,0	3,0	110,0	170,0	123,8	13	22,0	2,0	313,00	339,00	3 000	3 500	NU416M	NJ416M	NUP416M	N416M	HJ416	7,300	0,80			
	200	48,00	4,0	4,0	106,0					2,0	361,00	373,00	2 900	3 200									7,520	

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Single Row Cylindrical Roller Bearings

d = 85 – 95 mm



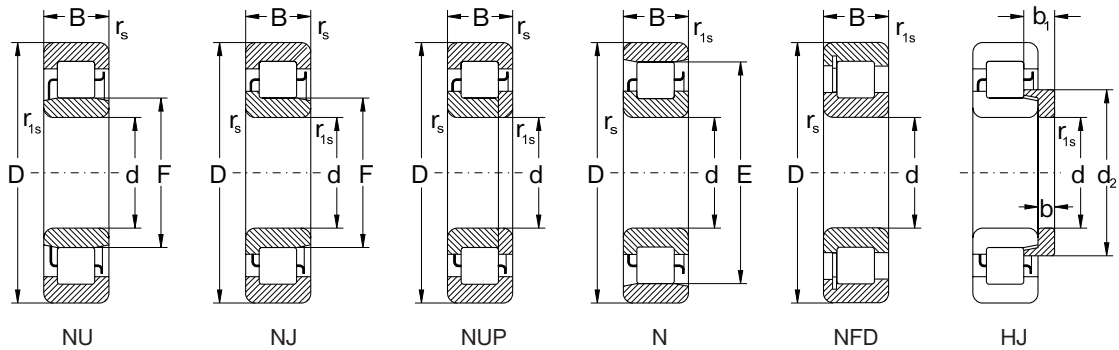
d	Dimensions										Basic load rating		Limiting speed		Bearing designation				Mass				
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r	C _{0r}	for grease	with oil	NU	NJ	NUP	N/NFD	Angle Ring HJ	Bearing	Angle Ring		
mm											kN		min ⁻¹						kg				
85	130	22,0	1,1	1,1	96,5					1,5	71,00	89,00	4 700	5 600	NU1017M						1,050		
	150	28,0	2,0	2,0	101,8	133,8	109,2	8	14,0	2,0	120,00	140,00	4 200	5 000	NU217	NJ217	NUP217	N217	HJ217	1,900	0,25		
	150	28,0	2,1	2,1	101,8					2,0	126,00	149,00	4 200	5 000	NU217MA	NJ217MA					2,160		
	150	28,0	2,0	2,0						2,0	171,00	205,00	4 000	4 700			NUP217ETNG				2,140		
	150	36,0	2,0	2,0	100,5					2,0	214,00	274,00	3 800	4 500	NU2217E	NJ2217E	NUP2217E				2,520		
	150	49,21	2,1	2,1	102,0					5,5	211,00	316,00	3 800	4 500	NU5217M						3,690		
	180	41,0	3,0	3,0	108,0	156,0	119,0	12	20,5	2,0	211,00	228,00	3 300	4 000	NU317	NJ317	NUP317	N317	HJ317	4,500	0,57		
	180	41,0	4,0	4,0	108,0					2,0	224,00	247,00	3 300	4 000	NU317M	NJ317M	NUP317M				5,100		
	180	41,0	3,0	3,0	108,0	160,0				1,1	285,00	322,00	3 200	3 800	NU317EM	NJ317EM		N317EM			5,350		
	180	41,0	3,0	3,0	108,0					1,1	285,00	322,00	3 200	3 800	NU317EMA	NJ317EMA					5,350		
	180	41,0	3,0	3,0	108,0					1,1	286,00	322,00	3 200	3 800	NU317E	NJ317E					4,870		
	210	52,0	4,0	4,0	113,0		127,7	14	24,0	2,5	354,00	381,00	3 000	3 500	NU417M	NJ417M	NUP417M		HJ417	8,700	0,89		
	90	160	30,0	2,0	2,0	107,0	143,0	115,3	9	15,0	2,0	149,00	173,00	4 000	4 700	NU218	NJ218	NUP218	N218	HJ218	2,300	0,31	
		160	30,0	2,1	2,1	107,0					2,0	156,00	184,00	4 000	4 700	NU218MA	NJ218MA					2,660	
160		30,0	2,0	2,0	107,0					2,0	182,00	217,00	3 800	4 500	NU218E	NJ218E					2,480		
160		40,0	2,1	2,1	107,0					2,5	204,00	260,00	3 500	4 200	NU2218						3,300		
160		52,4	2,1	3,0	107,2					6,0	237,00	355,00	3 500	4 200	NU5218M						4,480		
190		43,0	3,0	3,0	115,0	165,0	126,5	12	21,0	2,0	234,00	258,00	3 200	3 800	NU318	NJ318	NUP318	N318	HJ318	5,400	0,65		
190		43,0	4,0	4,0	115					2,0	234,00	258,00	3 200	3 800	NU318M	NJ318M					6,000		
190		43,0	3,0	3,0	113,5		124,2	12	18,5	2,0	310,00	346,00	3 000	3 500	NU318E	NJ318E	NUP318E		HJ318E	5,500	0,60		
190		64,0	3,0	3,0	113,5					3,8	430,00	526,00	2 800	3 300	NU2318EMAS	NJ2318EMAS	NUP2318EMAS				8,200		
225		54,0	4,0	4,0	123,5		139,1	14	24,0	2,5	389,00	422,00	2 700	3 200	NU418M	NJ418M	NUP418M		HJ418	11,700	1,05		
225		54,0	4,0	4,0	123,5		139,1	14	24,0	2,5	389,00	422,00	2 700	3 200	NU418MAS	NJ418MAS	NUP418MAS		HJ418	11,700	1,05		
95		170	32,0	2,1	2,1	113,5	151,5	122,2	9	15,5	2,0	165,00	194,00	3 800	4 500	NU219	NJ219	NUP219	N219	HJ219	2,800	0,35	
		170	32,0	2,1	2,1	113,5					2,0	173,00	207,00	3 800	4 500	NU219M	NJ219M					3,200	
		170	32,0	2,1	2,1	112,5					1,5	220,00	264,00	3 500	4 200	NU219E	NJ219E					3,010	
	170	32,0	2,1	2,1	112,5					1,5	220,00	264,00	3 500	4 200		NJ219EM					3,250		
	170	43,0	2,1	2,1	113,5					3,0	230,00	297,00	3 800	4 500	NU2219	NJ2219	NUP2219				3,850		
	170	43,0	2,1	2,1	112,5					3,0	286,00	370,00	3 300	4 000	NU2219E	NJ2219E					4,050		
	170	55,56	2,5	3,0	113,5					6,0	335,00	511,00	3 300	4 000	NU5219M						5,650		
	200	45,0	3,0	3,0	121,5	173,5				2,0	253,00	281,00	3 200	3 800	NU319	NJ319	NUP319	N319			6,200		
	200	45,0	3,0	3,0	121,5					1,9	329,00	378,00	2 800	3 300	NU319EM	NJ319EM	NUP319EM				6,500		
	200	45,0	3,0	3,0	121,5					1,9	329,00	378,00	2 800	3 300	NU319E	NJ319E					6,520		
	200	67,0	4,0	4,0	121,5					4,1	472,00	602,00	2 700	3 200	NU2319EMA						10,900		
	240	55,0	4,0	4,0	133,5					2,5	415,00	465,00	2 500	3 000	NU419M	NJ419M	NUP419M				13,500		

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Single Row Cylindrical Roller Bearings

d = 100 – 120 mm



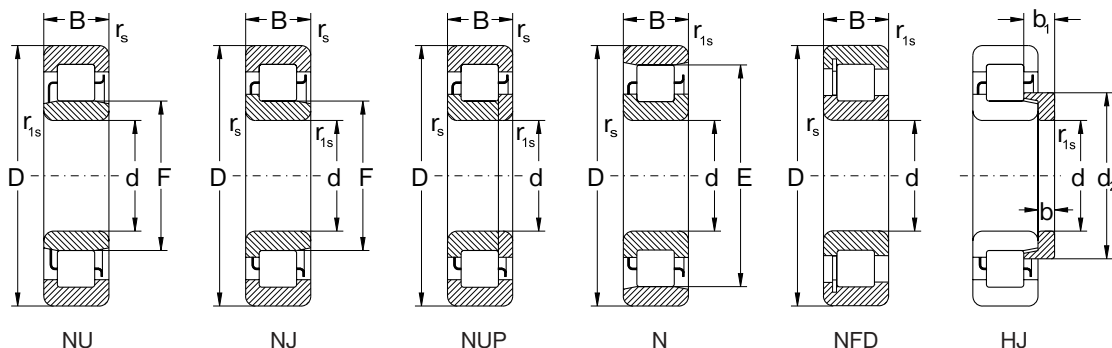
d	Dimensions										Basic load rating		Limiting speed		Bearing designation				Mass			
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r	C _{or}	for grease	with oil	NU	NJ	NUP	N/NFD	Angle Ring HJ	Bearing	Angle Ring	
mm											kN		min ⁻¹						kg			
100	180	34,0	2,1	2,1	120,0	160,0	129,2	10	17,0	2,0	182,00	217,00	3 500	4 200	NU220	NJ220	NUP220	N220	HJ220	3,400	0,45	
	180	34,0	2,1	2,1	120,0					2,0	191,00	230,00	3 500	4 200	NU220M	NJ220M					3,780	
	180	46,0	2,1	2,1	120,0					3,0	257,00	337,00	3 500	4 200	NU2220	NJ2220	NUP2220				4,650	
	180	46,0	2,1	2,1	119,0					2,5	333,00	444,00	3 200	3 900	NU2220EMA						5,420	
	180	60,32	2,1	2,1	121,0					7,0	304,00	473,00	3 200	3 800	NU5220M						6,490	
	215	47,0	3,0	3,0	129,5	185,5	142,4	13	22,5	2,0	293,00	329,00	2 800	3 300	NU320	NJ320	NUP320	N320	HJ320	7,700	0,91	
	215	47,0	4,0	4,0	129,5					2,0	309,00	354,00	2 800	3 300	NU320M	NJ320M	NUP320M				8,500	
	215	73,0	3,0	3,0	127,5					4,9	570,00	717,00	2 500	3 000	NU2320EMAS	NJ2320EMAS	NUP2320EMAS				12,500	
	250	58,0	4,0	4,0	139,0					2,5	463,00	523,00	2 400	2 800	NU420M	NJ420M	NUP420M		HJ420	14,000	1,55	
	250	58,0	4,0	4,0	139,0					2,5	478,00	543,00	2 000	2 400	NU420EM						16,440	
105	190	36,0	2,1	2,1	126,8	168,8	136,5	10	17,5	2,0	200,00	224,00	3 300	4 000	NU221	NJ221	NUP221	N221	HJ221	4,000	0,51	
	190	36,0	2,1	2,1	126,8					2,0	210,00	256,00	3 300	4 000	NU221M						4,470	
	190	36,0	2,1	2,1	126,0	174,0				3,0	286,00	351,00	3 100	3 800	NU221ETNG	NJ221ETNG					4,170	
	190	65,1	2,1	2,1	126,5					7,0	362,00	573,00	3 000	3 500	NU5221M						7,940	
	225	49,0	3,0	3,0	135,0	195,0	148,8	13	22,5	4,5	335,00	379,00	2 700	3 200	NU321	NJ321	NUP321	N321	HJ321	8,750	1,00	
	225	49,0	4,0	4,0	135					4,5	354,00	408,00	2 700	3 200	NU321M	NJ321M					9,700	
	260	60,0	4,0	4,0	144,5					2,5	515,00	585,00	2 200	2 700	NU421M	NJ421M	NUP421M			HJ421	19,000	1,65
110	200	38,00	2,1	2,1	132,5	178,5	143,1	11	18,5	2,5	240,00	289,00	3 200	3 800	NU222	NJ222	NUP222	N222	HJ222	4,650	0,62	
	200	38,00	2,1	2,1	132,5					2,5	240,00	289,00	3 200	3 800	NU222MA	NJ222MA					5,370	
	200	53,00	2,1	2,1	132,5					5,0	333,00	441,00	3 200	3 800	NU2222	NJ2222	NUP2222				6,950	
	200	69,85	2,1	4,0	132,9					7,0	464,00	736,00	3 000	3 500	NU5222M						10,000	
	240	50,00	3,0	3,0	143,0	207,0	157,5	14	23,0	2,7	379,00	433,00	2 500	3 000	NU322	NJ322	NUP322	N322	HJ322	10,500	1,17	
	240	50,00	4,0	4,0	143,0					2,7	401,00	467,00	2 500	3 000	NU322M	NJ322M					11,800	
	240	50,00	3,0	3,0	143,0					2,9	439,00	507,00	2 400	2 800	NU322EM	NJ322EM	NUP322EM				11,000	
	280	65,00	4,0	4,0	155,0					2,7	569,00	654,00	2 100	2 500	NU422M	NJ422M	NUP422M			HJ422	20,000	2,16
	120	180	28,00	2,0	1,1	135,0					2,0	138,00	191,00	3 300	4 000	NU1024M						2,450
215		40,00	2,1	2,1	143,5	191,5	154,5	11	19,0	2,5	260,00	318,00	3 000	3 500	NU224	NJ224	NUP224	N224	HJ224	5,650	0,72	
215		40,00	2,1	2,1	143,5					2,5	272,00	338,00	3 000	3 500	NU224M	NJ224M					6,350	
215		58,00	2,1	2,1	143,5					5,4	364,00	492,00	3 000	3 500	NU2224	NJ2224	NUP2224				8,550	
215		58,00	2,1	2,1	143,5					4,6	446,00	609,00	2 600	3 100	NJ2224EM						10,300	
215		76,20	2,1	2,1	145,1					7,0	482,00	794,00	2 700	3 200	NU5224M						11,800	
260		55,00	3,0	3,0	154,0					2,7	437,00	493,00	2 400	2 800	NU324	NJ324	NUP324		HJ324	13,000	1,40	
260		55,00	4,0	4,0	154,0					2,7	465,00	534,00	2 400	2 800	NU324M	NJ324M	NUP324M				14,700	
260		86,00	3,0	3,0	154,0					6,4	782,00	1011,00	2 100	2 500	NU2324EMAS	NJ2324EMAS	NUP2324EMAS				24,500	
310		72,00	5,0	6,0	170,0					2,7	714,00	834,00	1 900	2 200	NU424	NJ424	NUP424			HJ424	28,000	2,60

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Single Row Cylindrical Roller Bearings

d = 130 – 200 mm



d	Dimensions										Basic load rating		Limiting speed		Bearing designation				Mass				
	D	B	r _s min	r _{1s} min	F	E	d ₂	b	b ₁	s ¹⁾	C _r	C _{0r}	for grease	with oil	NU	NJ	NUP	N/NFD	Angle Ring HJ	Bearing	Angle Ring		
mm											kN		min ⁻¹						kg				
130	180	30,0	2,1							2,0	210,00	350,00	800	1 600							2,290		
	200	33,0	2,0	1,1	148,0					2,0	162,00	203,00	3 200	3 800	NU1026M						3,700		
	230	40,0	3,0	3,0	156,0	204,0	167,0	11	19,0	2,5	271,00	322,00	2 700	3 200	NU226	NJ226	NUP226	N226	HJ226		6,500	0,84	
	230	40,0	4,0	4,0	156,0						2,5	282,00	362,00	2 700	3 200	NU226MA						7,330	
	230	79,38	4,0	4,0	155,0						8,0	511,00	841,00	2 500	3 000	NU5226M						13,800	
	280	58,00	4,0	4,0	167,0		182,3	14	23,0	2,9	603,00	715,00	2 000	2 400	NU326EM	NJ326EM	NUP326EM		HJ326E		17,000	1,65	
140	250	42,00	3,0	3,0	169,0	221,0	181,0	11	19,0	2,5	305,00	387,00	2 500	3 000	NU228	NJ228	NUP228	N228	HJ228		8,250	1,00	
	250	42,00	4,0	4,0	169,0					2,5	318,00	410,00	2 500	3 000	NU228M	NJ228M					9,110		
	250	42,00	4,0	4,0	169,0					1,6	385,00	502,00	2 300	2 800	NU228EMA			NJP228EMA			9,400		
	250	82,55	4,0	4,0	168,4					10,0	596,00	981,00	2 200	2 700	NU5228M						17,100		
	300	62,00	4,0	4,0	180,0		198,4	15	26,0	2,7	603,00	725,00	2 000	2 400	NU328M	NJ328M	NUP328M		HJ328		20,000	2,05	
	300	62,00	4,0	4,0	180,0					1,8	663,00	797,00	1 900	2 200		NJ328EM					22,900		
	300	102,00	4,0	4,0	180,0					9,2	909,00	1229,00	2 000	2 400	NU2328M	NJ2328M	NUP2328M				36,760		
	300	102,00	4,0	4,0	180,0					7,9	1018,00	1384,00	1 900	2 200		NJ2328EM					37,600		
	150	225	35,00	2,1	1,5	169,5					2,0	192,00	251,00	2 700	3 200	NU1030M						4,850	
270		45,00	3,0	3,0	182,0		194,7	12	20,5	2,4	368,00	480,00	2 200	2 700	NU230	NJ230	NUP230		HJ230		10,500	1,35	
270		45,00	4,0	4,0	182,0					2,4	368,00	480,00	2 200	2 700		NJ230M					11,800		
270		45,00	3,0	3,0	182,0		193,7	12	19,5	2,4	440,00	581,00	2 200	2 700	NU230EM	NJ230EM	NUP230EM		HJ230E		11,000	1,30	
270		88,90	2,3	2,3	181,5					10,0	736,00	1260,00	2 000	2 400	NU5230M						22,900		
320		65,00	4,0	4,0	193,0		212,3	15	26,5	2,7	663,00	807,00	1 900	2 200	NU330M	NJ330M	NUP330M		HJ330		27,000	2,37	
320		65,00	4,0	4,0	193,0					1,8	757,00	921,00	1 800	2 100		NJ330EM					27,600		
160	290	48,00	3,0	3,0	195,0		207,4	12	20,0	2,5	498,00	666,00	2 000	2 400	NU232EM	NJ232EM	NUP232EM		HJ232		14,700	1,50	
	290	98,42	2,5	6,3	193,6					10,0	764,00	1310,00	1 900	2 200	NU5232M						28,900		
	340	68,00	4,0	4,0	204,0					2,4	857,00	1053,00	1 700	2 000	NU332EM						32,200		
170	230	36,00	2,1							2,0	305,00	565,00	600	1 100							4,230		
	260	42,00	2,1	2,1	193,0					3,0	276,00	376,00	2 200	2 700	NU1034M						7,900		
	310	52,00	4,0	4,0	207,0		228,8	12	20,0	2,9	589,00	777,00	1 900	2 200	NU234EM	NJ234EM	NUP234EM		HJ234		16,600	1,70	
	310	104,77	3,2	6,3	205,4					10,0	891,00	1470,00	1 800	2 100	NU5234M						35,500		
180	250	42,00	2,1							2,5	395,00	700,00	560	1 000							6,21		
	280	46,00	2,1	2,1	205,0					3,6	334,00	474,00	2 100	2 500	NU1036M						10,500		
	320	52,00	4,0	4,0	217,0		230,8	12	20,0	2,9	611,00	826,00	1 800	2 100	NU236EM	NJ236EM	NUP236EM		HJ236		19,500	1,80	
	320	86,00	4,0	4,0	218,0		230,5	12	29,0	6,9	713,00	1082,00	1 800	2 100	NU236M	NJ236M	NUP236M		HJ236E		31,200	1,90	
190	290	46,00	2,1	2,1	215,0					3,5	1004,00	1247,00	1 900	2 200	NU1038M						9,860		
200	310	51,00	2,1	2,1	229,0					4,2	383,00	531,00	1 900	2 200	NU1040M						14,000		
	360	58,00	4,0	4,0	243,0		258,2	14	23,0	2,9	749,00	1033,00	1 500	1 800	NU240EM	NJ240EM	NUP240EM		HJ240E		28,400	2,70	

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Double Row Cylindrical Roller Bearings

Double row cylindrical roller bearings – type NNU49 have three guiding ribs on outer ring and smooth inner ring. Bearings can accommodate only radial loads. Bearings of NNU4920 and NNU4924 type are also delivered matched in pairs according to the technical terms TPF 11322-80. In this way matched bearing pairs fulfil in the arrangement the role of four-row cylindrical roller bearings and are suitable for arrangement of rolls in rolling mills, etc.

Boundary Dimensions

Boundary dimensions comply with the standard ISO 15 and are shown in the dimension tables of this publication.

Designation

Bearing designation in standard design is in the dimension tables of this publication.

Cages

Bearings NNU49 are produced with machined brass cage (M) which is designated.

Tolerances

Bearings NNU49 and NN39 are produced in normal tolerance class. Bearing delivery in tolerance class P6 should be agreed with the supplier in advance.

Radial Clearance

Bearings NNU49 are produced with radial clearance greater than normal (C3). Bearings delivery with radial clearance other than C3 should be agreed with the supplier.

Radial Equivalent Dynamic Load

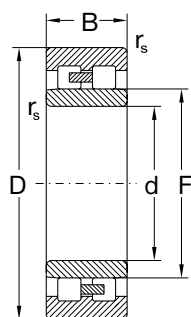
$$P_r = F_r \quad [\text{kN}]$$

Radial Equivalent Static Load

$$P_{or} = F_r \quad [\text{kN}]$$

Double Row Cylindrical Roller Bearings

d = 100 – 120 mm



NNU

Dimensions						Basic load rating		Limiting speed		Bearing designation	Mass
d	D	B	r _s min	F	s ¹⁾	dynamic C _r	static C _{or}	for lubrication with grease	oil		
mm						kN		min ⁻¹		kg	
100	140	40	1,1	113,0	1,7	119	215	3 800	4 700	NNU4920M C3	1,92
120	165	40	1,1	134,5	1,7	168	304	3 200	4 000	NNU4924M C3	2,81

1) Permissible axial displacement out of central position

Identification symbol of the producer: N

Single Row Needle Roller Bearings

Single row needle roller bearings have needle rollers guided in axial direction by outer ring ribs and the inner ring is smooth as well as by single row cylindrical roller bearings in NU design. That is why these bearings cannot accommodate axial loads. Single row needle roller bearings have a small height of the cross section and relatively high basic load rating and are especially suitable for arrangements with limited space in radial direction. Bearings have a groove and lubrication holes on the outer ring periphery. Single row needle roller bearings are produced without cage. Bearings without cage (V) have a full complement of cylindrical rollers which results in higher load rating, but smaller limiting rotational speed in comparison with bearings of the same size with cage. Bearings are also delivered without inner ring (RNA). In this case the inner raceway is created directly on the journal.

Boundary Dimensions

Boundary dimensions comply with the standard ISO 15 and are shown in the dimension tables of this publication.

Designation

Bearing designation in standard design is in the dimension tables of this publication.

Tolerance

Single row needle roller bearings are commonly produced in normal tolerance class P0 (symbol P0 is not indicated). For special arrangements demanding accuracy, bearings in higher tolerance class P6 are delivered. Delivery of these bearings should be negotiated in advance.

Radial Clearance

Commonly produced single row needle roller bearings have normal radial clearance which is not indicated. For special arrangements bearings with greater radial clearance (C3) are delivered.

Bearings without Inner Rings

For arrangements with limited mounting space single row needle roller bearings without inner ring are delivered (RNA). Needle rollers of these bearings roll directly on the ground journal. Inner raceway diameter tolerances for single row needle roller bearings without inner ring are shown in following table.

Journal Diameter F_w	Radial Clearance				
	Smaller	Normal		Greater	
		to 80 mm	over 80 mm	to 65 mm	over 65 mm
Inner Raceway Diameter Tolerance	k5	h5	g6	g6	f6

Raceway deviations of roundness and cylindricity must not be greater than deviations for tolerance class IT3. Values of basic load ratings C_r and C_{or} , shown in dimension tables are valid for bearings without inner ring if inner raceway hardness on the journal will be in the range 59 to 65 HRC. Minimum depth of hardened layer after grinding should be 1 to 3 mm according to bearing dimension and load. Raceway surface roughness for common arrangements $R_a = 0.2$, for less demanding arrangements $R_a = 0.4$.

Misalignment

Mutual ring misalignment of single row needle roller bearings is small. Permissible misalignment values are to 2'.

Radial Equivalent Dynamic Load

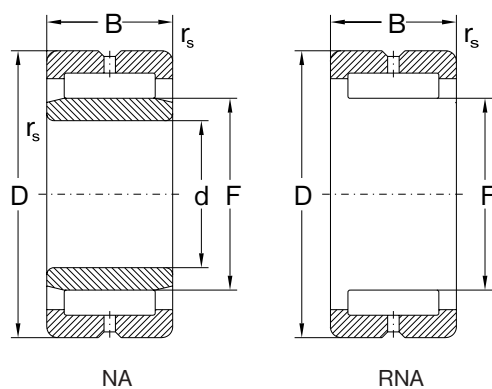
$$P_r = F_r \quad [\text{kN}]$$

Radial Equivalent Static Load

$$P_{or} = F_r \quad [\text{kN}]$$

Single Row Needle Roller Bearings

d = 20 – 50 mm



Dimensions						Basic load rating		Limiting speed for lubrication with		Bearing designation		Mass	
d	D	B	r _s min	F	s ¹⁾	Cr	Cor	grease	oil	NA	RNA		
mm						kN		min ⁻¹				kg	
20	42	22	0,6	28	2	30,40	55,20	3 800	5 600	NA4004V	RNA4004V	0,176	0,124
25	47	22	0,6	34	2	36,20	65,60	3 300	5 000	NA4005V	RNA4005V	0,200	0,134
30	55	25	1,0	40	2	44,70	89,10	2 600	4 200	NA4006V	RNA4006V	0,311	0,202
35	62	27	1,0	46	2	52,10	114,00	2 400	3 500	NA4007V	RNA4007V	0,419	0,272
40	68	28	1,0	52	2	55,20	128,00	2 100	3 200	NA4008V	RNA4008V	0,495	0,306
50	72	22	0,6	58	2	43,50	116,00	1 900	2 800	NA4910V	RNA4910V	0,373	0,260
	80	30	1,0	62	2	59,60	153,00	1 800	2 700	NA4010V	RNA4010V	0,687	0,440

1) Permissible axial displacement out of central position

Identification symbol of the producer: N