

12.4 CYLINDRICAL ROLLER BEARINGS

Cylindrical roller bearings are manufactured in many designs, dimensions and sizes. The most common designs are single row cylindrical roller bearings with cage. Single row cylindrical roller bearings are capable of transferring big radial loads and, in some design cases, they are capable of capturing even axial load. Cylindrical roller bearings can operate at high revolutions. The full complement design is capable of transferring big radial loads at lower rpm.

Majority of design versions is separable which allows easier assembly and disassembly in location. In majority of cases the mutual axial displacement of the outer and inner ring is used when the axial shift of the shaft against the body is aligned inside the bearing without reducing the service life of the bearing. Axial displacement is mostly caused by thermal expansion of the shaft.

Use of cylindrical roller bearings requires good alignment of both rings. Modification of raceways of rings and cylindrical rollers allow only small tilting in case of misalignment without reducing the service life of the bearing. Multirow cylindrical roller bearings have to comply with even more stringent alignment requirements.

Dunlop manufactures the following types of cylindrical roller bearings:

- single row cylindrical roller bearings
- double row cylindrical roller bearings
- single row full complement cylindrical roller bearings
- double row full complement cylindrical roller bearings
- multi row cylindrical roller bearings

BTL further offers special cylindrical roller bearings that are described in more details in chapter Special cylindrical roller bearings:

- single row cylindrical roller bearings and bearing units for railway applications
- electrically insulated cylindrical roller bearings
- single row and multirow bearings for heavy industry
- split cylindrical roller bearings.

Where the space for bearing is limited significantly, cylindrical roller bearing can be used without the inner or outer ring. Rolling elements are guided directly on the shaft or in the body. This location requires that the contact shaft or body surfaces correspond with the structural design of the bearing ring.

SINGLE ROW CYLINDRICAL ROLLER BEARINGS

Design

Single row cylindrical roller bearings with cage are among the mostly used cylindrical roller bearings. These bearings are made in several design versions that are either axially free (do not transfer axial load), or able to capture axial loads in one or both directions.

Single row cylindrical roller bearings are made in dimensional rows same as those of ball bearings, transfer significantly higher radial load than cylindrical roller bearings and are able to work even at extremely high revolution frequencies. Out of the line contact bearings they achieve the highest limit revolution frequencies which are given by minimum slippage of rolling elements.

Ring with guide flanges along with cage and cylindrical rollers can be separated from the other ring which simplifies the assembly and disassembly of the bearing mostly in locations where the inner and outer ring of the bearing has to be pressed at loading conditions.

Bearings in E version have basic dynamic load rating 30% higher in average than bearings in basic version. This is allowed due to the optimised inner design of the bearing.

Basic version

Single row cylindrical roller bearings are made in several design versions that differ in the number and location of guide flanges.

NU design

Inner bearing ring has guide flanges on both sides; the inner ring is without flanges (fig. 12.4.1). NU version bearing is axially free; it allows axial displacement of shaft against body in both directions.

N design

Inner bearing ring has guide flanges on both sides; the outer ring is without flanges (fig. 12.4.2). N version bearing is axially free; it allows axial displacement of shaft against body in both directions.

NJ design

Outer bearing ring has guide flanges on both sides; the inner ring has one guide flange (fig. 12.4.3). NJ design bearing is axially guiding in one direction; in one direction the bearing captures axial load whilst in the other direction it allows axial displacement of shaft against body.

NUP design

Outer bearing ring has guide flanges on both sides; the inner ring has one fixed guide flange and one free flange which consists of free angle ring (fig. 12.4.4). NUP bearing is axially guiding in both directions, it captures axial load in both directions.

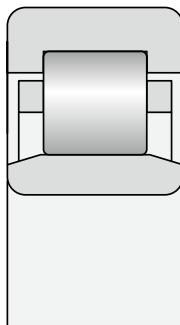


Fig. 12.4.1

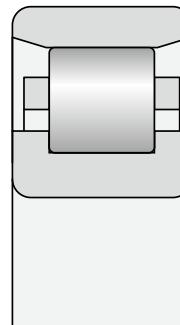


Fig. 12.4.2

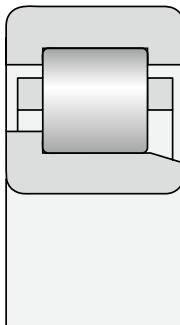


Fig. 12.4.3

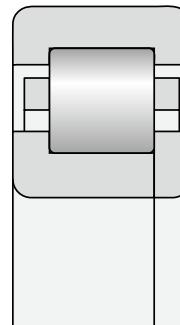


Fig. 12.4.4

Angle rings

NJ and NU version bearings can be used in combinations with HJ angle rings. This enables transfer of double direction axial load in NJ bearings and single direction axial load in NU bearings.

NUP version bearing with shortened inner ring bearing surface should be in case of big radial load inter-changed with NJ + HJ bearing. This arrangement has standard width of inner ring that ensures more stable support. Angle rings are made of the same steel as the bearing rings.

The designation and dimensions of angle rings are stated in the table section of the catalogue.
Designation of Dunlop bearing assembly pair consists of the designation of the bearing and the angle ring as follows:

+ HJ214.

NJ214

Also associated designation of assemblies that consist of the below examples can be encountered:

NJ214 + HJ214 = NH214

NU208 + HJ208 = NUJ208

Bearing NJ + HJ (NH)

It is a bearing in NJ version along with angle ring HJ (fig. 12.4.5). NH bearing is axially guiding in both directions; the bearing captures axial load in both directions.

NU + HJ (NUJ) design

It is a bearing in NU version along with angle ring HJ (fig. 12.4.6). NUJ bearing is axially guiding in one direction; in one direction the bearing captures axial load whilst in the other direction it allows axial displacement of shaft against body.

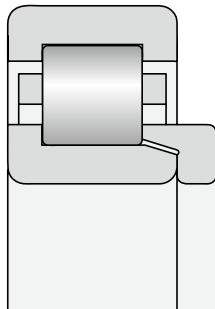


Fig. 12.4.5

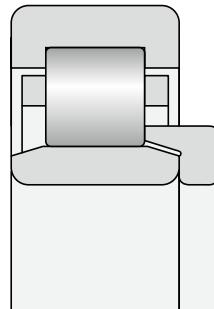


Fig. 12.4.6

Special design

Availability of special design bearings shall be consulted with Dunlop BTL.

Bearings without inner or outer ring

Where the space for bearing location is limited, Dunlop supplies NU single row cylindrical roller bearings without inner ring marked R NU (fig. 12.4.7), or N single row cylindrical roller bearings without outer ring marked R N (fig. 12.4.8). The raceway is formed directly with hardened and ground surface of shaft or body; these surfaces must comply with stringent requirements, similarly as the raceways of bearing rings. Therefore use of through-hardening steels, cementation steels or steels for high-frequency hardening is recommended in these cases, accordingly with ISO 683-17.

Tolerance of journal dimension is usually „g6“ for normal radial clearance, „f6“ for increased radial clearance and „h5“ for reduced radial clearance. Journal raceway roundness and cylindricality deviations in this case must not exceed those of deviations applicable to the IT3 accuracy level. Maximum surface roughness for this surface should be $R_a = 0.2 \mu\text{m}$ and $R_a = 0.4 \mu\text{m}$ for less exacting locations. Similar tolerances apply to raceway that forms a part of the body.

Basic bearing capacity values C_r a C_{or} stated in the table section apply to the R NU and R N bearings provided that the hardness on the raceway surface will range within 58 to 64 HRC. With reducing hardness values also the load bearing capacity values C_r drop. For instance, bearings with 48 HRC ring hardness have half the

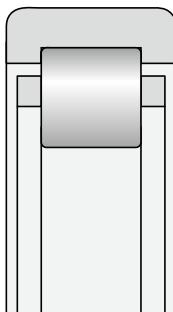


Fig. 12.4.7

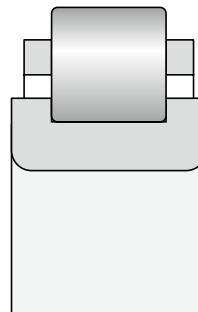


Fig. 12.4.8

value of dynamic load bearing rating. The minimum depth of through hardening of the raceway after abrasion depends on the diameter of rollers and load size, and should be 1 to 3 mm. In big static loading, through hardening to the depth of 0.1 of the roller diameter is recommended. The above stated requirements apply to recommended bearing materials. If other materials are used, the resistance to fatigue damage will reduce.

Bearings with snap ring groove

To ensure simple protection against axial displacement in the location element single row cylindrical roller bearings with a groove for snap ring on outer ring are made. Bearings with snap ring groove have additional designation N (fig. 12.4.9)

Dimensions of the groove for snap ring comply with the standard ISO 464. The standard also states dimensions of relevant snap rings.

Bearings with snap ring grooves

If assembly of outer ring with clearance is required and spinning of outer ring in body has to be prevented, bearing with snap ring grooves on one face of outer ring can be supplied. Bearing provided with one snap ring groove is identified with additional designation N1; bearing with two grooves by 180° is identified with additional designation N2. fig. 12.4.10)

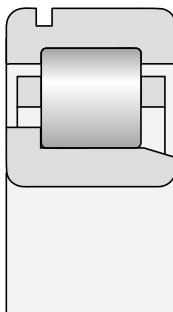


Fig. 12.4.9

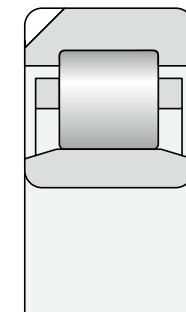


Fig. 12.4.10

General information

Main dimensions

Main dimensions comply with the standard ISO 15 and are stated for individual bearings in the table section of the publication. Main dimensions of angle rings HJ comply with the standard ISO 246 and are also stated in the table section of the catalogue.

Tolerances

Bearings are usually made in normal accuracy level P0 which is not presented. Also bearings in higher accuracy level P6, P5 and P4 are supplied. The limit values of bearing dimension and run accuracy are stated in tables 7.2 to 7.8, and comply with the standard ISO 492. Tolerances of higher accuracy bearings SP and UP are stated in tables 7.9 to 7.11.

Radial clearance

Commonly produced single row cylindrical roller bearings feature normal axial clearance that is not identified. Special locations require bearings with reduced C2 radial clearance, or with increased radial clearance C3, C4 and C5. Values of radial clearances comply with the standard ISO 5753 and are stated in chart 7.19. The values in the table apply to bearing in non-assembled state and without load.

In some cases bearings with non-standard radial clearance range can be supplied. We recommend that these supplies are discussed with the technical and consultancy services of Dunlop.

Misalignment

Mutual misalignment of rings of single row roller bearings is very small. Admissible values of misalignment are stated in table 12.4.1.

Table 12.4.1

Bearing type	Load	
	small ($F_r < 0,1 C_{or}$)	big ($F_r \geq 0,1 C_{or}$)
NU10, NU2, NU3, NU4	2' to 3'	5' to 7'
NU29, NU22, NU23	1' to 3'	3' to 4'
Version NJ, NUP, N ¹⁾	1' to 2'	3' to 4'

¹⁾ lower values of pair of digits apply for bearings of width series 2 and higher

The stated values apply to axially free bearings. At the same time it has to apply that the shaft axis and body axis position do not change. Bigger misalignment than is that stated in the table leads to significant reduction of service life and increased noise level of the bearing. The misalignment values recommended for axially guiding bearings are even lower to avoid unequal loading of guiding flanges which would lead to more significant wear or damage to the flange. Also bearings axially guiding in both direction are very inclinable to

misalignment. In case of bigger misalignment axial clearance in bearing can get defined and rollers gripped by flanges which may cause occurrence of axial stress.

If there is a risk of bigger misalignment angles in roller bearing locations, we recommend that the Dunlop technical and consultancy services are contacted.

Sliding axial movement

Axially free (NU, N) and single direction axially guiding (NJ) roller bearings are to certain extent capable of alignment of the shaft axial displacement against the body without reducing the service life of the bearing. Axial displacement is mostly caused by thermal expansion of the shaft. The values of maximum axial shift „s“ of one ring towards the other as shown in the figure 12.4.11 are stated in the table section hereof.

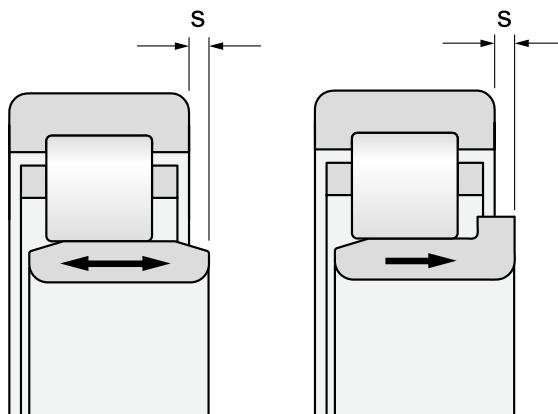


Fig. 12.4.11

Running temperatures

As standard, roller bearings rings are made for use in environment with temperature up to 120°C. Upon request, cylindrical roller bearings with dimension stabilisation for operation at higher temperatures can be supplied.

Cages

Design of cylindrical roller bearing cages:

- Cage pressed from steel plate, guided on rolling elements, additional designation J (is not presented)
- Two-piece massive steel cage guided on rolling elements, additional designation F
- Two-piece massive brass cage on rolling elements, additional designation M, guided on outer ring has additional designation MA, and the one guided on inner ring has additional designation MB
- Massive cage of polyamide or similar plastic, stiffened by glass fibres, guided on rolling elements, additional designation TNG

Special locations require bearings with cages provided with surface treatment, delivery of which must be discussed in advance with the supplier.

Minimum load

Cylindrical roller bearings must be exposed to certain minimum load, especially when operated at high revolutions and rapid load changes. In these cases, inertial effects of cage with rolling elements become mostly apparent which are indicated mainly by slippage or the rolling elements in the bearing.

Minimum radial load recommended for Dunlop cylindrical roller bearings is such that equals to 2% of the dynamic load bearing capacity of the bearing.

Axial dynamic load rating

Bearings with flanges on both sides can, besides radial load, transfer also limited axial load. Considering the fact that the allowed load of bearings in axial direction depends on a number of factors that cannot be captured in a single calculation, the following relations have indicative character only.

In this case, axial load bearing capacity is not limited by material fatigue but by the load bearing capacity of the grease film in the contact surface between the roller face and guide flange, lubrication conditions, service temperature and possibilities of cooling of the bearing. In usual service conditions when the temperature difference between the bearing and ambient area does not exceed 60 °C at specific heat passage of 0.5 mWmm⁻² °C⁻¹, at minimum value of viscosity rate 2, the maximum admissible axial load can be calculated with sufficient accuracy from the below equation:

for lubrication with oil

$$F_{a\ max} = \frac{0.5 C_{or} \cdot 10^4}{n (d + D)} - 0.05 F_r \quad [\text{kN}]$$

for lubrication with grease

$$F_{a\ max} = \frac{0.35 C_{or} \cdot 10^4}{n (d + D)} - 0.03 F_r \quad [\text{kN}]$$

$F_{a\ max}$ maximum admissible axial load [kN]

C_{or} basic radial static load rating [kN]

F_r radial load of bearings [kN]

n rotational frequency [min⁻¹]

d bearing bore diameter [mm]

D outer diameter of bearing [mm]

The $F_{a\max}$ values calculated according to the above stated equations apply on condition of acting of constant axial force. In case of interrupted load or impact load the admissible axial load can grow by two or three times towards the calculated value.

At acting axial load cylindrical roller bearings operate reliably only if the bearings are loaded radially at the same time. The relation $F_a/F_r < 0.5$ has to be maintained.

Equivalent dynamic load of bearing

Axially free N and NU type bearings are capable of transferring radial load only; the following applies to these bearings:

$$P = F_r$$

Axially guiding NJ, NUP, NH and NUJ type bearings are capable of transferring both radial and axial load; the following applies to these bearings:

$$P = F_r$$

$$\text{pro } F_a/F_r \leq e$$

$$P = 0.92 F_r + Y F_a$$

$$\text{pro } F_a/F_r > e$$

the arithmetic coefficient e = 0.2 for bearings of series 10, 18, 19, 2, 3 and

4 = 0.3 for bearings of other series

and axial load coefficient Y = 0.6 for bearings of series 10, 18, 19, 2, 3 and

4 = 0.4 for bearings of other series

Equivalent static load of bearing

$$P_0 = F_r$$

Additional designations

Supplementary characters before basic designation

L separate detachable ring of bearing

R Separable bearing without detachable ring

K Cage with rolling elements

T Case hardening steel

X Stainless steel

Supplementary characters behind the basic designation:

Radial clearance: Normal radial clearance is usually not presented in the bearing's designation.

- C2** Radial clearance smaller than normal
- C3** Radial clearance bigger than normal
- C4** Radial clearance bigger than C3
- C5** Radial clearance bigger than C4
- R** Radial clearance in non-standardised range (range in μm)

Construction design:

- E** Optimised inner design with higher load rating
- N** Snap ring groove on the outer ring
- NR** Snap ring groove on the outer ring and inserted snap ring
- N1** One snap ring groove on the outer ring face
- N2** Two snap ring grooves by 180° on one outer ring face

Material of the cage:

- J** Cage pressed from steel plate, guided on rolling elements
 - F** Massive steel cage guided on rolling elements
 - M** Massive brass cage guided on rolling elements
 - L** Massive light metal cage guided on rolling elements
 - TN** Massive cage of polyamide or similar plastic guided on rolling elements
- TNG** Massive cage of polyamide or similar plastic, reinforced by glass fibres, guided on rolling elements

Cage design (stated characters are always used in combination with cage material characters).

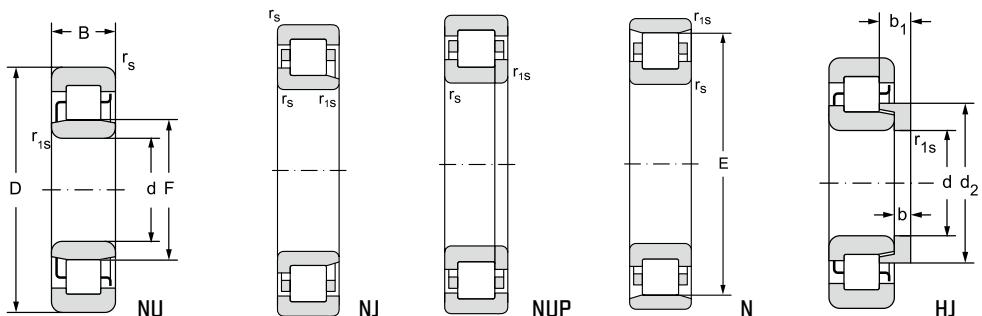
- A** Cage guided on outer ring
- B** Cage guided on inner ring
- P** Compact window cage Cage
- S** with lubrication slots Silver-
- R** plated cage

Dimension stabilisation:

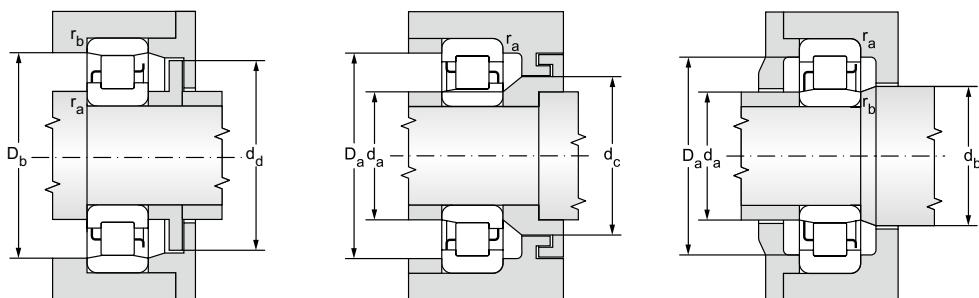
- S0** For service temperature to 150 °C
- S1** For service temperature to 200 °C
- S2** For service temperature to 250°C



Single row cylindrical roller bearings $d = 20$ to 1180 mm

 $d = 20$ to 25 mm


d	Main dimensions								Bearing designation	Other cages	Angle ring designation	Basic load rating		
	D	B	r_s	r_{1s}	F	E	d_2	b				dynamic	static	
	min	min				max						C_r	C_{or}	
mm													kN	
20	47	14,00	1,0	0,6	27	30,0	3,0	6,75	1,4	NU204		HJ204	13,9	10,2
	47	14,00	1,0	0,6	27	30,0	3,0	6,75	1,4	NJ204		HJ204	13,9	10,2
	47	14,00	1,0	0,6	27				1,4	NUP204			13,9	10,2
	47	14,00	1,0	0,6		40,0			1,4	N204			13,9	10,2
25	52	15,00	1,0	0,6	32	35,0	3,0	7,25	1,5	NU205		HJ205	15,8	12,6
	52	15,00	1,0	0,6	32	35,0	3,0	7,25	1,5	NJ205		HJ205	15,8	12,6
	52	15,00	1,0	0,6	32				1,5	NUP205			15,8	12,6
	52	15,00	1,0	0,6		45,0			1,5	N205			15,8	12,6
	52	15,00	1,0	0,6	31,5	34,9	3,0	6,00	1,4	NU205E	TNG	HJ205E	29,3	25,6
	52	15,00	1,0	0,6	31,5	34,9	3,0	6,00	1,4	NJ205E	TNG	HJ205E	29,3	25,6
	52	15,00	1,0	0,6	31,5				1,4	NUP205E	TNG		29,3	25,6
	52	15,00	1,0	0,6		46,5			1,4	N205ETNG			29,3	25,6
	52	18,00	1,0	0,6	32				1,6	NU2205			22,4	19,6
	52	18,00	1,0	0,6	32				1,6	NJ2205			22,4	19,6
	52	18,00	1,0	0,6	32				1,6	NUP2205			22,4	19,6
	62	17,00	1,1	1,1	35	39,3	4,0	8,00	1,4	NU305		HJ305	27,6	21,5
	62	17,00	1,1	1,1	35	39,3	4,0	8,00	1,4	NJ305		HJ305	27,6	21,5
	62	17,00	1,1	1,1	35				1,4	NUP305			27,6	21,5
	62	17,00	1,1	1,1		53,0			1,4	N305			27,6	21,5
	62	17,00	1,1	1,1	34	38,3	4,0	7,00	1,4	NU305EMAS	TNG	HJ305E	43,0	36,2
	62	17,00	1,1	1,1	34	38,3	4,0	7,00	1,4	NJ305EMAS	TNG	HJ305E	43,0	36,2
	62	17,00	1,1	1,1	34				1,4	NUP305EMAS	TNG		43,0	36,2
	62	17,00	1,1	1,1	34	54,0			1,4	N305ETNG			43,0	36,2
	80	21,00	1,5	1,5	38,8				1,4	NU405			43,8	34,1
	80	21,00	1,5	1,5	38,8				1,4	NJ405			43,8	34,1

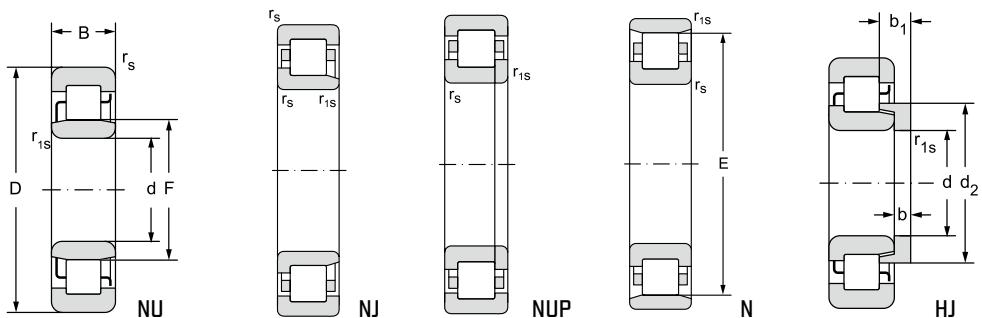


¹⁾ Admissible axial movement

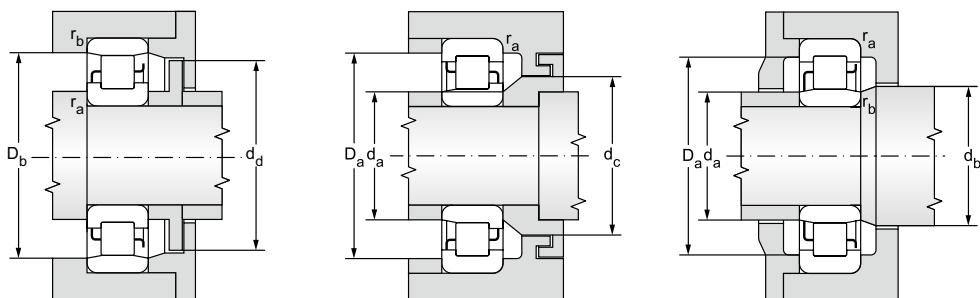
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight							
	P_u	grease	oil	d	d_a		d_b		d_c		d_d		D_a		D_b		r_a	r_b	~	of bearing
					min	max	min	max	min	max	max	min	min	max	max	min	max			
kN	min ⁻¹	mm																		kg
1,24	14000	17000		20	25	25,5	29,0	32	-	42	-	-	1,0	0,6	0,11	0,0100				
1,24	14000	17000		25	25	25,5	29,0	32	-	42	-	-	1,0	0,6	0,11	0,0100				
1,24	14000	17000		25	25,5	29,0	32	-	42	-	-	1,0	0,6	0,11						
1,24	14000	17000		25	25,5	29,0	32	39	42	42	42	1,0	0,6	0,11						
1,54	12600	15000	25	30	30,5	34,0	37	-	47	-	-	1,0	0,6	0,13	0,020					
1,54	12600	15000		30	30,5	34,0	37	-	47	-	-	1,0	0,6	0,13	0,020					
1,54	12600	15000		30	30,5	34,0	37	-	47	-	-	1,0	0,6	0,13						
1,54	12600	15000		30	30,5	34,0	37	43	47	47	47	1,0	0,6	0,13						
3,12	12600	15000		30	30,0	34,0	37	-	47	-	-	1,0	0,6	0,13	0,020					
3,12	12600	15000		30	30,0	34,0	37	-	47	-	-	1,0	0,6	0,13	0,020					
3,12	12600	15000		30	30,0	34,0	37	-	47	-	-	1,0	0,6	0,13						
3,12	12600	15000		30	30,0	34,0	37	44	47	47	47	1,0	0,6	0,13						
2,39	12600	15000		30	30,5	34,0	37	-	47	-	-	1,0	0,6	0,16						
2,39	12600	15000		30	30,5	34,0	37	-	47	-	-	1,0	0,6	0,16						
2,39	12600	15000		30	30,5	34,0	37	-	47	-	-	1,0	0,6	0,16						
2,62	10000	12000		31	33,0	37,0	40	-	55	-	-	1,0	1,0	0,24	0,030					
2,62	10000	12000		31	33,0	37,0	40	-	55	-	-	1,0	1,0	0,24	0,030					
2,62	10000	12000		31	33,0	37,0	40	-	55	-	-	1,0	1,0	0,24						
2,62	10000	12000		31	33,0	37,0	40	51	55	55	55	1,0	1,0	0,24						
4,41	10000	12000		31	32,0	37,0	40	-	55	-	-	1,0	1,0	0,26	0,030					
4,41	10000	12000		31	32,0	37,0	40	-	55	-	-	1,0	1,0	0,26	0,030					
4,41	10000	12000		31	32,0	37,0	40	-	55	-	-	1,0	1,0	0,26						
4,41	10000	12000		31	32,0	36,0	39	52	55	55	55	1,0	1,0	0,24						
4,16	8400	10000		32	38,0	39,0	40	-	73	-	-	1,0	1,0	0,57						
4,16	8400	10000		32	38,0	39,0	40	-	73	-	-	1,0	1,0	0,57						

Single row cylindrical roller bearings

d = 30 to 32 mm



d mm	Main dimensions									Bearing designation	Other cages	Angle ring designation	Basic load rating	
	D min	B min	r _s	r _{1s}	F	E	d ₂	b	b ₁				dynamic C _r	static C _{or}
	D max													
mm														kN
30	62	16,00	1,0	0,6	38,5	42,2	4,0	8,25	1,5	NU206		HJ206	21,5	17,8
	62	16,00	1,0	0,6	38,5	42,2	4,0	8,25	1,5	NJ206		HJ206	21,5	17,8
	62	16,00	1,0	0,6	38,5				1,5	NUP206			21,5	17,8
	62	16,00	1,0	0,6	53,5				1,5	N206			21,5	17,8
	62	16,00	1,0	0,6	37,5	41,4	4,0	7,00	1,4	NU206ETNG		HJ206E	39,1	35,5
	62	16,00	1,0	0,6	37,5	41,4	4,0	7,00	1,4	NJ206ETNG		HJ206E	39,1	35,5
	62	16,00	1,0	0,6	37,5				1,4	NUP206ETNG			39,1	35,5
	62	16,00	1,0	0,6	55,5				1,4	N206ETNG			39,1	35,5
	62	20,00	1,0	0,6	38,5				1,6	NU2206			31,6	29,3
	62	20,00	1,0	0,6	38,5				1,6	NJ2206			31,6	29,3
	62	20,00	1,0	0,6	38,5				1,6	NUP2206			31,6	29,3
	72	19,00	1,1	1,1	42	46,6	5,0	9,50	1,4	NU306		HJ306	36,2	31,0
	72	19,00	1,1	1,1	42	46,6	5,0	9,50	1,4	NJ306		HJ306	36,2	31,0
	72	19,00	1,1	1,1	42				1,4	NUP306			36,2	31,0
	72	19,00	1,1	1,1	62,0				1,4	N306			36,2	31,0
	72	19,00	1,1	1,1	40,5	45,1	5,0	8,50	1,4	NU306E	TNG	HJ306E	53,1	46,4
	72	19,00	1,1	1,1	40,5	45,1	5,0	8,50	1,4	NJ306E	TNG	HJ306E	53,1	46,4
	72	19,00	1,1	1,1	40,5				1,4	NUP306E	TNG		53,1	46,4
	72	19,00	1,1	1,1	62,5				1,4	N306ETNG			53,1	46,4
	90	23,00	1,5	1,5	45	51,4	7,0	11,50	1,5	NU406		HJ406	59,6	48,2
	90	23,00	1,5	1,5	45	51,4	7,0	11,50	1,5	NJ406		HJ406	59,6	48,2
	90	23,00	1,5	1,5	45				1,5	NUP406			59,6	48,2
32	65	21,00	1,0	0,6	38,5				1,6	NU22/32ETNG			51,1	50,1

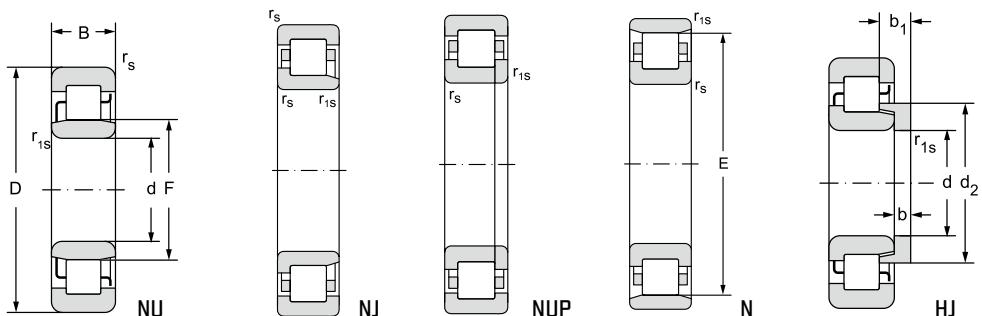


¹⁾ Admissible axial movement

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions												Weight	
	P _u	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	of bearing	Ang.r.
kN	min ⁻¹				min	max	min	min	max	max	min	max	max	kg		
2,17	10600	12600	30	35	37,0	40,0	44	-	57	-	1,0	0,6	0,20	0,030		
2,17	10600	12600		35	37,0	40,0	44	-	57	-	1,0	0,6	0,20	0,030		
2,17	10600	12600		35	37,0	40,0	44	-	57	-	1,0	0,6	0,20			
2,17	10600	12600		35	37,0	40,0	44	52	57	56	1,0	0,6	0,20			
4,33	10600	12600		35	37,0	40,0	43	-	57	-	1,0	0,6	0,20	0,030		
4,33	10600	12600		35	37,0	40,0	43	-	57	-	1,0	0,6	0,20	0,030		
4,33	10600	12600		35	37,0	40,0	43	-	57	-	1,0	0,6	0,20			
4,33	10600	12600		35	37,0	40,0	43	54	57	57	1,0	0,6	0,20			
3,57	10600	12600		35	37,0	40,0	44	-	57	-	1,0	0,6	0,26			
3,57	10600	12600		35	37,0	40,0	44	-	57	-	1,0	0,6	0,26			
3,57	10600	12600		35	37,0	40,0	44	-	57	-	1,0	0,6	0,26			
3,78	8900	10600		36	39,0	44,0	48	-	65	-	1,0	1,0	0,36	0,040		
3,78	8900	10600		36	39,0	44,0	48	-	65	-	1,0	1,0	0,36	0,040		
3,78	8900	10600		36	39,0	44,0	48	-	65	-	1,0	1,0	0,36			
3,78	8900	10600		36	39,0	44,0	48	60	65	64	1,0	1,0	0,36			
5,66	8400	10000		36	37,5	43,0	47	-	65	-	1,0	1,0	0,36	0,040		
5,66	8400	10000		36	37,5	43,0	47	-	65	-	1,0	1,0	0,36	0,040		
5,66	8400	10000		36	37,5	43,0	47	-	65	-	1,0	1,0	0,36			
5,66	8400	10000		36	37,5	43,0	47	60	65	64	1,0	1,0	0,36			
5,88	7100	8400		39	41,0	47,0	53	-	80	-	1,5	1,5	0,75	0,080		
5,88	7100	8400		39	41,0	47,0	53	-	80	-	1,5	1,5	0,75	0,080		
5,88	7100	8400		39	41,0	47,0	53	-	80	-	1,5	1,5	0,75			
6,11	10000	12000	32	35	37,0	39,0	43	-	60	-	1,0	1,0	0,31			

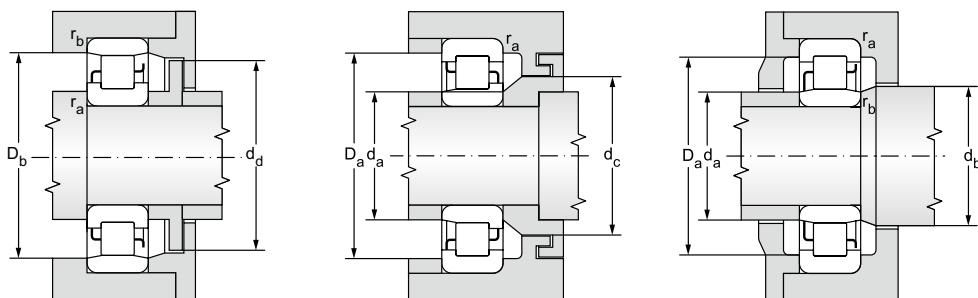
Single row cylindrical roller bearings

d = 35 mm



12.4.1

Main dimensions										Bearing designation	Other cages	Angle ring designation	Basic load rating				
d	D	B	r _s	r _{ts}	F	E	d _z	b	b ₁	s ₁₁				dynamic	static		
			min	min			max								C _r	C _{or}	
mm																kN	
35	72	17,00	1,1	0,6	43,8		48,1	4,0	8,00	1,5	NU207		HJ207	31,6	27,1		
	72	17,00	1,1	0,6	43,8		48,1	4,0	8,00	1,5	NJ207		HJ207	31,6	27,1		
	72	17,00	1,1	0,6	43,8					1,5	NUP207			31,6	27,1		
	72	17,00	1,1	0,6		61,8				1,5	N207			31,6	27,1		
	72	17,00	1,1	0,6	44		48,3	4,0	7,00	1,4	NU207E	TNG	HJ207E	51,1	48,2		
	72	17,00	1,1	0,6	44		48,3	4,0	7,00	1,4	NJ207E	TNG	HJ207E	51,1	48,2		
	72	17,00	1,1	0,6	44					1,4	NUP207E	TNG		51,1	48,2		
	72	17,00	1,1	0,6		64,0				1,4	N207ETNG			51,1	48,2		
	72	23,00	1,1	0,6	43,8					1,6	NU2207			48,2	47,3		
	72	23,00	1,1	0,6	43,8					1,6	NJ2207			48,2	47,3		
	72	23,00	1,1	0,6	43,8					1,6	NUP2207			48,2	47,3		
	72	23,00	1,1	0,6	44					1,6	NU2207ETNG			64,3	64,3		
	72	23,00	1,1	0,6	44					1,6	NJ2207ETNG			64,3	64,3		
	72	23,00	1,1	0,6	44					1,6	NUP2207ETNG			64,3	64,3		
	80	21,00	1,5	1,1	46,2		51,2	6,0	11,00	1,4	NU307		HJ307	43,0	36,2		
	80	21,00	1,5	1,1	46,2		51,2	6,0	11,00	1,4	NJ307		HJ307	43,0	36,2		
	80	21,00	1,5	1,1	46,2					1,4	NUP307			43,0	36,2		
	80	21,00	1,5	1,1		68,2				1,4	N307			43,0	36,2		
	80	21,00	1,5	1,1	46,2		51,2	6,0	9,50	1,4	NU307E		HJ307E	66,8	61,9		
	80	21,00	1,5	1,1	46,2		51,2	6,0	9,50	1,4	NJ307E		HJ307E	66,8	61,9		
	80	21,00	1,5	1,1	46,2					1,4	NUP307E			66,8	61,9		
	80	31,00	1,5	1,1	46,2					2,7	NU2307EMAS			92,6	92,6		
	80	31,00	1,5	1,1	46,2					2,7	NJ2307EMAS			92,6	92,6		
	80	31,00	1,5	1,1	46,2					2,7	NUP2307EMAS			92,6	92,6		
	100	25,00	1,5	1,5	53		59,9	8,0	13,00	1,5	NU407		HJ407	75,0	64,3		
	100	25,00	1,5	1,5	53		59,9	8,0	13,00	1,5	NJ407		HJ407	75,0	64,3		
	100	25,00	1,5	1,5	53					1,5	NUP407			75,0	64,3		
	100	25,00	1,5	1,5		83,0				1,5	N407			75,0	64,3		

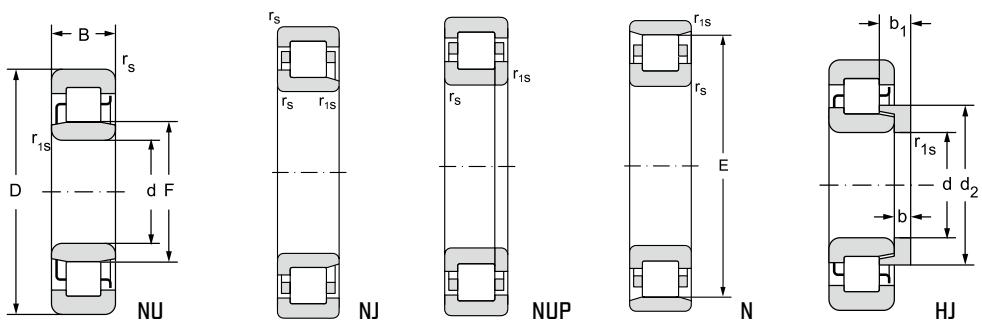


¹⁾ Admissible axial movement

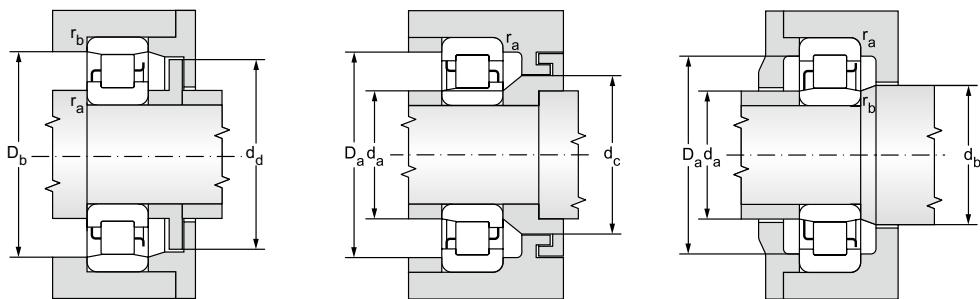
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions												Weight	
	P _u		grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	
kN	min ⁻¹														kg	kg
3,30	9400	11000			35	42	42,0	46,0	50	-	65	-	1,0	0,6	0,29	0,040
3,30	9400	11000				42	42,0	46,0	50	-	65	-	1,0	0,6	0,29	0,040
3,30	9400	11000				42	42,0	46,0	50	-	65	-	1,0	0,6	0,29	
3,30	9400	11000				42	42,0	46,0	50	60	65	64	1,0	0,6	0,29	
5,88	8900	10600				42	42,0	46,0	50	-	65	-	1,0	0,6	0,29	0,040
5,88	8900	10600				42	42,0	46,0	50	-	65	-	1,0	0,6	0,29	0,040
5,88	8900	10600				42	42,0	46,0	50	-	65	-	1,0	0,6	0,29	
5,88	8900	10600				42	42,0	46,0	50	62	65	65	1,0	0,6	0,29	
5,77	9400	11000				42	42,0	46,0	50	-	65	-	1,0	0,6	0,40	
5,77	9400	11000				42	42,0	46,0	50	-	65	-	1,0	0,6	0,40	
5,77	9400	11000				42	42,0	46,0	50	-	65	-	1,0	0,6	0,40	
7,84	8900	10600				42	42,0	46,0	50	-	65	-	1,0	0,6	0,39	
7,84	8900	10600				42	42,0	46,0	50	-	65	-	1,0	0,6	0,39	
7,84	8900	10600				42	42,0	46,0	50	-	65	-	1,0	0,6	0,39	
4,41	7900	9400				42	44,0	48,0	53	-	71	-	1,5	1,0	0,48	0,060
4,41	7900	9400				42	44,0	48,0	53	-	71	-	1,5	1,0	0,48	0,060
4,41	7900	9400				42	44,0	48,0	53	-	71	-	1,5	1,0	0,48	
4,41	7900	9400				42	44,0	48,0	53	66	71	71	1,5	1,0	0,48	
7,55	7500	8900				42	44,0	48,0	53	-	71	-	1,5	1,0	0,47	0,060
7,55	7500	8900				42	44,0	48,0	53	-	71	-	1,5	1,0	0,47	0,060
7,55	7500	8900				42	44,0	48,0	53	-	71	-	1,5	1,0	0,47	
11,29	7100	8400				42	44,0	48,0	53	-	71	-	1,5	1,0	0,75	
11,29	7100	8400				42	44,0	48,0	53	-	71	-	1,5	1,0	0,75	
11,29	7100	8400				42	44,0	48,0	53	-	71	-	1,5	1,0	0,75	
7,84	6300	7500				44	52,0	55,0	62	-	90	-	1,5	1,5	1,00	0,13
7,84	6300	7500				44	52,0	55,0	62	-	90	-	1,5	1,5	1,00	0,13
7,84	6300	7500				44	52,0	55,0	62	-	90	-	1,5	1,5	1,00	
7,84	6300	7500				44	52,0	55,0	62	81	90	86	1,5	1,5	1,00	

Single row cylindrical roller bearings

$d = 40 \text{ mm}$



d mm	Main dimensions									Bearing designation	Other cages	Angle ring designation	Basic load rating	
	D min	B min	r_s	r_{1s}	F	E max	d_2	b	b_1	s_{11}			dynamic C_r	static C_{or}
	D min	B max	r_s	r_{1s}	F	E min	d_2	b	b_1	s_{11}				
40	80	18,00	1,1	1,1	50	54,6	5,0	9,00	1,5	NU208		HJ208	42,2	37,6
	80	18,00	1,1	1,1	50	54,6	5,0	9,00	1,5	NJ208		HJ208	42,2	37,6
	80	18,00	1,1	1,1	50				1,5	NUP208		HJ208	42,2	37,6
	80	18,00	1,1	1,1	70,0				1,5	N208			42,2	37,6
	80	18,00	1,1	1,1	49,5	54,1	5,0	8,50	1,4	NU208E		HJ208E	54,1	50,1
	80	18,00	1,1	1,1	49,5	54,1	5,0	8,50	1,4	NJ208E		HJ208E	54,1	50,1
	80	18,00	1,1	1,1	49,5				1,4	NUP208E			54,1	50,1
	80	23,00	1,1	1,1	50				1,6	NU2208			57,3	56,2
	80	23,00	1,1	1,1	50				1,6	NJ2208			57,3	56,2
	80	23,00	1,1	1,1	50				1,6	NUP2208			57,3	56,2
	80	30,16	1,0	1,5	49,3				3,0	NU5208M			57,0	98,1
	90	23,00	1,5	1,5	53,5	59,0	7,0	12,50	1,4	NU308		HJ308	55,2	48,2
	90	23,00	1,5	1,5	53,5	59,0	7,0	12,50	1,4	NJ308		HJ308	55,2	48,2
	90	23,00	1,5	1,5	53,5				1,4	NUP308			55,2	48,2
	90	23,00	1,5	1,5	77,5				1,4	N308			55,2	48,2
	90	23,00	1,5	1,5	52	57,7	7,0	11,00	1,4	NU308E	TNG	HJ308E	84,1	77,9
	90	23,00	1,5	1,5	52	57,7	7,0	11,00	1,4	NJ308E	TNG	HJ308E	84,1	77,9
	90	23,00	1,5	1,5	52				1,4	NUP308E	TNG		84,1	77,9
	90	23,00	1,5	1,5	80,0				1,4	N308ETNG			84,1	77,9
	90	33,00	1,5	1,5	52				2,9	NU2308EMAS			119,0	123,0
	90	33,00	1,5	1,5	52				2,9	NJ2308EMAS			119,0	123,0
	90	33,00	1,5	1,5	52				2,9	NUP2308EMAS			119,0	123,0
	110	27,00	2,0	2,0	58	65,8	8,0	13,00	1,5	NU408		HJ408	92,6	79,4
	110	27,00	2,0	2,0	58	65,8	8,0	13,00	1,5	NJ408		HJ408	92,6	79,4
	110	27,00	2,0	2,0	58				1,5	NUP408			92,6	79,4
	110	27,00	2,0	2,0	92,0				1,5	N408			92,6	79,4

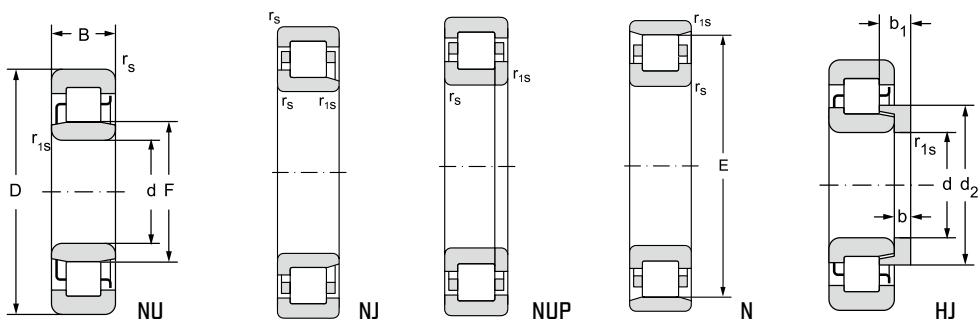


¹⁾ Admissible axial movement

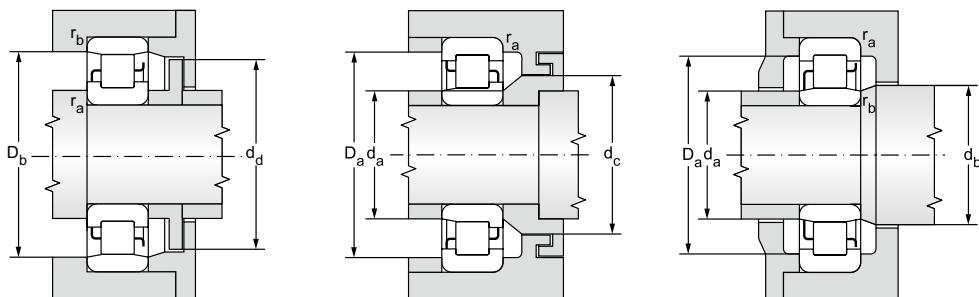
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions												Weight	
	P _u	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	of bearing	Ang.r.
kN	min ⁻¹				min	max	min	min	max	max	min	max	max	kg		
4,59	7900	9400	40	47	48,0	52,0	56	-	73	-	1,0	1,0	0,37	0,050		
4,59	7900	9400		47	48,0	52,0	56	-	73	-	1,0	1,0	0,37	0,050		
4,59	7900	9400		47	48,0	52,0	56	-	73	-	1,0	1,0	0,0000			
4,59	7900	9400		47	48,0	52,0	56	68	73	72	1,0	1,0	0,0000			
6,11	7900	9400		47	47,0	51,0	56	-	73	-	1,0	1,0	0,38	0,050		
6,11	7900	9400		47	47,0	51,0	56	-	73	-	1,0	1,0	0,38	0,050		
6,11	7900	9400		47	47,0	51,0	56	-	73	-	1,0	1,0	0,38			
6,85	7900	9400		47	48,0	52,0	56	-	73	-	1,0	1,0	0,74			
6,85	7900	9400		47	48,0	52,0	56	-	73	-	1,0	1,0	0,74			
6,85	7900	9400		47	48,0	52,0	56	-	73	-	1,0	1,0	0,74			
11,96	7500	8900		48	-	51,5	-	-	72	-	1,5	1,5	0,74			
5,88	7100	8400		47	51,0	55,0	61	-	81	-	1,5	1,5	0,66	0,090		
5,88	7100	8400		47	51,0	55,0	61	-	81	-	1,5	1,5	0,66	0,090		
5,88	7100	8400		47	51,0	55,0	61	-	81	-	1,5	1,5	0,66			
5,88	7100	8400		47	51,0	55,0	61	75	81	81	1,5	1,5	0,66			
9,50	6700	7900		47	50,0	54,0	60	-	81	-	1,5	1,5	0,67	0,080		
9,50	6700	7900		47	50,0	54,0	60	-	81	-	1,5	1,5	0,67	0,080		
9,50	6700	7900		47	50,0	54,0	60	-	81	-	1,5	1,5	0,67			
9,50	6700	7900		47	50,0	54,0	60	77	81	81	1,5	1,5	0,83			
15,00	6300	7500		47	50,0	54,0	60	-	81	-	1,5	1,5	1,00			
15,00	6300	7500		47	50,0	54,0	60	-	81	-	1,5	1,5	1,00			
15,00	6300	7500		47	50,0	54,0	60	-	81	-	1,5	1,5	1,00			
9,68	5600	6700		50	55,0	60,0	68	-	97	-	2,0	2,0	1,30	0,14		
9,68	5600	6700		50	55,0	60,0	68	-	97	-	2,0	2,0	1,30	0,14		
9,68	5600	6700		50	55,0	60,0	68	90	97	95	2,0	2,0	1,30			
9,68	5600	6700		50	55,0	60,0	68	-	97	-	2,0	2,0	1,30			

Single row cylindrical roller bearings

$d = 45 \text{ mm}$



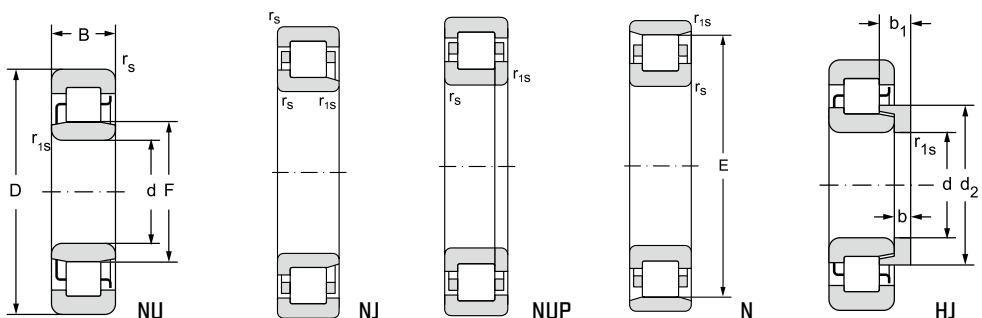
Main dimensions										Bearing designation	Other cages	Angle ring designation	Basic load rating		
d	D	B	r_s	r_{1s}	F	E	d_2	b	b_1	s_{11}				dynamic	static
			min	min			max							C_r	C_{or}
mm															
45	85	19,00	1,1	1,1	55	59,6	5,0	9,50	1,5		NU209		HJ209	43,8	41,1
	85	19,00	1,1	1,1	55	59,6	5,0	9,50	1,5		NJ209		HJ209	43,8	41,1
	85	19,00	1,1	1,1	55				1,5		NUP209			43,8	41,1
	85	19,00	1,1	1,1	75,0				1,5		N209			43,8	41,1
	85	19,00	1,1	1,1	54,5	59,1	5,0	8,50	1,4		NU209E	TNG	HJ209E	61,9	60,7
	85	19,00	1,1	1,1	54,5	59,1	5,0	8,50	1,4		NJ209E	TNG	HJ209E	61,9	60,7
	85	19,00	1,1	1,1	54,5				1,4		NUP209E	TNG		61,9	60,7
	85	19,00	1,1	1,1	76,5				1,4		N209ETNG			61,9	60,7
	85	23,00	1,1	1,1	54,5				1,6		NU2209E	TNG		76,4	79,4
	85	23,00	1,1	1,1	54,5				1,6		NJ2209E	TNG		76,4	79,4
	85	23,00	1,1	1,1	54,5				1,6		NUP2209E	TNG		76,4	79,4
	85	30,16	1,0	1,5	55,52				4,0		NU5209M			89,1	117,7
	100	25,00	1,5	1,5	58,5	65,0	7,0	12,50	1,4		NU309		HJ309	70,8	61,9
	100	25,00	1,5	1,5	58,5	65,0	7,0	12,50	1,4		NJ309		HJ309	70,8	61,9
	100	25,00	1,5	1,5	58,5				1,4		NUP309			70,8	61,9
	100	25,00	1,5	1,5	86,5				1,4		N309			70,8	61,9
	100	25,00	1,5	1,5	58,5	64,6	7,0	11,50	1,4		NU309E		HJ309E	102,0	98,0
	100	25,00	1,5	1,5	58,5	64,6	7,0	11,50	1,4		NJ309E		HJ309E	102,0	98,0
	100	25,00	1,5	1,5	58,5				1,4		NUP309E			102,0	98,0
	100	36,00	1,5	1,5	58,5				2,9		NU2309E			139,0	147,0
	100	36,00	1,5	1,5	58,5				2,9		NJ2309E			139,0	147,0
	100	36,00	1,5	1,5	58,5				2,9		NUP2309E			139,0	147,0
	120	29,00	2,0	2,0	64,5	72,8	8,0	13,50	1,5		NU409		HJ409	104,0	90,9
	120	29,00	2,0	2,0	64,5	72,8	8,0	13,50	1,5		NJ409		HJ409	104,0	90,9
	120	29,00	2,0	2,0	64,5				1,5		NUP409			104,0	90,9
	120	29,00	2,0	2,0	100,5				1,5		N409			104,0	90,9


¹⁾ Admissible axial movement

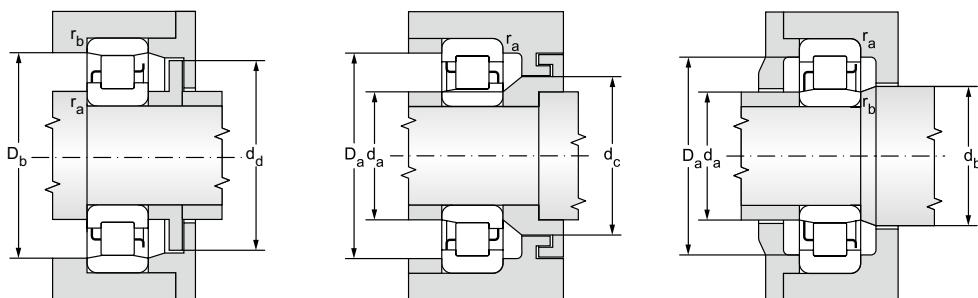
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions												Weight	
	P _u	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	of bearing	Ang.r.
kN	min ⁻¹			mm												kg
5,01	7500	8900	45	52	53,0	57,0	61	-	78	-	1,0	1,0	0,43	0,050		
5,01	7500	8900		52	53,0	57,0	61	-	78	-	1,0	1,0	0,43	0,050		
5,01	7500	8900		52	53,0	57,0	61	-	78	-	1,0	1,0	0,43			
5,01	7500	8900		52	53,0	57,0	61	74	78	78	1,0	1,0	0,43			
7,40	7500	8900		52	53,0	57,0	61	-	78	-	1,0	1,0	0,45	0,050		
7,40	7500	8900		52	53,0	57,0	61	-	78	-	1,0	1,0	0,45	0,050		
7,40	7500	8900		52	53,0	57,0	61	-	78	-	1,0	1,0	0,45			
7,40	7500	8900		52	53,0	57,0	61	74	78	78	1,0	1,0	0,43			
9,68	7100	8400		52	53,0	57,0	61	-	78	-	1,0	1,0	0,55			
9,68	7100	8400		52	53,0	57,0	61	-	78	-	1,0	1,0	0,55			
9,68	7100	8400		53	53,0	57,0	61	-	76	-	1,5	1,0	0,55			
14,35	6700	7900		53	-	57,0	-	-	76	-	1,5	1,0	0,80			
7,55	6300	7500		52	56,0	60,0	66	-	91	-	1,5	1,5	0,87	0,100		
7,55	6300	7500		52	56,0	60,0	66	-	91	-	1,5	1,5	0,87	0,100		
7,55	6300	7500		52	56,0	60,0	66	-	91	-	1,5	1,5	0,87			
7,55	6300	7500		52	56,0	60,0	66	-	91	90	1,5	1,5	0,87			
11,95	6000	7100		52	56,0	60,0	66	-	91	-	1,5	1,5	0,89	0,100		
11,95	6000	7100		52	56,0	60,0	66	-	91	-	1,5	1,5	0,89	0,100		
11,95	6000	7100		52	56,0	60,0	66	-	91	-	1,5	1,5	0,89			
17,93	5600	6700		52	56,0	60,0	66	-	91	-	1,5	1,5	1,36			
17,93	5600	6700		52	56,0	60,0	66	-	91	-	1,5	1,5	1,36			
17,93	5600	6700		52	56,0	60,0	66	-	91	-	1,5	1,5	1,36			
11,09	5300	6300		55	62,7	66,0	75	-	107	-	2,0	2,0	1,65	0,18		
11,09	5300	6300		55	62,7	66,0	75	-	107	-	2,0	2,0	1,65	0,18		
11,09	5300	6300		55	62,7	66,0	75	-	107	-	2,0	2,0	1,65			
11,09	5300	6300		55	62,7	66,0	75	99	107	103	2,0	2,0	1,65			

Single row cylindrical roller bearings

$d = 50 \text{ mm}$



Main dimensions										Bearing designation	Other cages	Angle ring designation	Basic load rating		
d	D	B	r_s	r_{1s}	F	E	d_2	b	b_1	s_{11}				dynamic	static
			min	min			max							C_r	C_{or}
mm															
50	90	20,00	1,1	1,1	59,5	64,6	5,0	9,00	1,6	NU210E		HJ210E	64,3	65,6	
	90	20,00	1,1	1,1	59,5	64,6	5,0	9,00	1,6	NJ210E		HJ210E	64,3	65,6	
90	20,00	1,1	1,1	59,5					1,6	NUP210E			64,3	65,6	
90	23,00	1,1	1,1	60,4					1,6	NU2210			63,1	66,8	
90	23,00	1,1	1,1	60,4					1,6	NJ2210			63,1	66,8	
90	23,00	1,1	1,1	60,4					1,6	NUP2210			63,1	66,8	
90	23,00	1,1	1,1	59,5					1,6	NU2210E			84,1	90,9	
90	23,00	1,1	1,1	59,5					1,6	NJ2210E			84,1	90,9	
90	23,00	1,1	1,1	59,5					1,6	NUP2210E			84,1	90,9	
90	30,16	1,0	1,5	60,46					4,5	NUS210M			92,6	128,0	
110	27,00	2,0	2,0	65	71,9	8,0	14,00	1,5		NU310		HJ310	87,4	79,4	
110	27,00	2,0	2,0	65	71,9	8,0	14,00	1,5		NJ310		HJ310	87,4	79,4	
110	27,00	2,0	2,0	65					1,5	NUP310			87,4	79,4	
110	27,00	2,0	2,0	65	95,0				1,5	N310			87,4	79,4	
110	27,00	2,0	2,0	65	71,4	8,0	13,00	1,5		NU310ETNG		HJ310E	117,0	114,0	
110	27,00	2,0	2,0	65	71,4	8,0	13,00	1,5		NJ310ETNG		HJ310E	117,0	114,0	
110	27,00	2,0	2,0	65					1,5	NUP310ETNG			117,0	114,0	
110	27,00	2,0	2,0	65	97,0				1,5	N310ETNG			117,0	114,0	
110	40,00	2,0	2,0	65					3,0	NU2310			123,0	126,0	
110	40,00	2,0	2,0	65					3,0	NJ2310			123,0	126,0	
110	40,00	2,0	2,0	65					3,0	NUP2310			123,0	126,0	
110	40,00	2,0	2,0	65					3,0	NU2310EMAS			168,0	178,0	
110	40,00	2,0	2,0	65					3,0	NJ2310EMAS			168,0	178,0	
110	40,00	2,0	2,0	65					3,0	NUP2310EMAS			168,0	178,0	
130	31,00	2,1	2,1	70,8	80,0	9,0	14,50	2,0		NU410		HJ410	139,0	114,0	
130	31,00	2,1	2,1	70,8	80,0	9,0	14,50	2,0		NJ410		HJ410	139,0	114,0	
130	31,00	2,1	2,1	70,8					2,0	NUP410			139,0	114,0	
130	31,00	2,1	2,1	70,8	110,8				2,0	N410			139,0	114,0	

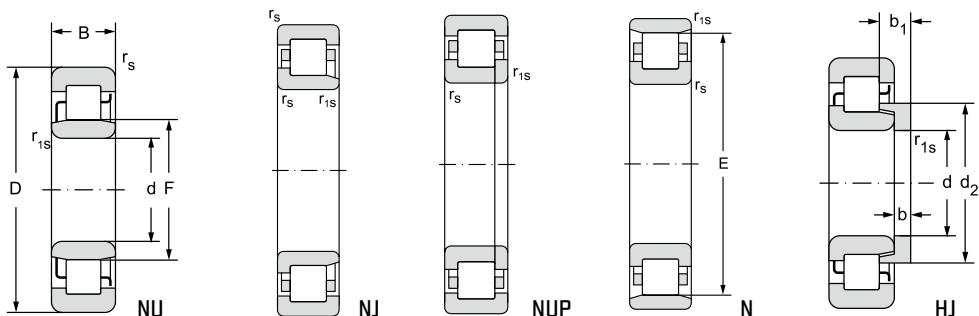


¹⁾ Admissible axial movement

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions												Weight	
	P _u		grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	
kN	min ⁻¹														of bearing	Ang.r.
8,00	6700	7900		50	57	57,0	61,0	66	-	83	-	1,0	1,0	0,49	0,060	
8,00	6700	7900			57	57,0	61,0	66	-	83	-	1,0	1,0	0,49	0,060	
8,00	6700	7900			57	57,0	61,0	66	-	83	-	1,0	1,0	0,49		
8,15	7100	8400			57	58,0	62,0	66	-	83	-	1,0	1,0	0,58		
8,15	7100	8400			57	58,0	62,0	66	-	83	-	1,0	1,0	0,58		
8,15	7100	8400			57	58,0	62,0	66	-	83	-	1,0	1,0	0,58		
11,09	6700	7900			57	57,0	61,0	66	-	83	-	1,0	1,0	0,59		
11,09	6700	7900			57	57,0	61,0	66	-	83	-	1,0	1,0	0,59		
11,09	6700	7900			57	57,0	61,0	66	-	83	-	1,0	1,0	0,59		
11,09	6700	7900			57	57,0	61,0	66	-	83	-	1,0	1,0	0,59		
15,61	6300	7500			58	-	62,0	-	-	81	-	1,5	1,0	0,88		
9,68	5600	6700			60	63,0	67,0	74	-	100	-	2,0	2,0	1,15	0,15	
9,68	5600	6700			60	63,0	67,0	74	-	100	-	2,0	2,0	1,15	0,15	
9,68	5600	6700			60	63,0	67,0	74	-	100	-	2,0	2,0	1,15		
9,68	5600	6700			60	63,0	67,0	74	93	100	99	2,0	2,0	1,15		
13,90	5300	6300			60	63,0	67,0	74	-	100	-	2,0	2,0	1,13	0,14	
13,90	5300	6300			60	63,0	67,0	74	-	100	-	2,0	2,0	1,13	0,14	
13,90	5300	6300			60	63,0	67,0	74	-	100	-	2,0	2,0	1,13		
13,90	5300	6300			60	63,0	67,0	74	95	100	100	2,0	2,0	1,13		
15,37	5600	6700			60	63,0	67,0	74	-	100	-	2,0	2,0	0,17		
15,37	5600	6700			60	63,0	67,0	74	-	100	-	2,0	2,0	0,17		
15,37	5600	6700			60	63,0	67,0	74	-	100	-	2,0	2,0	0,17		
21,71	5000	6000			60	63,0	67,0	74	-	100	-	2,0	2,0	1,83		
21,71	5000	6000			60	63,0	67,0	74	-	100	-	2,0	2,0	1,83		
21,71	5000	6000			60	63,0	67,0	74	-	100	-	2,0	2,0	1,83		
13,90	4700	5600			63	68,0	73,0	82	-	116	-	2,0	2,0	2,00	0,23	
13,90	4700	5600			63	68,0	73,0	82	-	116	-	2,0	2,0	2,00	0,23	
13,90	4700	5600			63	68,0	73,0	82	-	116	-	2,0	2,0	2,00		
13,90	4700	5600			63	68,0	73,0	82	109	116	114	2,0	2,0	2,00		

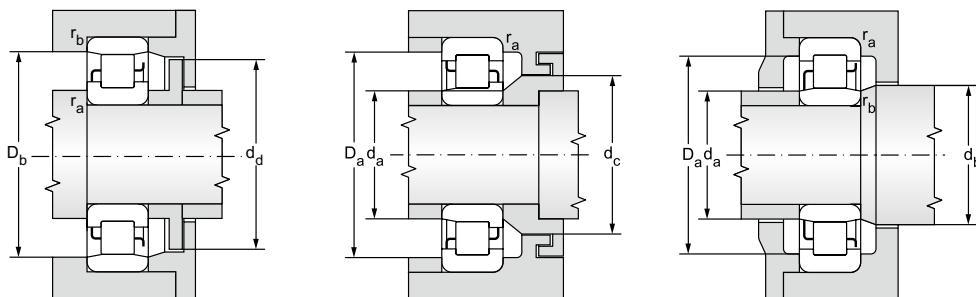
Single row cylindrical roller bearings

$d = 55 \text{ mm}$



Main dimensions										Bearing designation	Other cages	Angle ring designation	Basic load rating		
d	D	B	r_s	r_{1s}	F	E	d_2	b	b_1	s_{11}				dynamic	static
			min	min			max							C_r	C_{or}
mm															
55	100	21,00	1,5	1,1	66,5		71,5	6,0	11,00	1,6	NU211		HJ211	56,2	56,2
	100	21,00	1,5	1,1	66,5		71,5	6,0	11,00	1,6	NJ211		HJ211	56,2	56,2
	100	21,00	1,5	1,1	66,5					1,6	NUP211			56,2	56,2
	100	21,00	1,5	1,1	88,5					1,6	N211			56,2	56,2
	100	21,00	1,5	1,1	66		71,0	6,0	9,50	1,6	NU211E		HJ211E	85,8	90,9
	100	21,00	1,5	1,1	66		71,0	6,0	9,50	1,6	NJ211E		HJ211E	85,8	90,9
	100	21,00	1,5	1,1	66					1,6	NUP211E			85,8	90,9
	100	25,00	1,5	1,1	66,5					1,6	NU2211			76,4	82,5
	100	25,00	1,5	1,1	66,5					1,6	NJ2211			76,4	82,5
	100	25,00	1,5	1,1	66,5					1,6	NUP2211			76,4	82,5
	100	33,34	1,5	2,1	66,9					4,5	NU5211M			119,0	171,0
	120	29,00	2,0	2,0	70,5		78,4	9,0	15,00	1,5	NU311		HJ311	108,0	100,0
	120	29,00	2,0	2,0	70,5		78,4	9,0	15,00	1,5	NJ311		HJ311	108,0	100,0
	120	29,00	2,0	2,0	70,5					1,5	NUP311			108,0	100,0
	120	29,00	2,0	2,0	104,5					1,5	N311			108,0	100,0
	120	29,00	2,0	2,0	70,5		77,7	9,0	14,00	1,5	NU311E		HJ311E	136,0	128,0
	120	29,00	2,0	2,0	70,5		77,7	9,0	14,00	1,5	NJ311E		HJ311E	136,0	128,0
	120	29,00	2,0	2,0	70,5					1,5	NUP311E			136,0	128,0
	140	33,00	2,1	2,1	77,2		86,4	10,0	16,60	3,0	NU411		HJ411	139,0	128,0
	140	33,00	2,1	2,1	77,2		86,4	10,0	16,60	3,0	NJ411		HJ411	139,0	128,0
	140	33,00	2,1	2,1	77,2					3,0	NUP411			139,0	128,0
	140	33,00	2,1	2,1	117,2					3,0	N411			139,0	128,0





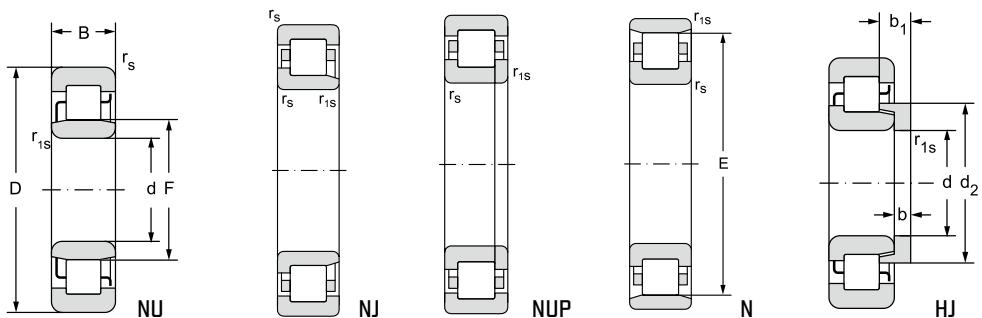
¹⁾ Admissible axial movement

Fatigue load limit	Abutment and fillet dimensions												Weight					
	P_u	Limiting speed for lubrication with		d	d_a		d_b		d_c		d_d		D_a	D_b	r_a	r_b	~	of bearing
		grease	oil		min	max	min	max	min	max	max	min						
kN	min ⁻¹	mm														kg		
6,85	6300	7500	55	62	65,0	68,0	73	-	91	-	1,5	1,0	0,64	0,080				
6,85	6300	7500		62	65,0	68,0	73	-	91	-	1,5	1,0	0,64	0,080				
6,85	6300	7500		62	65,0	68,0	73	-	91	-	1,5	1,0	0,64					
6,85	6300	7500		62	65,0	68,0	73	86	91	91	1,5	1,0	0,64					
11,09	6300	7500		62	64,5	68,0	73	-	91	-	1,5	1,0	0,66	0,080				
11,09	6300	7500		62	64,5	68,0	73	-	91	-	1,5	1,0	0,66	0,080				
11,09	6300	7500		62	64,5	68,0	73	-	91	-	1,5	1,0	0,66					
10,06	6300	7500		62	65,0	68,0	73	-	91	-	1,5	1,0	0,78					
10,06	6300	7500		62	65,0	68,0	73	-	91	-	1,5	1,0	0,78					
10,06	6300	7500		62	65,0	68,0	73	-	91	-	1,5	1,0	0,78					
20,85	5600	6700		64	-	69,0	-	-	90	-	2,0	1,5	1,20					
12,20	5300	6300		65	67,0	72,0	80	-	110	-	2,0	2,0	1,45	0,19				
12,20	5300	6300		65	67,0	72,0	80	-	110	-	2,0	2,0	1,45	0,19				
12,20	5300	6300		65	67,0	72,0	80	-	110	-	2,0	2,0	1,45					
12,20	5300	6300		65	67,0	72,0	80	102	110	108	2,0	2,0	1,45					
15,61	4700	5600		65	67,0	72,0	80	-	110	-	2,0	2,0	1,38	0,18				
15,61	4700	5600		65	67,0	72,0	80	-	110	-	2,0	2,0	1,38	0,18				
15,61	4700	5600		65	67,0	72,0	80	-	110	-	2,0	2,0	1,38					
15,61	4500	5300		68	71,0	79,0	88	-	126	-	2,0	2,0	2,50	0,30				
15,61	4500	5300		68	71,0	79,0	88	-	126	-	2,0	2,0	2,50	0,30				
15,61	4500	5300		68	71,0	79,0	88	115	126	120	2,0	2,0	2,50					
15,61	4500	5300		68	71,0	79,0	88											

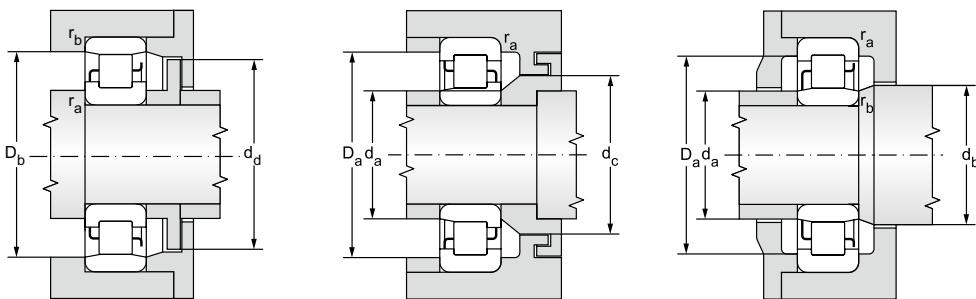


Single row cylindrical roller bearings

d = 60 to 65 mm



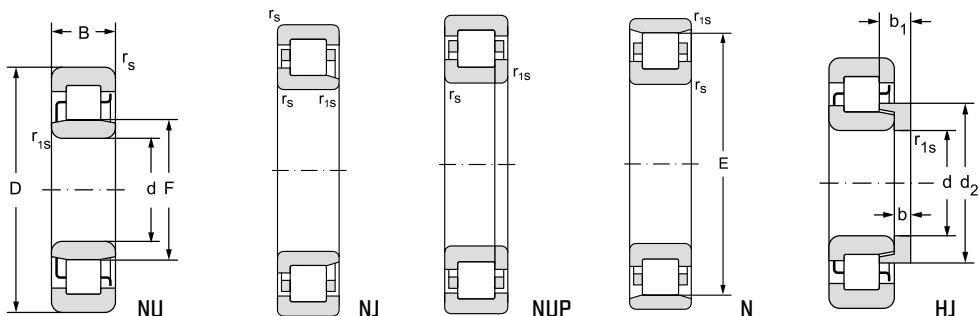
d	Main dimensions								Bearing designation	Other cages	Angle ring designation	Basic load rating		
	D	B	r_s	r_{1s}	F	E	d_2	b	b_1	s_{1j}				
	min	min				max						C_r	C_{or}	
mm													kN	
60	110	22,00	1,5	1,5	73,5	79,0	6,0	11,00	1,6	NU212		HJ212	66,8	68,1
	110	22,00	1,5	1,5	73,5	79,0	6,0	11,00	1,6	NJ212		HJ212	66,8	68,1
	110	22,00	1,5	1,5	73,5				1,6	NUP212			66,8	68,1
	110	22,00	1,5	1,5	73,5				1,6	N212			66,8	68,1
	110	28,00	1,5	1,5	73,5				1,6	NU2212			98,1	112,0
	110	28,00	1,5	1,5	73,5				1,6	NJ2212			98,1	112,0
	110	28,00	1,5	1,5	73,5				1,6	NUP2212			98,1	112,0
	110	36,50	1,5	2,0	72,38				4,5	NU5212M			150,0	211,0
	130	31,00	2,1	2,1	77	85,3	9,0	15,50	1,5	NU312		HJ312	121,0	114,0
	130	31,00	2,1	2,1	77	85,3	9,0	15,50	1,5	NJ312		HJ312	121,0	114,0
	130	31,00	2,1	2,1	77				1,5	NUP312			121,0	114,0
	130	31,00	2,1	2,1	77	113,0			1,5	N312			121,0	114,0
	130	46,00	2,1	2,1	77				4,5	NU2312			168,0	174,0
	130	46,00	2,1	2,1	77				4,5	NJ2312			168,0	174,0
	130	46,00	2,1	2,1	77				4,5	NUP2312			168,0	174,0
	150	35,00	2,1	2,1	83	93,1	10,0	16,50	2,0	NU412		HJ412	168,0	158,0
	150	35,00	2,1	2,1	83	93,1	10,0	16,50	2,0	NJ412		HJ412	168,0	158,0
	150	35,00	2,1	2,1	83				2,0	NUP412			168,0	158,0
	150	35,00	2,1	2,1	83	127,0			2,0	N412			168,0	158,0
65	120	23,00	1,5	1,5	79,6	85,6	6,0	11,00	1,6	NU213		HJ213	79,4	82,5
	120	23,00	1,5	1,5	79,6	85,6	6,0	11,00	1,6	NJ213		HJ213	79,4	82,5
	120	23,00	1,5	1,5	79,6				1,6	NUP213			79,4	82,5
	120	23,00	1,5	1,5	79,6	105,6			1,6	N213			79,4	82,5
	120	31,00	1,5	1,5	79,6				1,6	NU2213			117,0	136,0
	120	31,00	1,5	1,5	79,6				1,6	NJ2213			117,0	136,0
	120	31,00	1,5	1,5	79,6				1,6	NUP2213			117,0	136,0
	120	38,10	1,7	1,7	80,42				4,5	NU5213M			139,0	196,0
	140	33,00	2,1	2,1	83,5	92,2	10,0	17,00	1,5	NU313		HJ313	131,0	128,0
	140	33,00	2,1	2,1	83,5	92,2	10,0	17,00	1,5	NJ313		HJ313	131,0	128,0
	140	33,00	2,1	2,1	83,5				1,5	NUP313			131,0	128,0
	140	33,00	2,1	2,1	83,5	121,5			1,5	N313			131,0	128,0
	140	33,00	2,1	2,1	82,5	90,7	10,0	15,50	1,5	NU313E		HJ313E	181,0	178,0
	140	33,00	2,1	2,1	82,5	90,7	10,0	15,50	1,5	NJ313E		HJ313E	181,0	178,0
	140	33,00	2,1	2,1	82,5				1,5	NUP313E			181,0	178,0
	140	48,00	2,1	2,1	83,5				4,5	NU2313			192,0	203,0
	140	48,00	2,1	2,1	83,5				4,5	NJ2313			192,0	203,0
	140	48,00	2,1	2,1	83,5				4,5	NUP2313			192,0	203,0
	160	37,00	2,1	2,1	89,3	99,9	11,0	18,00	2,0	NU413MAS	M	HJ413	181,0	174,0
	160	37,00	2,1	2,1	89,3	99,9	11,0	18,00	2,0	NJ413MAS	M	HJ413	181,0	174,0
	160	37,00	2,1	2,1	89,3				2,0	NUP413MAS	M		181,0	174,0


¹⁾ Admissible axial movement

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions												Weight						
	P_u	grease	oil	d	d_a		d_b		d_c		d_d		D_a		D_b		r_a	r_b	~	of bearing	Ang.r.
					min	max	min	max	min	max	max	min	max	max	min	max	max				
kN	min ⁻¹	mm																		kg	
8,30	5600	6700	60	67	71,0	75,0	80	-	101	-	1,5	1,5	0,82	0,11							
8,30	5600	6700		67	71,0	75,0	80	-	101	-	1,5	1,5	0,82	0,11							
8,30	5600	6700		67	71,0	75,0	80	-	101	-	1,5	1,5	0,82								
8,30	5600	6700		67	71,0	75,0	80	95	101	101	1,5	1,5	0,82								
13,66	5600	6700		69	69,5	74,0	79	-	101	-	1,5	1,5	1,05								
13,66	5600	6700		69	69,5	74,0	79	-	101	-	1,5	1,5	1,05								
13,66	5600	6700		69	69,5	74,0	79	-	101	-	1,5	1,5	1,05								
25,73	5300	6300		69	-	74,0	-	-	99	-	2,0	1,5	1,59								
13,90	4700	5600		72	75,0	79,0	87	-	118	-	2,0	2,0	1,85	0,22							
13,90	4700	5600		72	75,0	79,0	87	-	118	-	2,0	2,0	1,85	0,22							
13,90	4700	5600		72	75,0	79,0	87	-	118	-	2,0	2,0	1,85								
13,90	4700	5600		72	75,0	79,0	87	110	118	117	2,0	2,0	1,85								
21,22	4700	5600		72	75,0	79,0	87	-	118	-	2,0	2,0	2,70								
21,22	4700	5600		72	75,0	79,0	87	-	118	-	2,0	2,0	2,70								
21,22	4700	5600		72	75,0	79,0	87	-	118	-	2,0	2,0	2,70								
18,99	4200	5000		73	77,0	85,0	95	-	136	-	2,0	2,0	3,00	0,34							
18,99	4200	5000		73	77,0	85,0	95	-	136	-	2,0	2,0	3,00	0,34							
18,99	4200	5000		73	77,0	85,0	95	124	136	130	2,0	2,0	3,00								
10,06	5300	6300	65	72	77,0	81,0	87	-	111	-	1,5	1,5	1,05	0,13							
10,06	5300	6300		72	77,0	81,0	87	-	111	-	1,5	1,5	1,05	0,13							
10,06	5300	6300		72	77,0	81,0	87	-	111	-	1,5	1,5	1,05								
10,06	5300	6300		72	77,0	81,0	87	103	111	110	1,5	1,5	1,05								
16,59	5300	6300		72	77,0	81,0	87	-	111	-	1,5	1,5	1,45								
16,59	5300	6300		72	77,0	81,0	87	-	111	-	1,5	1,5	1,45								
16,59	5300	6300		72	77,0	81,0	87	-	111	-	1,5	1,5	1,45								
23,90	4700	5600		77	-	83,0	-	-	108	-	1,5	1,5	1,88								
15,49	4500	5300		76	78,0	85,0	94	-	128	-	2,0	2,0	2,25	0,29							
15,49	4500	5300		76	78,0	85,0	94	-	128	-	2,0	2,0	2,25	0,29							
15,49	4500	5300		76	78,0	85,0	94	-	128	-	2,0	2,0	2,25								
15,49	4500	5300		76	78,0	85,0	94	119	128	126	2,0	2,0	2,25								
21,55	4200	5000		76	77,0	84,0	93	-	128	-	2,0	2,0	2,35	0,27							
21,55	4200	5000		76	77,0	84,0	93	-	128	-	2,0	2,0	2,35	0,27							
21,55	4200	5000		76	77,0	84,0	93	-	128	-	2,0	2,0	2,35								
24,57	4500	5300		76	78,0	85,0	94	-	128	-	2,0	2,0	3,25								
24,57	4500	5300		76	78,0	85,0	94	-	128	-	2,0	2,0	3,25								
24,57	4500	5300		76	78,0	85,0	94	-	128	-	2,0	2,0	3,25								
20,48	3800	4500		78	83,0	91,0	101	-	146	-	2,0	2,0	3,60	0,43							
20,48	3800	4500		78	83,0	91,0	101	-	146	-	2,0	2,0	3,60	0,43							
20,48	3800	4500		78	83,0	91,0	101	-	146	-	2,0	2,0	3,60								

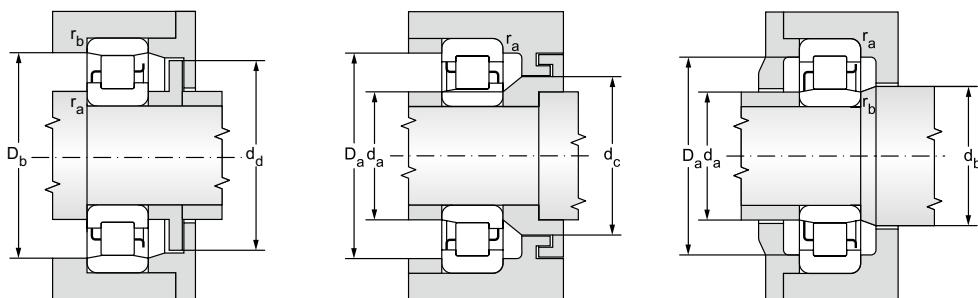
Single row cylindrical roller bearings

d = 70 mm



Main dimensions									Bearing designation	Other cages	Angle ring designation	Basic load rating			
d	D	B	r _s	r _{1s}	F	E	d ₂	b	b ₁	s ₁				dynamic	static
			min	min			max							C _r	C _{or}
mm															
70	125	24,00	1,5	1,5	84,5	90,5	7,0	12,50	1,6		NU214	HJ214	79,4	82,5	
	125	24,00	1,5	1,5	84,5	90,5	7,0	12,50	1,6		NJ214	HJ214	79,4	82,5	
	125	24,00	1,5	1,5	84,5				1,6		NUP214		79,4	82,5	
	125	24,00	1,5	1,5	84,5	110,5			1,6		N214		79,4	82,5	
	125	31,00	1,5	1,5	84,5				1,6		NU2214		117,0	139,0	
	125	31,00	1,5	1,5	84,5				1,6		NJ2214		117,0	139,0	
	125	31,00	1,5	1,5	84,5				1,6		NUP2214		117,0	139,0	
	125	39,69	1,5	2,2	84,84				4,5		NUS214M		178,0	261,0	
	150	35,00	2,1	2,1	90	99,2	10,0	17,50	1,5		NU314	HJ314	147,0	144,0	
	150	35,00	2,1	2,1	90	99,2	10,0	17,50	1,5		NJ314	HJ314	147,0	144,0	
	150	35,00	2,1	2,1	90				1,5		NUP314		147,0	144,0	
	150	35,00	2,1	2,1	90	130,0			1,5		N314		147,0	144,0	
	150	51,00	2,1	2,1	90				4,1		NU2314		215,0	233,0	
	150	51,00	2,1	2,1	90				4,1		NJ2314		215,0	233,0	
	150	51,00	2,1	2,1	90				4,1		NUP2314		215,0	233,0	
	150	51,00	2,1	2,1	89				4,1		NU2314EMAS		282,0	310,0	
	150	51,00	2,1	2,1	89				4,1		NJ2314EMAS		282,0	310,0	
	150	51,00	2,1	2,1	89				4,1		NUP2314EMAS		282,0	310,0	
	180	42,00	3,0	3,0	100	112,0	12,0	20,00	2,0		NU414	HJ414	224,0	215,0	
	180	42,00	3,0	3,0	100	112,0	12,0	20,00	2,0		NJ414	HJ414	224,0	215,0	
	180	42,00	3,0	3,0	100				2,0		NUP414		224,0	215,0	
	180	42,00	3,0	3,0	152,0				2,0		N414		224,0	215,0	





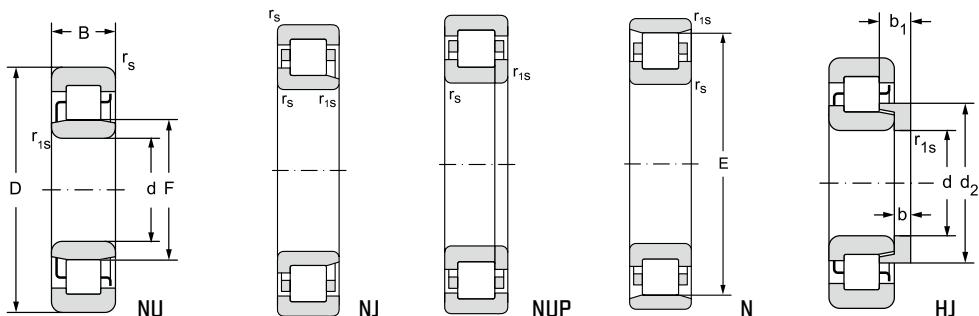
¹⁾ Admissible axial movement

Fatigue load limit	Abutment and fillet dimensions												Weight					
	P_u	Limiting speed for lubrication with		d	d_a		d_b		d_c		d_d		D_a	D_b	r_a	r_b	~	of bearing
		grease	oil		min	max	min	max	min	max	max	min						
kN		min^{-1}		mm												kg		
10,06	5600	6700	70	77	82,0	86,0	92	-	116	-	1,5	1,5	1,15	1,15	0,16			
10,06	5600	6700		77	82,0	86,0	92	-	116	-	1,5	1,5	1,15	1,15	0,16			
10,06	5600	6700		77	82,0	86,0	92	-	116	-	1,5	1,5	1,15					
10,06	5600	6700		77	82,0	86,0	92	108	116	115	1,5	1,5	1,15					
16,95	5000	6000		77	82,0	86,0	92	-	116	-	1,5	1,5	1,50					
16,95	5000	6000		77	82,0	86,0	92	-	116	-	1,5	1,5	1,50					
16,95	5000	6000		77	82,0	86,0	92	-	116	-	1,5	1,5	1,50					
31,83	4700	5600		81,5	-	87,0	-	-	112	-	2,0	1,5	2,22					
17,07	4200	5000		81	85,0	92,0	101	-	138	-	2,0	2,0	2,75	0,34				
19,14	4200	5000		81	85,0	92,0	101	-	138	-	2,0	2,0	2,75	0,34				
19,14	4200	5000		81	85,0	92,0	101	-	138	-	2,0	2,0	2,75					
19,14	4200	5000		81	85,0	92,0	101	127	138	135	2,0	2,0	2,75					
27,61	4200	5000		81	85,0	92,0	101	-	138	-	2,0	2,0	5,25					
27,61	4200	5000		81	85,0	92,0	101	-	138	-	2,0	2,0	5,25					
27,61	4200	5000		81	85,0	92,0	101	-	138	-	2,0	2,0	5,25					
36,74	3800	4500		81	84,0	91,0	100	-	138	-	2,0	2,0	4,21					
36,74	3800	4500		81	84,0	91,0	100	-	138	-	2,0	2,0	4,21					
36,74	3800	4500		81	84,0	91,0	100	-	138	-	2,0	2,0	4,21					
24,52	3300	4000		85	93,0	102,0	114	-	164	-	2,5	2,5	5,25	0,61				
24,52	3300	4000		85	93,0	102,0	114	-	164	-	2,5	2,5	5,25	0,61				
24,52	3300	4000		85	93,0	102,0	114	149	164	156	2,5	2,5	5,25					

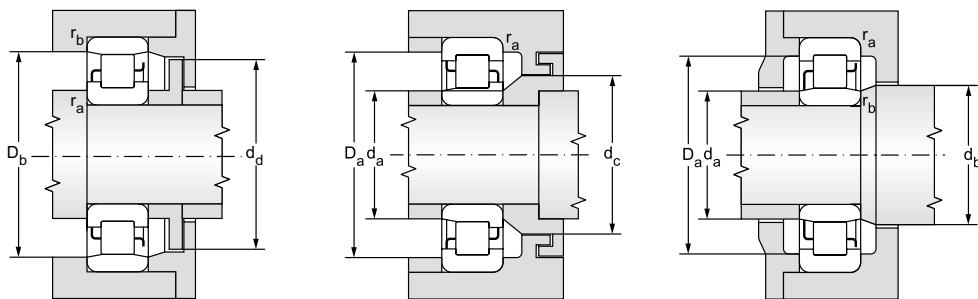


Single row cylindrical roller bearings

$d = 75 \text{ mm}$



d mm	Main dimensions									Bearing designation	Other cages	Angle ring designation	Basic load rating	
	D min	B min	r_s	r_{1s}	F	E	d_2	b	b_1	s_{1l}			dynamic C_r	static C_{or}
	D max	B												
mm														kN
75	130	25,00	1,5	1,5	88,5	94,9	7,0	12,50	1,6	NU215		HJ215	96,2	96,2
	130	25,00	1,5	1,5	88,5	94,9	7,0	12,50	1,6	NJ215		HJ215	96,2	96,2
	130	25,00	1,5	1,5	88,5				1,6	NUP215			96,2	96,2
	130	25,00	1,5	1,5	88,5				1,6	N215			96,2	96,2
	130	25,00	1,5	1,5	88,5	94,6	7,0	11,00	1,6	NU215E		HJ215E	131,0	147,0
	130	25,00	1,5	1,5	88,5	94,6	7,0	11,00	1,6	NJ215E		HJ215E	131,0	147,0
	130	25,00	1,5	1,5	88,5				1,6	NUP215E			131,0	147,0
	130	31,00	1,5	1,5	88,5				2,1	NU2215E			162,0	196,0
	130	31,00	1,5	1,5	88,5				2,1	NJ2215E			162,0	196,0
	130	31,00	1,5	1,5	88,5				2,1	NUP2215E			162,0	196,0
	130	41,28	1,5	1,5	89,014				4,5	NU5215M			196,0	299,0
	160	37,00	2,1	2,1	95,5	105,6	11,0	18,50	1,5	NU315		HJ315	178,0	178,0
	160	37,00	2,1	2,1	95,5	105,6	11,0	18,50	1,5	NJ315		HJ315	178,0	178,0
	160	37,00	2,1	2,1	95,5				1,5	NUP315			178,0	178,0
	160	37,00	2,1	2,1	95,5	139,5			1,5	N315			178,0	178,0
	160	55,00	2,1	2,1	95,5				4,5	NU2315			266,0	287,0
	160	55,00	2,1	2,1	95,5				4,5	NJ2315			266,0	287,0
	160	55,00	2,1	2,1	95,5				4,5	NUP2315			266,0	287,0
	190	45,00	3,0	2,0	104,5	117,0	13,0	21,50	2,0	NU415		HJ415	261,0	251,0
	190	45,00	3,0	2,0	104,5	117,0	13,0	21,50	2,0	NJ415		HJ415	261,0	251,0
	190	45,00	3,0	2,0	104,5				2,0	NUP415			261,0	251,0
	190	45,00	3,0	2,0	104,5	160,5			2,0	N415			261,0	251,0

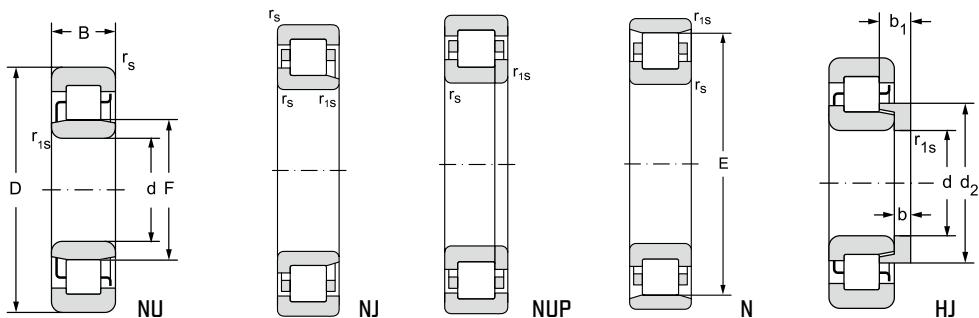


¹⁾ Admissible axial movement

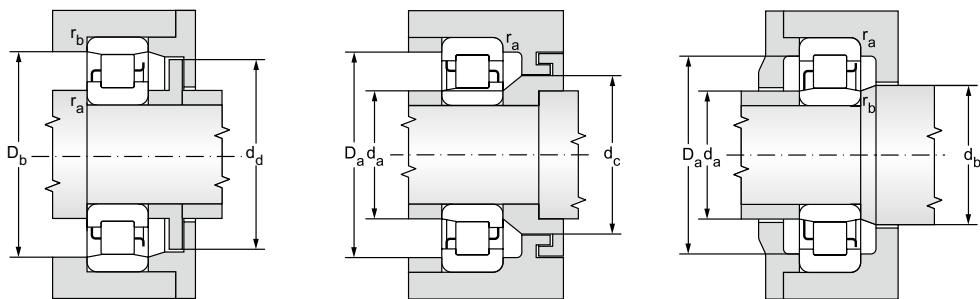
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight		
	P _u	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	
kN	min ⁻¹				min	max	min	min	max	max	min	max	max	of bearing	Ang.r.
11,65	4700	5600	75	82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,25	0,17
11,65	4700	5600		82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,25	0,17
11,65	4700	5600		82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,25	
11,65	4700	5600		82	85,0	90,0	96	114	121	120	1,5	1,5	-	1,25	
17,79	4500	5300		82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,30	0,16
17,79	4500	5300		82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,30	0,16
17,79	4500	5300		82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,30	
23,73	4500	5300		82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,65	
23,73	4500	5300		82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,65	
23,73	4500	5300		82	85,0	90,0	96	-	121	-	1,5	1,5	-	1,65	
36,19	4500	5300		85,5	-	91,0	-	-	117	-	2,0	1,5	-	2,41	
20,68	3800	4500		86	93,0	97,0	107	-	148	-	2,0	2,0	-	3,25	0,40
20,68	3800	4500		86	93,0	97,0	107	-	148	-	2,0	2,0	-	3,25	0,40
20,68	3800	4500		86	93,0	97,0	107	-	148	-	2,0	2,0	-	3,25	
20,68	3800	4500		86	93,0	97,0	107	137	148	145	2,0	2,0	-	3,25	
33,35	3800	4500		86	93,0	97,0	107	-	148	-	2,0	2,0	-	4,85	
33,35	3800	4500		86	93,0	97,0	107	-	148	-	2,0	2,0	-	4,85	
33,35	3800	4500		86	93,0	97,0	107	-	148	-	2,0	2,0	-	4,85	
28,13	3200	3800		90	98,0	107,0	119	-	174	-	2,5	2,5	-	6,25	0,80
28,13	3200	3800		90	98,0	107,0	119	-	174	-	2,5	2,5	-	6,25	0,80
28,13	3200	3800		90	98,0	107,0	119	-	174	-	2,5	2,5	-	6,25	
28,13	3200	3800		90	98,0	107,0	119	158	174	164	2,5	2,5	-	6,25	

Single row cylindrical roller bearings

d = 80 to 85 mm



d	Main dimensions								Bearing designation	Other cages	Angle ring designation	Basic load rating	
	D	B	r _s	r _{1s}	F	E	d ₂	b				C _r	C _{or}
	min	min				max						dynamic	static
mm													kN
80	125	22,00	1,1	1,0	91,5			1,2	NU1016			66,8	76,4
	140	26,00	2,0	2,0	95,3	102,2	8,0	13,50	NU216	HJ216		106,0	114,0
	140	26,00	2,0	2,0	95,3	102,2	8,0	13,50	NJ216	HJ216		106,0	114,0
	140	26,00	2,0	2,0	95,3			2,0	NUP216			106,0	114,0
	140	26,00	2,0	2,0	95,3	125,3		2,0	N216			106,0	114,0
	140	33,00	2,0	2,0	95,3			2,5	NU2216			147,0	178,0
	140	33,00	2,0	2,0	95,3			2,5	NJ2216			147,0	178,0
	140	33,00	2,0	2,0	95,3			2,5	NUP2216			147,0	178,0
	140	33,00	2,0	2,0	95,3			2,5	NU2216E			196,0	246,0
	140	33,00	2,0	2,0	95,3			2,5	NJ2216E			196,0	246,0
	140	33,00	2,0	2,0	95,3			2,5	NUP2216E			196,0	246,0
	140	44,45	2,1	2,1	95,28			5,0	NUS216M			185,0	282,0
	170	39,00	2,1	2,1	103	113,1	11,0	19,50	NU316	HJ316		192,0	192,0
	170	39,00	2,1	2,1	103	113,1	11,0	19,50	NJ316	HJ316		192,0	192,0
	170	39,00	2,1	2,1	103			1,5	NUP316			192,0	192,0
	170	39,00	2,1	2,1	147,0			1,5	N316			192,0	192,0
	200	48,00	3,0	3,0	110	123,8	13,0	22,00	NU416M	HJ416		299,0	293,0
	200	48,00	3,0	3,0	110	123,8	13,0	22,00	NJ416M	HJ416		299,0	293,0
	200	48,00	3,0	3,0	110			2,0	NUP416M			299,0	293,0
	200	48,00	3,0	3,0	170,0			2,0	N416M			299,0	293,0
85	150	28,00	2,0	2,0	101,8	109,2	8,0	14,00	NU217		HJ217	121,0	131,0
	150	28,00	2,0	2,0	101,8	109,2	8,0	14,00	NJ217		HJ217	121,0	131,0
	150	28,00	2,0	2,0	101,8			2,0	NUP217			121,0	131,0
	150	28,00	2,0	2,0	133,8			2,0	N217			121,0	131,0
	150	36,00	2,0	2,0	100,5			2,0	NU2217E			220,0	261,0
	150	36,00	2,0	2,0	100,5			2,0	NJ2217E			220,0	261,0
	150	36,00	2,0	2,0	100,5			2,0	NUP2217E			220,0	261,0
	150	49,21	2,1	2,1	102			5,5	NUS217M			211,0	316,0
	180	41,00	3,0	3,0	108	119,0	12,0	20,50	NU317		HJ317	215,0	215,0
	180	41,00	3,0	3,0	108	119,0	12,0	20,50	NJ317		HJ317	215,0	215,0
	180	41,00	3,0	3,0	108			2,0	NUP317			215,0	215,0
	180	41,00	3,0	3,0	156,0			2,0	N317			215,0	215,0
	210	52,00	4,0	4,0	113	127,7	14,0	24,00	NU417M	MAS	HJ417	362,0	362,0
	210	52,00	4,0	4,0	113	127,7	14,0	24,00	NJ417M	MAS	HJ417	362,0	362,0
	210	52,00	4,0	4,0	113			2,5	NU P417			362,0	362,0

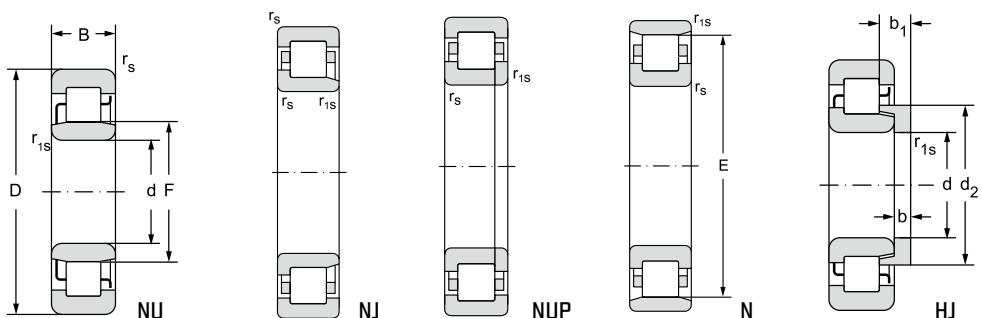


¹⁾ Admissible axial movement

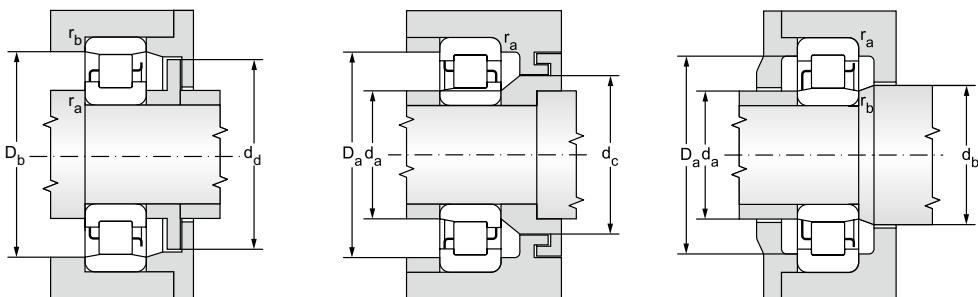
Fatigue load limit P_u	Limiting speed for lubrication with		Abutment and fillet dimensions												Weight	
	grease	oil	d	d_a	d_a min	d_b	d_c min	d_d max	D_a max	D_b min	r_a max	r_b max	\sim	of bearing	Ang.r.	
kN	min ⁻¹															kg
9,25	5000	6000	80	85	90,0	94,0	-	-	118	-	1,0	1,0	-	0,99		
13,51	4500	5300		90	92,0	97,0	104	-	130	-	2,0	2,0	-	1,50	0,21	
13,51	4500	5300		90	92,0	97,0	104	-	130	-	2,0	2,0	-	1,50	0,21	
13,51	4500	5300		90	92,0	97,0	104	-	130	-	2,0	2,0	-	1,50		
13,51	4500	5300		90	92,0	97,0	104	125	130	130	2,0	2,0	-	1,50		
21,10	4500	5300		90	92,0	97,0	104	-	130	-	2,0	2,0	-	1,95		
21,10	4500	5300		90	92,0	97,0	104	-	130	-	2,0	2,0	-	1,95		
21,10	4500	5300		90	92,0	97,0	104	-	130	-	2,0	2,0	-	1,95		
29,15	4200	5000		90	92,0	97,0	104	-	130	-	2,0	2,0	-	2,05		
29,15	4200	5000		90	92,0	97,0	104	-	130	-	2,0	2,0	-	2,05		
29,15	4200	5000		90	92,0	97,0	104	-	130	-	2,0	2,0	-	2,05		
33,42	4200	5000		91,5	-	98,0	-	-	126	-	2,0	2,0	-	2,91		
21,90	3500	4200		99	97,0	105,0	116	-	158	-	2,0	2,0	-	3,90	0,49	
21,90	3500	4200		99	97,0	105,0	116	-	158	-	2,0	2,0	-	3,90	0,49	
21,90	3500	4200		99	97,0	105,0	116	-	158	-	2,0	2,0	-	3,90		
21,90	3500	4200		99	97,0	105,0	116	144	158	153	2,0	2,0	-	3,90		
32,30	3000	3500		95	105,0	112,0	125	-	184	-	2,5	2,5	-	7,30	0,80	
32,30	3000	3500		95	105,0	112,0	125	-	184	-	2,5	2,5	-	7,30	0,80	
32,30	3000	3500		95	105,0	112,0	125	167	184	174	2,5	2,5	-	7,30		
15,22	4200	5000	85	95	99,0	104,0	111	-	140	-	2,0	2,0	-	1,90	0,25	
15,22	4200	5000		95	99,0	104,0	111	-	140	-	2,0	2,0	-	1,90	0,25	
15,22	4200	5000		95	99,0	104,0	111	-	140	-	2,0	2,0	-	1,90	0,25	
15,22	4200	5000		95	99,0	104,0	111	131	140	138	2,0	2,0	-	1,90	0,25	
30,33	3800	4500		95	98,0	103,0	110	-	140	-	2,0	2,0	-	2,52		
30,33	3800	4500		95	98,0	103,0	110	-	140	-	2,0	2,0	-	2,52		
30,33	3800	4500		95	98,0	103,0	110	-	140	-	2,0	2,0	-	2,52		
36,72	3800	4500		98	-	105,0	-	-	135	-	2,0	2,0	-	3,69		
24,10	3300	4000		98	103,0	110,0	121	174	166	162	2,5	2,5	-	4,50	0,57	
24,10	3300	4000		98	103,0	110,0	121	174	166	162	2,5	2,5	-	4,50	0,57	
24,10	3300	4000		98	103,0	110,0	121	174	166	162	2,5	2,5	-	4,50		
24,10	3300	4000		98	103,0	110,0	121	174	166	162	2,5	2,5	-	4,50		
39,29	3000	3500		105	108,0	115,0	129	-	190	-	3,0	3,0	-	8,70	0,89	
39,29	3000	3500		105	108,0	115,0	129	-	190	-	3,0	3,0	-	8,70	0,89	
39,29	3000	3500		105	108,0	115,0	129	-	190	-	3,0	3,0	-	8,70		

Single row cylindrical roller bearings

d = 90 to 95 mm



d mm	Main dimensions								Bearing designation	Other cages	Angle ring designation	Basic load rating	
	D min	B min	r _s	r _{1s}	F	E	d ₂	b	b ₁	s ₁			
	D max	B max											
mm													
90	160	30,00	2,0	2,0	107	115,3	9,0	15,00	2,0		NU218	HJ218	147,0 158,0
	160	30,00	2,0	2,0	107	115,3	9,0	15,00	2,0		NJ218	HJ218	147,0 158,0
	160	30,00	2,0	2,0	107				2,0		NUP218		147,0 158,0
	160	30,00	2,0	2,0		143,0			2,0		N218		147,0 158,0
	160	40,00	2,0	2,0	107				2,0		NJ2218EM	F	241,0 313,0
	160	52,40	2,1	3,0	107,218				6,0		NU5218M		237,0 355,0
	190	43,00	3,0	3,0	115	126,5	12,0	21,00	2,0		NU318	HJ318	233,0 242,0
	190	43,00	3,0	3,0	115	126,5	12,0	21,00	2,0		NJ318	HJ318	233,0 242,0
	190	43,00	3,0	3,0	115				2,0		NUP318		233,0 242,0
	190	43,00	3,0	3,0	115				2,0		N318		233,0 242,0
	190	43,00	3,0	3,0		165,0			2,0		NU318EM	HJ318E	316,0 329,0
	190	43,00	3,0	3,0	113,5	124,2	12,0	18,50	2,0		NJ318EM	HJ318E	316,0 329,0
	190	43,00	3,0	3,0	113,5	124,2	12,0	18,50	2,0		NUP318EM		316,0 329,0
	190	43,00	3,0	3,0	113,5				2,0		NU418M	MAS	HJ418 391,0 406,0
	225	54,00	4,0	4,0	123,5	139,1	14,0	24,00	2,5		NJ418M	MAS	HJ418 391,0 406,0
	225	54,00	4,0	4,0	123,5	139,1	14,0	24,00	2,5		NUP418M	MAS	391,0 406,0
	225	54,00	4,0	4,0	123,5				2,5				
95	170	32,00	2,1	2,1	113,5	122,2	9,0	15,50	2,0		NU219	HJ219	162,0 181,0
	170	32,00	2,1	2,1	113,5	122,2	9,0	15,50	2,0		NJ219	HJ219	162,0 181,0
	170	32,00	2,1	2,1	113,5				2,0		NUP219		162,0 181,0
	170	32,00	2,1	2,1		151,5			2,0		N219		162,0 181,0
	170	43,00	2,1	2,1	113,5				3,0		NU2219		233,0 282,0
	170	43,00	2,1	2,1	113,5				3,0		NJ2219		233,0 282,0
	170	43,00	2,1	2,1	113,5				3,0		NUP2219		233,0 282,0
	170	55,56	2,5	3,0	113,52				6,0		NU5219M		335,0 511,0
	200	45,00	3,0	3,0	121,5				2,0		NU319		256,0 266,0
	200	45,00	3,0	3,0	121,5				2,0		NJ319		256,0 266,0
	200	45,00	3,0	3,0	121,5				2,0		NUP319		256,0 266,0
	200	45,00	3,0	3,0		173,5			2,0		N319		256,0 266,0
	200	45,00	3,0	3,0	121,5				1,9		NU319EM		329,0 362,0
	200	45,00	3,0	3,0	121,5				1,9		NJ319EM		329,0 362,0
	200	45,00	3,0	3,0	121,5				1,9		NUP319EM		329,0 362,0
	240	55,00	4,0	4,0	133,5				2,5		NU419M		430,0 447,0
	240	55,00	4,0	4,0	133,5				2,5		NJ419M		430,0 447,0
	240	55,00	4,0	4,0	133,5				2,5		NUP419M		430,0 447,0

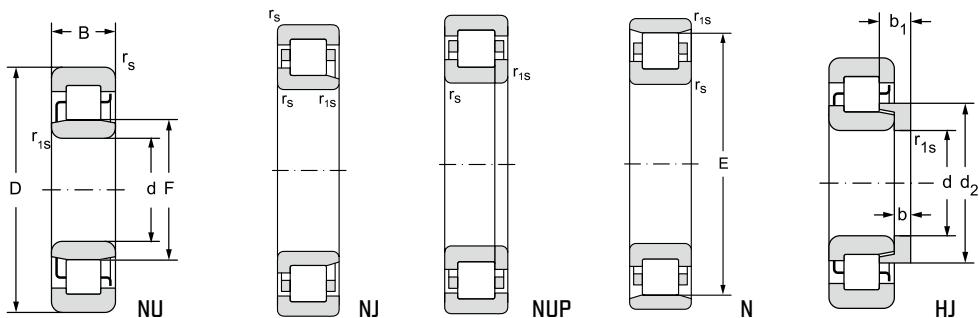


¹⁾ Admissible axial movement

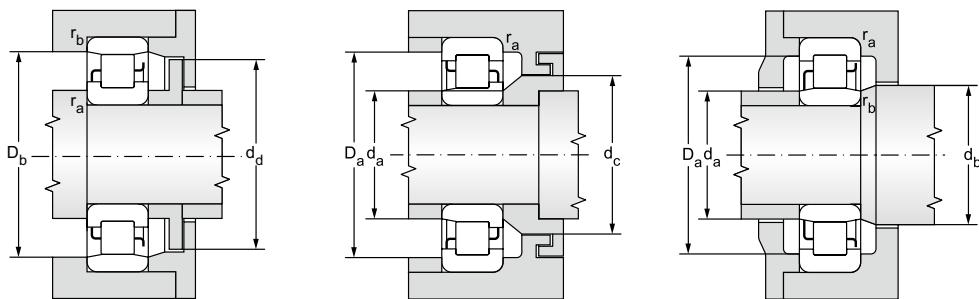
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions												Weight			
	P _u	kN	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	of bearing	Ang.r.	
						min	max	min	min	max	max	min	max	min	max	kg		
18,02	4000	4700	90	100	105,0	109,0	117	-	150	-	2,0	2,0	-	-	2,30	0,31		
18,02	4000	4700		100	105,0	109,0	117	-	150	-	2,0	2,0	-	-	2,30	0,31		
18,02	4000	4700		100	105,0	109,0	117	-	150	-	2,0	2,0	-	-	2,30			
18,02	4000	4700		100	105,0	109,0	117	140	150	147	2,0	2,0	-	-	2,30			
35,70	3800	4500		100	105,0	109,0	-	-	150	-	2,0	2,0	-	-	3,60			
40,49	3500	4200		103	-	110,0	-	-	144	-	2,5	2,0	-	-	4,48			
26,68	3200	3800		103	111,0	117,0	128	-	176	-	2,5	2,5	-	-	5,40	0,65		
26,68	3200	3800		103	111,0	117,0	128	-	176	-	2,5	2,5	-	-	5,40	0,65		
26,68	3200	3800		103	111,0	117,0	128	-	176	-	2,5	2,5	-	-	5,40			
26,68	3200	3800		103	111,0	117,0	128	162	176	172	2,5	2,5	-	-	5,40			
36,27	3000	3500		103	110,0	116,0	127	-	176	-	2,5	2,5	-	-	5,50	0,60		
36,27	3000	3500		103	110,0	116,0	127	-	176	-	2,5	2,5	-	-	5,50	0,60		
36,27	3000	3500		103	110,0	116,0	127	-	176	-	2,5	2,5	-	-	5,50			
43,20	2700	3200		110	117,0	125,0	140	-	205	-	3,0	3,0	-	-	11,7	1,05		
43,20	2700	3200		110	117,0	125,0	140	-	205	-	3,0	3,0	-	-	11,7	1,05		
43,20	2700	3200		110	117,0	125,0	140	-	205	-	3,0	3,0	-	-	11,7			
20,29	3800	4500	95	107	111,0	116,0	124	-	158	-	2,0	2,0	-	-	2,80	0,35		
20,29	3800	4500		107	111,0	116,0	124	-	158	-	2,0	2,0	-	-	2,80	0,35		
20,29	3800	4500		107	111,0	116,0	124	-	158	-	2,0	2,0	-	-	2,80			
20,29	3800	4500		107	111,0	116,0	124	149	158	155	2,0	2,0	-	-	2,80			
31,61	3800	4500		107	111,0	116,0	124	-	158	-	2,0	2,0	-	-	3,85			
31,61	3800	4500		107	111,0	116,0	124	-	158	-	2,0	2,0	-	-	3,85			
31,61	3800	4500		107	111,0	116,0	124	-	158	-	2,0	2,0	-	-	3,85			
57,27	3300	4000		110	-	117,0	-	-	153	-	2,5	2,0	-	-	5,65			
28,87	3200	3800		109	119,0	124,0	135	-	186	-	2,5	2,5	-	-	6,20			
28,87	3200	3800		109	119,0	124,0	135	-	186	-	2,5	2,5	-	-	6,20			
28,87	3200	3800		109	119,0	124,0	135	-	186	-	2,5	2,5	-	-	6,20			
28,87	3200	3800		109	119,0	124,0	135	170	186	178	2,5	2,5	-	-	6,20			
39,29	2800	3300		109	119,0	124,0	135	-	186	-	2,5	2,5	-	-	6,50			
39,29	2800	3300		109	119,0	124,0	135	-	186	-	2,5	2,5	-	-	6,50			
39,29	2800	3300		109	119,0	124,0	135	-	186	-	2,5	2,5	-	-	6,50			
46,70	2500	3000		115	125,0	136,0	151	-	220	-	3,0	3,0	-	-	13,5			
46,70	2500	3000		115	125,0	136,0	151	-	220	-	3,0	3,0	-	-	13,5			
46,70	2500	3000		115	125,0	136,0	151	-	220	-	3,0	3,0	-	-	13,5			

Single row cylindrical roller bearings

d = 100 to 105 mm



d	Main dimensions								Bearing designation	Other cages	Angle ring designation	Basic load rating	
	D	B	r_s	r_{1s}	F	E	d_2	b	b_1	s_{1s}			
	min	min				max							
mm													kN
100	180	34,00	2,1	2,1	120	129,2	10,0	17,00	2,0	NU220		HJ220	178,0 203,0
	180	34,00	2,1	2,1	120	129,2	10,0	17,00	2,0	NJ220		HJ220	178,0 203,0
	180	34,00	2,1	2,1	120				2,0	NUP220			178,0 203,0
	180	34,00	2,1	2,1	120				2,0	N220			178,0 203,0
	180	46,00	2,1	2,1	120				3,0	NU220M			261,0 322,0
	180	46,00	2,1	2,1	120				3,0	NJ220M			261,0 322,0
	180	46,00	2,1	2,1	120				3,0	NUP220M			261,0 322,0
	180	60,32	2,1	2,1	121,005				7,0	NU5220M			304,0 473,0
	215	47,00	3,0	3,0	129,5	142,4	13,0	22,50	2,0	NU320		HJ320	299,0 310,0
	215	47,00	3,0	3,0	129,5	142,4	13,0	22,50	2,0	NJ320		HJ320	299,0 310,0
	215	47,00	3,0	3,0	129,5				2,0	NUP320			299,0 310,0
	215	47,00	3,0	3,0	185,5				2,0	N320			299,0 310,0
	215	73,00	3,0	3,0	127,5				4,9	NU2320EMAS	M		596,0 694,0
	215	73,00	3,0	3,0	127,5				4,9	NJ2320EMAS	M		596,0 694,0
	215	73,00	3,0	3,0	127,5				4,9	NUP2320EMAS	M		596,0 694,0
	250	58,00	4,0	4,0	139	155,9	16,0	27,00	2,5	NU420M		HJ420	473,0 501,0
	250	58,00	4,0	4,0	139	155,9	16,0	27,00	2,5	NJ420M		HJ420	473,0 501,0
	250	58,00	4,0	4,0	139				2,5	NUP420M			473,0 501,0
105	190	36,00	2,1	2,1	126,8	136,5	10,0	17,50	2,0	NU221		HJ221	200,0 224,0
	190	36,00	2,1	2,1	126,8	136,5	10,0	17,50	2,0	NJ221		HJ221	200,0 224,0
	190	36,00	2,1	2,1	126,8				2,0	NUP221			200,0 224,0
	190	36,00	2,1	2,1	168,8				2,0	N221			200,0 224,0
	190	65,10	2,1	2,1	126,52				7,0	NU5221M			362,0 573,0
	225	49,00	3,0	3,0	135	148,8	13,0	22,50	4,5	NU321		HJ321	341,0 362,0
	225	49,00	3,0	3,0	135	148,8	13,0	22,50	4,5	NJ321		HJ321	341,0 362,0
	225	49,00	3,0	3,0	135				4,5	NUP321			341,0 362,0
	225	49,00	3,0	3,0	195,0				4,5	N321			341,0 362,0
	260	60,00	4,0	4,0	144,5	162,0	16,0	27,00	2,5	NU421M		HJ421	531,0 562,0
	260	60,00	4,0	4,0	144,5	162,0	16,0	27,00	2,5	NJ421M		HJ421	531,0 562,0
	260	60,00	4,0	4,0	144,5				2,5	NUP421M			531,0 562,0

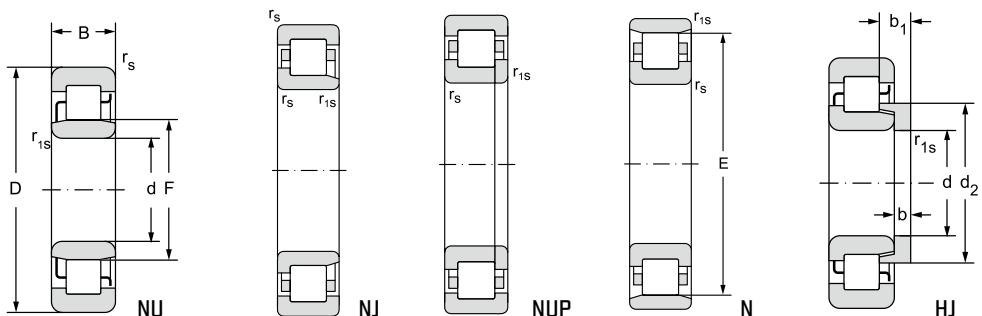


¹⁾ Admissible axial movement

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight			
	P _u	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	of bearing	Ang.r.
kN	min ⁻¹			mm												kg
22,38	3500	4200	100	112	117,0	122,0	131	-	168	-	2,0	2,0	3,40	0,45		
22,38	3500	4200		112	117,0	122,0	131	-	168	-	2,0	2,0	3,40	0,45		
22,38	3500	4200		112	117,0	122,0	-	-	168	-	2,0	2,0	3,40			
22,38	3500	4200		112	117,0	122,0	-	-	157	168	165	2,0	2,0	3,40		
35,50	3500	4200		112	117,0	122,0	-	-	168	-	2,0	2,0	4,65			
35,50	3500	4200		112	117,0	122,0	-	-	168	-	2,0	2,0	4,65			
35,50	3500	4200		112	117,0	122,0	-	-	168	-	2,0	2,0	4,65			
52,14	3200	3800		116,5	-	124,0	-	-	162	-	2,0	2,0	6,49			
32,99	2800	3300		113	125,0	132,0	145	-	201	-	2,0	2,0	7,70	0,91		
32,99	2800	3300		113	125,0	132,0	145	-	201	-	2,0	2,0	7,70	0,91		
32,99	2800	3300		113	125,0	132,0	-	-	201	-	2,0	2,0	7,70			
32,99	2800	3300		113	125,0	132,0	-	182	201	190	2,0	2,0	7,70			
73,85	2500	3000		113	123,0	130,0	-	-	201	-	2,5	2,5	12,5			
73,85	2500	3000		113	123,0	130,0	-	-	201	-	2,5	2,5	12,5			
73,85	2500	3000		113	123,0	130,0	-	-	201	-	2,5	2,5	12,5			
51,66	2400	2800		120	130,0	141,0	158	-	230	-	3,0	3,0	14,0	1,55		
51,66	2400	2800		120	130,0	141,0	158	-	230	-	3,0	3,0	14,0	1,55		
51,66	2400	2800		120	130,0	141,0	-	-	230	-	3,0	3,0	14,0			
24,31	3300	4000	105	117	122,0	129,0	138	-	178	-	2,0	2,0	4,00	0,51		
24,31	3300	4000		117	122,0	129,0	138	-	178	-	2,0	2,0	4,00	0,51		
24,31	3300	4000		117	122,0	129,0	-	-	178	-	2,0	2,0	4,00			
24,31	3300	4000		117	122,0	129,0	-	166	178	175	2,0	2,0	4,00			
62,19	3000	3500		121,5	-	130,0	-	-	171	-	2,0	2,0	7,94			
37,99	2700	3200		119	132,0	137,0	150	-	211	-	2,5	2,5	8,75	1,00		
37,99	2700	3200		119	132,0	137,0	150	-	211	-	2,5	2,5	8,75	1,00		
37,99	2700	3200		119	132,0	137,0	-	-	211	-	2,5	2,5	8,75			
37,99	2700	3200		119	132,0	137,0	-	192	211	199	2,5	2,5	8,75			
57,22	2200	2700		125	135,0	147,0	164	-	240	-	3,0	3,0	19,0	1,65		
57,22	2200	2700		125	135,0	147,0	164	-	240	-	3,0	3,0	19,0	1,65		
57,22	2200	2700		125	135,0	147,0	-	-	240	-	3,0	3,0	19,0			

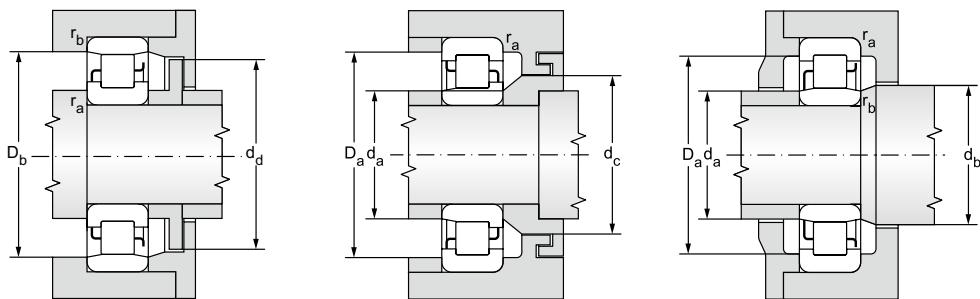
Single row cylindrical roller bearings

$d = 110 \text{ to } 120 \text{ mm}$



12.4.1

d	D	Main dimensions							Bearing designation	Other cages	Angle ring designation	Basic load rating			
		B	r_s	r_{1s}	F	E	d_2	b	b_1	s_{1j}		dynamic	static		
		min	min			max						C_r	C_{or}		
mm													kN		
110	200	38,00	2,1	2,1	132,5		143,1	11,0	18,50	2,5	NU222		HJ222	237,0	271,0
	200	38,00	2,1	2,1	132,5		143,1	11,0	18,50	2,5	NJ222		HJ222	237,0	271,0
	200	38,00	2,1	2,1	132,5					2,5	NUP222			237,0	271,0
	200	38,00	2,1	2,1	132,5					2,5	N222			237,0	271,0
	200	53,00	2,1	2,1	132,5					5,0	NU222M			341,0	422,0
	200	53,00	2,1	2,1	132,5					5,0	NJ222M			341,0	422,0
	200	53,00	2,1	2,1	132,5					5,0	NUP222M			341,0	422,0
	200	69,85	2,1	4,0	132,951					7,0	NU5222M			464,0	736,0
	240	50,00	3,0	3,0	143		157,5	14,0	23,00	2,7	NU322		HJ322	391,0	414,0
	240	50,00	3,0	3,0	143		157,5	14,0	23,00	2,7	NJ322		HJ322	391,0	414,0
	240	50,00	3,0	3,0	143					2,7	NUP322			391,0	414,0
	240	50,00	3,0	3,0	143					2,7	N322			391,0	414,0
	240	50,00	3,0	3,0	143					2,9	NU322EM			447,0	492,0
	240	50,00	3,0	3,0	143					2,9	NJ322EM			447,0	492,0
	240	50,00	3,0	3,0	143					2,9	NUP322EM			447,0	492,0
	280	65,00	4,0	4,0	155		173,4	17,0	29,50	2,7	NU422M		HJ422	584,0	631,0
	280	65,00	4,0	4,0	155		173,4	17,0	29,50	2,7	NJ422M		HJ422	584,0	631,0
	280	65,00	4,0	4,0	155					2,7	NUP422M			584,0	631,0
120	180	28,00	2,0	1,1	135					2,0	NU1024			131,0	168,0
	215	40,00	2,1	2,1	143,5		154,5	11,0	19,00	2,5	NU224		HJ224	261,0	299,0
	215	40,00	2,1	2,1	143,5		154,5	11,0	19,00	2,5	NJ224		HJ224	261,0	299,0
	215	40,00	2,1	2,1	143,5					2,5	NUP224			261,0	299,0
	215	40,00	2,1	2,1	143,5					2,5	N224			261,0	299,0
	215	58,00	2,1	2,1	143,5					5,4	NU224M			369,0	473,0
	215	58,00	2,1	2,1	143,5					5,4	NJ224M			369,0	473,0
	215	58,00	2,1	2,1	143,5					5,4	NUP224M			369,0	473,0
	215	76,20	2,1	2,1	145,14					7,0	NU5224M			482,0	794,0
	260	55,00	3,0	3,0	154		170,5	14,0	23,50	2,7	NU324		HJ324	447,0	473,0
	260	55,00	3,0	3,0	154		170,5	14,0	23,50	2,7	NJ324		HJ324	447,0	473,0
	260	55,00	3,0	3,0	154					2,7	NUP324			447,0	473,0
	260	86,00	3,0	3,0	154					6,4	NU2324EMAS	M		810,0	981,0
	260	86,00	3,0	3,0	154					6,4	NJ2324EMAS	M		810,0	981,0
	260	86,00	3,0	3,0	154					6,4	NUP2324EMAS	M		810,0	981,0
	310	72,00	5,0	6,0	170		188,0	17,0	30,50	2,7	NU424M		HJ424	736,0	810,0
	310	72,00	5,0	6,0	170		188,0	17,0	30,50	2,7	NJ424M		HJ424	736,0	810,0
	310	72,00	5,0	6,0	170					2,7	NUP424M			736,0	810,0

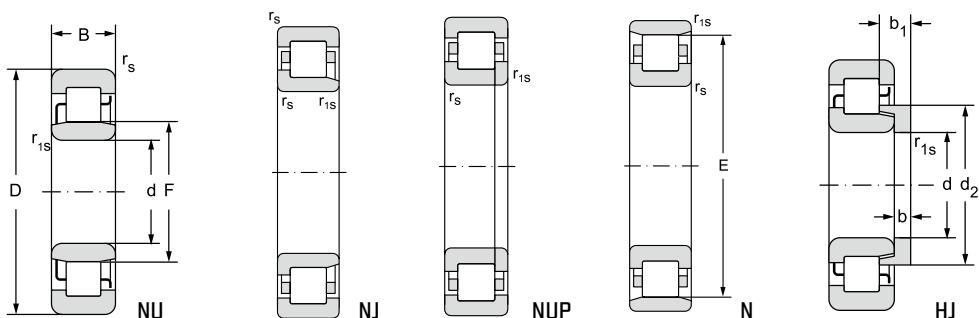


¹⁾ Admissible axial movement

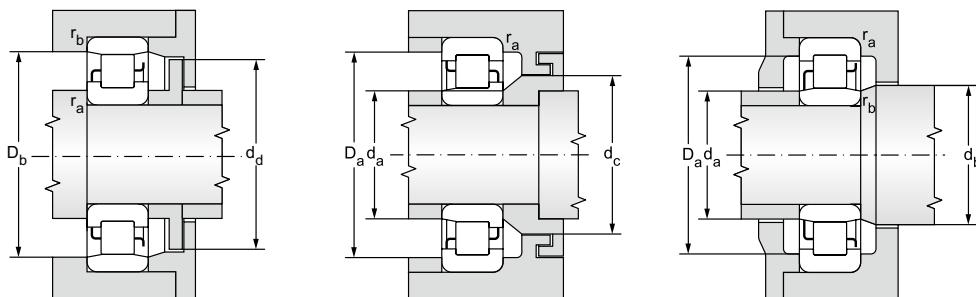
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight			
	P_u	kN	grease	oil	d	d_a	d_a	d_b	d_c	d_d	D_a	D_b	r_a	r_b	\sim	
					min	max	min	min	max	max	min	max	max	of bearing	Ang.r.	kg
28,98	3200	3800	110	122	125,0	135,0	145	-	188	-	2,0	2,0	4,65	0,62		
28,98	3200	3800		122	125,0	135,0	145	-	188	-	2,0	2,0	4,65	0,62		
28,98	3200	3800		122	125,0	135,0	-	-	188	-	2,0	2,0	4,65			
28,98	3200	3800		122	125,0	135,0	-	-	175	188	182	2,0	2,0	4,65		
45,12	3200	3800		122	125,0	135,0	-	-	188	-	2,0	2,0	6,95			
45,12	3200	3800		122	125,0	135,0	-	-	188	-	2,0	2,0	6,95			
45,12	3200	3800		122	125,0	135,0	-	-	188	-	2,0	2,0	6,95			
78,70	3000	3500		128	-	137,0	-	-	180	-	3,0	2,0	10,00			
42,68	2500	3000		124	135,0	145,0	160	-	226	-	2,5	2,5	10,5	1,17		
42,68	2500	3000		124	135,0	145,0	160	-	226	-	2,5	2,5	10,5	1,17		
42,68	2500	3000		124	135,0	145,0	-	-	226	-	2,5	2,5	10,5			
42,68	2500	3000		124	135,0	145,0	-	204	226	211	2,5	2,5	10,5			
50,73	2400	2800		124	135,0	145,0	-	-	226	-	2,5	2,5	11,0			
50,73	2400	2800		124	135,0	145,0	-	-	226	-	2,5	2,5	11,0			
50,73	2400	2800		124	135,0	145,0	-	-	226	-	2,5	2,5	11,0			
62,98	2100	2500		130	140,0	157,0	175	-	260	-	3,0	3,0	20,0	2,16		
62,98	2100	2500		130	140,0	157,0	175	-	260	-	3,0	3,0	20,0	2,16		
62,98	2100	2500		130	140,0	157,0	-	-	260	-	3,0	3,0	20,0			
18,14	3300	4000	120	128	131,0	138,0	-	-	171	-	2,0	1,0	2,45			
31,24	3000	3500		132	138,0	146,0	157	-	203	-	2,0	2,0	5,65	0,72		
31,24	3000	3500		132	138,0	146,0	157	-	203	-	2,0	2,0	5,65	0,72		
31,24	3000	3500		132	138,0	146,0	-	-	203	-	2,0	2,0	5,65			
31,24	3000	3500		132	138,0	146,0	-	188	203	196	2,0	2,0	5,65			
49,41	3000	3500		132	138,0	146,0	-	-	203	-	2,0	2,0	8,55			
49,41	3000	3500		132	138,0	146,0	-	-	203	-	2,0	2,0	8,55			
49,41	3000	3500		132	138,0	146,0	-	-	203	-	2,0	2,0	8,55			
82,95	2700	3200		140	-	149,0	-	-	194	-	2,0	2,0	11,8			
47,58	2400	2800		134	145,0	156,0	172	-	246	-	2,5	2,5	13,0	1,40		
47,58	2400	2800		134	145,0	156,0	172	-	246	-	2,5	2,5	13,0	1,40		
47,58	2400	2800		134	145,0	156,0	-	-	246	-	2,5	2,5	13,0			
98,68	2100	2500		134	145,0	156,0	-	-	246	-	2,5	2,5	24,5			
98,68	2100	2500		134	145,0	156,0	-	-	246	-	2,5	2,5	24,5			
98,68	2100	2500		134	145,0	156,0	-	-	246	-	2,5	2,5	24,5			
78,51	1900	2200		144	155,0	172,0	192	-	286	-	4,0	4,0	28,0	2,60		
78,51	1900	2200		144	155,0	172,0	192	-	286	-	4,0	4,0	28,0	2,60		
78,51	1900	2200		144	155,0	172,0	-	-	286	-	4,0	4,0	28,0			

Single row cylindrical roller bearings

$d = 130 \text{ to } 160 \text{ mm}$



d mm	Main dimensions									Bearing designation	Other cages	Angle ring designation	Basic load rating dynamic static		
	D min	D min	B mm	r_s mm	r_{1s} mm	F mm	E mm	d_2 mm	b mm						
	\max	s_{1s} mm	\max	\max	\max	\max	\max	\max	\max						
mm															
130	200	33,00	2,0	1,1	148					NU1026			162,0	203,0	
230	40,00	3,0	3,0	156		167,0	11,0	19,00	2,5	NU226	HJ226		271,0	322,0	
230	40,00	3,0	3,0	156		167,0	11,0	19,00	2,5	NJ226	HJ226		271,0	322,0	
230	40,00	3,0	3,0	156					2,5	NUP226			271,0	322,0	
230	40,00	3,0	3,0	156		204,0			2,5	N226			271,0	322,0	
230	79,38	4,0	4,0	155					8,0	N5226M			511,0	841,0	
280	58,00	4,0	4,0	167		182,3	14,0	23,00	2,9	NU326EM	HJ326E		619,0	694,0	
280	58,00	4,0	4,0	167		182,3	14,0	23,00	2,9	NJ326EM	HJ326E		619,0	694,0	
280	58,00	4,0	4,0	167					2,9	NUP326EM			619,0	694,0	
140	250	42,00	3,0	3,0	169		181,0	11,0	19,00	2,5	NU228	HJ228		310,0	369,0
250	42,00	3,0	3,0	169		181,0	11,0	19,00	2,5	NJ228	HJ228		310,0	369,0	
250	42,00	3,0	3,0	169					2,5	NUP228			310,0	369,0	
250	42,00	3,0	3,0	169		221,0			2,5	N228			310,0	369,0	
250	82,55	4,0	4,0	168,46					10,0	N5228M			596,0	981,0	
300	62,00	4,0	4,0	180		198,4	15,0	26,00	2,7	NU328M	HJ328		619,0	708,0	
300	62,00	4,0	4,0	180		198,4	15,0	26,00	2,7	NJ328M	HJ328		619,0	708,0	
300	62,00	4,0	4,0	180					2,7	NUP328M			619,0	708,0	
150	225	35,00	2,1	1,5	169,5				2,0	NU1030M			192,0	251,0	
270	45,00	3,0	3,0	182		194,7	12,0	20,50	2,4	NU230M	HJ230		369,0	455,0	
270	45,00	3,0	3,0	182		194,7	12,0	20,50	2,4	NJ230M	HJ230		369,0	455,0	
270	45,00	3,0	3,0	182					2,4	NUP230M			369,0	455,0	
270	45,00	3,0	3,0	182		193,7	12,0	19,50	2,4	NU230EM	HJ230E		447,0	552,0	
270	45,00	3,0	3,0	182		193,7	12,0	19,50	2,4	NJ230EM	HJ230E		447,0	552,0	
270	45,00	3,0	3,0	182					2,4	NUP230EM			447,0	552,0	
270	88,90	2,3	2,3	181,544					10,0	N5230M			736,0	1260,0	
320	65,00	4,0	4,0	193		212,3	15,0	26,50	2,7	NU330M	HJ330		681,0	779,0	
320	65,00	4,0	4,0	193		212,3	15,0	26,50	2,7	NJ330M	HJ330		681,0	779,0	
320	65,00	4,0	4,0	193					2,7	NUP330M			681,0	779,0	
160	240	38,00	2,1	2,1	180		188,0	10,0	19,00	5,2	NU1032M	HJ1032		229,0	325,0
240	38,00	2,1	2,1	180		188,0	10,0	19,00	5,2	NJ1032M	HJ1032		229,0	325,0	
290	48,00	3,0	3,0	195		207,4	12,0	20,00	2,5	NU232M	HJ232		511,0	631,0	
290	48,00	3,0	3,0	195		207,4	12,0	20,00	2,5	NJ232M	HJ232		511,0	631,0	
290	48,00	3,0	3,0	195					2,5	NUP232M			511,0	631,0	
290	98,42	2,5	6,3	193,634					10,0	N5232M			764,0	1310,0	
340	68,00	4,0	4,0	204		221,0	15,0	25,00	4,0	NU332EM	MA	HJ332E	900,0	1080,0	
340	68,00	4,0	4,0	204		221,0	15,0	25,00	4,0	NJ332EM	MA	HJ332E	900,0	1080,0	

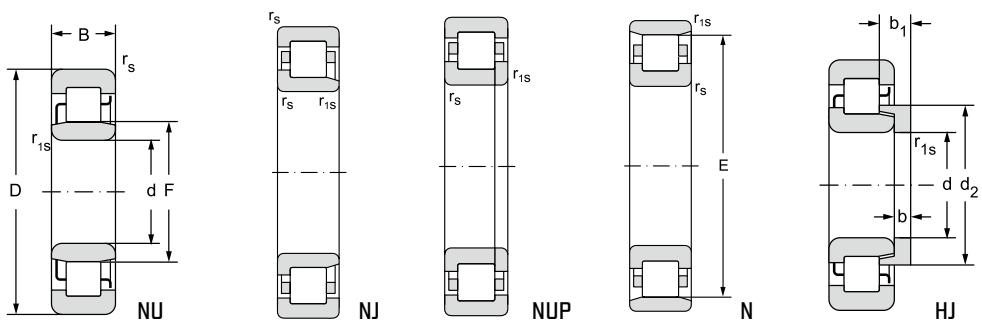


¹⁾ Admissible axial movement

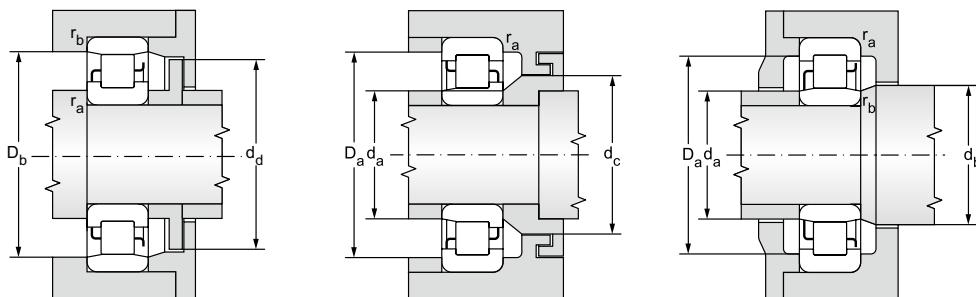
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight				
	P_u		grease	oil	d	d_a	d_a	d_b	d_c	d_d	D_a	D_b	r_a	r_b	~		
						min	max	min	min	max	max	min	max	max	of bearing	Ang.r.	
kN	min ⁻¹				mm										kg		
21,30	3200	3800	130	138	143,0	151,0	-	-	191	-	2,0	1,0	-	-	3,75		
32,92	2700	3200		144	150,0	158,0	169	-	216	-	2,5	2,5	-	-	6,50	0,84	
32,92	2700	3200		144	150,0	158,0	169	-	216	-	2,5	2,5	-	-	6,50	0,84	
32,92	2700	3200		144	150,0	158,0	-	-	216	-	2,5	2,5	-	-	6,50		
32,92	2700	3200		144	150,0	158,0	-	-	201	216	208	2,5	2,5	-	6,50		
85,98	2500	3000		149	-	159,0	-	-	-	207	-	3,0	2,0	-	-	13,8	
68,24	2000	2400		148	155,0	169,0	186	-	262	-	3,0	3,0	-	-	17,0	1,65	
68,24	2000	2400		148	155,0	169,0	186	-	262	-	3,0	3,0	-	-	17,0	1,65	
68,24	2000	2400		148	155,0	169,0	-	-	262	-	3,0	3,0	-	-	17,0		
36,83	2500	3000	140	154	160,0	171,0	182	-	236	-	2,5	2,5	-	-	8,25	1,00	
36,83	2500	3000		154	160,0	171,0	182	-	236	-	2,5	2,5	-	-	8,25	1,00	
36,83	2500	3000		154	160,0	171,0	-	-	236	-	2,5	2,5	-	-	8,25		
36,83	2500	3000		154	160,0	171,0	-	-	218	236	255	2,5	2,5	-	8,25		
97,91	2200	2700		162	-	173,0	-	-	225	-	3,0	3,0	-	-	17,1		
68,15	2000	2400		158	166,0	182,0	198	-	282	-	3,0	3,0	-	-	20,0	2,05	
68,15	2000	2400		158	166,0	182,0	198	-	282	-	3,0	3,0	-	-	20,0	2,05	
68,15	2000	2400		158	166,0	182,0	-	-	282	-	3,0	3,0	-	-	20,0		
25,35	2700	3200	150	159	165,0	173,0	-	-	213	-	2,0	1,5	-	-	4,85		
44,42	2200	2700		164	170,0	184,0	196	-	256	-	2,5	2,5	-	-	10,5	1,35	
44,42	2200	2700		164	170,0	184,0	196	-	256	-	2,5	2,5	-	-	10,5	1,35	
44,42	2200	2700		164	170,0	184,0	-	-	256	-	2,5	2,5	-	-	10,5		
53,88	2200	2700		164	170,0	184,0	196	-	256	-	2,5	2,5	-	-	11,0	1,30	
53,88	2200	2700		164	170,0	184,0	196	-	256	-	2,5	2,5	-	-	11,0	1,30	
53,88	2200	2700		164	170,0	184,0	-	-	256	-	2,5	2,5	-	-	11,0		
123,00	2000	2400		174	-	187,0	-	-	243	-	5,0	2,0	-	-	22,9		
73,52	1900	2200		168	185,0	195,0	213	-	302	-	3,0	3,0	-	-	27,0	2,37	
73,52	1900	2200		168	185,0	195,0	213	-	302	-	3,0	3,0	-	-	27,0	2,37	
73,52	1900	2200		168	185,0	195,0	-	-	302	-	3,0	3,0	-	-	27,0		
32,19	2500	3000	160	167	177,0	191,0	-	-	230	-	2,0	2,0	-	-	6,10	0,65	
32,19	2500	3000		167	177,0	191,0	-	-	230	-	2,0	2,0	-	-	6,10	0,65	
60,33	2000	2400		174	180,0	197,0	210	-	276	-	2,5	2,5	-	-	14,7	1,50	
60,33	2000	2400		174	180,0	197,0	210	-	276	-	2,5	2,5	-	-	14,7	1,50	
60,33	2000	2400		174	180,0	197,0	-	-	276	-	2,5	2,5	-	-	14,7		
125,26	1900	2200		186	-	199,0	-	-	261	-	5,0	2,0	-	-	28,9		
100,05	1700	2000		177	200,0	225,0	-	-	323	-	3,0	3,0	-	-	32,2	2,55	
100,05	1700	2000		177	200,0	225,0	-	-	323	-	3,0	3,0	-	-	32,2	2,55	

Single row cylindrical roller bearings

$d = 170 \text{ to } 200 \text{ mm}$



Main dimensions										Bearing designation	Other cages	Angle ring designation	Basic load rating		
d	D	B	r_s min	r_{1s} min	F	E	d_2	b	b_1	s_{1j}				dynamic	static
								max						C_r	C_{or}
mm															
12.4.1															
170	260	42,00	2,1	2,1	193					3,0	NU1034M			276,0	376,0
	310	52,00	4,0	4,0	207	228,8	12,0	20,00	2,9		NU234M	HJ234		607,0	750,0
	310	52,00	4,0	4,0	207	228,8	12,0	20,00	2,9		NJ234M	HJ234		607,0	750,0
	310	52,00	4,0	4,0	207				2,9		NUP234M			607,0	750,0
	310	104,77	3,2	6,3	205,483				10,0		NU5234M			891,0	1470,0
	360	72,00	4,0	4,0	218				4,6		NU334EM	MA		950,0	1180,0
	360	72,00	4,0	4,0	218				4,6		NJ334EM	MA		950,0	1180,0
180	280	46,00	2,1	2,1	205				3,6	NU1036M			329,0	447,0	
	280	46,00	2,1	2,1	205				3,6		NJ1036M			329,0	447,0
	320	52,00	4,0	4,0	217	230,8	12,0	20,00	2,9		NU236M	HJ236		631,0	794,0
	320	52,00	4,0	4,0	217	230,8	12,0	20,00	2,9		NJ236M	HJ236		631,0	794,0
	320	52,00	4,0	4,0	217				2,9		NUP236M			631,0	794,0
	320	86,00	4,0	4,0	218	230,5	12,0	29,00	6,9		NU2236M	HJ2236		736,0	1060,0
	320	86,00	4,0	4,0	218	230,5	12,0	29,00	6,9		NJ2236M	HJ2236		736,0	1060,0
	320	86,00	4,0	4,0	218				6,9		NUP2236M			736,0	1060,0
	380	75,00	4,0	4,0	231				4,6		NU336EM	MA		1020,0	1290,0
	380	75,00	4,0	4,0	231				4,6		NJ336EM	MA		1020,0	1290,0
190	290	46,00	2,1	2,1	215	225,0	12,0	22,50	6,1	NU1038M		HJ1038	350,0	500,0	
	290	46,00	2,1	2,1	215	225,0	12,0	22,50	6,1		NJ1038M		HJ1038	350,0	500,0
	340	55,00	4,0	4,0	230	244,0	13,0	21,50	3,0		NU238EM	MA	HJ238E	770,0	965,0
	340	55,00	4,0	4,0	230	244,0	13,0	21,50	3,0		NJ238EM	MA	HJ238E	770,0	965,0
	340	92,00	4,0	4,0	228				5,0		NU2238EM			1220,0	1600,0
	400	78,00	5,0	5,0	245	264,0	18,0	29,00	4,3		NU338EM	MA	HJ338E	1140,0	1500,0
	400	78,00	5,0	5,0	245	264,0	18,0	29,00	4,3		NJ338EM	MA	HJ338E	1140,0	1500,0
200	310	51,00	2,1	2,1	229				4,2	NU1040M	MA		383,0	531,0	
	360	58,00	4,0	4,0	243	258,2	14,0	23,00	2,9		NU240EM	MA	HJ240E	779,0	1000,0
	360	58,00	4,0	4,0	243	258,2	14,0	23,00	2,9		NJ240EM	MA	HJ240E	779,0	1000,0
	360	58,00	4,0	4,0	243				2,9		NUP240EM	MA		779,0	1000,0
	360	98,00	4,0	4,0	241				5,1		NU2240EM	MA		1360,0	1800,0
	360	98,00	4,0	4,0	241				5,1		NJ2240EM	MA		1360,0	1800,0
	420	80,00	5,0	5,0	258				6,0		NU340EM	MA		1230,0	1630,0
	420	138,00	5,0	5,0	253				9,4		NU2340EMA			1980,0	2800,0
	420	138,00	5,0	5,0	253				9,4		NJ2340EMA			1980,0	2800,0

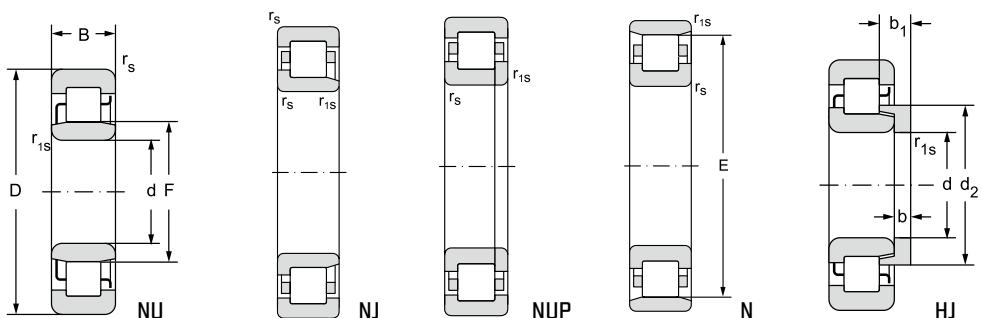


¹⁾ Admissible axial movement

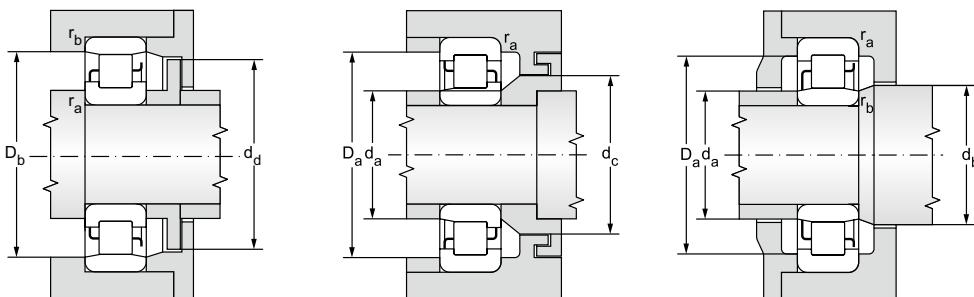
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight		
	P _u	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	
kN	min ⁻¹				min	max	min	min	max	max	min	max	max	of bearing	Ang.r.
36,45	2200	2700	170	179	190,0	197,0	-	-	248	-	2,0	2,0	-	7,90	
70,34	1900	2200		188	195,0	211,0	223	-	293	-	3,0	3,0	-	16,6	1,70
70,34	1900	2200		188	195,0	211,0	223	-	293	-	3,0	3,0	-	16,6	1,70
70,34	1900	2200		188	195,0	211,0	-	-	293	-	3,0	3,0	-	16,6	
137,86	1800	2100		197	-	211,0	-	-	279	-	5,0	3,0	-	35,5	
107,42	1460	1700		187	214,0	221,0	-	-	343	-	3,0	3,0	-	37,5	
107,42	1460	1700		187	214,0	221,0	-	-	343	-	3,0	3,0	-	37,5	
42,46	2100	2500	180	189	196,0	209,0	-	-	268	-	2,0	2,0	-	10,5	
42,46	2100	2500		189	196,0	209,0	-	-	268	-	2,0	2,0	-	10,5	
73,56	1800	2100		198	207,0	220,0	233	-	302	-	3,0	3,0	-	19,5	1,80
73,56	1800	2100		198	207,0	220,0	233	-	302	-	3,0	3,0	-	19,5	1,80
73,56	1800	2100		198	207,0	220,0	-	-	302	-	3,0	3,0	-	19,5	
98,20	1800	2100		198	208,0	221,0	233	-	302	-	3,0	3,0	-	31,2	1,90
98,20	1800	2100		198	208,0	221,0	233	-	302	-	3,0	3,0	-	31,2	1,90
98,20	1800	2100		198	208,0	221,0	-	-	302	-	3,0	3,0	-	31,2	
115,51	1370	1600		197	225,0	235,0	-	-	363	-	3,0	3,0	-	45,0	
115,51	1370	1600		197	225,0	235,0	-	-	363	-	3,0	3,0	-	45,0	
46,89	2180	2600	190	200	212,0	228,0	-	-	280	-	2,0	2,0	-	11,0	1,35
46,89	2180	2600		200	212,0	228,0	-	-	280	-	2,0	2,0	-	11,0	1,35
87,85	1700	2000		207	226,0	248,0	-	-	323	-	3,0	3,0	-	24,5	2,10
87,85	1700	2000		207	226,0	248,0	-	-	323	-	3,0	3,0	-	24,5	2,10
145,66	1700	2000		207	222,0	232,0	-	-	323	-	3,0	3,0	-	39,0	
132,23	1290	1500		210	240,0	249,0	-	-	380	-	4,0	4,0	-	50,0	4,30
132,23	1290	1500		210	240,0	249,0	-	-	380	-	4,0	4,0	-	50,0	4,30
48,90	1900	2200	200	212	220,0	233,0	-	-	298	-	2,0	2,0	-	14,0	
89,54	1500	1800		218	227,0	246,0	261	-	342	-	3,0	3,0	-	28,4	2,70
89,54	1500	1800		218	227,0	246,0	261	-	342	-	3,0	3,0	-	28,4	2,70
89,54	1500	1800		218	227,0	246,0	-	-	342	-	3,0	3,0	-	28,4	
161,18	1610	1900		217	235,0	245,0	-	-	343	-	3,0	3,0	-	46,0	
161,18	1610	1900		217	235,0	245,0	-	-	343	-	3,0	3,0	-	46,0	
141,57	1200	1400		220	254,0	262,0	-	-	400	-	4,0	4,0	-	57,5	
243,18	1200	1400		220	249,0	280,0	-	-	400	-	4,0	4,0	-	97,0	
243,18	1200	1400		220	249,0	280,0	-	-	400	-	4,0	4,0	-	97,0	

Single row cylindrical roller bearings

d = 220 to 300 mm



12.4.1	Main dimensions									Bearing designation	Other cages	Angle ring designation	Basic load rating			
	d	D	B	r _s	r _{1s}	F	E	d ₂	b	b ₁	s ₁				dynamic	static
				min	min			max				C _r	C _{or}			
mm																
220	300	48,00	2,1	2,1	242				3,0			NU2944M	MA		460,0	830,0
	340	56,00	3,0	3,0	250				4,1			NU1044M	MA		514,0	775,0
	340	56,00	3,0	3,0	250				4,1			NJ1044M			514,0	775,0
	400	65,00	4,0	4,0	268		284,0	15,0	25,00	4,0		NU244EM	MA	HJ244E	1050,0	1290,0
	400	65,00	4,0	4,0	268		284,0	15,0	25,00	4,0		NJ244EM	MA	HJ244E	1050,0	1290,0
	400	108,00	4,0	4,0	259				7,9			NU2244EMA			1630,0	2350,0
	460	88,00	5,0	5,0	284				5,2			NU344M			1240,0	1650,0
	460	88,00	5,0	5,0	284				5,2			NJ344M			1240,0	1650,0
	460	145,00	5,0	5,0	275				10,4			NU2344EM	MA		2350,0	3420,0
kN																
240	360	56,00	3,0	3,0	270				4,1			NU1048MA			531,0	764,0
	440	72,00	4,0	4,0	295		315,0	16,0	25,90	4,0		NU248MA		HJ248	944,0	1280,0
	440	72,00	4,0	4,0	295		315,0	16,0	25,90	4,0		NJ248MA		HJ248	944,0	1280,0
	440	120,00	4,0	4,0	295				4,3			NU2248MA			1460,0	2360,0
	440	120,00	4,0	4,0	295				4,3			NJ2248MA			1460,0	2360,0
	500	95,00	5,0	5,0	310		335,0	22,0	39,50	5,6		NU348M	MA	HJ348	1450,0	2000,0
	500	95,00	5,0	5,0	310		335,0	22,0	39,50	5,6		NJ348M	MA	HJ348	1450,0	2000,0
	500	155,00	5,0	5,0	299				6,4			NU2348EMA			2600,0	3600,0
kN																
260	400	65,00	4,0	4,0	296				2,0			NU1052M	MA, F		642,0	996,0
	400	65,00	4,0	4,0	296				2,0			NJ1052M	MA, F		642,0	996,0
	400	65,00	4,0	4,0	296				2,0			NUP1052M	MA, F		642,0	996,0
	480	80,00	5,0	5,0	320		340,0	18,0	33,00	3,4		NU252MA		HJ252	1160,0	1700,0
	480	80,00	5,0	5,0	320		340,0	18,0	33,00	3,4		NJ252MA		HJ252	1160,0	1700,0
	480	130,00	5,0	5,0	320				4,3			NU2252MA			1760,0	2900,0
	480	130,00	5,0	5,0	320				4,3			NJ2252MA			1760,0	2900,0
	540	102,00	6,0	6,0	337				4,2			NU352EMA			1900,0	2680,0
	540	165,00	6,0	6,0	319				1,8			NU2352EMA			3100,0	4400,0
kN																
280	420	65,00	4,0	4,0	316				5,0			NU1056MA			681,0	1020,0
	500	80,00	5,0	5,0	340				3,8			NU256MA			1120,0	1670,0
	500	80,00	5,0	5,0	340				3,8			NJ256MA			1120,0	1670,0
	500	130,00	5,0	5,0	330				10,0			NU2256EMA			2190,0	3410,0
	580	175,00	6,0	6,0	362				6,6			NU2356MA			2700,0	4300,0
kN																
300	460	74,00	5,0	5,0	340				4,5			NU1060MA	M, F		885,0	1400,0
	460	74,00	5,0	5,0	340				4,5			NJ1060MA	M, F		885,0	1400,0
	540	85,00	5,0	5,0	364				4,8			NU260M	MA		1430,0	2150,0
	540	140,00	5,0	5,0	364				5,6			NU2260MA			2100,0	3470,0
	620	185,00	7,5	7,5	371				11,0			NU2360EMA			4000,0	5800,0

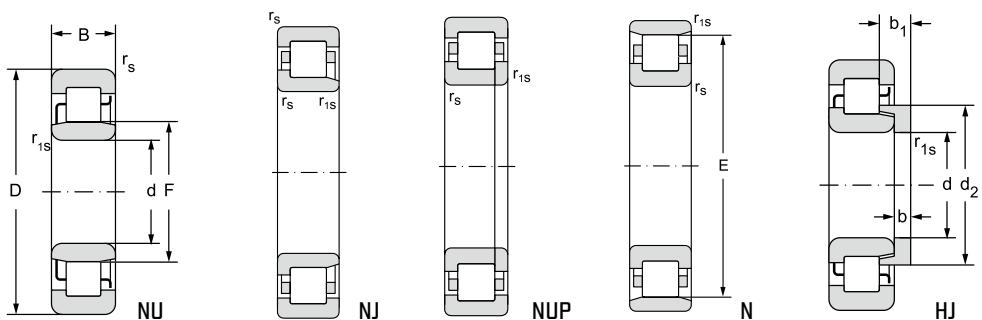


¹⁾ Admissible axial movement

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight			
	P _u		grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	
kN	min ⁻¹														kg	Ang.r.
75,99	2040	2400	220	231	236,0	242,0	-	-	289	-	2,0	2,0	-	-	10,00	
69,40	1700	2000		234	240,0	254,0	-	-	326	-	2,5	2,5	-	-	18,5	
69,40	1700	2000		234	240,0	254,0	-	-	326	-	2,5	2,5	-	-	18,5	
112,04	1360	1600		237	264,0	288,0	-	-	383	-	3,0	3,0	-	-	38,2	3,25
112,04	1360	1600		237	264,0	288,0	-	-	383	-	3,0	3,0	-	-	38,2	3,25
204,10	1360	1600		237	255,0	264,0	-	-	383	-	3,0	3,0	-	-	62,5	
139,39	1290	1500		240	277,0	311,0	-	-	440	-	4,0	4,0	-	-	74,0	
139,39	1290	1500		240	277,0	311,0	-	-	440	-	4,0	4,0	-	-	74,0	
288,91	1100	1300		240	268,0	280,0	-	-	440	-	4,0	4,0	-	-	120	
67,01	1600	1900	240	254	260,0	275,0	-	-	346	-	2,5	2,5	-	-	20,0	
108,13	1300	1600		258	293,0	298,0	316	-	422	-	3,0	3,0	-	-	50,5	4,68
108,13	1300	1600		258	293,0	298,0	316	-	422	-	3,0	3,0	-	-	50,5	4,68
199,37	1270	1500		257	284,0	299,0	-	-	423	-	3,0	3,0	-	-	84,0	
199,37	1270	1500		257	284,0	299,0	-	-	423	-	3,0	3,0	-	-	84,0	
164,72	1120	1300		260	302,0	339,0	337	-	480	-	4,0	4,0	-	-	99,0	8,90
164,72	1120	1300		260	302,0	339,0	337	-	480	-	4,0	4,0	-	-	99,0	8,90
296,50	1010	1200		260	293,0	305,0	-	-	480	-	4,0	4,0	-	-	155	
84,90	1400	1700	260	278	280,0	300,0	-	-	382	-	3,0	3,0	-	-	29,0	
84,90	1400	1700		278	280,0	300,0	-	-	382	-	3,0	3,0	-	-	29,0	
84,90	1400	1700		278	280,0	300,0	-	-	382	-	3,0	3,0	-	-	29,0	
140,01	1190	1400		280	313,0	344,0	-	-	460	-	4,0	4,0	-	-	70,0	6,20
140,01	1190	1400		280	313,0	344,0	-	-	460	-	4,0	4,0	-	-	70,0	6,20
238,85	1100	1400		280	309,0	324,0	-	-	460	-	4,0	4,0	-	-	90,0	
238,85	1100	1400		280	309,0	324,0	-	-	460	-	4,0	4,0	-	-	90,0	
215,63	920	1100		286	330,0	341,0	-	-	514	-	5,0	5,0	-	-	125	
354,01	920	1100		286	310,0	323,0	-	-	514	-	5,0	5,0	-	-	190	
85,42	1300	1600	280	296	311,0	320,0	-	-	404	-	3,0	3,0	-	-	32,5	
135,39	1190	1400		300	333,0	364,0	-	-	480	-	4,0	4,0	-	-	73,0	
135,39	1190	1400		300	333,0	364,0	-	-	480	-	4,0	4,0	-	-	73,0	
276,45	950	1200		300	322,0	334,0	-	-	480	-	4,0	4,0	-	-	120	
338,54	850	1000		306	347,0	366,0	-	-	554	-	5,0	5,0	-	-	230	
114,39	1200	1400	300	318	325,0	344,0	360	-	442	-	3,0	3,0	-	-	43,6	
114,39	1200	1400		318	325,0	344,0	360	-	442	-	3,0	3,0	-	-	43,6	
170,47	1100	1300		320	358,0	368,0	-	-	520	-	4,0	4,0	-	-	90,0	
275,13	1020	1200		320	352,0	368,0	-	-	520	-	4,0	4,0	-	-	147	
447,49	800	950		332	365,0	375,0	-	-	588	-	6,0	6,0	-	-	270	

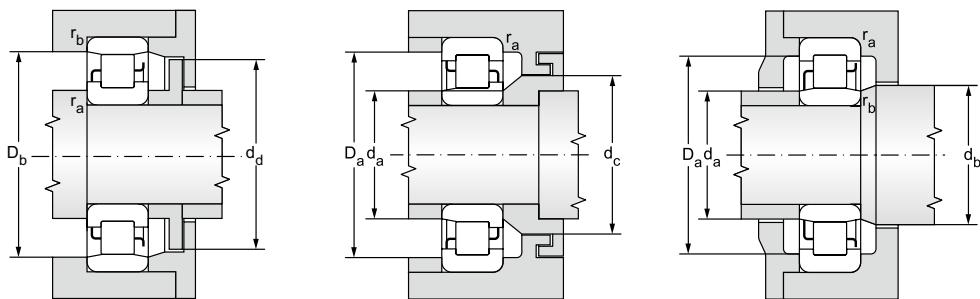
Single row cylindrical roller bearings

d = 320 to 460 mm



12.4.1

Main dimensions										Bearing designation	Other cages	Angle ring designation	Basic load rating		
d	D	B	r _s	r _{1s}	F	E	d ₂	b	b ₁	s ₁				dynamic	static
			min	min			max							C _r	C _{or}
mm															
320	480	74,00	4,0	4,0	360		376,0	19,0	36,00	5,0	NU1064MA	HJ1064	909,0	1390,0	
	480	74,00	4,0	4,0	360		376,0	19,0	36,00	5,0	NJ1064MA	HJ1064	909,0	1390,0	
	580	92,00	5,0	5,0	390					5,3	NU264MA		1600,0	2450,0	
	580	150,00	5,0	5,0	380					5,9	NU2264EMA		3200,0	5000,0	
	580	150,00	5,0	5,0	380					5,9	NJ2264EMA		3200,0	5000,0	
340	460	72,00	3,0	3,0	373					8,5	NU2968M		820,0	1700,0	
	460	72,00	3,0	3,0	367					3,8	NJ2968EMA		1020,0	2020,0	
	520	82,00	5,0	5,0	385		403,0	21,0	39,50	6,5	NU1068MA	HJ1068	1100,0	1780,0	
	520	82,00	5,0	5,0	385		403,0	21,0	39,50	6,5	NJ1068MA	HJ1068	1100,0	1780,0	
	620	165,00	6,0	6,0	416					8,0	NU2268MA		2600,0	4500,0	
360	540	82,00	6,0	6,0	480		423,0	21,0	39,50	5,0	NU1072MA	HJ1072	1076,0	1753,0	
	540	82,00	6,0	6,0	480		423,0	21,0	39,50	5,0	NJ1072MA	HJ1072	1076,0	1753,0	
	650	170,00	6,0	6,0	437					16,7	NU2272MA		2920,0	4900,0	
	750	224,00	7,5	7,5	465					10,0	NU2372EMA		5000,0	8100,0	
380	560	82,00	5,0	5,0	425					6,0	NU1076MA		1166,0	1982,0	
	560	82,00	5,0	5,0	425					6,0	NJ1076MA		1166,0	1982,0	
	680	175,00	6,0	6,0	451					8,3	NU2276EMA		3900,0	6400,0	
400	540	82,00	4,0	4,0	438					7,6	NU2980MA**		1150,0	2450,0	
	600	90,00	5,0	5,0	450		470,0	19,6	42,60	5,0	NU1080MA**	HJ1080	1470,0	2330,0	
	600	90,00	5,0	5,0	450		470,0	19,6	42,60	5,0	NJ1080MA**	HJ1080	1470,0	2330,0	
	600	148,00	5,0	5,0	450					5,0	NU3080MA**		2255,0	4900,0	
	720	185,00	6,0	6,0	480					16,0	NU2280MA**		3410,0	5960,0	
420	560	82,00	4,0	4,0	458					2,4	NU2984MA**		1200,0	2550,0	
	620	90,00	5,0	5,0	470		490,0	23,0	43,00	14,0	NU1084MA**	HJ1084	1420,0	2450,0	
	620	150,00	5,0	5,0	458,2					13,0	NU3084EMA**		2900,0	5400,0	
440	600	95,00	4,0	4,0	481,5					3,5	NU2988EM**		1720,0	3600,0	
	650	94,00	6,0	6,0	493		512,0	24,0	45,00	14,7	NU1088MA**	HJ1088	1500,0	2600,0	
460	620	95,00	4,0	4,0	495					4,0	NU2992EMA**		1700,0	3600,0	
	680	100,00	6,0	6,0	516		537,0	25,0	48,00	15,9	NU1092MA**	HJ1092	1650,0	2850,0	
	680	163,00	6,0	6,0	499					7,2	NU3092EMA**		3400,0	6300,0	
	830	212,00	7,5	7,5	554					16,5	NU2292MA**		5100,0	8600,0	

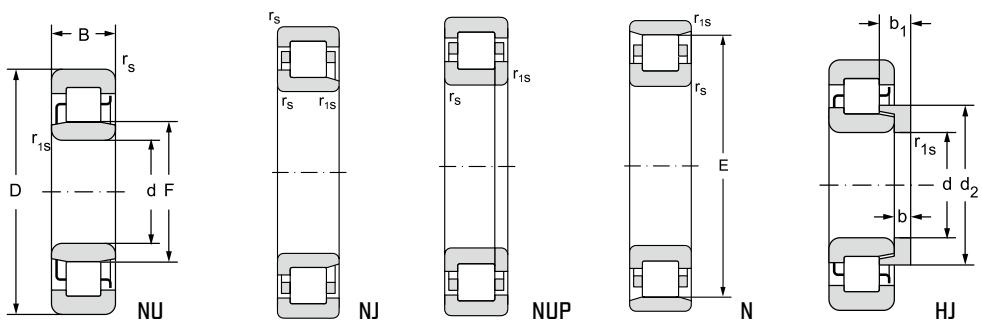


¹⁾ Admissible axial movement

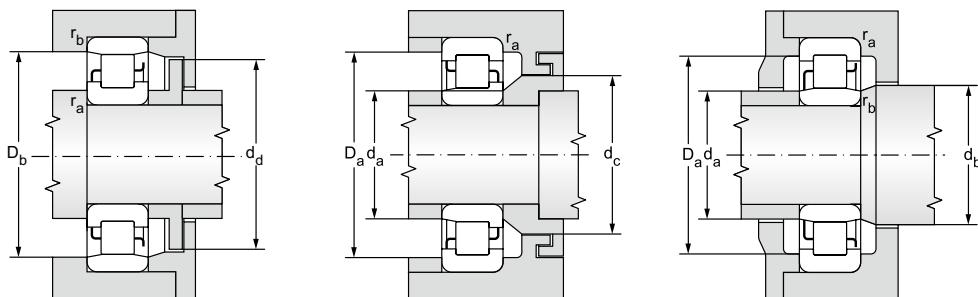
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight			
	P _u		grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	
kN	min ⁻¹				min	max	min	min	max	max	min	max	max	of bearing	Ang.r.	kg
111,84	1100	1300	320	336	355,0	364,0	-	-	464	-	3,0	3,0	48,5	5,65		
111,84	1100	1300		336	355,0	364,0	-	-	464	-	3,0	3,0	48,5	5,65		
190,28	1020	1200		340	383,0	394,0	-	-	560	-	4,0	4,0	115			
388,32	850	1000		340	377,0	410,0	-	-	560	-	4,0	4,0	190			
388,32	850	1000		340	377,0	410,0	-	-	560	-	4,0	4,0	190			
136,78	1190	1400	340	353	369,0	377,0	-	-	447	-	2,5	2,5	36,0			
162,52	1190	1400		353	363,0	381,0	-	-	447	-	2,5	2,5	37,0			
140,14	1090	1300		358	380,0	408,0	-	-	502	-	4,0	4,0	68,0	7,40		
140,14	1090	1300		358	380,0	408,0	-	-	502	-	4,0	4,0	68,0	7,40		
342,79	850	1000		366	401,0	421,0	-	-	594	-	5,0	5,0	220			
136,15	950	1100	360	382	390,0	410,0	427	-	518	-	4,0	4,0	67,5	10,00		
136,15	950	1100		382	390,0	410,0	427	-	518	-	4,0	4,0	67,5	10,00		
367,62	800	950		386	428,0	442,0	-	-	624	-	5,0	5,0	250			
590,72	720	850		392	453,0	470,0	-	-	718	-	6,0	6,0	510			
151,94	850	1000	380	400	420,0	430,0	-	-	540	-	4,0	4,0	71,0			
151,94	850	1000		400	420,0	430,0	-	-	540	-	4,0	4,0	71,0			
473,24	720	850		406	445,0	457,0	-	-	654	-	5,0	5,0	275			
187,81	1020	1200	400	415	434,0	442,0	-	-	525	-	3,0	3,0	54,5			
175,33	840	1000		422	435,0	455,0	-	-	578	-	4,0	4,0	89,0	10,5		
175,33	840	1000		422	435,0	455,0	-	-	578	-	4,0	4,0	89,0	10,5		
368,72	760	910		422	435,0	455,0	-	-	578	-	4,0	4,0	151			
433,49	710	840		426	460,0	485,0	-	-	694	-	5,0	5,0	350			
193,05	930	1100	420	435	452,0	463,0	-	-	545	-	3,0	3,0	59,0			
182,20	930	1100		438	466,0	475,0	-	-	602	-	4,0	4,0	96,0	10,00		
401,59	760	900		438	450,0	478,0	-	-	602	-	4,0	4,0	160			
267,72	930	1100	440	455	477,0	500,0	-	-	585	-	3,0	3,0	84,0			
190,65	840	1000		463	488,0	498,0	-	-	627	-	5,0	5,0	105	11,5		
264,71	850	1000	460	475	490,0	515,0	-	-	605	-	3,0	3,0	89,0			
206,19	800	950		483	511,0	521,0	-	-	657	-	5,0	5,0	115	14,0		
455,79	680	800		483	491,0	504,0	-	-	657	-	5,0	5,0	210			
599,54	600	700		492	542,0	559,0	-	-	798	-	6,0	6,0	530			

Single row cylindrical roller bearings

$d = 480 \text{ to } 750 \text{ mm}$



12.4.1	Main dimensions										Bearing designation	Other cages	Angle ring designation	Basic load rating				
	d	D	B	r_s min	r_{1s} min	F	E	d_2 max	b	b_1				dynamic	static			
														C_r	C_{or}			
	mm										kN							
	480	700	100,00	6,0	6,0	536	557,0	25,0	48,00	15,9	NU1096MA**			HJ1096	1680,0	3000,0		
	500	720	100,00	6,0	6,0	556	577,0	25,0	48,00	11,2	NU10/500MA**			HJ10/500	1720,0	3100,0		
	720	167,00	6,0	6,0	540,8					8,6	NU30/500EMA**			FA	4000,0	8000,0		
	920	185,00	7,5	7,5	603,1					13,9	NU12/500MA**				5300,0	8500,0		
	530	710	106,00	5,0	5,0	573				3,3	NU29/530EMA**				2380,0	5000,0		
		780	112,00	6,0	6,0	593				10,4	NU10/530MA**				2290,0	4050,0		
	560	750	112,00	5,0	5,0	608				4,5	NU29/560EMA**				2460,0	5400,0		
		820	115,00	6,0	6,0	625	648,0	27,5	53,00	12,3	NU10/560MA**			HJ10/560	2300,0	4200,0		
		820	115,00	6,0	6,0	625	648,0	27,5	53,00	12,3	NJ10/560MA**			HJ10/560	2300,0	4200,0		
		1030	206,00	9,5	9,5	668				10,3	NU12/560MA**				7200,0	11200,0		
	600	800	118,00	5,0	5,0	650				12,0	NU29/600MA**				2230,0	4853,0		
		800	118,00	5,0	5,0	650				12,0	NUP29/600MA**				2230,0	4853,0		
		830	150,00	4,7	4,7	659				7,0	NU39/600MA**				2860,0	6200,0		
		870	118,00	6,0	6,0	667	695,0	31,0	55,00	14,0	NU10/600MA**			HJ10/600	2750,0	5100,0		
		1090	155,00	9,5	9,5	749				3,0	NU2/600EMA**				5600,0	9800,0		
	630	850	128,00	6,0	6,0	683				7,1	NU29/630EMA**				3300,0	7200,0		
		850	128,00	6,0	6,0	683				7,1	NJ29/630EMA**				3300,0	7200,0		
		850	128,00	6,0	6,0	683				7,1	NUP29/630EMA**				3300,0	7200,0		
		920	128,00	7,5	7,5	702				6,2	NU10/630MA**				3400,0	6200,0		
		920	128,00	7,5	7,5	702				6,2	NUP10/630MA**				3400,0	6200,0		
		1150	230,00	12,0	12,0	751				13,5	NU12/630EMA**				8500,0	13600,0		
	670	980	136,00	7,5	7,5	747				7,9	NU10/670EMA**				3700,0	6800,0		
	710	950	140,00	6,0	6,0	766				10,0	NU29/710EMA**				3740,0	8250,0		
		950	140,00	6,0	6,0	766				10,0	NUP29/710EMA**				3740,0	8250,0		
		1030	140,00	7,5	7,5	778				17,0	NU10/710EMA**				4600,0	8500,0		
	750	1090	150,00	7,5	7,5	830				12,8	NU10/750EMA**				4700,0	8800,0		
		1090	195,00	7,5	7,5	832				12,8	NU20/750EMA**				7000,0	14500,0		

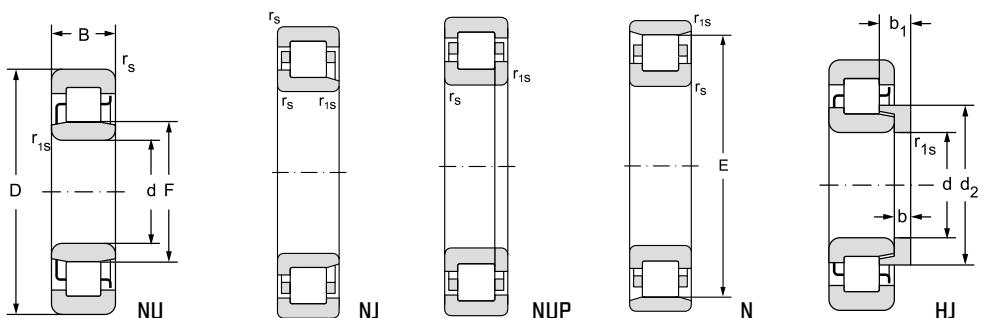


¹⁾ Admissible axial movement

Fatigue load limit P_u	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight		
	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~		
	kN	min ⁻¹											of bearing	Ang.r.	
214,81		750	900	480	503	531,0	541,0	-	-	677	-	5,0	5,0	130	14,5
219,76	750	900	500	523	550,0	561,0	-	-	697	-	5,0	5,0	135	15,0	
567,12	640	750		523	532,0	546,0	-	-	697	-	5,0	5,0	225		
575,74	570	670		532	593,0	610,0	-	-	888	-	6,0	6,0	585		
352,73	720	850	530	548	566,0	578,0	-	-	692	-	4,0	4,0	120		
281,04	670	800		553	585,0	598,0	-	-	757	-	5,0	5,0	190		
374,72	680	800	560	578	600,0	613,0	-	-	732	-	4,0	4,0	145		
286,93	630	750		583	617,0	655,0	-	-	797	-	5,0	5,0	210	21,0	
286,93	630	750		583	617,0	655,0	-	-	797	-	5,0	5,0	210	21,0	
733,32	470	560		600	657,0	674,0	-	-	990	-	8,0	8,0	805		
330,12	560	700	600	614	644,0	654,0	675	-	750	-	4,0	4,0	173		
330,12	560	700		614	644,0	654,0	675	-	750	-	4,0	4,0	173		
419,07	500	600		614	645,0	660,0	680	-	790	-	4,7	4,7	262		
341,88	590	700		623	658,0	672,0	-	-	847	-	5,0	5,0	245	27,5	
630,02	410	480		640	743,0	755,0	-	-	1050	-	8,0	8,0	710		
481,67	590	700	630	653	678,0	709,0	-	-	827	-	5,0	5,0	230		
481,67	590	700		653	678,0	709,0	-	-	827	-	5,0	5,0	230		
481,67	590	700		653	678,0	709,0	-	-	827	-	5,0	5,0	230		
409,06	530	630		658	691,0	707,0	-	-	892	-	6,0	6,0	285		
409,06	530	630		658	691,0	707,0	-	-	892	-	6,0	6,0	285		
860,81	380	450		678	735,0	757,0	-	-	1102	-	10,0	10,0	1100		
440,31	500	600	670	698	737,0	753,0	-	-	952	-	6,0	6,0	350		
533,23	510	600	710	733	760,0	796,0	-	-	927	-	5,0	5,0	300		
533,23	510	600		733	760,0	796,0	-	-	927	-	5,0	5,0	300		
541,69	470	560		738	769,0	788,0	-	-	1002	-	6,0	6,0	415		
551,48	360	430	750	778	823,0	840,0	-	-	1062	-	6,0	6,0	490		
908,69	360	430		778	823,0	838,0	-	-	1062	-	6,0	6,0	635		

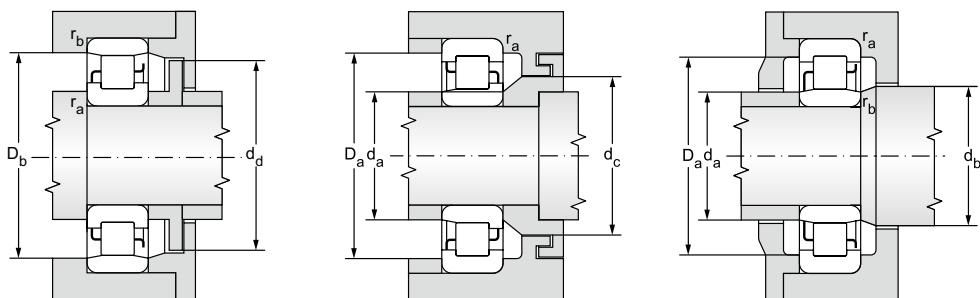
Single row cylindrical roller bearings

d = 800 to 1180 mm



12.4.1	Main dimensions									Bearing designation	Other cages	Angle ring designation	Basic load rating			
	d	D	B	r_s min	r_{1s} min	F	E	d_2	b	b_1	s_{11}				dynamic	static
								max							C_r	C_{or}
mm																
	800	1150	155,00	7,5	7,5	883						13,0	NU10/800EMA**		5500,0	10500,0
		1150	200,00	7,5	7,5	882						12,0	NU20/800EMA**		7000,0	14500,0
	850	1120	155,00	8,0	8,0	925						15,0	NU29/850MA**		3760,0	8740,0
		1120	155,00	8,0	8,0	925						15,0	NUP29/850MA**		3760,0	8740,0
	900	1180	165,00	8,0	8,0	982						17,0	NU29/900MA**		4220,0	9810,0
		1180	165,00	8,0	8,0	982						17,0	NUP29/900MA**		4220,0	9810,0
	950	1250	175,00	10,0	10,0	1032						17,0	NU29/950MA**		4577,0	11452,0
		1250	175,00	10,0	10,0	1032						17,0	NUP29/950MA**		4577,0	11452,0
	1000	1320	185,00	10,0	10,0	1090						17,0	NU29/1000MA**		4920,0	11600,0
		1320	185,00	10,0	10,0	1090						17,0	NUP29/1000MA**		4920,0	11600,0
	1060	1400	195,00	10,0	10,0	1155						20,0	NU29/1060MA**		5410,0	12800,0
		1400	195,00	10,0	10,0	1155						20,0	NUP29/1060MA**		5410,0	12800,0
		1400	250,00	7,5	7,5	1146						17,5	NU39/1060EMA**		9100,0	23900,0
	1180	1540	206,00	10,0	10,0	1280						21,0	NU29/1180MA**		6310,0	15300,0
		1540	206,00	10,0	10,0	1280						21,0	NUP29/1180MA**		6310,0	15300,0





¹⁾ Admissible axial movement

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions										Weight			
	P _u	grease	oil	d	d _a	d _a	d _b	d _c	d _d	D _a	D _b	r _a	r _b	~	of bearing	Ang.r.
kN	min ⁻¹														kg	
646,66	400	480	800	828	869,0	889,0	-	-	1122	-	6,0	6,0	-	560		
893,00	340	400		828	868,0	888,0	-	-	1122	-	6,0	6,0	-	715		
536,62	380	450	850	878	920,0	930,0	952	-	1092	-	5,0	5,0	-	430		
536,62	380	450		878	920,0	930,0	952	-	1092	-	5,0	5,0	-	430		
592,58	300	400	900	928	977,0	987,0	1011	-	1152	-	5,0	5,0	-	500		
592,58	300	400		928	977,0	987,0	1011	-	1152	-	5,0	5,0	-	500		
680,22	300	370	950	978	1027,0	1041,0	1066	-	1220	-	5,0	5,0	-	597		
680,22	300	370		978	1027,0	1041,0	1066	-	1220	-	5,0	5,0	-	597		
678,12	300	350	1000	1036	1085,0	1095,0	1122	-	1284	-	6,0	6,0	-	720		
678,12	300	350		1036	1085,0	1095,0	1122	-	1284	-	6,0	6,0	-	720		
735,23	280	330	1060	1096	1150,0	1160,0	1189	-	1364	-	6,0	6,0	-	850		
735,23	280	330		1096	1150,0	1160,0	1189	-	1364	-	6,0	6,0	-	850		
1 372,82	220	260		1098	1140,0	1150,0	-	-	1372	-	6,0	6,0	-	1080		
852,74	250	300	1180	1216	1275,0	1285,0	1316	-	1504	-	6,0	6,0	-	1050		
852,74	250	300		1216	1275,0	1285,0	1316	-	1504	-	6,0	6,0	-	1050		

DOUBLE ROW ROLLER BEARINGS

Design

Double row cylindrical roller bearings are suitable for applications with very high radial load and high revolution frequencies. As standard, double row cylindrical roller bearings are made in two versions (NN, NNU). These bearings are separable and are manufactured in designs with lubrication groove or without it.

Double row cylindrical roller bearings feature high rigidity and are used mostly in locations of service spindles of machine tools and similar equipment.

NN design

Double row cylindrical roller bearings of NN version have two rows of rollers guided by three flanges on inner ring. The outer ring is without flanges, and therefore these flanges cannot transfer axial forces. Double row cylindrical roller bearings of NN30K version are commonly used with cylindrical bore 1:12; if pre-agreed so, they can be supplied also with cylindrical bore.

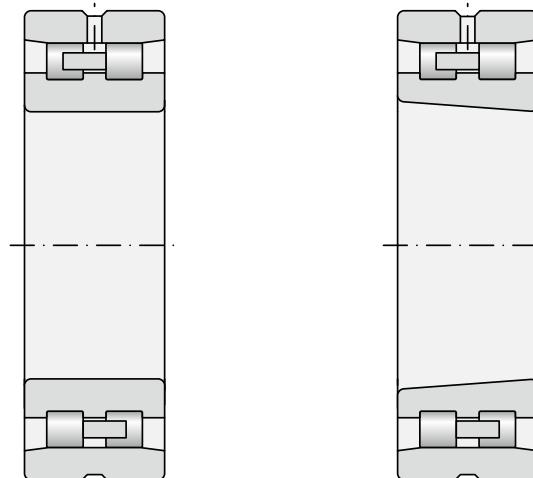


Fig. 12.4.12 (a, b)

NNU design

Double row cylindrical roller bearings of NNU49 version have three guide flanges on outer ring and smooth inner ring. Bearings can transfer radial load only. NNU4920 and NNU4924 type bearings are also supplied in tandems in compliance with technical conditions of TPF 11322. A pair coupled in this manner in location has the function of four-row cylindrical roller bearings, and suits location of rollers of rolling mills, levellers, etc. If you need tandem of different bearing dimensions, please contact the technical and consultancy services of Dunlop. Double row cylindrical roller bearings in NNU design can be supplied with cylindrical or tapered bore.

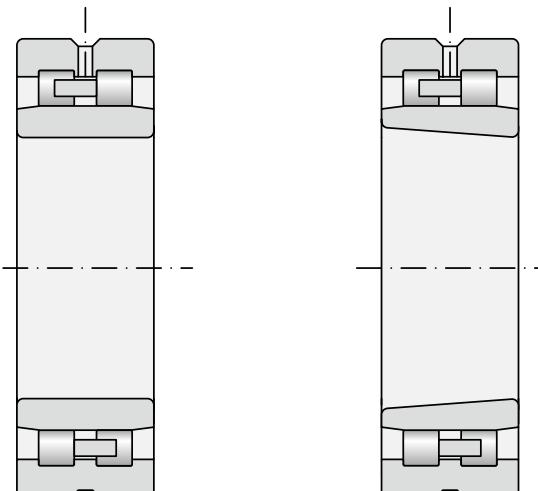


Fig. 12.4.13 (a, b)

General information

Main dimensions

The main dimensions of double row cylindrical roller bearing stated in the dimension tables comply with international dimensional plan ISO 15.

Tolerances

Double row cylindrical roller bearings are usually made in normal accuracy level P0 which is not presented. Delivery of bearings in higher accuracy levels P6, P5 and P4 has to be consulted in advance with the supplier. Tapered bore cylindrical roller bearings are only produced in high accuracy levels P5 and P4. The limit values of bearing dimension and run accuracy deviations comply with the standard ISO 492 (see chapter 7).

Radial clearance

Double row cylindrical roller bearings with cylindrical bore are made with normal radial clearance. Delivery of bearings with bigger clearance C3, C4 or C5, alternatively with smaller clearance C2, has to be consulted with the supplier. Values of radial clearances comply with the standard ISO 5753 and apply for bearings in non-assembled state. The values comply with the clearances of single row cylindrical roller bearings stated in chart 7.19.

Tapered bore cylindrical roller bearings are only produced with reduced radial clearance with mutually non-interchangeable rings C1NA and C2NA. The C1NA and C2NA symbols are combined with characters for the P5 and P4 accuracy level, e.g. P5 + C1NA is designated P51NA. Values of radial clearances comply with the standard ISO 5753 and are stated in chart 7.20.

Sliding axial movement

Double row cylindrical roller bearings are to certain extent capable of alignment of the shaft axial displacement against the body without reducing the service life of the bearing, same as single row cylindrical roller bearings (fig. 12.4.11). The values of maximum axial slide "s" are stated in the table section.

Misalignment

Misalignmnet of inner ring in double row cylindrical roller bearings with cylindrical bore against outer ring produces torque load in the bearing which leads to increased load and shortened service life of the bearing.

Cylindrical roller bearings with tapered bore are not suitable for applications in locations where mutual alig-nment of inner and outer bearing rings is not ensured.

Running temperatures

As standard, rings of double row cylindrical roller bearings are made for operation to 120°C.

Upon request, roller bearings with stabilisation for operation to temperatures 200°C can be supplied. In other cases please contact the technical and consultancy services.

Cages

Roller bearings are usually manufactured with massive brass cage guided on rolling elements which is usually not designated. Exception is NNU49 bearing with massive brass case M the design of which forms a part of the designation.

Special applications utilise massive steel cage guided on rolling elements; delivery of bearings with steel cages has to be discussed with the supplier.

Lubrication groove and holes on outer ring

All sizes of double row cylindrical roller bearings can be supplied with a groove and lubrication holes on outer ring (W33). This design allows supply of lubricant directly in the bearing between two rows of rollers which will ensure better lubrication of bearings and higher service reliability.

Minimum load

Minimum radial load recommended for double row Dunlop BTL cylindrical roller bearings is such that equals to 2% of the dynamic load bearing capacity of the bearing.

Equivalent dynamic load of bearing

$$P = F_r$$

Equivalent static load of bearing

$$P_0 = F_r$$

Additional designations

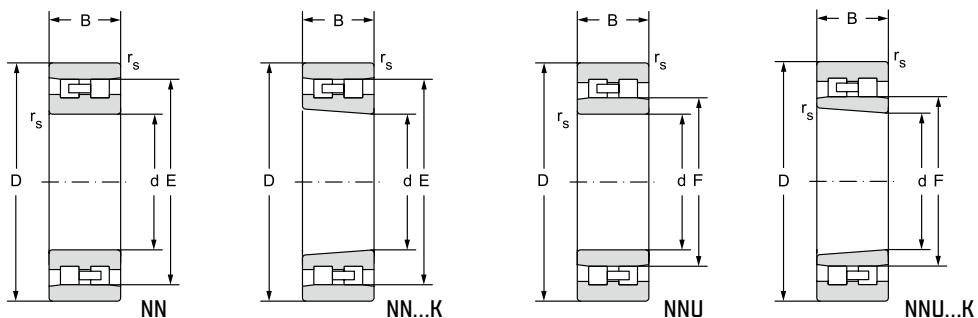
C1NA . . . Radial clearance of double row cylindrical roller bearings with tapered bore

C2NA . . . Radial clearance higher than C1NA of double row cylindrical roller bearings with tapered bore

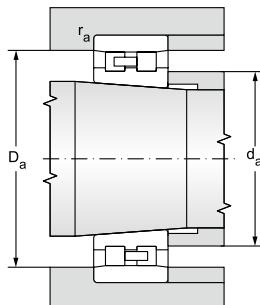
W33 . . . Lubrication groove and holes on outer ring

Double row cylindrical roller bearings $d = 25$ to 1000 mm

$d = 25$ to 90 mm



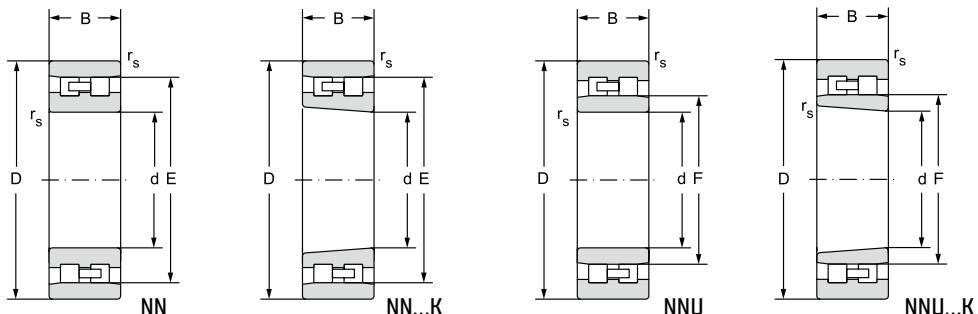
Main dimensions								Basic load rating		Fatigue load limit
d	D	B	r_s	r_{ls}	E	F	$s^1)$	dynamic	static	P_u
			min	min						
mm								kN	kN	
25	47	16	1,0	1,0	41,3		1,0	21,5	23,8	2,90
	47	16	1,0	1,0	41,3		1,0	21,5	23,8	2,90
30	55	19	1,0	1,0	48,5		1,0	28,7	32,5	3,96
	55	19	1,0	1,0	48,5		1,0	28,7	32,5	3,96
35	62	20	1,0	1,0	55,0		1,0	36,9	43,8	5,34
	62	20	1,0	1,0	55,0		1,0	36,9	43,8	5,34
40	68	21	1,0	1,0	61,0		1,0	38,3	44,7	5,45
	68	21	1,0	1,0	61,0		1,0	38,3	44,7	5,45
45	75	23	1,0	1,0	67,5		1,0	44,7	53,1	6,48
	75	23	1,0	1,0	67,5		1,0	44,7	53,1	6,48
50	80	23	1,0	1,0	72,5		1,0	48,2	59,6	7,27
	80	23	1,0	1,0	72,5		1,0	48,2	59,6	7,27
55	90	26	1,1	1,1	81,0		1,2	64,3	81,0	9,88
	90	26	1,1	1,1	81,0		1,2	64,3	81,0	9,88
60	95	26	1,1	1,1	86,1		1,2	68,1	89,1	10,87
	95	26	1,1	1,1	86,1		1,2	68,1	89,1	10,87
65	100	26	1,1	1,1	91,0		1,2	70,8	98,1	11,96
	100	26	1,1	1,1	91,0		1,2	70,8	98,1	11,96
70	110	30	1,1	1,1	100,0		1,2	90,9	128,0	15,61
	110	30	1,1	1,1	100,0		1,2	90,9	128,0	15,61
75	115	30	1,1	1,1	105,0		1,2	90,9	128,0	15,61
	115	30	1,1	1,1	105,0		1,2	90,9	128,0	15,61
80	125	34	1,1	1,1	113,0		1,4	114,0	162,0	19,76
	125	34	1,1	1,1	113,0		1,4	114,0	162,0	19,76
85	130	34	1,1	1,1	118,0		1,4	119,0	178,0	21,71
	130	34	1,1	1,1	118,0		1,4	119,0	178,0	21,71
90	140	37	1,5	1,5	127,0		1,4	131,0	192,0	23,41
	140	37	1,5	1,5	127,0		1,4	131,0	192,0	23,41


¹⁾ Admissible axial movement

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions							Lubrication groove and holes		Weight
grease	oil		d	d _a	d _a	D _a	D _a	r _a	r _{1a}	a	b	~
				min	max	min	max	max	max			
min ¹			mm									
19000	22000	NN3005	25	29	-	42	43	1,0	1,0	3,2	4,8	0,12
19000	22000	NN3005K		29	-	42	43	1,0	1,0	3,2	4,8	0,12
16000	18000	NN3006	30	35	-	49	50	1,0	1,0	3,2	4,8	0,19
16000	18000	NN3006K		35	-	49	50	1,0	1,0	3,2	4,8	0,19
14000	16000	NN3007	35	40	-	56	57	1,0	1,0	3,2	4,8	0,25
14000	16000	NN3007K		40	-	56	57	1,0	1,0	3,2	4,8	0,25
12600	14000	NN3008	40	45	-	62	63	1,0	1,0	3,2	4,8	0,30
12600	14000	NN3008K		45	-	62	63	1,0	1,0	3,2	4,8	0,30
11000	12600	NN3009	45	50	-	69	70	1,0	1,0	3,2	4,8	0,38
11000	12600	NN3009K		50	-	69	70	1,0	1,0	3,2	4,8	0,38
10600	12000	NN3010	50	55	-	74	75	1,0	1,0	3,2	4,8	0,42
10600	12000	NN3010K		55	-	74	75	1,0	1,0	3,2	4,8	0,42
9400	11000	NN3011	55	62	-	82	84	1,0	1,0	3,2	4,8	0,62
9400	11000	NN3011K		62	-	82	84	1,0	1,0	3,2	4,8	0,62
8900	10000	NN3012	60	67	-	87	88	1,0	1,0	3,2	4,8	0,66
8900	10000	NN3012K		67	-	87	88	1,0	1,0	3,2	4,8	0,66
8400	9400	NN3013	65	72	-	92	93	1,0	1,0	3,2	4,8	0,71
8400	9400	NN3013K		72	-	92	93	1,0	1,0	3,2	4,8	0,71
7500	8400	NN3014	70	77	-	102	103	1,0	1,0	3,2	6,5	1,00
7500	8400	NN3014K		77	-	102	103	1,0	1,0	3,2	6,5	1,00
7100	7900	NN3015	75	82	-	107	108	1,0	1,0	3,2	6,5	1,10
7100	7900	NN3015K		82	-	107	108	1,0	1,0	3,2	6,5	1,10
6700	7500	NN3016	80	87	-	115	118	1,0	1,0	3,2	6,5	1,50
6700	7500	NN3016K		87	-	115	118	1,0	1,0	3,2	6,5	1,50
6300	7100	NN3017	85	92	-	120	123	1,0	1,0	3,2	6,5	1,60
6300	7100	NN3017K		92	-	120	123	1,0	1,0	3,2	6,5	1,60
6000	6700	NN3018	90	98	-	129	132	1,5	1,5	3,2	6,5	2,00
6000	6700	NN3018K		98	-	129	132	1,5	1,5	3,2	6,5	2,00

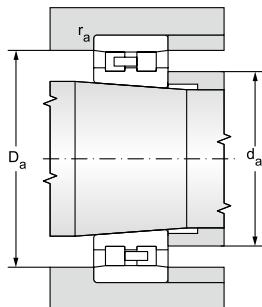
Double row cylindrical roller bearings

d = 95 to 160 mm



12.4.2

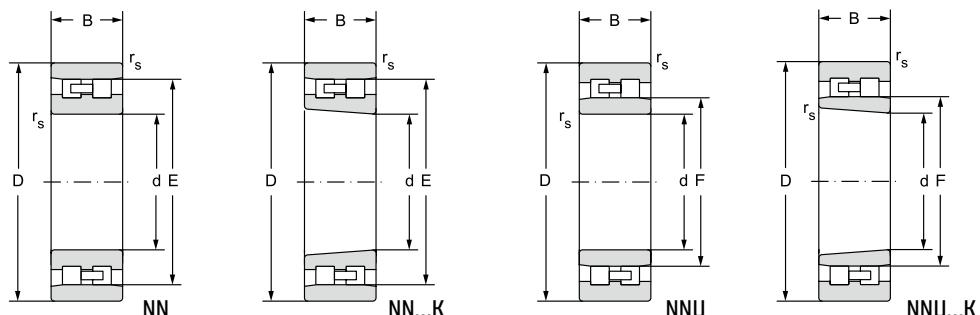
d	D	B	Main dimensions					Basic load rating		Fatigue load limit
			r_s min	r_{ls} min	E	F	$s^1)$	dynamic	static	P_u
								C_r	C_{or}	
mm	mm	mm						kN		kN
95	145	37	1,5	1,5	132,0		1,4	139,0	207,0	25,24
	145	37	1,5	1,5	132,0		1,4	139,0	207,0	25,24
100	140	40	1,1	1,1		113,0	1,7	119,0	215,0	26,22
	140	40	1,1	1,1		113,0	1,7	119,0	215,0	26,22
	150	37	1,5	1,5	137,0		1,5	144,0	224,0	27,32
	150	37	1,5	1,5	137,0		1,5	144,0	224,0	27,32
105	145	40	1,1	1,1		117,0	1,7	161,0	315,0	23,70
	145	40	1,1	1,1		117,0	1,7	161,0	315,0	23,70
	160	41	2,0	2,0	146,0		1,5	188,0	282,0	20,85
	160	41	2,0	2,0	146,0		1,5	188,0	282,0	20,85
110	150	40	1,1	1,1		122,0	2,0	167,0	335,0	24,91
	150	40	1,1	1,1		122,0	2,0	167,0	335,0	24,91
	170	45	2,0	2,0	155,0		1,8	220,0	329,0	23,93
	170	45	2,0	2,0	155,0		1,8	220,0	329,0	23,93
120	165	40	1,1	1,1		134,5	2,2	168,0	304,0	21,99
	165	40	1,1	1,1		134,5	2,2	168,0	304,0	21,99
	180	46	2,0	2,0	165,0		2,1	228,0	355,0	25,29
	180	46	2,0	2,0	165,0		2,1	228,0	355,0	25,29
130	180	50	1,5	1,5		144,0	2,5	274,0	545,0	38,45
	180	50	1,5	1,5		144,0	2,5	274,0	545,0	38,45
	200	52	2,0	2,0	182,0		2,4	282,0	447,0	30,95
	200	52	2,0	2,0	182,0		2,4	282,0	447,0	30,95
140	190	50	1,5	1,5		154,0	2,7	283,0	585,0	40,50
	190	50	1,5	1,5		154,0	2,7	283,0	585,0	40,50
	210	53	2,0	2,0	192,0		2,8	299,0	482,0	32,79
	210	53	2,0	2,0	192,0		2,8	299,0	482,0	32,79
150	210	60	2,0	2,0		167,0	2,8	350,0	715,0	48,23
	210	60	2,0	2,0		167,0	2,8	350,0	715,0	48,23
	225	56	2,1	2,1	206,0		3,0	322,0	521,0	34,71
	225	56	2,1	2,1	206,0		3,0	322,0	521,0	34,71
160	220	60	2,0	2,0		177,0	3,3	365,0	760,0	50,44
	220	60	2,0	2,0		177,0	3,3	365,0	760,0	50,44
	240	60	2,1	2,1	219,0		3,5	375,0	660,0	43,13
	240	60	2,1	2,1	219,0		3,5	375,0	660,0	43,13


¹⁾ Admissible axial movement

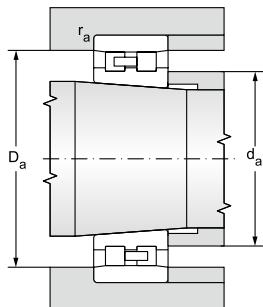
Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions							Lubrication groove and holes		Weight	
grease	oil		d	d _a	d _a	D _a	D _a	r _a	r _{1a}	a	b	~	
				min	max	min	max	max	max				
min¹		mm											
5600	6300	NN3019	95	103	-	134	137	1,5	1,5	3,2	6,5	2,10	
5600	6300	NN3019K		103	-	134	137	1,5	1,5	3,2	6,5	2,10	
3800	4700	NNU4920M	100	106	112	-	134	1,0	1,0	3,2	6,5	1,92	
3800	4700	NNU4920KM		106	112	-	134	1,0	1,0	3,2	6,5	1,92	
5300	6000	NN3020	108	-	139	142	1,5	1,5	3,2	6,5	2,20		
5300	6000	NN3020K		108	-	139	142	1,5	1,5	3,2	6,5	2,20	
3800	4800	NNU4921M	105	111,5	116	-	138,5	1,0	1,0	3,2	6,5	1,99	
3800	4800	NNU4921KM		111,5	116	-	138,5	1,0	1,0	3,2	6,5	1,99	
5000	5600	NN3021	114	-	148	151	2,0	2,0	3,2	6,5	2,80		
5000	5600	NN3021K		114	-	148	151	2,0	2,0	3,2	6,5	2,80	
3600	4500	NNU4922M	110	116,5	121	-	143,5	1,0	1,0	3,2	6,5	2,07	
3600	4500	NNU4922KM		116,5	121	-	143,5	1,0	1,0	3,2	6,5	2,07	
4700	5300	NN3022	119	-	157	161	2,0	2,0	3,2	6,5	3,55		
4700	5300	NN3022K		119	-	157	161	2,0	2,0	3,2	6,5	3,55	
3200	4000	NNU4924M	120	126	134	-	159	1,0	1,0	3,2	6,5	2,81	
3200	4000	NNU4924KM		126	134	-	159	1,0	1,0	3,2	6,5	2,81	
4500	5000	NN3024	129	-	167	171	2,0	2,0	3,2	6,5	3,85		
4500	5000	NN3024K		129	-	167	171	2,0	2,0	3,2	6,5	3,85	
3000	3800	NNU4926M	130	138	143	-	172	1,5	1,5	3,2	6,5	3,85	
3000	3800	NNU4926KM		138	143	-	172	1,5	1,5	3,2	6,5	3,85	
4000	4500	NN3026	139	-	184	191	2,0	2,0	4,8	9,5	5,75		
4000	4500	NN3026K		139	-	184	191	2,0	2,0	4,8	9,5	5,75	
2800	3600	NNU4928M	140	148	153	-	182	1,5	1,5	3,2	6,5	4,08	
2800	3600	NNU4928KM		148	153	-	182	1,5	1,5	3,2	6,5	4,08	
3800	4200	NN3028	150	-	194	200	2,0	2,0	4,8	9,5	6,20		
3800	4200	NN3028K		150	-	194	200	2,0	2,0	4,8	9,5	6,20	
2600	3200	NNU4930M	150	159	166	-	201	2,0	2,0	3,2	6,5	6,39	
2600	3200	NNU4930KM		159	166	-	201	2,0	2,0	3,2	6,5	6,39	
3500	4000	NN3030	162	-	208	213	2,0	2,0	4,8	9,5	7,50		
3500	4000	NN3030K		162	-	208	213	2,0	2,0	4,8	9,5	7,50	
2400	3000	NNU4932M	160	169	176	-	211	2,0	2,0	3,2	6,5	6,76	
2400	3000	NNU4932KM		169	176	-	211	2,0	2,0	3,2	6,5	6,76	
2400	2800	NN3032	171	-	222	229	2,0	2,0	4,8	9,5	9,41		
2400	2800	NN3032K		171	-	222	229	2,0	2,0	4,8	9,5	9,41	

Double row cylindrical roller bearings

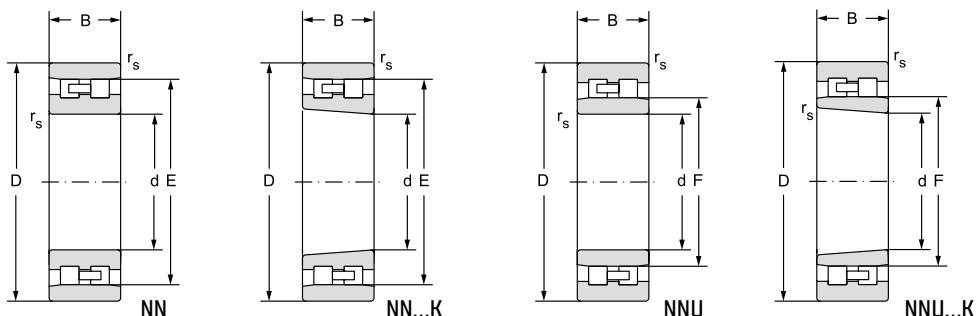
d = 170 to 280 mm



d mm	Main dimensions							Basic load rating		Fatigue load limit
	D mm	B mm	r_s min	r_{ls} min	E mm	F mm	$s^1)$	dynamic	static	P_u kN
								C_r kN	C_{or} kN	
12.4.2										
170	230	60	2,0	2,0		187,0	3,9	375,0	805,0	52,61
	230	60	2,0	2,0		187,0	3,9	375,0	805,0	52,61
	260	67	2,1	2,1	236,0		4,1	450,0	805,0	51,48
	260	67	2,1	2,1	236,0		4,1	450,0	805,0	51,48
180	250	69	2,0	2,0		200,0	4,5	480,0	1020,0	65,23
	250	69	2,0	2,0		200,0	4,5	480,0	1020,0	65,23
	280	74	2,1	2,1	255,0		4,5	565,0	995,0	62,36
	280	74	2,1	2,1	255,0		4,5	565,0	995,0	62,36
190	260	69	2,0	2,0		211,5	4,5	485,0	1060,0	66,87
	260	69	2,0	2,0		211,5	4,5	485,0	1060,0	66,87
	290	75	2,1	2,1	265,0		4,6	595,0	1080,0	66,82
	290	75	2,1	2,1	265,0		4,6	595,0	1080,0	66,82
200	280	80	2,1	2,1		223,0	5,0	570,0	1220,0	75,49
	280	80	2,1	2,1		223,0	5,0	570,0	1220,0	75,49
	310	82	2,1	2,1	282,0		5,2	655,0	1170,0	71,09
	310	82	2,1	2,1	282,0		5,2	655,0	1170,0	71,09
220	300	60	3,5	3,5	278,0		2,0	299,0	668,0	40,35
	300	80	2,1	2,1		243,0	5,0	600,0	1330,0	80,34
	300	80	2,1	2,1		243,0	5,0	600,0	1330,0	80,34
	340	90	3,0	3,0	310,0		5,4	815,0	1480,0	87,43
	340	90	3,0	3,0	310,0		5,4	815,0	1480,0	87,43
240	320	60	3,5	3,5	298,0		2,0	316,0	750,0	44,31
	320	80	2,1	2,1		263,0	5,4	625,0	1450,0	85,66
	320	80	2,1	2,1		263,0	5,4	625,0	1450,0	85,66
	360	92	3,0	3,0	330,0		5,7	855,0	1600,0	92,59
	360	92	3,0	3,0	330,0		5,7	855,0	1600,0	92,59
260	360	100	2,1	2,1		289,0	6,0	935,0	2100,0	120,33
	360	100	2,1	2,1		289,0	6,0	935,0	2100,0	120,33
	400	104	4,0	4,0	364,0		6,2	1030,0	1920,0	107,97
	400	104	4,0	4,0	364,0		6,2	1030,0	1920,0	107,97
280	380	100	2,1	2,1		309,0	6,0	960,0	2230,0	125,41
	380	100	2,1	2,1		309,0	6,0	960,0	2230,0	125,41
	420	106	4,0	4,0	384,0		6,7	1100,0	2000,0	110,50
	420	106	4,0	4,0	384,0		6,7	1100,0	2000,0	110,50

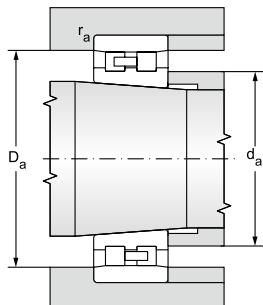

¹⁾ Admissible axial movement

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions							Lubrication groove and holes		Weight	
grease	oil		d	d _a	d _a	D _a	D _a	r _a	r _{1a}	a	b	~	
				min	max	min	max	max	max				kg
min ¹				mm									
2400	2800	NNU4934M	170	179	186	-	221	2,0	2,0	3,2	6,5	7,12	
2400	2800	NNU4934KM		179	186	-	221	2,0	2,0	3,2	6,5	7,12	
2200	2600	NN3034	181	-	239	249	2,0	2,0	4,8	9,5	12,8		
2200	2600	NN3034K	181	-	239	249	2,0	2,0	4,8	9,5	12,8		
2200	2600	NNU4936M	180	189	199	-	241	2,0	2,0	4,8	9,5	10,4	
2200	2600	NNU4936KM		189	199	-	241	2,0	2,0	4,8	9,5	10,4	
2000	2400	NN3036	191	-	258	269	2,0	2,0	6,0	11,1	16,8		
2000	2400	NN3036K	191	-	258	269	2,0	2,0	6,0	11,1	16,8		
2000	2600	NNU4938M	190	199	211	-	251	2,0	2,0	4,8	9,5	10,9	
2000	2600	NNU4938KM		199	211	-	251	2,0	2,0	4,8	9,5	10,9	
2000	2400	NN3038	201	-	268	279	2,0	2,0	6,0	11,1	17,8		
2000	2400	NN3038K	201	-	268	279	2,0	2,0	6,0	11,1	17,8		
1900	2400	NNU4940M	200	211	222	-	269	2,0	2,0	6,0	11,1	15,3	
1900	2400	NNU4940KM		211	222	-	269	2,0	2,0	6,0	11,1	15,3	
1800	2200	NN3040	211	-	285	299	2,0	2,0	6,0	11,1	22,7		
1800	2200	NN3040K	211	-	285	299	2,0	2,0	6,0	11,1	22,7		
1800	2200	NN3944	220	-	-	-	4,0	4,0	-	-	12,0		
1700	2200	NNU4944M		231	242	-	289	2,0	2,0	6,0	11,1	16,6	
1700	2200	NNU4944KM		231	242	-	289	2,0	2,0	6,0	11,1	16,6	
1700	2000	NN3044	233	-	313	327	2,5	2,5	7,5	13,9	29,6		
1700	2000	NN3044K	233	-	313	327	2,5	2,5	7,5	13,9	29,6		
1600	2000	NN3948	240	-	-	-	2,0	2,0	-	-	13,0		
1600	2000	NNU4948M		251	262	-	309	2,0	2,0	6,0	11,1	18,0	
1600	2000	NNU4948KM		251	262	-	309	2,0	2,0	6,0	11,1	18,0	
1500	1800	NN3048	253	-	334	347	2,5	2,5	7,5	13,9	32,7		
1500	1800	NN3048K	253	-	334	347	2,5	2,5	7,5	13,9	32,7		
1400	1800	NNU4952M	260	271	288	-	349	2,0	2,0	7,5	13,9	31,1	
1400	1800	NNU4952KM		271	288	-	349	2,0	2,0	7,5	13,9	31,1	
1400	1700	NN3052	276	-	368	384	3,0	3,0	7,5	13,9	47,7		
1400	1700	NN3052K	276	-	368	384	3,0	3,0	7,5	13,9	47,7		
1300	1700	NNU4956M	280	291	308	-	369	2,0	2,0	7,5	13,9	33,0	
1300	1700	NNU4956KM		291	308	-	369	2,0	2,0	7,5	13,9	33,0	
1300	1600	NN3056	298	-	388	402	3,0	3,0	7,5	13,9	49,6		
1300	1600	NN3056K	298	-	388	402	3,0	3,0	7,5	13,9	49,6		

Double row cylindrical roller bearings
d = 300 to 400 mm


12.4.2

d mm	Main dimensions							Basic load rating		Fatigue load limit
	D	B	r_s min	r_{ls} min	E	F	$s^1)$	dynamic	static	P_u kN
								C_r	C_{or}	
300	420	118	3,0	3,0		336,0	6,0	1230,0	2870,0	157,24
	420	118	3,0	3,0		336,0	6,0	1230,0	2870,0	157,24
	460	118	4,0	4,0	418,0		7,0	1290,0	2460,0	132,61
	460	118	4,0	4,0	418,0		7,0	1290,0	2460,0	132,61
320	440	118	3,0	3,0		356,0	7,0	1260,0	3050,0	164,41
	440	118	3,0	3,0		356,0	7,0	1260,0	3050,0	164,41
	480	121	5,0	5,0	438,0		8,0	1360,0	2510,0	133,24
	480	121	5,0	5,0	438,0		8,0	1360,0	2510,0	133,24
340	460	118	3,0	3,0		379,0	5,0	1050,0	2600,0	138,01
	460	118	3,0	3,0		379,0	5,0	1050,0	2600,0	138,01
	520	133	6,0	6,0	473,0		9,0	1680,0	3100,0	161,02
	520	133	6,0	6,0	473,0		9,0	1680,0	3100,0	161,02
	580	243	5,0	5,0		402,0	10,0	4000,0	7400,0	376,68
	580	243	5,0	5,0		402,0	10,0	4000,0	7400,0	376,68
360	480	118	3,0	3,0		399,0	5,0	1100,0	2700,0	141,24
	480	118	3,0	3,0		399,0	5,0	1100,0	2700,0	141,24
	540	134	6,0	6,0	493,0		9,0	1740,0	3350,0	171,65
	540	134	6,0	6,0	493,0		9,0	1740,0	3350,0	171,65
	600	243	5,0	5,0		422,0	5,9	4250,0	8300,0	417,13
	600	243	5,0	5,0		422,0	5,9	4250,0	8300,0	417,13
380	520	140	4,0	4,0		426,0	5,5	1350,0	3500,0	179,34
	520	140	4,0	4,0		426,0	5,5	1350,0	3500,0	179,34
	560	180	5,0	5,0		425,0	7,3	2800,0	5800,0	293,34
	560	180	5,0	5,0		425,0	7,3	2800,0	5800,0	293,34
	620	243	5,0	5,0		442,0	7,4	4200,0	8500,0	421,98
	620	243	5,0	5,0		442,0	7,4	4200,0	8500,0	421,98
400	540	140	4,0	4,0		446,0	5,5	1400,0	3650,0	184,60
	540	140	4,0	4,0		446,0	5,5	1400,0	3650,0	184,60
	600	200	5,0	5,0		449,0	7,9	3400,0	7100,0	352,48
	600	200	5,0	5,0		449,0	7,9	3400,0	7100,0	352,48
	650	250	6,0	6,0		463,0	7,5	4600,0	9500,0	464,78
	650	250	6,0	6,0		463,0	7,5	4600,0	9500,0	464,78

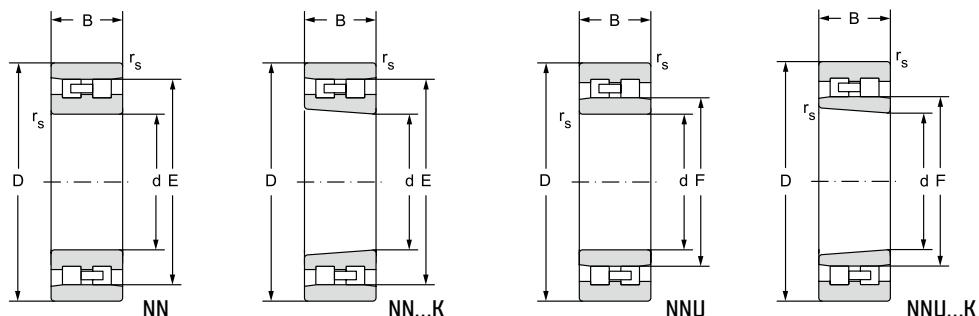


¹⁾ Admissible axial movement
Bearings in the new standard NEW FORCE

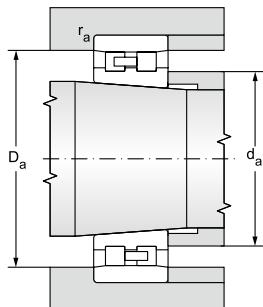
Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions								Lubrication groove and holes		Weight
grease	oil		d	d _a	d _a	D _a	D _a	r _a	r _{1a}	a	b	~	
				min	max	min	max	max	max				
min ¹			mm								kg		
1200	1500	NNU4960M	300	313	335	-	407	2,5	2,5	9,0	16,7	51,9	
1200	1500	NNU4960KM		313	335	-	407	2,5	2,5	9,0	16,7	51,9	
1200	1400	NN3060	316	-	422	444	3,0	3,0	9,0	16,7	70,7		
1200	1400	NN3060K	316	-	422	444	3,0	3,0	9,0	16,7	70,7		
1100	1400	NNU4964M	320	333	355	-	427	2,5	2,5	9,0	16,7	54,9	
1100	1400	NNU4964KM		333	355	-	427	2,5	2,5	9,0	16,7	54,9	
1200	1400	NN3064	338	-	442	462	3,0	3,0	9,0	16,7	74,2		
1200	1400	NN3064K	338	-	442	462	3,0	3,0	9,0	16,7	74,2		
1500	1800	NNU4968M	340	352	378	-	448	2,5	2,5	9,0	16,7	55,6	
1500	1800	NNU4968KM		352	378	-	448	2,5	2,5	9,0	16,7	55,6	
1100	1300	NN3068	362	-	477	498	4,0	4,0	9,0	16,7	99,0		
1100	1300	NN3068K	362	-	477	498	4,0	4,0	9,0	16,7	99,0		
800	950	NNU4168M	360	392	-	560	4,0	4,0	9,0	16,7	260		
800	950	NNU4168KM		360	392	-	560	4,0	4,0	9,0	16,7	260	
1500	1800	NNU4972M	360	372	398	-	468	2,5	2,5	9,0	16,7	57,5	
1500	1800	NNU4972KM		372	398	-	468	2,5	2,5	9,0	16,7	57,5	
1000	1200	NN3072	382	-	497	518	4,0	4,0	9,0	16,7	105		
1000	1200	NN3072K	382	-	497	518	4,0	4,0	9,0	16,7	105		
750	900	NNU4172M	380	414	-	580	4,0	4,0	9,0	16,7	275		
750	900	NNU4172KM		380	414	-	580	4,0	4,0	9,0	16,7	275	
1400	1700	NNU4976M	380	395	425	-	505	3,0	3,0	9,0	16,7	86,0	
1400	1700	NNU4976KM		395	425	-	505	3,0	3,0	9,0	16,7	86,0	
850	1000	NNU4076M	400	417	-	540	4,0	4,0	9,0	16,7	150		
850	1000	NNU4076KM		400	417	-	540	4,0	4,0	9,0	16,7	150	
720	850	NNU4176M	400	434	-	600	4,0	4,0	9,0	16,7	285		
720	850	NNU4176KM		400	434	-	600	4,0	4,0	9,0	16,7	285	
1300	1600	NNU4980M**	400	415	445	-	525	3,0	3,0	9,0	16,7	91,0	
1300	1600	NNU4980KM**		415	445	-	525	3,0	3,0	9,0	16,7	91,0	
800	950	NNU4080M**	420	440	-	580	4,0	4,0	9,0	16,7	205		
800	950	NNU4080KM**		420	440	-	580	4,0	4,0	9,0	16,7	205	
680	800	NNU4180M**	426	456	-	624	5,0	5,0	9,0	16,7	325		
680	800	NNU4180KM**		426	456	-	624	5,0	5,0	9,0	16,7	325	

Double row cylindrical roller bearings

d = 420 to 530 mm



d mm	Main dimensions						Basic load rating		Fatigue load limit	
	d	D	B	r_s min	r_{ls} min	E	F	$s^1)$	dynamic	static
									C_r	C_{or}
12.4.2									kN	kN
420	560	140	4,0	4,0		466,0	5,5	1460,0	3800,0	189,80
	560	140	4,0	4,0		466,0	5,5	1460,0	3800,0	189,80
620	200	5,0	5,0			469,0	7,8	3500,0	7500,0	367,98
620	200	5,0	5,0			469,0	7,8	3500,0	7500,0	367,98
700	280	6,0	6,0			497,0	12,2	5300,0	11300,0	542,24
700	280	6,0	6,0			497,0	12,2	5300,0	11300,0	542,24
440	600	160	4,0	4,0		490,0	5,8	1950,0	5000,0	245,32
600	160	4,0	4,0			490,0	5,8	1950,0	5000,0	245,32
650	157	8,0	8,0	596,0		13,0	2460,0	4920,0		238,02
650	157	8,0	8,0	596,0		13,0	2460,0	4920,0		238,02
650	212	6,0	6,0			487,0	9,6	3800,0	8200,0	396,70
650	212	6,0	6,0			487,0	9,6	3800,0	8200,0	396,70
720	280	6,0	6,0			511,0	10,8	5600,0	11800,0	560,30
720	280	6,0	6,0			511,0	10,8	5600,0	11800,0	560,30
460	620	160	4,0	4,0		510,0	5,8	2000,0	5350,0	259,54
620	160	4,0	4,0			510,0	5,8	2000,0	5350,0	259,54
680	218	6,0	6,0			513,0	7,7	4100,0	9300,0	443,90
680	218	6,0	6,0			513,0	7,7	4100,0	9300,0	443,90
760	300	7,5	7,5			537,0	12,8	6200,0	12300,0	575,27
760	300	7,5	7,5			537,0	12,8	6200,0	12300,0	575,27
480	650	170	5,0	5,0		534,0	6,0	2200,0	6000,0	287,15
650	170	5,0	5,0			534,0	6,0	2200,0	6000,0	287,15
700	218	6,0	6,0			533,0	7,5	4200,0	9600,0	453,51
700	218	6,0	6,0			533,0	7,5	4200,0	9600,0	453,51
790	308	7,5	7,5			557,0	12,0	6500,0	12700,0	586,87
790	308	7,5	7,5			557,0	12,0	6500,0	12700,0	586,87
500	670	170	5,0	5,0		554,0	6,0	2200,0	6000,0	284,17
670	170	5,0	5,0			554,0	6,0	2200,0	6000,0	284,17
720	218	6,0	6,0			553,0	7,5	4300,0	9800,0	458,35
720	218	6,0	6,0			553,0	7,5	4300,0	9800,0	458,35
830	325	7,5	7,5			582,0	14,0	7200,0	14500,0	660,83
830	325	7,5	7,5			582,0	14,0	7200,0	14500,0	660,83
530	780	250	6,0	6,0		591,0	10,0	5200,0	11900,0	544,81
780	250	6,0	6,0			591,0	10,0	5200,0	11900,0	544,81
870	335	7,5	7,5			618,0	17,0	7500,0	15500,0	695,62
870	335	7,5	7,5			618,0	17,0	7500,0	15500,0	695,62

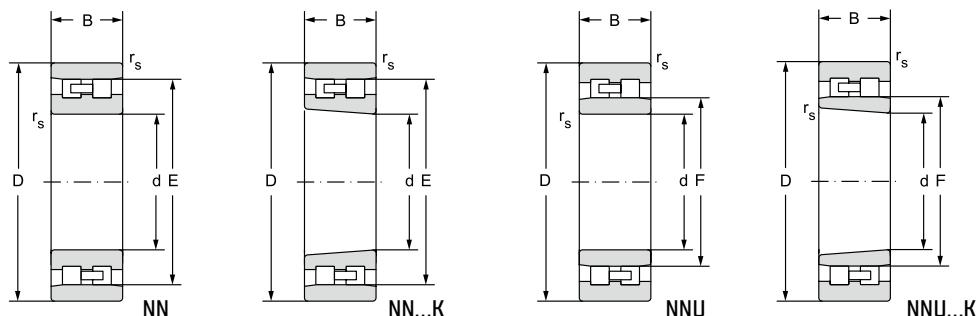


¹⁾ Admissible axial movement
Bearings in the new standard NEW FORCE

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions							Lubrication groove and holes		Weight
grease	oil		d	d _a	d _a	D _a	D _a	r _a	r _{1a}	a	b	~
				min	max	min	max	max	max			
min ¹			mm									kg
1300	1600	NNU4984M**	420	435	465	-	545	3,0	3,0	9,0	16,7	94,0
1300	1600	NNU4984KM**		435	465	-	545	3,0	3,0	9,0	16,7	94,0
750	900	NNU4084M**	440	460	-	600	4,0	4,0	9,0	16,7	185	
750	900	NNU4084KM**	440	460	-	600	4,0	4,0	9,0	16,7	185	
630	750	NNU4184M**	446	480	-	674	5,0	5,0	9,0	16,7	440	
630	750	NNU4184KM**	446	480	-	674	5,0	5,0	9,0	16,7	440	
1200	1500	NNU4988M**	440	455	489	-	585	3,0	3,0	9,0	16,7	131
1200	1500	NNU4988KM**	455	489	-	585	3,0	3,0	9,0	16,7	131	
750	890	NN3088**	468	-	602	622	5,0	5,0	12,0	22,3	169	
750	890	NN3088K**	468	-	602	622	5,0	5,0	12,0	22,3	169	
720	850	NNU4088M**	466	477	-	624	5,0	5,0	9,0	16,7	215	
720	850	NNU4088KM**	466	477	-	624	5,0	5,0	9,0	16,7	215	
590	700	NNU4188M**	466	500	-	694	5,0	5,0	12,0	22,3	450	
590	700	NNU4188KM**	466	500	-	694	5,0	5,0	12,0	22,3	450	
1100	1400	NNU4992M**	460	475	509	-	605	3,0	3,0	9,0	16,7	134
1100	1400	NNU4992KM**	475	509	-	605	3,0	3,0	9,0	16,7	134	
680	800	NNU4092M**	486	503	-	654	5,0	5,0	12,0	22,3	240	
680	800	NNU4092KM**	486	503	-	654	5,0	5,0	12,0	22,3	240	
570	670	NNU4192M**	493	526	-	727	6,0	6,0	12,0	22,3	535	
570	670	NNU4192KM**	493	526	-	727	6,0	6,0	12,0	22,3	535	
1100	1400	NNU4996M**	480	497	533	-	633	4,0	4,0	9,0	16,7	160
1100	1400	NNU4996KM**	497	533	-	633	4,0	4,0	9,0	16,7	160	
630	750	NNU4096M**	506	523	-	674	5,0	5,0	12,0	22,3	275	
630	750	NNU4096KM**	506	523	-	674	5,0	5,0	12,0	22,3	275	
530	630	NNU4196M**	513	545	-	757	6,0	6,0	12,0	22,3	590	
530	630	NNU4196KM**	513	545	-	757	6,0	6,0	12,0	22,3	590	
1000	1300	NNU49/500M**	500	517	553	-	653	4,0	4,0	9,0	16,7	162
1000	1300	NNU49/500KM**	517	553	-	653	4,0	4,0	9,0	16,7	162	
630	750	NNU40/500M**	526	543	-	694	5,0	5,0	12,0	22,3	285	
630	750	NNU40/500KM**	526	543	-	694	5,0	5,0	12,0	22,3	285	
510	600	NNU41/500M**	533	568	-	797	6,0	6,0	12,0	22,3	710	
510	600	NNU41/500KM**	533	568	-	797	6,0	6,0	12,0	22,3	710	
570	670	NNU40/530M**	530	556	580	-	754	5,0	5,0	12,0	22,3	420
570	670	NNU40/530KM**	556	580	-	754	5,0	5,0	12,0	22,3	420	
470	560	NNU41/530M**	563	604	-	837	6,0	6,0	12,0	22,3	790	
470	560	NNU41/530KM**	563	604	-	837	6,0	6,0	12,0	22,3	790	

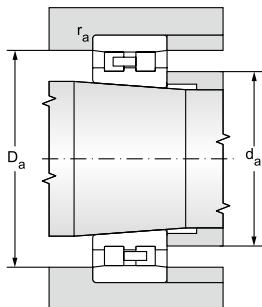
Double row cylindrical roller bearings

d = 560 to 850 mm



12.4.2

d mm	Main dimensions						Basic load rating			Fatigue load limit
	D mm	B mm	r_s min	r_{ls} min	E mm	F mm	$s^1)$	dynamic	static	P_u kN
								C_r kN	C_{or} kN	
560	820	258	6,0	6,0		626,0	12,5	5600,0	12500,0	563,41
	820	258	6,0	6,0		626,0	12,5	5600,0	12500,0	563,41
920	355	7,5	7,5			653,0	16,5	8500,0	18000,0	794,46
	355	7,5	7,5			653,0	16,5	8500,0	18000,0	794,46
600	870	272	6,0	6,0		664,0	9,2	6400,0	15100,0	667,82
	870	272	6,0	6,0		664,0	9,2	6400,0	15100,0	667,82
980	375	7,5	7,5			699,0	18,0	9500,0	20500,0	887,23
	375	7,5	7,5			699,0	18,0	9500,0	20500,0	887,23
630	850	218	8,0	8,0		704,0	5,0	3910,0	10200,0	450,19
	850	218	8,0	8,0		704,0	5,0	3910,0	10200,0	450,19
920	290	7,5	7,5			699,0	10,0	7400,0	17200,0	748,70
	290	7,5	7,5			699,0	10,0	7400,0	17200,0	748,70
1030	400	7,5	7,5			734,0	19,5	10400,0	23300,0	993,57
	400	7,5	7,5			734,0	19,5	10400,0	23300,0	993,57
670	980	308	7,5	7,5		744,0	11,5	8100,0	19100,0	815,95
	980	308	7,5	7,5		744,0	11,5	8100,0	19100,0	815,95
1090	412	7,5	7,5			774,0	19,0	11900,0	25000,0	1 047,52
	412	7,5	7,5			774,0	19,0	11900,0	25000,0	1 047,52
710	1030	315	7,5	7,5		784,0	10,5	9000,0	21000,0	882,94
	1030	315	7,5	7,5		784,0	10,5	9000,0	21000,0	882,94
1150	438	9,5	9,5			820,0	20,0	13000,0	28000,0	1 153,93
	438	9,5	9,5			820,0	20,0	13000,0	28000,0	1 153,93
750	1090	335	7,5	7,5		830,0	13,5	9900,0	23500,0	971,63
	1090	335	7,5	7,5		830,0	13,5	9900,0	23500,0	971,63
1220	475	9,5	9,5			871,0	19,0	15500,0	34900,0	1 413,72
	475	9,5	9,5			871,0	19,0	15500,0	34900,0	1 413,72
800	1150	345	7,5	7,5		885,0	16,0	10300,0	25500,0	1 036,11
	1150	345	7,5	7,5		885,0	16,0	10300,0	25500,0	1 036,11
1280	475	9,5	9,5			921,0	18,5	15900,0	36000,0	1 434,70
	475	9,5	9,5			921,0	18,5	15900,0	36000,0	1 434,70
850	1220	365	7,5	7,5		940,0	18,0	11200,0	28000,0	1 117,49
	1220	365	7,5	7,5		940,0	18,0	11200,0	28000,0	1 117,49
1360	500	12,0	6,0			976,0	21,5	19000,0	44000,0	1 721,92
	500	12,0	12,0			976,0	21,5	19000,0	44000,0	1 721,92

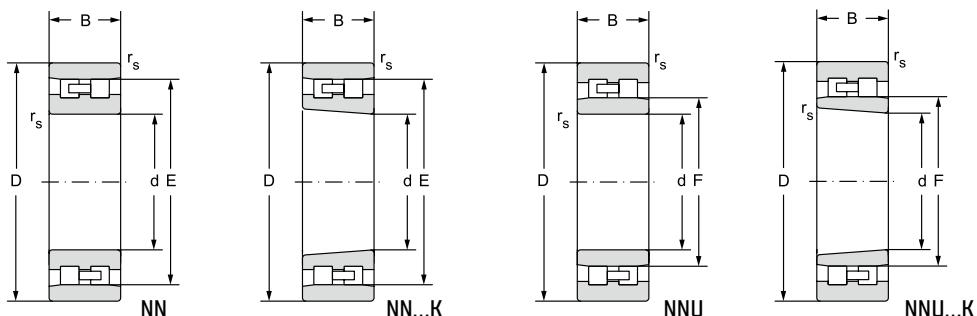


¹⁾ Admissible axial movement
Bearings in the new standard NEW FORCE

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions								Lubrication groove and holes		Weight
grease	oil		d	d _a	d _a	D _a	D _a	r _a	r _{1a}	a	b	~	
				min	max	min	max	max	max				kg
min ⁻¹			mm										
530	630	NNU40/560M**	560	586	615	-	794	5,0	5,0	12,0	22,3	475	
530	630	NNU40/560KM**		586	615	-	794	5,0	5,0	12,0	22,3	475	
450	530	NNU41/560M**		593	638	-	887	6,0	6,0	12,0	22,3	930	
450	530	NNU41/560KM**		593	638	-	887	6,0	6,0	12,0	22,3	930	
510	600	NNU40/600M**	600	626	653	-	844	5,0	5,0	12,0	22,3	530	
510	600	NNU40/600KM**		626	653	-	844	5,0	5,0	12,0	22,3	530	
400	480	NNU41/600M**		634	682	-	946	6,0	6,0	12,0	22,3	1100	
400	480	NNU41/600KM**		634	682	-	946	6,0	6,0	12,0	22,3	1100	
470	600	NNU49/630M**	630	664	694	-	818	6,0	6,0	12,0	22,3	363	
470	600	NNU49/630KM**		664	694	-	818	6,0	6,0	12,0	22,3	363	
470	560	NNU40/630M**		664	688	-	886	6,0	6,0	12,0	22,3	635	
470	560	NNU40/630KM**		664	688	-	886	6,0	6,0	12,0	22,3	635	
380	450	NNU41/630M**		664	716	-	996	6,0	6,0	12,0	22,3	1330	
380	450	NNU41/630KM**		664	716	-	996	6,0	6,0	12,0	22,3	1330	
420	500	NNU40/670M**	670	704	733	-	946	6,0	6,0	12,0	22,3	765	
420	500	NNU40/670KM**		704	733	-	946	6,0	6,0	12,0	22,3	765	
360	430	NNU41/670M**		704	756	-	1056	6,0	6,0	12,0	22,3	1500	
360	430	NNU41/670KM**		704	756	-	1056	6,0	6,0	12,0	22,3	1500	
400	480	NNU40/710M**	710	744	772	-	996	6,0	6,0	12,0	22,3	850	
400	480	NNU40/710KM**		744	772	-	996	6,0	6,0	12,0	22,3	850	
320	380	NNU41/710M**		750	800	-	1110	8,0	8,0	12,0	22,3	1790	
320	380	NNU41/710KM**		750	800	-	1110	8,0	8,0	12,0	22,3	1790	
360	430	NNU40/750M**	750	784	816	-	1056	6,0	6,0	12,0	22,3	930	
360	430	NNU40/750KM**		784	816	-	1056	6,0	6,0	12,0	22,3	930	
320	380	NNU41/750M**		790	850	-	1180	8,0	8,0	12,0	22,3	2230	
320	380	NNU41/750KM**		790	850	-	1180	8,0	8,0	12,0	22,3	2230	
340	400	NNU40/800M**	800	833	871	-	1117	6,0	6,0	12,0	22,3	1140	
340	400	NNU40/800KM**		833	871	-	1117	6,0	6,0	12,0	22,3	1140	
270	320	NNU41/800M**		840	900	-	1240	8,0	8,0	12,0	22,3	2390	
270	320	NNU41/800KM**		840	900	-	1240	8,0	8,0	12,0	22,3	2390	
300	360	NNU40/850M**	850	883	923	-	1187	6,0	6,0	12,0	22,3	1340	
300	360	NNU40/850KM**		883	923	-	1187	6,0	6,0	12,0	22,3	1340	
250	300	NNU41/850M**		897	935	-	1334	10,0	5,0	12,0	22,3	2900	
250	300	NNU41/850KM**		897	935	-	1334	10,0	10,0	12,0	22,3	2900	

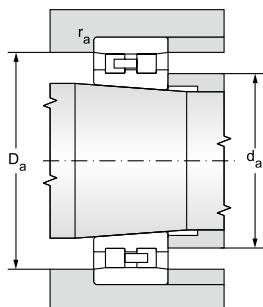
Double row cylindrical roller bearings

$d = 900 \text{ to } 1000 \text{ mm}$



12.4.2

Main dimensions								Basic load rating		Fatigue load limit
d	D	B	r_s	r_{ls}	E	F	$s^1)$	dynamic	static	P_u
			min	min						
mm	mm	mm						kN	kN	
900	1280	375	7,5	7,5		990,0	17,0	12000,0	30800,0	1 210,29
	1280	375	7,5	7,5		990,0	17,0	12000,0	30800,0	1 210,29
1420	515	12,0	6,0		1032,0	27,5	21400,0	47000,0	1 812,71	
	515	12,0	12,0		1032,0	27,5	21400,0	47000,0	1 812,71	
950	1360	412	7,5	7,5		1050,0	20,0	13700,0	34800,0	1 343,92
	1360	412	7,5	7,5		1050,0	20,0	13700,0	34800,0	1 343,92
1500	545	12,0	6,0		1092,0	22,5	24800,0	56000,0	2 124,79	
	545	12,0	12,0		1092,0	22,5	24800,0	56000,0	2 124,79	
1000	1320	315	7,5	7,5	1238,0		9,5	8200,0	25000,0	964,21
	315	7,5	7,5	1238,0			9,5	8200,0	25000,0	964,21
1420	412	7,5	7,5		1101,0	19,5	15000,0	37100,0	1 412,88	
	412	7,5	7,5		1101,0	19,5	15000,0	37100,0	1 412,88	
1580	580	12,0	6,0		1154,0	28,0	26900,0	60800,0	2 271,41	
	580	12,0	12,0		1154,0	28,0	26900,0	60800,0	2 271,41	



¹⁾ Admissible axial movement
Bearings in the new standard NEW FORCE

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions							Lubrication groove and holes		Weight
grease	oil		d	d _a	d _a	D _a	D _a	r _a	r _{1a}	a	b	~
				min	max	min	max	max	max			
min ¹			mm									kg
280	340	NNU40/900M**	900	933	963	-	1257	6,0	6,0	12,0	22,3	1500
280	340	NNU40/900KM**		933	963	-	1257	6,0	6,0	12,0	22,3	1500
230	280	NNU41/900M**		947	1008	-	1394	10,0	5,0	12,0	22,3	3180
230	280	NNU41/900KM**		947	1008	-	1394	10,0	10,0	12,0	22,3	3180
270	320	NNU40/950M**	950	983	1033	-	1327	6,0	6,0	12,0	22,3	1900
270	320	NNU40/950KM**		983	1033	-	1327	6,0	6,0	12,0	22,3	1900
220	260	NNU41/950M**		997	1068	-	1474	10,0	5,0	12,0	22,3	3830
220	260	NNU41/950KM**		997	1068	-	1474	10,0	10,0	12,0	22,3	3830
280	340	NN49/1000M**	1000	1033	-	1249	1287	6,0	6,0	12,0	22,3	1200
280	340	NN49/1000KM**		1033	-	1249	1287	6,0	6,0	12,0	22,3	1200
250	300	NNU40/1000M**		1033	1084	-	1387	6,0	6,0	12,0	22,3	2000
250	300	NNU40/1000KM**		1033	1084	-	1387	6,0	6,0	12,0	22,3	2000
200	240	NNU41/1000M**		1047	1128	-	1474	10,0	5,0	12,0	22,3	4270
200	240	NNU41/1000KM**		1047	1128	-	1474	10,0	10,0	12,0	22,3	4270

SINGLE ROW FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

Design

Single row full complement cylindrical roller bearings suit locations with high radial load and lower revolution frequencies, comparing to roller bearings with cage. Full complement cylindrical roller bearings have the highest possible number of rollers, and are cageless; they are manufactured in two versions.

NSF design

Inner bearing ring has guide flanges on both sides; the outer ring has one guide flange (fig. 12.4.14). NSF design bearing is axially guiding in one direction; in one direction the bearing captures axial load whilst in other direction it allows axial displacement of shaft against the body. Outer ring is on the side without guide flange provided with snap ring that ensures components in assembled state. The NSF design complies with SKF bearings in NCF version, and with FAG bearings in SL1818, SL1829, SL1830 and SL1822 version.

NJB design

Outer bearing ring has guide flanges on both sides; the inner ring has one guide flange (fig. 12.4.15). NJB design bearing is axially guiding in one direction; in one direction the bearing captures axial load whilst in other direction it allows axial displacement of shaft against body. NJB bearing is a separable type bearing; when inner ring is dismantled, rollers are held together by outer ring which is given by optimum adjustment of the outer ring raceway diameter, diameter and number of rollers. NJB bearing is in the heavy dimension series 23. The NJB design complies with SKF bearings in NJG design, and with FAG bearings in SL1923 design.

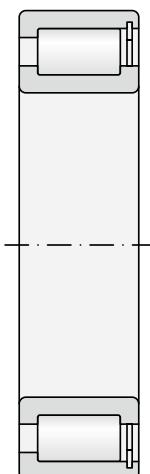


Fig. 12.4.14

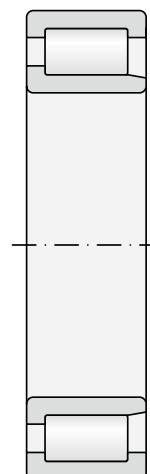


Fig. 12.4.15

General information

Main dimensions

The main dimensions of single row full complement cylindrical roller bearings stated in the dimension tables comply with international dimensional plan ISO 15.

Tolerances

Single row full complement cylindrical roller bearings are usually made in normal accuracy level P0 which is not presented. The limit values of bearing dimension and run accuracy deviations comply with the standard ISO 492.

Radial clearance

Single row full complement cylindrical roller are usually made with normal radial clearance that is not designated on the bearing. Bearings are made also with increased radial clearance C3; the availability must be consulted with the supplier. Values of radial clearances comply with the standard ISO 5753 and apply for bearings in non-assembled state (see Tab. 7.19).

Misalignment

The same conditions as for usual single row roller bearings with cage apply to misalignment of single row full complement cylindrical roller bearings. (See the chapter Single row roller bearings.)

Service temperatures

Rings of single row full complement cylindrical roller bearings are usually made with dimension stabilisation "S0"; service temperature of these bearings is therefore within 150°C. Upon request, roller bearings with "S1" dimension stabilisation for operation at temperatures up to 200°C can be supplied.

Minimum load

Minimum radial load recommended for single row full complement cylindrical roller bearings is such that equals to 4% of the basic dynamic load bearing capacity of the bearing.

Axial dynamic load rating

Single row full complement cylindrical roller bearings can besides radial load transfer also single direction axial load. In usual service conditions when the temperature difference between the bearing and ambient area does not exceed 60°C at specific heat passage of 0.5 mWmm⁻²°C⁻¹, at minimum value of viscosity rate 2, the maximum admissible axial load can be calculated with sufficient accuracy from the below equation:

for lubrication with oil

$$F_{a\ max} = \frac{C_{or} \cdot 10^4}{n(d + D)} - 0.3 F_r \quad [\text{kN}]$$

for lubrication with grease

$$F_{a\ max} = \frac{0.5 C_{or} \cdot 10^4}{n (d + D)} - 0.15 F_r \quad [\text{kN}]$$

$F_{a\ max}$ maximum admissible axial load [kN]

C_{or} basic radial static load rating [kN]

F_r radial load of bearings [kN]

n rotational frequency [min^{-1}]

d bearing bore diameter [mm]

D outer diameter of bearing [mm]

The $F_{a\ max}$ values calculated according to the above stated equations apply on condition of acting of constant axial force. In case of interrupted load or impact load the admissible axial load can grow by two or three times towards the calculated value. At acting axial load roller bearings operate reliably only if the bearings are loaded radially at the same time. The relation $F_a/F_r < 0.5$ has to be maintained.

Equivalent dynamic load of bearing

Axially guiding bearings are capable of transferring both radial and axial load; the following applies to these bearings:

$$P = F_r \quad \text{for } F_a/F_r \leq e$$

$$P = 0.92 F_r + Y F_a \quad \text{for } F_a/F_r > e$$

where the arithmetic coefficient e = 0.2 for bearings of series 18

..... = 0.3 for bearings of other series 22, 23, 28, 29 and 30

and axial load coefficient Y = 0.6 for bearings of series 18

..... = 0.4 for bearings of other series 22, 23, 28, 29 and 30

Equivalent static load of bearing

$$P_0 = F_r$$

Additional designations

CV modified internal designation, full complement

V full complement (without cage)

VH full complement, rolling elements form non-separable unit with at least one ring

DOUBLE ROW FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

Design

Double row full complement cylindrical roller bearings transfer big radial loads but at lower rpm than usual bearings with cage. These bearings have as many rolling elements as possible, and are in cageless version. Dunlop manufacture these bearings in three versions that are non-separable and uncovered.

NNSL design

Inner bearing ring has three guide flanges; outer bearing ring does not have any flange; outer ring is provided with snap ring located between the rollers which secures components in assembled state (fig. 12.4.16). NNSL bearing version is axially free; it allows axial displacement of shaft against body. The NNSL design complies with SKF bearings in NNCL version, and with FAG bearings in SL0248 and SL0249 version.

NNSF design

Inner bearing ring has three guide flanges; outer bearing ring has one guide flange and snap ring on the other side which secures components in assembled state (fig. 12.4.17). NNSF bearing is axially guiding in one direction; it can capture axial load on the guide flange side. The NNSF design complies with SKF bearings in NNCF version, and with FAG bearings in SL1850 version.

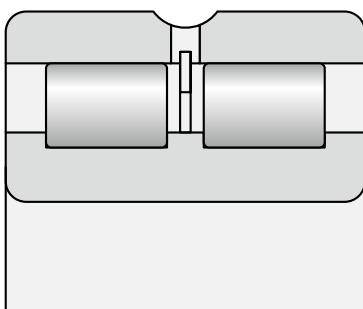


Fig. 12.4.16

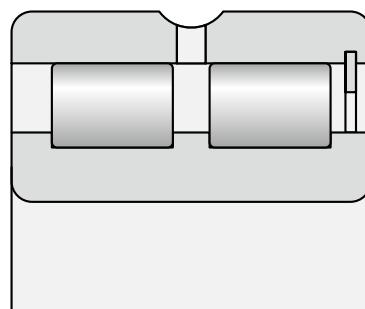


Fig. 12.4.17

NNS design

Inner bearing ring has three guide flanges; outer bearing ring is split and has two guide flanges; outer ring is connected with snap rings that should not be axially stressed. NNS bearing version is axially guiding in both directions. The NNS design complies with SKF bearings in NNC version, and with FAG bearings in SL0148 a SL0149 version.

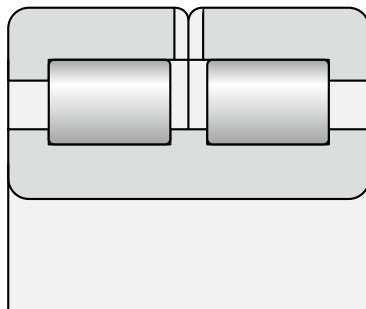


Fig. 12.4.18

General information

Main dimensions

Main dimensions of double row full complement cylindrical roller bearings stated in the dimensional tables comply with the international dimensional plan ISO 15.

Tolerances

Double row full complement cylindrical roller bearings are usually made in normal accuracy level P0 which is not presented. Bearings can be also made in increased accuracy class P6; the availability of these bearings must be consulted with the supplier. The limit values of bearing dimension and run accuracy deviations comply with the standard ISO 492.

Radial clearance

Single row full complement cylindrical roller bearings are usually made with normal radial clearance that is not designated on the bearing. Bearings are made also with increased radial clearance C3 and reduced radial clearance C2; the availability must be consulted with the supplier. Values of radial clearances comply with the standard ISO 5753 and apply for bearings in non-assembled state (see Tab. 7.19).

Axial clearance

NNC bearing version that is axially guided in both directions must have certain axial clearance that ranges within 0.1 to 0.2mm for all bearing sizes.

Sliding axial movement

Double row full complement cylindrical roller bearings in NNSL and NNSF version are to certain extent capable of alignment of the shaft axial displacement against the body without reducing the service life of the bearing. The values of maximum axial slide "s" (fig. 12.4.19) are stated in the table section.

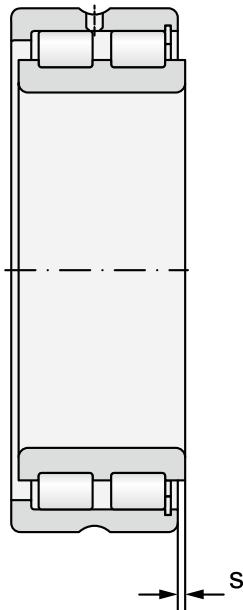


Fig. 12.4.19

Misalignment

Misalignment of inner ring in double row full complement cylindrical roller bearings against outer ring produces torque load in the bearing which leads to increased load and shortened service life of the bearing.

Running temperatures

Rings of double row full complement cylindrical roller bearings are usually made with dimension stabilisation "S0"; service temperature of these bearings is therefore within 150°C.

Upon request, roller bearings with "S1" dimension stabilisation for operation at temperatures up to 200 °C can be supplied.

Lubrication groove and bores on outer ring

All sizes of double row full complement cylindrical roller bearings are manufactured with a slot and lubrication bores on outer ring [W33]. This design allows supply of lubricant directly in the bearing between two rows of rollers which will ensure better lubrication of bearings and higher service reliability.

Minimum load

Minimum radial load recommended for double row full complement cylindrical roller bearings is such that equals to 4% of the basic dynamic load bearing capacity of the bearing.

Axial dynamic load capacity

Double row full complement cylindrical roller bearings can besides radial load transfer also axial load in one direction. In usual service conditions when the temperature difference between the bearing and ambient area does not exceed 60 °C at specific heat passage of 0.5 mWmm⁻²°C⁻¹, at minimum value of viscosity rate 2, the maximum admissible axial load can be calculated with sufficient accuracy from the below equation:

for lubrication with oil

$$F_{a\ max} = \frac{0.35 C_{or} \cdot 10^4}{n (d + D)} - 0.1 F_r \quad [\text{kN}]$$

for lubrication with grease

$$F_{a\ max} = \frac{0.2 C_{or} \cdot 10^4}{n (d + D)} - 0.06 F_r \quad [\text{kN}]$$

$F_{a\ max}$ maximum admissible axial load [kN]

C_{or} basic radial static load rating [kN]

F_r radial load of bearings [kN]

n rotational frequency [min⁻¹]

d bearing bore diameter [mm]

D outer diameter of bearing [mm]

The $F_{a\ max}$ values calculated according to the above stated equations apply on condition of acting of constant axial force. In case of interrupted load or impact load the admissible axial load can grow by two or three times towards the calculated value.

At acting axial load cylindrical roller bearings operate reliably only if the bearings are loaded radially at the same time. The relation $F_a/F_r \leq 0.25$ has to be maintained.

Equivalent dynamic load of bearing

Axially free NNSL type bearings are capable of transferring radial load only; the following applies to these bearings:

$$P = F_r$$

Axially guiding bearings in NNCF and NNC version are capable of transferring both radial and axial load; the following applies to these bearings:

$$P = F_r \quad \text{for } F_a/F_r \leq e$$

$$P = 0.92 F_r + Y F_a \quad \text{for } F_a/F_r > e$$

where the arithmetic coefficient $e = 0.15$ for double row full complement bearing

and axial load coefficient $Y = 0.4$ for double row full complement bearing

Equivalent static load of bearing

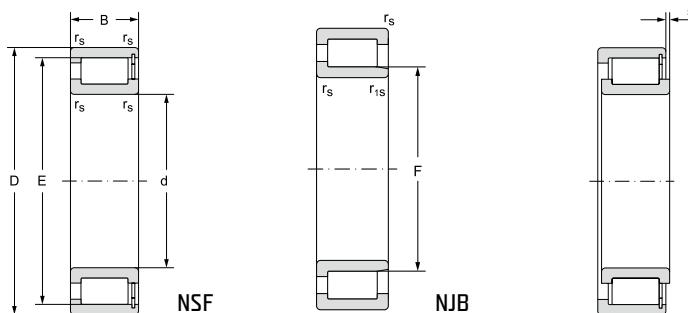
$$P_0 = F_r$$

Additional designations

CV modified internal design, full complement

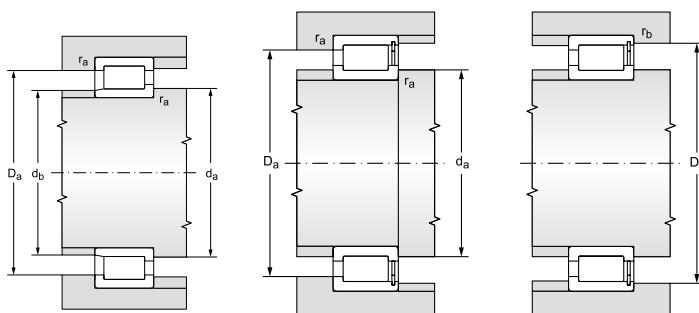
V full complement (without cage)

Single row full complement cylindrical roller bearings d = 20 to 1000 mm



Main dimensions								Bearing designation		Basic load rating	
d	D	B	r_s min	r_{1s} min	F	E	$s^1)$			C_r	C_{or}
								dynamic	static		
mm											
20	42	16,00	0,6	0,6		36,80	1,5	NSF3004CV		26,0	28,0
25	47	16,00	0,6	0,6		42,50	1,5	NSF3005CV		30,0	34,0
	62	24,00	1,1		31,74		1,7	NJB2305VH		64,0	65,0
30	55	19,00	1,0	1,0		49,60	2,0	NSF3006CV		37,0	41,0
	72	27,00	1,1		38,36		1,8	NJB2306VH		80,0	82,0
35	62	20,00	1,0	1,0		55,50	2,0	NSF3007CV		46,0	53,0
	80	31,00	1,5		44,75		2,0	NJB2307VH		103,0	108,0
40	68	21,00	1,0	1,0		61,70	2,0	NSF3008CV		53,0	65,0
	90	33,00	1,5		51,15		2,4	NJB2308VH		138,0	149,0
45	75	23,00	1,0	1,0		66,90	2,0	NSF3009CV		55,0	71,0
	100	36,00	1,5		56,14		2,4	NJB2309VH		167,0	188,0
50	80	23,00	1,0	1,0		72,30	2,0	NSF3010CV		70,0	93,0
55	90	26,00	1,1	1,1		83,50	2,0	NSF3011CV		100,0	136,0
	120	43,00	2,0		67,14		2,6	NJB2311VH		225,0	250,0
60	85	16,00	1,0	1,0		78,65	1,0	NSF2912CV		51,0	75,0
	95	26,00	1,1	1,1		86,70	1,6	NSF3012CV		101,0	137,0
65	90	16,00	1,0	1,0		85,35	1,0	NSF2913CV		54,0	82,0
	100	26,00	1,1	1,1		93,10	2,0	NSF3013CV		106,0	155,0
	140	48,00	2,1		80,71		3,0	NJB2313VH		291,0	345,0
70	100	19,00	1,0	1,0		92,50	1,0	NSF2914CV		72,0	108,0
	110	30,00	1,1	1,1		100,30	3,0	NSF3014CV		119,0	164,0
	150	51,00	2,1		84,22		3,0	NJB2314VH		324,0	389,0
75	105	19,00	1,0	1,0		97,60	1,0	NSF2915CV		73,0	112,0
	115	30,00	1,1	1,1		107,90	3,0	NSF3015CV		124,0	181,0
	160	55,00	2,1		91,24		3,0	NJB2315VH		379,0	463,0
80	110	19,00	1,0	1,0		102,70	1,0	NSF2916CV		76,0	123,0
	125	34,00	1,1	1,1		117,00	4,0	NSF3016CV		151,0	219,0
	170	58,00	2,1		98,26		4,0	NJB2316VH		437,0	552,0

d = 20 to 80 mm



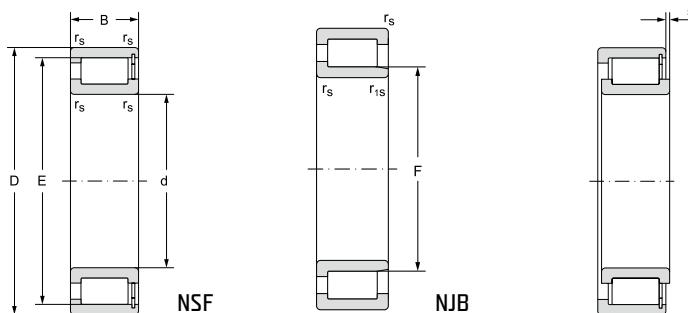
¹⁾ Admissible axial movement

²⁾ Recommended diameter
of fitting for axially loaded
bearings

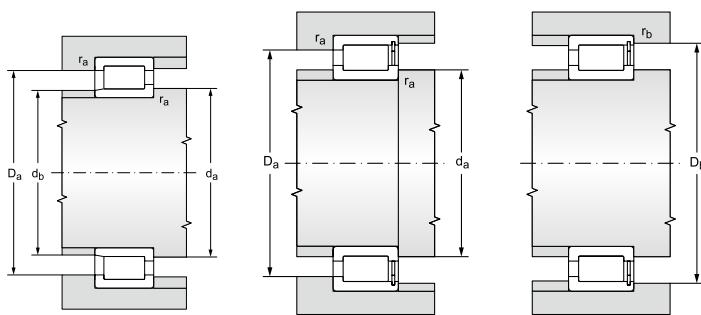
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions									Weight
	P_u	grease	oil	d	d_a	$d_{as}^2)$	d_b	D_a	D_b	r_a	r_b	
		min	max	mm	max	max	max	max	max	max	max	kg
		kN	min ⁻¹									
		3,41	6900	8200	20	24	26,9	-	38	40	0,6	0,6
		4,15	5700	6800	25	29	32,3	-	43	45	0,6	0,6
		7,93	3600	4300		32	33,9	30,0	55	-	1,0	0,38
		5,00	4800	5700	30	35	37,8	-	50	52	1,0	1,0
		10,00	3315	3900		37	40,8	36,0	65	-	1,0	0,56
		6,46	4300	5100	35	40	42,8	-	57	59	1,0	1,0
		13,17	2800	3300		44	47,6	42,0	71	-	1,5	0,75
		7,93	3900	4600	40	45	47,9	-	63	65	1,0	1,0
		18,17	2400	2900		49	54,4	49,0	81	-	1,5	1,00
		8,66	3400	4100	45	50	53,0	-	70	72	1,0	1,0
		22,93	2200	2700		54	59,3	54,0	91	-	1,5	1,45
		11,34	3200	3800	50	55	56,7	-	75	77	1,0	1,0
		16,59	2700	3200	55	61	65,8	-	84	86	1,0	1,0
		30,49	1780	2100		66	71,3	66,0	109	-	2,0	2,30
		9,15	2900	3500	60	65	66,8	-	80	80	1,0	1,0
		16,71	2800	3300		66	68,9	-	89	91	1,0	1,0
		10,00	2600	3100	65	70	73,4	-	85	85	1,0	1,0
		18,90	2400	2900		71	75,6	-	94	96	1,0	1,0
		42,07	1500	1800		77	85,3	78,0	128	-	2,0	3,55
		13,17	2400	2900	70	75	78,5	-	95	95	1,0	1,0
		20,00	2200	2700		76	78,7	-	104	106	1,0	1,0
		47,44	1400	1700		82	89,0	81,0	138	-	2,0	4,40
		14,10	2200	2700	75	80	83,8	-	100	100	1,0	1,0
		22,42	2100	2500		81	86,5	-	109	111	1,0	1,0
		53,80	1200	1500		87	96,1	88,0	148	-	2,0	5,35
		15,23	2100	2500	80	85	88,6	-	105	105	1,0	1,0
		26,51	1900	2300		86	92,0	-	119	121	1,0	1,0
		62,96	1100	1400		92	104,0	95,0	158	-	2,0	6,40

Single row full complement cylindrical roller bearings

$d = 85 \text{ to } 160 \text{ mm}$



Main dimensions								Bearing designation		Basic load rating	
d	D	B	r_s	r_{1s}	F	E	$s^1)$			C_r	C_{or}
			min	min						kN	
mm											
85	120	22,00	1,1	1,1		109,70	1,0	NSF2917CV	94,0	156,0	
	130	34,00	1,1	1,1		121,40	4,0	NSF3017CV	160,0	225,0	
	180	60,00	3,0		107		4,0	NJB2317VH	455,0	605,0	
90	125	22,00	1,1	1,1		115,60	1,0	NSF2918CV	98,0	165,0	
	140	37,00	1,5	1,5		130,10	4,0	NSF3018CV	185,0	260,0	
	190	64,00	3,0		105,3		4,0	NJB2318VH	505,0	650,0	
100	140	24,00	1,1	1,1		130,60	1,5	NSF2920CV	110,0	185,0	
	150	37,00	1,5	1,5		139,70	4,0	NSF3020CV	195,0	295,0	
	215	73,00	3,0		119,3		4,0	NJB2320VH	665,0	850,0	
110	150	24,00	1,1	1,1		141,10	1,5	NSF2922CV	120,0	205,0	
	170	45,00	2,0	2,0		156,10	5,5	NSF3022CV	260,0	375,0	
	240	80,00	3,0		134,3		5,0	NJB2322VH	840,0	1030,0	
120	165	27,00	1,1	1,1		154,30	1,5	NSF2924CV	160,0	275,0	
	180	46,00	2,0	2,0		167,60	5,5	NSF3024CV	275,0	420,0	
	215	58,00	2,1	2,1		192,32	4,0	NSF2224V	500,0	720,0	
	260	86,00	3,0		147,4		5,0	NJB2324VH	925,0	1200,0	
130	180	30,00	1,5	1,5		167,10	2,0	NSF2926CV	190,0	340,0	
	200	52,00	2,0	1,0		183,00	5,5	NSF3026CV	395,0	600,0	
	280	93,00	4,0		157,9		6,0	NJB2326VH	1040,0	1400,0	
140	190	30,00	1,5	1,5		180,00	2,0	NSF2928CV	205,0	375,0	
	210	53,00	2,0	1,0		197,00	5,5	NSF3028CV	420,0	660,0	
	250	68,00	3,0	3,0		221,90	5,0	NSF2228V	680,0	1000,0	
	300	102,00	4,0		168,5		6,5	NJB2328VH	1150,0	1560,0	
150	210	36,00	2,0	2,0		196,40	2,5	NSF2930CV	275,0	475,0	
	225	56,00	2,1	1,1		206,00	7,0	NSF3030CV	440,0	695,0	
	270	73,00	3,0	3,0		236,70	6,0	NSF2230V	770,0	1130,0	
	320	108,00	4,0		182,5		6,5	NJB2330VH	1390,0	1870,0	
160	220	36,00	2,0	2,0		207,20	2,5	NSF2932CV	290,0	510,0	
	240	60,00	2,1	1,1		224,00	7,0	NSF3032CV	490,0	780,0	
	290	80,00	3,0	3,0		266,40	6,0	NSF2232V	970,0	1470,0	



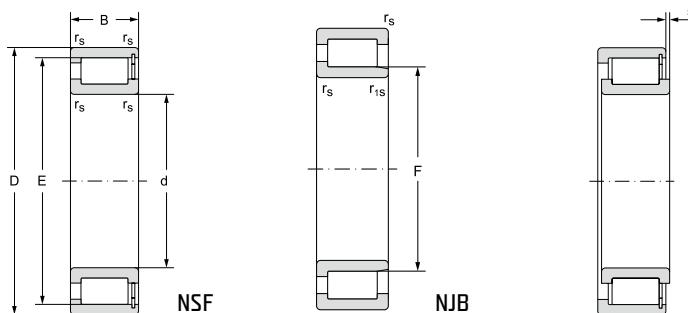
¹⁾ Admissible axial movement

²⁾ Recommended diameter
of fitting for axially loaded bearings

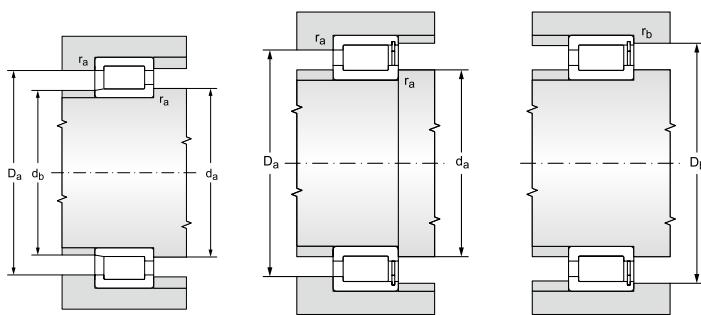
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions									Weight
	P_u	grease	oil	d	d_a	$d_{as}^{2)}$	d_b	D_a	D_b	r_a	r_b	
		min	min	max	max	max	max	max	max	max	max	kg
kN	min ⁻¹											
18,88	2100	2500	85	91	93,9	-	114	114	1,0	1,0	0,81	
26,85	1900	2300		91	96,2	-	124	126	1,0	1,0	1,51	
67,81	1100	1300		99	113,0	104,0	166	-	2,5		7,40	
19,69	1900	2300	90	96	99,8	-	119	119	1,0	1,0	0,84	
30,41	1700	2100		97	103,0	-	133	135	1,5	1,5	1,97	
71,66	1100	1300		104	111,0	105,0	176	-	2,5		8,75	
21,36	1700	2100	100	106	111,0	-	134	134	1,0	1,0	1,14	
33,65	1600	1900		107	112,0	-	143	145	1,5	1,5	2,15	
90,45	900	1100		114	126,0	119,0	201	-	2,5		13,0	
23,11	1500	1800	110	116	122,0	-	144	144	1,0	1,0	1,23	
41,34	1400	1700		120	124,0	-	160	165	2,0	2,0	3,50	
106,20	850	1000		124	143,0	130,0	226	-	2,5		17,5	
30,16	1400	1700	120	126	133,0	-	159	159	1,0	1,0	1,73	
45,35	1300	1600		130	135,0	-	170	175	2,0	2,0	3,80	
75,22	1100	1300		131	145,0	-	204	204	2,0	2,0	9,05	
120,71	850	1000		134	156,0	142,0	246	-	2,5		22,5	
36,36	1200	1500	130	137	143,0	-	173	173	1,5	1,5	2,33	
62,96	1100	1400		140	148,0	-	190	195	2,0	1,0	5,80	
137,65	800	950		147	166,0	153,0	263	-	3,0		28,0	
39,35	1100	1400	140	147	155,0	-	183	183	1,5	1,5	2,42	
68,05	1100	1300		150	159,0	-	200	205	2,0	1,0	6,10	
99,81	900	1100		143	167,0	-	127	127	2,5	2,5	14,5	
150,17	720	850		157	178,0	163,0	283	-	3,0		35,5	
48,56	1100	1300	150	159	166,0	-	201	201	2,0	2,0	3,77	
70,19	1000	1200		161	167,0	-	214	234	2,0	1,0	7,50	
110,31	850	1000		153	178,0	-	137	137	2,5	2,5	18,4	
176,48	680	800		167	192,0	178,0	303	-	3,0		42,5	
51,30	1000	1200	160	169	177,0	-	211	211	2,0	2,0	4,00	
77,26	900	1100		171	180,0	-	229	304	2,0	1,0	9,10	
140,56	800	950		163	201,0	-	147	147,0	2,5	2,5	23,0	

Single row full complement cylindrical roller bearings

$d = 170 \text{ to } 280 \text{ mm}$



12.4.3	Main dimensions								Bearing designation		Basic load rating	
	d	D	B	r_s	r_{1s}	F	E	$s^1)$	C_r	C_{or}	kN	
				min	min							
mm												
	170	230	36,00	2,0	2,0	218,00	2,5		NSF2934CV	300,0	545,0	
		260	67,00	2,1	1,1	242,00	7,0		NSF3034CV	640,0	1030,0	
		310	86,00	4,0	4,0	281,10	7,0		NSF2234V	1050,0	1670,0	
		360	120,00	4,0		203,55		7,0	NJB2334VH	1690,0	2410,0	
	180	250	42,00	2,0	2,0	232,00	2,5		NSF2936CV	375,0	680,0	
		280	74,00	2,1	2,1	260,00	7,0		NSF3036CV	740,0	1210,0	
		380	126,00	4,0		221,7		8,0	NJB2336VH	1800,0	2620,0	
	190	260	42,00	2,0	2,0	244,00	2,5		NSF2938CV	415,0	765,0	
		290	75,00	2,1	2,1	269,00	9,0		NSF3038CV	765,0	1275,0	
		340	92,00	4,0	4,0	311,00	7,0		NSF2238V	1200,0	1880,0	
		400	132,00	5,0		224,5		8,0	NJB2338VH	2090,0	2970,0	
	200	250	24,00	1,5	1,1	237,50	1,8		NSF1840V	170,0	330,0	
		280	48,00	2,1	2,1	262,00	3,0		NSF2940CV	515,0	950,0	
		310	82,00	2,1	2,1	287,00	9,0		NSF3040CV	880,0	1500,0	
		420	138,00	5,0		238,6		9,0	NJB2340VH	2200,0	3150,0	
	220	270	24,00	1,5	1,1	258,00	1,8		NSF1844V	180,0	360,0	
		300	48,00	2,1	2,1	283,00	3,0		NSF2944CV	525,0	1030,0	
		340	90,00	3,0	3,0	312,00	9,0		NSF3044CV	1030,0	1770,0	
		400	108,00	4,0	4,0	366,00	8,0		NSF2244V	1800,0	2700,0	
		460	145,00	5,0		266,7		10,0	NJB2344VH	2450,0	3510,0	
	240	300	28,00	2,0	1,1	287,00	1,8		NSF1848V	250,0	510,0	
		320	48,00	2,1	2,1	303,00	3,0		NSF2948CV	545,0	1110,0	
		360	92,00	3,0	3,0	335,00	11,0		NSF3048CV	1080,0	1940,0	
		500	155,00	5,0		280,6		10,0	NJB2348VH	2710,0	3860,0	
	260	320	28,00	2,0	1,1	307,20	1,8		NSF1852V	260,0	550,0	
		360	60,00	2,1	2,1	333,00	3,5		NSF2952CV	715,0	1400,0	
		400	104,00	4,0	4,0	376,00	11,0		NSF3052CV	1450,0	2520,0	
		540	165,00	6,0		615,6		11,0	NJB2352VH	3300,0	4770,0	
	280	350	33,00	2,0	1,1	334,00	2,5		NSF1856V	330,0	690,0	
		380	60,00	2,1	2,1	359,10	3,5		NSF2956CV	840,0	1710,0	
		420	106,00	4,0	4,0	391,00	11,0		NSF3056CV	1690,0	2630,0	



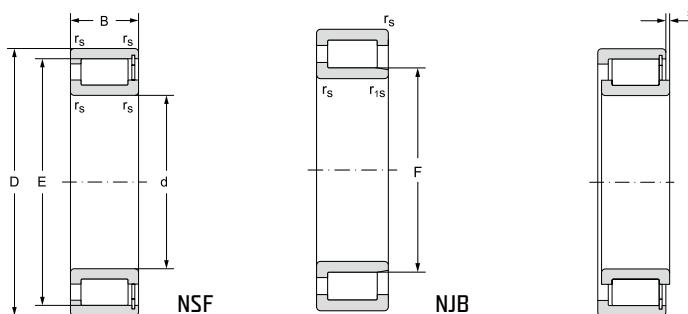
¹⁾ Admissible axial movement

²⁾ Recommended diameter
of fitting for axially loaded bearings

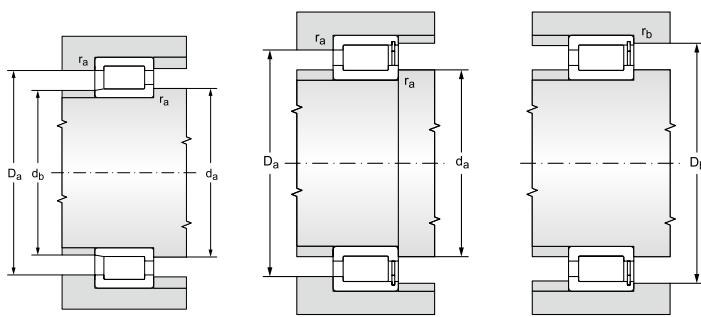
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions									Weight
	P_u	grease	oil	d	d_a	d_{as} ²⁾	d_b	D_a	D_b	r_a	r_b	
		min	min	max	max	max	max	max	max	max	max	kg
kN	min ⁻¹						mm					
53,99	900	1100	170	179	188,0	-	221	221,0	2,0	2,0	4,30	
99,84	850	1000		181	192,0	-	249	274,0	2,0	1,0	12,5	
156,62	760	900		185	212,0	-	295	295,0	3,0	3,0	28,7	
219,40	590	700		187	214,0	200,0	343	-	3,0		59,5	
65,91	850	1000	180	189	199,0	-	241	241,0	2,0	2,0	6,20	
114,94	850	1000		191	206,0	-	269	269,0	2,0	2,0	16,5	
234,61	570	670		197	232,0	216,0	363	-	3,0		69,5	
73,15	850	1000	190	199	208,0	-	251	251,0	2,0	2,0	6,50	
119,57	850	1000		201	216,0	-	279	279,0	2,0	2,0	17,0	
171,15	680	800		205	235,0	-	325	325,0	3,0	3,0	35,7	
261,82	530	630		210	237,0	222,0	380	-	4,0		80,0	
31,55	850	1000	200	207	215,0	-	243	245,0	1,5	1,0	2,60	
89,09	830	980		211	222,0	-	269	269,0	2,0	2,0	9,10	
138,14	800	950		211	230,0	-	299	299,0	2,0	2,0	22,5	
273,58	630	750		220	252,0	232,0	400	-	4,0		92,0	
33,55	800	950	220	227	235,0	-	263	265,0	1,5	1,0	2,85	
94,30	800	950		231	242,0	-	289	289,0	2,0	2,0	9,90	
158,49	720	850		233	248,0	-	327	327,0	2,5	2,5	29,5	
234,50	590	700		235	260,0	-	385	385,0	3,0	3,0	58,0	
296,52	570	670		240	281,0	260,0	440	-	4,0		111	
46,17	760	900	240	249	259,0	-	291	295,0	2,0	1,0	4,40	
99,39	720	850		251	263,0	-	309	309,0	2,0	2,0	10,6	
170,16	680	800		253	271,0	-	347	347,0	2,5	2,5	32,0	
317,92	530	630		260	295,0	282,0	480	-	4,0		147	
48,73	680	800	260	270	279,0	-	310	315,0	2,0	1,0	4,75	
121,59	630	750		271	286,0	-	349	349,0	2,0	2,0	18,5	
214,80	590	700		275	295,0	-	385	385,0	3,0	3,0	46,5	
383,78	360	430		286	332,0	309,0	514	-	5,0		177	
59,64	630	750	280	289	303,0	-	341	344,0	2,0	1,0	7,10	
145,76	590	700		291	309,0	-	369	369,0	2,0	2,0	19,7	
220,25	570	670		295	310,0	-	405	405,0	3,0	3,0	50,0	

Single row full complement cylindrical roller bearings

d = 300 to 460 mm



12.4.3	Main dimensions								Bearing designation		Basic load rating	
	d	D	B	r_s	r_{1s}	F	E	$s^1)$			dynamic C_r	static C_{or}
									min	min		
									mm		kN	
	300	380	38,00	2,1	1,5		363,00	3,0	NSF1860V		410,0	850,0
	420	72,00	3,0	3,0			390,50	5,0	NSF2960CV		1050,0	2180,0
	460	118,00	4,0	4,0			433,00	14,0	NSF3060CV		1810,0	3230,0
	320	400	38,00	2,1	1,5		383,00	3,0	NSF1864V		430,0	900,0
	440	72,00	3,0	3,0			411,00	5,0	NSF2964CV		1070,0	2340,0
	480	121,00	4,0	4,0			449,00	14,0	NSF3064CV		1900,0	3440,0
	340	420	38,00	2,1	1,5		403,00	3,0	NSF1868V		440,0	950,0
	460	72,00	3,0	3,0			431,00	5,0	NSF2968CV		1100,0	2490,0
	520	133,00	5,0	5,0			485,00	14,0	NSF3068CV		2300,0	4140,0
	360	440	38,00	2,1	1,5		418,90	4,5	NSF1872V		400,0	900,0
	480	72,00	3,0	3,0			451,50	5,0	NSF2972CV		1150,0	2590,0
	540	134,00	5,0	5,0			503,00	14,0	NSF3072CV		2340,0	4290,0
	380	480	46,00	2,1	1,5		458,00	3,5	NSF1876V		620,0	1290,0
	520	82,00	4,0	4,0			488,00	5,0	NSF2976CV		1460,0	3230,0
	560	135,00	5,0	5,0			521,00	14,0	NSF3076CV		2430,0	4540,0
	400	500	46,00	2,1	1,5		475,00	3,5	NSF1880V**		620,0	1340,0
	540	82,00	4,0	4,0			511,00	5,0	NSF2980CV**		1550,0	3450,0
	600	148,00	5,0	5,0			558,00	14,0	NSF3080CV**		2850,0	5500,0
	420	520	46,00	2,1	1,5		499,00	3,5	NSF1884V**		660,0	1430,0
	560	82,00	4,0	4,0			524,00	5,0	NSF2984CV**		1550,0	3600,0
	620	150,00	5,0	5,0			577,00	15,0	NSF3084CV**		2930,0	5700,0
	440	540	46,00	2,1	1,5		516,00	3,5	NSF1888V**		670,0	1460,0
	540	60,00	2,1	1,5			516,00	3,5	NSF2888V**		1050,0	2700,0
	600	95,00	4,0	4,0			565,50	6,0	NSF2988V**		2010,0	4400,0
	650	157,00	6,0	6,0			611,00	16,0	NSF3088CV**		3430,0	6550,0
	460	580	56,00	3,0	3,0		553,00	5,0	NSF1892V**		910,0	1960,0
	580	72,00	3,0	3,0			553,00	5,0	NSF2892V**		1300,0	3050,0
	620	95,00	4,0	4,0			579,00	6,0	NSF2992V**		2050,0	4500,0
	680	163,00	6,0	6,0			635,00	16,0	NSF3092CV**		3570,0	6950,0



¹⁾ Admissible axial movement

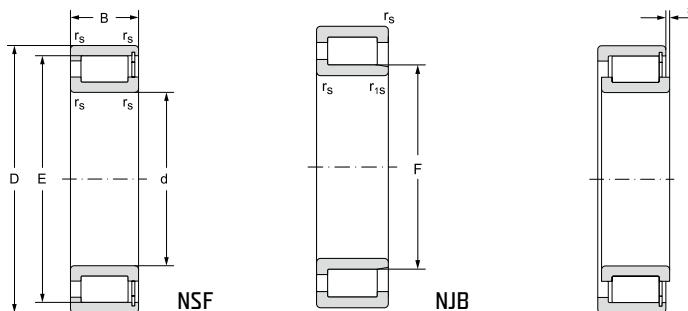
²⁾ Recommended diameter
of fitting for axially loaded
bearings

Bearings in the new standard
NEW FORCE

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions									Weight
	P_u	grease	oil	d	d_a	$d_{as}^2)$	d_b	D_a	D_b	r_a	r_b	
		min	mm	min	max	max	max	max	max	max	max	kg
kN	min ⁻¹											
71,81	570	670	300	311	326,0	-	369	373,0	2,0	1,5	10,00	
181,03	570	670		313	334,0	-	407	407,0	2,5	2,5	31,2	
263,91	510	600		315	344,0	-	445	445,0	3,0	3,0	69,0	
74,74	530	630	320	331	346,0	-	389	393,0	2,0	1,5	10,5	
191,19	510	600		333	353,0	-	427	427,0	2,5	2,5	32,9	
276,77	470	560		335	359,0	-	465	465,0	3,0	3,0	74,5	
77,62	510	600	340	351	366,0	-	409	413,0	2,0	1,5	11,0	
200,34	470	560		353	373,0	-	447	447,0	2,5	2,5	35,0	
325,95	450	530		358	384,0	-	502	502,0	4,0	4,0	100,0	
72,41	470	560	360	371	384,0	-	429	433,0	2,0	1,5	11,5	
205,36	450	530		373	396,0	-	467	467,0	2,5	2,5	36,5	
333,18	420	500		378	402,0	-	522	522,0	4,0	4,0	105	
101,56	450	530	380	391	411,0	-	469	473,0	2,0	1,5	19,5	
250,86	420	500		395	420,0	-	505	505,0	3,0	3,0	52,5	
348,03	400	480		398	420,0	-	542	542,0	4,0	4,0	110	
104,07	420	500	400	411	428,0	-	489	493,0	2,0	1,5	20,5	
264,47	400	480		415	442,0	-	525	525,0	3,0	3,0	54,5	
413,86	380	450		418	449,0	-	582	582,0	4,0	4,0	145	
109,62	400	480	420	431	452,0	-	509	513,0	2,0	1,5	21,0	
272,54	380	450		435	455,0	-	545	545,0	3,0	3,0	57,0	
423,90	360	430		438	469,0	-	602	602,0	4,0	4,0	150	
110,53	380	450	440	451	469,0	-	529	533,0	2,0	1,5	22,0	
204,40	380	450		451	469,0	-	529	533,0	2,0	1,5	29,0	
327,22	360	430		455	492,0	-	585	585,0	3,0	3,0	80,5	
480,30	340	400		463	488,0	-	627	627,0	5,0	5,0	175	
145,76	360	430	460	473	495,0	-	567	567,0	2,5	2,5	34,0	
226,82	360	430		473	495,0	-	567	567,0	2,5	2,5	44,0	
330,89	340	400		475	506,0	-	605	605,0	3,0	3,0	83,5	
502,82	320	380		483	511,0	-	657	657,0	5,0	5,0	195	

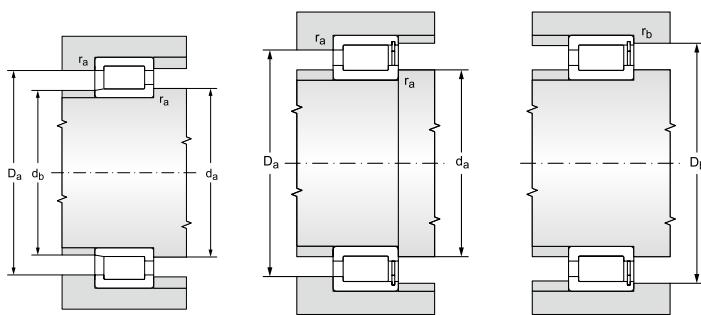
Single row full complement cylindrical roller bearings

d = 480 to 750 mm



Main dimensions

d	D	B	r_s min	r_{1s} min	F	E	s^1	Bearing designation		Basic load rating	
								dynamic C_r	static C_{or}	kN	
mm											
480	600	56,00	3,0	3,0		573,50	5,0	NSF1896V**	930,0	2040,0	
	600	72,00	3,0	3,0		573,50	5,0	NSF2896V**	1320,0	3150,0	
	650	100,00	5,0	5,0		600,00	7,0	NSF2996V**	2280,0	4900,0	
	700	165,00	6,0	6,0		654,00	16,0	NSF3096CV**	3600,0	7200,0	
500	620	56,00	3,0	3,0		594,00	5,0	NSF18/500V**	950,0	2120,0	
	620	72,00	3,0	3,0		594,00	2,4	NSF28/500V**	1340,0	3350,0	
	670	100,00	5,0	5,0		630,90	7,0	NSF29/500V**	2300,0	5000,0	
	720	167,00	6,0	6,0		676,00	16,0	NSF30/500CV**	3700,0	7500,0	
530	650	56,00	3,0	3,0		624,50	5,0	NSF18/530V**	990,0	2230,0	
	650	72,00	3,0	3,0		624,50	5,0	NSF28/530V**	1400,0	3450,0	
	710	106,00	5,0	5,0		676,00	7,0	NSF29/530V**	2600,0	6100,0	
	780	185,00	6,0	6,0		732,30	16,0	NSF30/530V**	5200,0	10600,0	
560	680	56,00	3,0	3,0		655,00	5,0	NSF18/560V**	1020,0	2350,0	
	680	72,00	3,0	3,0		655,00	4,3	NSF28/560V**	1400,0	3650,0	
	750	112,00	5,0	5,0		718,00	7,0	NSF29/560V**	3050,0	6700,0	
	820	195,00	6,0	6,0		770,00	16,0	NSF30/560V**	5800,0	11800,0	
600	730	60,00	3,0	3,0		696,00	7,0	NSF18/600V**	1050,0	2550,0	
	730	78,00	3,0	3,0		696,00	6,0	NSF28/600V**	1550,0	4300,0	
	800	118,00	5,0	5,0		754,00	7,0	NSF29/600V**	3150,0	7100,0	
630	780	69,00	4,0	4,0		739,00	8,0	NSF18/630V**	1250,0	2900,0	
	780	88,00	4,0	4,0		739,00	8,0	NSF28/630V**	1850,0	5000,0	
	850	128,00	6,0	6,0		807,00	8,0	NSF29/630V**	3750,0	8650,0	
670	820	69,00	4,0	4,0		783,00	8,0	NSF18/670V**	1300,0	3150,0	
	820	88,00	4,0	4,0		783,00	8,0	NSF28/670V**	1950,0	5300,0	
	900	136,00	6,0	6,0		846,00	10,0	NSF29/670V**	3900,0	9000,0	
710	870	74,00	4,0	4,0		831,00	8,0	NSF18/710V**	1550,0	3750,0	
	870	95,00	4,0	4,0		831,00	8,0	NSF28/710V**	2330,0	6300,0	
	950	140,00	6,0	6,0		896,00	10,0	NSF29/710V**	4300,0	10000,0	
750	920	78,00	5,0	5,0		882,00	8,0	NSF18/750V**	1850,0	4500,0	
	920	100,00	5,0	5,0		878,00	8,0	NSF28/750V**	2650,0	6950,0	
	1000	145,00	6,0	6,0		937,00	11,0	NSF29/750V**	4450,0	10600,0	



¹⁾ Admissible axial movement

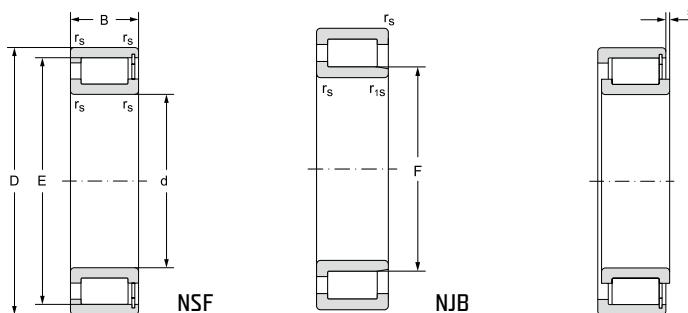
²⁾ Recommended diameter
of fitting for axially loaded bearings

Bearings in the new standard
NEW FORCE

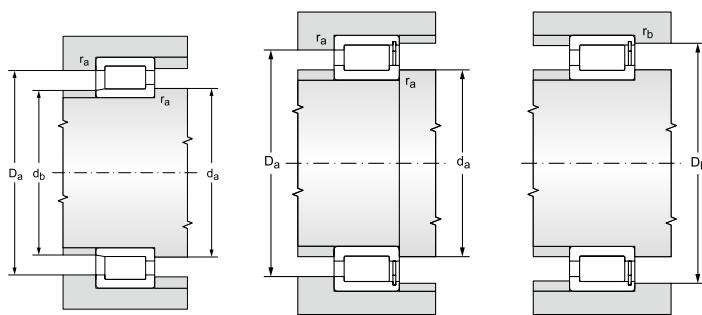
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions									Weight
	P_u	grease	oil	d	d_a	$d_{as}^2)$	d_b	D_a	D_b	r_a	r_b	
		min	mm	max	max	max	max	max	max	max	max	kg
kN	min ⁻¹											
150,00	340	400	480	493	516,0	-	587	587,0	2,5	2,5	35,5	
231,62	340	400		493	516,0	-	587	587,0	2,5	2,5	46,0	
355,44	320	380		498	527,0	-	632	632,0	4,0	4,0	98,0	
515,54	300	360		503	532,0	-	677	677,0	5,0	5,0	205	
154,19	320	380	500	513	536,0	-	607	607,0	2,5	2,5	36,5	
243,65	320	380		513	536,0	-	607	607,0	2,5	2,5	48,0	
358,93	320	380		518	544,0	-	652	652,0	4,0	4,0	100,0	
531,68	300	360		523	553,0	-	697	697,0	5,0	5,0	215	
159,67	300	360	530	543	567,0	-	637	637,0	2,5	2,5	38,5	
247,03	300	360		543	566,0	-	637	637,0	2,5	2,5	49,5	
430,33	290	340		548	589,0	-	692	692,0	4,0	4,0	120	
735,56	270	320		553	595,0	-	757	757,0	5,0	5,0	300	
165,78	290	340	560	573	597,0	-	667	667,0	2,5	2,5	40,5	
257,49	290	340		573	599,0	-	667	667,0	2,5	2,5	54,0	
464,93	270	320		578	617,0	-	732	732,0	4,0	4,0	140	
806,15	250	300		583	626,0	-	797	797,0	5,0	5,0	345	
176,15	340	400	600	613	638,0	-	717	717,0	2,5	2,5	51,5	
297,04	340	400		613	638,0	-	717	717,0	2,5	2,5	67,5	
482,96	320	380		618	652,0	-	782	782,0	4,0	4,0	170	
196,85	250	300	630	645	674,0	-	765	765,0	3,0	3,0	72,5	
339,39	250	300		645	674,0	-	765	765,0	3,0	3,0	92,5	
578,67	240	280		653	698,0	-	827	827,0	5,0	5,0	205	
210,31	240	280	670	685	718,0	-	805	805,0	3,0	3,0	76,5	
353,85	240	280		685	718,0	-	805	805,0	3,0	3,0	97,5	
591,52	220	260		693	737,0	-	877	877,0	5,0	5,0	245	
246,00	220	260	710	725	759,0	-	855	855,0	3,0	3,0	92,5	
413,27	220	260		725	759,0	-	855	855,0	3,0	3,0	115	
646,34	200	240		733	761,0	-	927	927,0	5,0	5,0	275	
290,33	200	240	750	768	802,0	-	902	902,0	4,0	4,0	110	
448,40	200	240		768	799,0	-	902	902,0	4,0	4,0	140	
674,36	185	220		773	820,0	-	957	957,0	5,0	5,0	315	

Single row full complement cylindrical roller bearings

d = 800 to 1000 mm



12.4.3	Main dimensions								Bearing designation		Basic load rating	
	d	D	B	r_s	r_{1s}	F	E	s¹⁾	C_r	C_{or}	kN	
				min	min							
mm												
	800	980	82,00	5,0	5,0	936,00	9,0	NSF18/800V**	1950,0	4800,0		
		980	106,00	5,0	5,0	936,00	10,0	NSF28/800V**	2750,0	7500,0		
		1060	150,00	6,0	6,0	1002,00	11,0	NSF29/800V**	4950,0	12200,0		
	850	1030	82,00	5,0	5,0	985,00	9,0	NSF18/850V**	2000,0	5100,0		
		1030	106,00	5,0	5,0	986,00	10,0	NSF28/850V**	2850,0	8000,0		
		1120	155,00	6,0	6,0	1061,00	13,0	NSF29/850V**	5200,0	12700,0		
	900	1090	85,00	5,0	5,0	1044,00	9,0	NSF18/900V**	2350,0	6000,0		
		1090	112,00	5,0	5,0	1044,00	10,0	NSF28/900V**	3200,0	9150,0		
		1180	165,00	6,0	6,0	1120,00	13,0	NSF29/900V**	5900,0	14600,0		
	950	1150	90,00	5,0	5,0	1103,00	10,0	NSF18/950V**	2400,0	6300,0		
		1150	118,00	5,0	5,0	1103,00	12,0	NSF28/950V**	3400,0	9800,0		
		1250	175,00	7,5	7,5	1179,00	14,0	NSF29/950V**	6600,0	16300,0		
	1000	1220	100,00	6,0	6,0	1165,00	12,0	NSF18/1000V**	2900,0	7500,0		
		1220	128,00	6,0	6,0	1165,00	12,0	NSF28/1000V**	4100,0	11600,0		
		1320	185,00	7,5	7,5	1252,00	14,0	NSF29/1000V**	7450,0	18600,0		



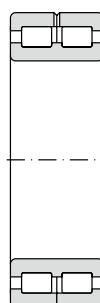
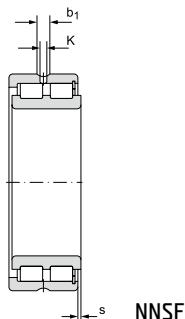
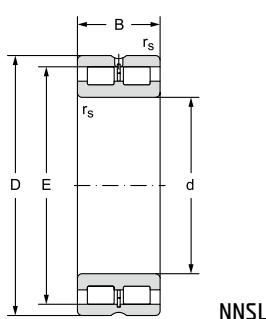
¹⁾ Admissible axial movement

²⁾ Recommended diameter
of fitting for axially loaded
bearings

Bearings in the new standard
NEW FORCE

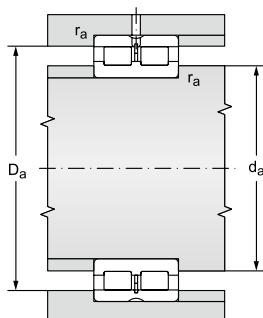
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions									Weight
	P_u	grease	oil	d	d_a	$d_{as}^{2)}$	d_b	D_a	D_b	r_a	r_b	
		min	max	mm	max	max	max	max	max	max	max	kg
kN	min ⁻¹											
303,82	185	220	800	818	855,0	-	962	962,0	4,0	4,0	4,0	130
474,71	185	220		818	855,0	-	962	962,0	4,0	4,0	4,0	165
762,08	170	200		823	860,0	-	977	977,0	5,0	5,0	5,0	360
317,55	170	200	850	868	902,0	-	1012	1012,0	4,0	4,0	4,0	135
498,12	170	200		868	903,0	-	1012	1012,0	4,0	4,0	4,0	175
779,76	160	190		873	914,0	-	1097	1097,0	5,0	5,0	5,0	405
367,27	160	190	900	918	957,0	-	1072	1072,0	4,0	4,0	4,0	160
560,09	160	190		918	957,0	-	7072	1072,0	4,0	4,0	4,0	208
881,92	145	170		923	982,0	-	1127	1127,0	5,0	5,0	5,0	472
379,46	145	170	950	968	1012,0	-	1132	1132,0	4,0	4,0	4,0	185
590,28	145	170		968	1012,0	-	1132	1132,0	4,0	4,0	4,0	240
968,18	135	160		978	1033,0	-	1222	1222,0	6,0	6,0	6,0	565
444,27	135	160	1000	1023	1063,0	-	1197	1197,0	5,0	5,0	5,0	230
687,14	135	160		1023	1063,0	-	1197	1197,0	5,0	5,0	5,0	310
1 087,33	125	150		1028	1091,0	-	1292	1292,0	6,0	6,0	6,0	680

Double row full complement cylindrical roller bearings d = 20 to 400 mm



Main dimensions						Basic load rating		Fatigue load limit
d	D	B	r _s min	E	s ¹⁾	dynamic C _t	static C _{or}	P _u
mm						kN		kN
20	42	30	0,6	36,81	1,0	47,0	56,0	6,83
25	47	30	0,6	42,51	1,0	54,0	70,0	8,54
30	55	34	1,0	49,60	1,5	69,0	88,0	10,73
35	62	36	1,0	55,52	1,5	83,0	112,0	13,66
40	68	38	1,0	61,74	1,5	101,0	139,0	16,95
45	75	40	1,0	66,85	1,5	107,0	156,0	19,02
50	80	40	1,0	72,23	1,5	137,0	197,0	24,02
55	90	46	1,1	83,54	1,5	184,0	280,0	34,15
60	85	25	1,0	77,51	1,0	74,0	136,0	16,59
	85	25	1,0	77,51	-	74,0	136,0	16,59
85	25	1,0	77,51	1,0	74,0	136,0	16,59	
95	46	1,1	86,74	1,5	192,0	300,0	36,59	
65	100	46	1,1	93,09	1,5	203,0	325,0	39,63
70	100	30	1,0	91,87	1,0	109,0	193,0	23,54
	100	30	1,0	91,87	-	109,0	193,0	23,54
100	30	1,0	91,87	1,0	109,0	193,0	23,54	
110	54	1,1	100,28	3,0	231,0	345,0	42,07	
75	115	54	1,1	107,90	3,0	245,0	380,0	31,05
80	110	30	1,0	100,78	1,0	115,0	215,0	17,57
	110	30	1,0	100,78	-	115,0	215,0	17,57
110	30	1,0	100,78	1,0	115,0	215,0	17,57	
125	60	1,1	116,99	3,5	300,0	455,0	36,34	
85	130	60	1,1	121,44	3,5	305,0	475,0	37,40
90	125	35	1,1	115,20	1,5	155,0	300,0	23,62
	125	35	1,1	115,20	-	155,0	300,0	23,62
125	35	1,1	115,20	1,5	155,0	300,0	23,62	
140	67	1,5	130,11	4,0	360,0	560,0	43,21	

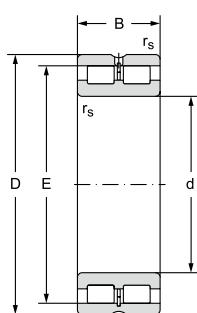
d = 20 to 90 mm

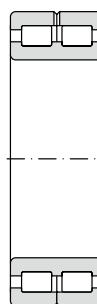


¹⁾ Admissible axial movement

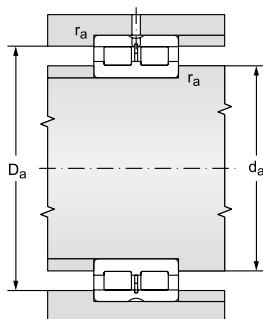
²⁾ Recommended diameter of fitting for axially loaded bearings

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions						Lubrication slot and holes		Weight
grease	oil		d	d _a	d _s ²⁾	D _a	r _a	a	b	~	
				min	max	mm	max				kg
min ¹											
7000	8300	NNSF5004CV	20	23,2	26,6	38,8	0,6	3,0	4,5		0,20
5700	6800	NNSF5005CV	25	28,2	28,2	43,8	0,6	3,0	4,5		0,23
6200	7300	NNSF5006CV	30	34,6	34,6	50,4	1,0	3,0	4,5		0,35
4300	5100	NNSF5007CV	35	39,6	39,6	57,4	1,0	3,0	4,5		0,46
3900	4600	NNSF5008CV	40	44,6	44,6	63,4	1,0	3,0	4,5		0,56
3400	4100	NNSF5009CV	45	49,6	49,6	70,4	1,0	3,0	4,5		0,71
3200	3800	NNSF5010CV	50	54,6	54,6	75,4	1,0	3,0	4,5		0,76
2700	3200	NNSF5011CV	55	61	61	84	1,0	3,5	4,5		1,16
2800	3400	NNSF4912CV	60	64,6	68,5	80,4	1,0	3,5	4,5		0,48
2800	3400	NNS4912CV		64,6	68,5	80,4	1,0	3,5	4,5		0,48
2800	3400	NNSL4912CV		64,6	-	80,4	1,0	3,5	4,5		0,48
2700	3200	NNSF5012CV		66	69,2	89	1,0	3,5	4,5		1,24
2400	2900	NNSF5013CV	65	71	71	94	1,0	3,5	4,5		1,32
2400	2900	NNSF4914CV	70	74,6	80,4	95,4	1,0	3,5	4,5		0,77
2400	2900	NNS4914CV		74,6	80,4	95,4	1,0	3,5	4,5		0,77
2400	2900	NNSL4914CV		74,6	-	95,4	1,0	3,5	4,5		0,77
2200	2700	NNSF5014CV		76	78,9	104	1,0	3,5	5,0		1,85
2100	2500	NNSF5015CV	75	81	81	109	1,0	3,5	5,0		1,93
2100	2500	NNSF4916CV	80	84,6	89,4	105,4	1,0	3,5	5,0		0,87
2100	2500	NNS4916CV		84,6	89,4	105,4	1,0	3,5	5,0		0,87
2100	2500	NNSL4916CV		84,6	-	105,4	1,0	3,5	5,0		0,87
1950	2300	NNSF5016CV		86	92	119	1,0	3,5	5,0		2,59
1950	2300	NNSF5017CV	85	91	91	124	1,0	3,5	5,0		2,72
1950	2300	NNSF4918CV	90	96	101	119	1,0	3,5	5,0		1,33
1950	2300	NNS4918CV		96	101	119	1,0	3,5	5,0		1,33
1950	2300	NNSL4918CV		96	-	119	1,0	3,5	5,0		1,33
1700	2100	NNSF5018CV		97	103	133	1,5	3,5	5,0		3,62

Double row full complement cylindrical roller bearings
d = 100 to 160 mm

NNSL

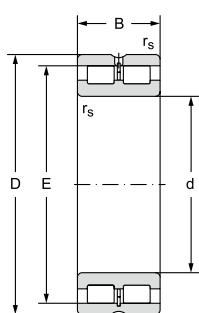
NNSF

NNS

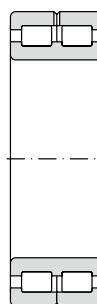
Main dimensions						Basic load rating		Fatigue load limit
d	D	B	r_s min	E	s¹⁾	dynamic	static	P_u
						C_t	C_{or}	
mm						kN		kN
100	140	40	1,1	129,60	2,0	200,0	400,0	30,47
	140	40	1,1	129,60	-	200,0	400,0	30,47
	140	40	1,1	129,60	2,0	200,0	400,0	30,47
	150	67	1,5	139,65	4,0	380,0	620,0	46,65
110	150	40	1,1	138,20	2,0	210,0	430,0	31,98
	150	40	1,1	138,20	-	210,0	430,0	31,98
	150	40	1,1	138,20	2,0	210,0	430,0	31,98
	170	80	2,0	156,13	5,0	500,0	800,0	58,19
120	165	45	1,1	153,55	3,0	230,0	480,0	34,73
	165	45	1,1	153,55	-	230,0	480,0	34,73
	165	45	1,1	153,55	3,0	230,0	480,0	34,73
	180	80	2,0	167,58	5,0	530,0	880,0	62,69
130	180	50	1,5	165,40	4,0	265,0	530,0	37,39
	180	50	1,5	165,40	-	265,0	530,0	37,39
	180	50	1,5	165,40	4,0	265,0	530,0	37,39
	200	95	2,0	183,81	5,0	750,0	1250,0	86,54
140	190	50	1,5	175,90	4,0	275,0	570,0	39,46
	190	50	1,5	175,90	-	275,0	570,0	39,46
	190	50	1,5	175,90	4,0	275,0	570,0	39,46
	210	95	2,0	197,82	5,0	800,0	1370,0	93,19
150	190	40	1,1	178,30	2,0	245,0	585,0	40,14
	190	40	1,1	178,30	-	245,0	585,0	40,14
	190	40	1,1	178,30	2,0	245,0	585,0	40,14
	210	60	2,0	192,77	4,0	420,0	830,0	55,98
	210	60	2,0	192,77	-	420,0	830,0	55,98
	210	60	2,0	192,77	4,0	420,0	830,0	55,98
	225	100	2,0	206,80	6,0	830,0	1430,0	95,28
160	200	40	1,1	186,90	2,0	245,0	610,0	41,14
	200	40	1,1	186,90	-	245,0	610,0	41,14
	200	40	1,1	186,90	2,0	245,0	610,0	41,14
	220	60	2,0	206,16	4,0	435,0	910,0	60,39
	220	60	2,0	206,16	-	435,0	910,0	60,39
	220	60	2,0	206,16	4,0	435,0	910,0	60,39
	240	109	2,1	224,80	6,0	940,0	1600,0	104,56


¹⁾ Admissible axial movement

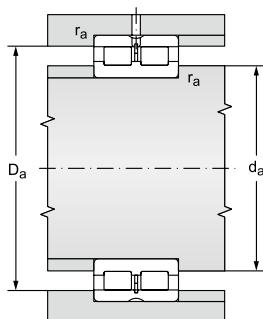
²⁾ Recommended diameter of fitting for axially loaded bearings

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions					Lubrication slot and holes		Weight	
grease	oil		d	d _a	d _{as} ²⁾	D _a	r _a	a	b	~	
		min ¹						mm			kg
1600	1900	NNSF4920CV	100	106	114	134	1,0	3,5	5,0	1,93	
1600	1900	NNS4920CV		106	114	134	1,0	3,5	5,0	1,93	
1600	1900	NNSL4920CV		106	-	134	1,0	3,5	5,0	1,93	
1600	1900	NNSF5020CV		107	112	143	1,5	3,5	6,0	3,94	
1500	1800	NNSF4922CV	110	116	122	144	1,0	3,5	6,0	2,13	
1500	1800	NNS4922CV		116	122	144	1,0	3,5	6,0	2,13	
1500	1800	NNSL4922CV		116	-	144	1,0	3,5	6,0	2,13	
1450	1700	NNSF5022CV		120	124	160	2,0	3,5	6,0	6,32	
1350	1600	NNSF4924CV	120	126	136	159	1,0	3,5	6,0	2,90	
1350	1600	NNS4924CV		126	136	159	1,0	3,5	6,0	2,90	
1350	1600	NNSL4924CV		126	-	159	1,0	3,5	6,0	2,90	
1350	1600	NNSF5024CV		130	135	170	2,0	3,5	6,0	6,77	
1270	1500	NNSF4926CV	130	137	146	173	1,5	3,5	6,0	3,90	
1270	1500	NNS4926CV		137	146	173	1,5	3,5	6,0	3,90	
1270	1500	NNSL4926CV		137	-	173	1,5	3,5	6,0	3,90	
1190	1400	NNSF5026CV		140	140	190	2,0	4,0	7,0	10,2	
1190	1400	NNSF4928CV	140	147	156	183	1,5	3,5	6,0	4,15	
1190	1400	NNS4928CV		147	156	183	1,5	3,5	6,0	4,20	
1190	1400	NNSL4928CV		147	-	183	1,5	3,5	6,0	4,10	
1100	1300	NNSF5028CV		150	150	200	2,0	4,0	7,0	11,1	
1190	1400	NNSF4830CV	150	156	163	184	1,0	4,0	7,0	2,80	
1190	1400	NNS4830CV		156	163	184	1,0	4,0	7,0	2,90	
1190	1400	NNSL4830CV		156	-	184	1,0	4,0	7,0	2,70	
1100	1300	NNSF4930CV		160	167	200	2,0	4,0	7,0	6,55	
1100	1300	NNS4930CV		160	167	200	2,0	4,0	7,0	6,65	
1100	1300	NNSL4930CV		160	-	200	2,0	4,0	7,0	6,45	
1020	1200	NNSF5030CV		160	160	215	2,0	4,0	7,0	13,3	
1100	1300	NNSF4832CV	160	166	171	194	1,0	4,0	7,0	3,00	
1100	1300	NNS4832CV		166	171	194	1,0	4,0	7,0	3,10	
1100	1300	NNSL4832CV		166	-	194	1,0	4,0	7,0	2,90	
1020	1200	NNSF4932CV		170	181	210	2,0	4,0	7,0	6,90	
1020	1200	NNS4932CV		170	181	210	2,0	4,0	7,0	7,00	
1020	1200	NNSL4932CV		170	-	210	2,0	4,0	7,0	6,80	
930	1100	NNSF5032CV		171	171	229	2,0	4,0	7,0	16,2	

Double row full complement cylindrical roller bearings
d = 170 to 220 mm

NNSL

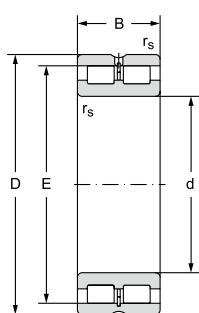
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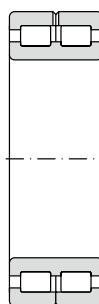
d mm	Main dimensions					Basic load rating		Fatigue load limit	
	d	D	B	r_s min	E	s ¹⁾	dynamic	static	P_u
							C_t	C_{or}	
12,4,4									
170	215	45	1,1	201,30	3,0	270,0	650,0	42,97	
	215	45	1,1	201,30	-	270,0	650,0	42,97	
	215	45	1,1	201,30	3,0	270,0	650,0	42,97	
	230	60	2,0	215,08	4,0	450,0	950,0	62,08	
	230	60	2,0	215,08	-	450,0	950,0	62,08	
	230	60	2,0	215,08	4,0	450,0	950,0	62,08	
	260	122	2,1	243,00	6,0	1200,0	2100,0	134,29	
180	225	45	1,1	214,10	3,0	290,0	695,0	45,25	
	225	45	1,1	214,10	-	290,0	695,0	45,25	
	225	45	1,1	214,10	3,0	485,0	695,0	45,25	
	250	69	2,0	230,50	4,0	580,0	1220,0	78,02	
	250	69	2,0	230,50	-	580,0	1220,0	78,02	
	250	69	2,0	230,50	4,0	580,0	1220,0	78,02	
	280	136	2,1	260,50	8,0	1400,0	2500,0	156,67	
190	240	50	1,5	225,00	4,0	320,0	750,0	47,96	
	240	50	1,5	225,00	-	320,0	750,0	47,96	
	240	50	1,5	225,00	4,0	320,0	750,0	47,96	
	260	69	2,0	240,70	4,0	590,0	1290,0	81,38	
	260	69	2,0	240,70	-	590,0	1290,0	81,38	
	260	69	2,0	240,70	4,0	590,0	1290,0	81,38	
	290	136	2,1	270,00	8,0	1450,0	2600,0	160,87	
200	250	50	1,5	235,50	4,0	325,0	800,0	50,47	
	250	50	1,5	235,50	-	325,0	800,0	50,47	
	250	50	1,5	235,50	4,0	325,0	800,0	50,47	
	280	80	2,1	259,34	5,0	690,0	1500,0	92,81	
	280	80	2,1	259,34	-	690,0	1500,0	92,81	
	280	80	2,1	259,34	5,0	690,0	1500,0	92,81	
	310	150	2,1	288,00	9,0	1650,0	3050,0	185,31	
220	270	50	1,5	256,50	4,0	340,0	860,0	52,88	
	270	50	1,5	256,50	-	340,0	860,0	52,88	
	270	50	1,5	256,50	4,0	340,0	860,0	52,88	
	300	80	2,1	276,52	5,0	725,0	1600,0	96,65	
	300	80	2,1	276,52	-	725,0	1600,0	96,65	
	300	80	2,1	276,52	5,0	725,0	1600,0	96,65	
	340	160	3,0	312,20	9,0	2000,0	3600,0	212,68	


¹⁾ Admissible axial movement

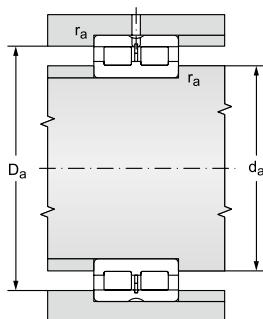
²⁾ Recommended diameter of fitting for axially loaded bearings

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions					Lubrication slot and holes		Weight
grease	oil		d	d _a	d _{as} ²⁾	D _a	r _a	a	b	~
		min ¹				mm				kg
1120	1200	NNSF4834CV	170	176	184	209	1,0	4,0	7,0	4,00
1020	1200	NNS4834CV		176	184	209	1,0	4,0	7,0	4,10
1020	1200	NNSL4834CV		176	-	209	1,0	4,0	7,0	3,90
930	1100	NNSF4934CV	180	190	220	2,0	4,0	7,0	7,20	
930	1100	NNS4934CV		180	190	220	2,0	4,0	7,0	7,35
930	1100	NNSL4934CV		180	-	220	2,0	4,0	7,0	7,10
850	1000	NNSF5034CV	181	181	249	2,0	4,0	7,0	23,0	
930	1100	NNSF4836CV	180	186	197	219	1,0	4,0	7,0	4,20
930	1100	NNS4836CV		186	197	219	1,0	4,0	7,0	4,30
930	1100	NNSL4836CV		186	-	219	1,0	4,0	7,0	4,10
850	1000	NNSF4936CV	190	202	240	2,0	4,0	7,0	10,7	
850	1000	NNS4936CV		190	202	240	2,0	4,0	7,0	10,8
850	1000	NNSL4936CV		190	-	240	2,0	4,0	7,0	10,5
850	1000	NNSF5036CV	191	206	269	2,0	4,0	8,0	30,5	
850	1000	NNSF4838CV	190	197	206	233	1,5	4,0	7,0	5,50
850	1000	NNS4838CV		197	206	233	1,5	4,0	7,0	5,65
850	1000	NNSL4838CV		197	-	233	1,5	4,0	7,0	5,30
850	1000	NNSF4938CV	200	212	250	2,0	4,0	7,0	11,1	
850	1000	NNS4938CV		200	212	250	2,0	4,0	7,0	11,2
850	1000	NNSL4938CV		200	-	250	2,0	4,0	7,0	10,9
800	950	NNSF5038CV	201	201	279	2,0	4,0	8,0	31,5	
850	1000	NNSF4840CV	200	207	217	243	1,5	4,0	7,0	5,80
850	1000	NNS4840CV		207	217	243	1,5	4,0	7,0	5,90
850	1000	NNSL4840CV		207	-	243	1,5	4,0	7,0	5,70
800	950	NNSF4940CV	211	227	269	2,0	4,0	8,0	15,6	
800	950	NNS4940CV		211	227	269	2,0	4,0	8,0	15,8
800	950	NNSL4940CV		211	-	269	2,0	4,0	8,0	15,3
800	950	NNSF5040CV	211	230	299	2,0	4,0	8,0	41,0	
800	950	NNSF4844CV	220	227	238	263	1,5	4,0	7,0	6,30
800	950	NNS4844CV		227	238	263	1,5	4,0	7,0	6,40
800	950	NNSL4844CV		227	-	263	1,5	4,0	7,0	6,20
800	950	NNSF4944CV	231	244	289	2,0	4,0	8,0	17,0	
800	950	NNS4944CV		231	244	289	2,0	4,0	8,0	17,2
800	950	NNSL4944CV		231	-	289	2,0	4,0	8,0	16,8
720	850	NNSF5044CV	235	248	325	2,5	6,0	8,0	52,5	

Double row full complement cylindrical roller bearings
d = 240 to 320 mm

NNSL

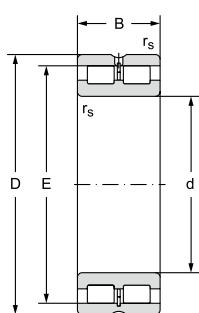
NNSF

NNS

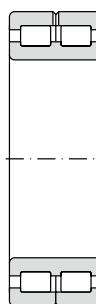
Main dimensions						Basic load rating		Fatigue load limit	
d	D	B	r_s min	E	s¹⁾	dynamic	static	P_u	
						C_t	C_{or}		
mm						kN		kN	
240	300	60	2,0	281,90	4,0	530,0	1290,0	77,05	
	300	60	2,0	281,90	-	530,0	1290,0	77,05	
	300	60	2,0	281,90	4,0	530,0	1290,0	77,05	
	320	80	2,1	299,46	5,0	770,0	1750,0	103,39	
	320	80	2,1	299,46	-	770,0	1750,0	103,39	
	320	80	2,1	299,46	5,0	770,0	1750,0	103,39	
	360	160	3,0	335,60	9,0	2100,0	3900,0	225,68	
260	320	60	2,0	304,20	4,0	550,0	1400,0	81,84	
	320	60	2,0	304,20	-	550,0	1400,0	81,84	
	320	60	2,0	304,20	4,0	550,0	1400,0	81,84	
	360	100	2,1	331,33	6,0	1150,0	2550,0	146,12	
	360	100	2,1	331,33	-	1150,0	2550,0	146,12	
	360	100	2,1	331,33	6,0	1150,0	2550,0	146,12	
	400	190	4,0	373,50	10,0	2850,0	5100,0	286,80	
280	350	69	2,0	332,40	4,0	720,0	1850,0	105,50	
	350	69	2,0	332,40	-	720,0	1850,0	105,50	
	350	69	2,0	332,40	4,0	720,0	1850,0	105,50	
	380	100	2,1	353,34	6,0	1200,0	2700,0	151,84	
	380	100	2,1	353,34	-	1200,0	2700,0	151,84	
	380	100	2,1	353,34	6,0	1200,0	2700,0	151,84	
	420	190	4,0	389,00	10,0	2900,0	5300,0	292,84	
300	380	80	2,1	356,70	6,0	850,0	2100,0	117,04	
	380	80	2,1	356,70	-	850,0	2100,0	117,04	
	380	80	2,1	356,70	6,0	850,0	2100,0	117,04	
	420	118	3,0	385,51	6,0	1650,0	3750,0	205,45	
	420	118	3,0	385,51	-	1650,0	3750,0	205,45	
	420	118	3,0	385,51	6,0	1650,0	3750,0	205,45	
	460	218	4,0	433,00	9,0	3250,0	6550,0	353,08	
320	400	80	2,1	379,70	6,0	890,0	2280,0	124,91	
	400	80	2,1	379,70	-	890,0	2280,0	124,91	
	400	80	2,1	379,70	6,0	890,0	2280,0	124,91	
	440	118	3,0	412,27	6,0	1750,0	4050,0	218,32	
	440	118	3,0	412,27	-	1750,0	4050,0	218,32	
	440	118	3,0	412,27	6,0	1750,0	4050,0	218,32	
	480	218	4,0	449,00	9,0	3650,0	6950,0	368,92	


¹⁾ Admissible axial movement

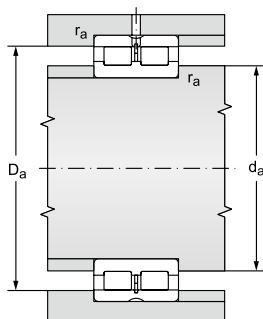
²⁾ Recommended diameter of fitting for axially loaded bearings

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions						Lubrication slot and holes	Weight	
grease	oil		d	d _a	d _{as} ²⁾	D _a	r _a	a	b	~	
		min ¹						mm			kg
760	900	NNSF4848CV	240	250	257	290	2,0	4,0	8,0	9,90	
760	900	NNS4848CV	250	257	290	2,0	4,0	8,0	10,00		
760	900	NNSL4848CV	250	-	290	2,0	4,0	8,0	9,80		
720	850	NNSF4948CV	251	267	309	2,0	4,0	8,0	18,3		
720	850	NNS4948CV	251	267	309	2,0	4,0	8,0	18,5		
720	850	NNSL4948CV	251	-	309	2,0	4,0	8,0	17,9		
680	800	NNSF5048CV	255	271	345	2,5	5,0	9,4	56,0		
680	800	NNSF4852CV	260	270	280	310	2,0	4,0	8,0	10,8	
680	800	NNS4852CV	270	280	310	2,0	4,0	8,0	11,0		
680	800	NNSL4852CV	270	-	310	2,0	4,0	8,0	10,6		
630	750	NNSF4952CV	271	290	349	2,0	5,0	9,4	31,6		
630	750	NNS4952CV	271	290	349	2,0	5,0	9,4	32,0		
630	750	NNSL4952CV	271	-	349	2,0	5,0	9,4	31,2		
590	700	NNSF5052CV	278	297	382	3,0	5,0	9,4	85,5		
630	750	NNSF4856CV	280	290	305	340	2,0	4,0	8,0	15,8	
630	750	NNS4856CV	290	305	340	2,0	4,0	8,0	16,0		
630	750	NNSL4856CV	290	-	340	2,0	4,0	8,0	15,6		
590	700	NNSF4956CV	291	312	369	2,0	5,0	9,4	33,5		
590	700	NNS4956CV	291	312	369	2,0	5,0	9,4	34,0		
590	700	NNSL4956CV	291	-	369	2,0	5,0	9,4	33,0		
570	670	NNSF5056CV	298	314	402	3,0	5,0	9,4	90,5		
590	700	NNSF4860CV	300	311	325	369	2,0	5,0	9,4	22,5	
590	700	NNS4860CV	311	325	369	2,0	5,0	9,4	23,0		
590	700	NNSL4860CV	311	-	369	2,0	5,0	9,4	22,0		
570	670	NNSF4960CV	315	335	405	2,5	5,0	9,4	52,5		
570	670	NNS4960CV	315	335	405	2,5	5,0	9,4	53,0		
570	670	NNSL4960CV	315	-	405	2,5	5,0	9,4	52,0		
510	600	NNSF5060CV	318	343	442	3,0	5,0	9,4	130		
530	630	NNSF4864CV	320	331	348	389	2,0	5,0	9,4	23,5	
530	630	NNS4864CV	331	348	389	2,0	5,0	9,4	24,0		
530	630	NNSL4864CV	331	-	389	2,0	5,0	9,4	23,0		
510	600	NNSF4964CV	335	362	425	2,5	5,0	9,4	55,5		
510	600	NNS4964CV	335	362	425	2,5	5,0	9,4	56,0		
510	600	NNSL4964CV	335	-	425	2,5	5,0	9,4	55,0		
470	560	NNSF5064CV	338	360	462	3,0	5,0	9,4	135		

Double row full complement cylindrical roller bearings
d = 340 to 400 mm

NNSL

NNSF

NNS

Main dimensions						Basic load rating		Fatigue load limit					
d	D	B	r_s min	E	s¹⁾	dynamic	static	P_u					
						C_t	C_{or}						
mm						kN		kN					
12.4.4													
340	420	80	2,1	396,90	6,0	900,0	2400,0	129,37					
	420	80	2,1	396,90	-	900,0	2400,0	129,37					
	420	80	2,1	396,90	6,0	900,0	2400,0	129,37					
	460	118	3,0	430,11	6,0	1780,0	4250,0	225,60					
	460	118	3,0	430,11	-	1780,0	4250,0	225,60					
	460	118	3,0	430,11	6,0	1780,0	4250,0	225,60					
	520	243	5,0	485,00	11,0	4350,0	8300,0	431,13					
360	440	80	2,1	419,80	6,0	925,0	2550,0	135,36					
	440	80	2,1	419,80	-	925,0	2550,0	135,36					
	440	80	2,1	419,80	6,0	925,0	2550,0	135,36					
	480	118	3,0	448,00	6,0	1820,0	4500,0	235,40					
	480	118	3,0	448,00	-	1820,0	4500,0	235,40					
	480	118	3,0	448,00	6,0	1820,0	4500,0	235,40					
	540	243	5,0	503,00	11,0	4450,0	8650,0	443,22					
380	480	100	2,1	455,80	6,0	1400,0	3650,0	189,59					
	480	100	2,1	455,80	-	1400,0	3650,0	189,59					
	480	100	2,1	455,80	6,0	1400,0	3650,0	189,59					
	520	140	4,0	481,35	7,0	2350,0	5700,0	292,06					
	520	140	4,0	481,35	-	2350,0	5700,0	292,06					
	520	140	4,0	481,35	7,0	2350,0	5700,0	292,06					
	560	243	5,0	521,00	11,0	4650,0	9150,0	462,76					
400	500	100	2,1	470,59	6,0	1420,0	3750,0	192,15					
	500	100	2,1	470,59	-	1420,0	3750,0	192,15					
	500	100	2,1	470,59	6,0	1420,0	3750,0	192,15					
	540	140	4,0	501,74	7,0	2400,0	6000,0	303,45					
	540	140	4,0	501,74	-	2400,0	6000,0	303,45					
	540	140	4,0	501,74	7,0	2400,0	6000,0	303,45					
	600	272	5,0	558,00	11,0	5500,0	11000,0	546,10					



¹⁾ Admissible axial movement

²⁾ Recommended diameter of fitting for axially loaded bearings

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions						Lubrication slot and holes	Weight
grease	oil		d	d _a	d _{2s} ²⁾	D _a	r _a	a	b	~
		min ¹						mm		
510	600	NNSF4868CV	340	351	365	409	2,0	5,0	9,4	25,0
510	600	NNS4868CV	351	365	409	2,0	5,0	9,4		25,5
510	600	NNSL4868CV	351	-	409	2,0	5,0	9,4		24,5
470	560	NNSF4968CV	355	380	445	2,5	5,0	9,4		58,5
470	560	NNS4968CV	355	380	445	2,5	5,0	9,4		59,0
470	560	NNSL4968CV	355	-	445	2,5	5,0	9,4		57,8
450	530	NNSF5068CV	361	384	497	4,0	5,0	9,4		185
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470	560	NNSF4872CV	360	371	388	429	2,0	5,0	9,4	26,5
470	560	NNS4872CV	371	388	429	2,0	5,0	9,4		27,0
470	560	NNSL4872CV	371	-	429	2,0	5,0	9,4		26,0
450	530	NNSF4972CV	375	398	465	2,5	5,0	9,4		61,5
450	530	NNS4972CV	375	398	465	2,5	5,0	9,4		62,0
450	530	NNSL4972CV	375	-	465	2,5	5,0	9,4		60,8
420	500	NNSF5072CV	383	402	517	4,0	5,0	9,4		195
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450	530	NNSF4876CV	380	391	415	469	2,0	5,0	9,4	44,8
450	530	NNS4876CV	391	415	469	2,0	5,0	9,4		45,5
450	530	NNSL4876CV	391	-	469	2,0	5,0	9,4		44,0
420	500	NNSF4976CV	398	424	502	3,0	5,0	9,4		91,5
420	500	NNS4976CV	398	424	502	3,0	5,0	9,4		92,5
420	500	NNSL4976CV	398	-	502	3,0	5,0	9,4		90,5
400	480	NNSF5076CV	403	420	537	4,0	5,0	9,4		200
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420	500	NNSF4880CV	400	411	430	489	2,0	5,0	9,4	46,2
420	500	NNS4880CV	411	430	489	2,0	5,0	9,4		46,5
420	500	NNSL4880CV	411	-	489	2,0	5,0	9,4		45,9
400	480	NNSF4980CV	418	444	522	3,0	5,0	9,4		95,5
400	480	NNS4980CV	418	444	522	3,0	5,0	9,4		96,5
400	480	NNSL4980CV	418	-	522	3,0	5,0	9,4		94,5
380	450	NNSF5080CV	423	449	577	4,0	5,0	9,4		270