

Cylindrical roller bearings



Matrix for bearing preselection 414

1 Single row cylindrical roller bearings with cage 416

1.1	Bearing design	416
1.2	Load carrying capacity	421
1.3	Compensation of angular misalignments	424
1.4	Lubrication	424
1.5	Sealing	424
1.6	Speeds	424
1.7	Noise	425
1.8	Temperature range	426
1.9	Cages	426
1.10	Internal clearance	428
1.11	Dimensions, tolerances	429
1.12	Suffixes	429
1.13	Structure of bearing designation	430
1.14	Dimensioning	430
1.15	Minimum load	431
1.16	Design of bearing arrangements	432



1.17 Mounting and dismounting 435

1.18 Legal notice regarding data freshness 435

1.19 Further information 436

Product tables 438

 *Cylindrical roller bearings with cage, non-locating bearings* 438

Cylindrical roller bearings with cage, semi-locating bearings, locating bearings 454

2 Cylindrical roller bearings with disc cage or with spacers 482

2.1 Bearing design 482

2.2 Load carrying capacity 484

2.3 Compensation of angular misalignments 487

2.4 Lubrication 488

2.5 Sealing 488

2.6 Speeds 488

2.7 Noise 489

2.8 Temperature range 490

2.9 Cages 490

2.10 Internal clearance 491

2.11 Dimensions, tolerances 492

2.12 Suffixes 492

2.13 Structure of bearing designation 492

2.14 Dimensioning 493

2.15 Minimum load 494

2.16 Design of bearing arrangements 494

2.17 Mounting and dismounting 496

2.18 Legal notice regarding data freshness 497

2.19 Further information 497

Product tables 498

 *Cylindrical roller bearings with disc cage, semi-locating bearings* 498

Cylindrical roller bearings with spacers, semi-locating bearings 500

3 Single row full complement cylindrical roller bearings 502

3.1 Bearing design 502

3.2 Load carrying capacity 505

3.3 Compensation of angular misalignments 508

3.4 Lubrication 508

3.5 Sealing 508

3.6 Speeds 509

3.7 Noise 509

3.8 Temperature range 510

3.9 Cages 510

3.10 Internal clearance 511

3.11 Dimensions, tolerances 511

3.12 Suffixes 512

3.13 Structure of bearing designation 512

3.14 Dimensioning 512

3.15 Minimum load 513

3.16 Design of bearing arrangements 513

3.17 Mounting and dismounting 516

3.18 Legal notice regarding data freshness 516

3.19 Further information 517

Product table 518

 *Single row full complement cylindrical roller bearings* 518

4 Double row full complement cylindrical roller bearings 528

4.1 Bearing design 528

4.2 Load carrying capacity 532

4.3 Compensation of angular misalignments 535

4.4 Lubrication 535

4.5 Sealing 535

4.6 Speeds 535

4.7 Noise 536

4.8 Temperature range 537

4.9 Cages 537

4.10 Internal clearance 538

4.11 Dimensions, tolerances 539

4.12 Suffixes 539

4.13 Structure of bearing designation 540

4.14 Dimensioning 540

4.15 Minimum load 541

4.16 Design of bearing arrangements 542

4.17 Mounting and dismounting 546

4.18 Legal notice regarding data freshness 547

4.19 Further information 547

Product tables 548

 *Double row full complement cylindrical roller bearings* 548

Double row full complement cylindrical roller bearings with annular slots 556



Matrix for bearing preselection

The matrix gives an overview of the types and design features.

It can be used to make a preliminary assessment of whether a bearing is fundamentally suitable for the envisaged application.

The additional information provided in the product chapter (see column "detailed information") and in the Technical principles must, however, be observed in addition to this overview in selection of the bearing.

Design features and suitability			Cylindrical roller bearings with cage, single row			
			non-locating bearing	semi-locating bearing	locating bearing	detailed information
						416
Load carrying capacity	radial		+++	+++	+++	➤ 421 1.2
	axial, one direction		–	+	+	➤ 421 1.2
	axial, both directions		–	–	+	➤ 421 1.2
	moments		–	–	–	➤ 421 1.2
Compensation of angular misalignments	static		(+)	(+)	(+)	➤ 424 1.3
	dynamic		(+)	(+)	(+)	➤ 424 1.3
Bearing design	cylindrical bore		✓	✓	✓	➤ 416 1.1
	tapered bore		–	–	–	
	separable		✓	✓	✓	➤ 435 1.17
Lubrication	greased		–	–	–	➤ 424 1.4
Sealing	open		✓	✓	✓	➤ 424 1.5
	non-contact		–	–	–	➤ 424 1.5
	contact		–	–	–	➤ 424 1.5
Operating temperature in °C		from to	–30+150 ³⁾	–30+150 ³⁾	–30+150 ³⁾	➤ 426 1.8
Suitability for	high speeds		++	++ ⁵⁾	++ ⁵⁾	➤ 424 1.6 ➤ 24
	high running accuracy		++	++	++	➤ 429 1.11 ➤ 115
	low-noise running		+	(+)	(+)	➤ 425 1.7 ➤ 27
	high rigidity		++	++	++	➤ 54
	reduced friction		++	++	++	➤ 56
	length compensation within bearing		+++	(+)	–	➤ 417 ➤ 25
	non-locating bearing arrangement		+++	+	–	➤ 141
X-life bearings			✓	✓	✓	➤ 419
Bearing bore d in mm		from to	15 710 ⁸⁾	15 280 ⁸⁾	15 280 ⁸⁾	➤ 438
Product tables		from page	438	454	454	

- Valid only for series SL1923
- Valid only for non-locating bearings SL0248 and SL0249
- Valid for bearings with sheet steel cage or brass cage
- With greasing using GA22
- For low axial load only
- Valid for locating bearings SL0148 and SL0149
- Only semi-locating bearings SL1850
- Larger catalogue bearings GL 1

	Cylindrical roller bearings with disc cage or spacers			Single row full complement cylindrical roller bearings		Double row full complement cylindrical roller bearings			
	with disc cage 	with spacers 	detailed information  482	semi-locating bearing 	detailed information  502	locating/semi- locating/non- locating bearing 	locating bearing with annular slots 	detailed information  528	
+++	+++	+++	➤ 484 2.2	+++	➤ 505 3.2	+++	+++	➤ 532 4.2	
+	+	+	➤ 484 2.2	+	➤ 505 3.2	(+)	(+)	➤ 532 4.2	
-	-	-	➤ 484 2.2	-	➤ 505 3.2	(+)	(+)	➤ 532 4.2	
-	-	-	➤ 484 2.2	-	➤ 505 3.2	+	+	➤ 532 4.2	
(+)	(+)	+	➤ 487 2.3	(+)	➤ 508 3.3	-	-	➤ 535 4.3	
(+)	(+)	+	➤ 487 2.3	(+)	➤ 508 3.3	-	-	➤ 535 4.3	
✓	✓	+	➤ 482 2.1	✓	➤ 508 3.3	✓	✓	➤ 535 4.3	
-	-	-		-		-	-		
✓	✓	+	➤ 496 2.17	✓ ¹⁾	➤ 516 3.17	✓ ²⁾	-	➤ 546 4.17	
-	-	-	➤ 488 2.4	-	➤ 508 3.4	-	✓	➤ 535 4.4	
✓	✓	+	➤ 488 2.5	✓	➤ 508 3.5	✓	-	➤ 535 4.5	
-	-	-	➤ 488 2.5	-	➤ 508 3.5	-	-	➤ 535 4.5	
-	-	-	➤ 488 2.5	-	➤ 508 3.5	-	✓	➤ 535 4.5	
-30 +120	-30 +120	+	➤ 490 2.8	-30 +120	➤ 510 3.8	-30 +120	-40 ⁴⁾ +80	➤ 537 4.8	
++	++	+	➤ 488 2.6	-	➤ 509 3.6	-	-	➤ 535 4.6	
+	(+)	+	➤ 492 2.11 ➤ 24	+	➤ 511 3.11 ➤ 24	+	+	➤ 539 4.11 ➤ 24	
(+)	(+)	+	➤ 489 2.7 ➤ 27	-	➤ 509 3.7	-	-	➤ 536 4.7	
++	++	+	➤ 54	+++	➤ 54	+++	+++	➤ 54	
+	+	+	➤ 56	-	➤ 56	-	-	➤ 56	
(+)	(+)	+	➤ 25	(+)	➤ 25	- ⁶⁾	-	➤ 529 ➤ 25	
+	+	+	➤ 141	+	➤ 141	+ ⁶⁾	+	➤ 141	
+	+	+	➤ 141	+	➤ 141	+ ⁶⁾	+	➤ 141	
✓	✓	+	➤ 484	✓	➤ 504	✓ ⁷⁾	-	➤ 531	
80 300 ⁸⁾	25 120	+	➤ 498	20 500 ⁸⁾	➤ 518	20 400 ⁸⁾	20 300 ⁸⁾	➤ 548	
498	500			518		548	556		



1 Single row cylindrical roller bearings with cage



Single row cylindrical roller bearings with cage are suitable where:

- bearing arrangements are subjected to very high radial loads ➤ 421 | 1.2
- not only high radial forces but also axial loads from one or both directions must be supported by the bearing position (semi-locating or locating bearing function) ➤ 421 | 1.2
- bearing arrangements must have very high rigidity
- axial displacements of the shaft relative to the housing must be compensated without constraint in the bearing (in the case of bearings with a non-locating or semi-locating bearing function) ➤ 416 | 1.1
- high radial loads and very high speeds occur but the very high radial load carrying capacity of full complement cylindrical roller bearings is not required ➤ 424 | 1.6
- the bearings should be separable (one bearing ring can be removed) for easier mounting ➤ 416 | 1.1

For an overview of other product-specific features, see the Matrix for bearing preselection ➤ 414.

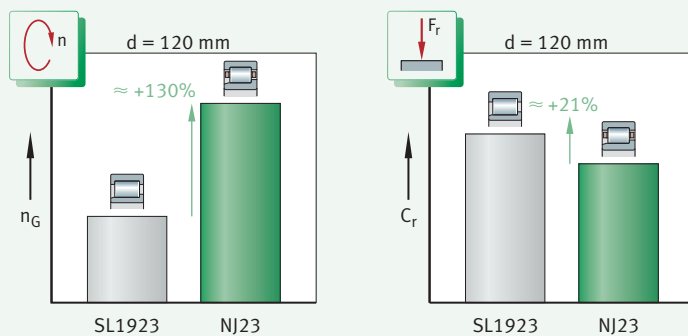
 **1**
Cylindrical roller bearing with cage/full complement bearing, comparison of speed and load carrying capacity

n_G = limiting speed

C_r = basic dynamic load rating

SL1923 = full complement cylindrical roller bearing

NJ23 = cylindrical roller bearing with cage



1.1 Bearing design

Design variants

Single row cylindrical roller bearings with cage are available in the basic design as:

- type NU (non-locating bearing) ➤ 418 |  3
- type N (non-locating bearing) ➤ 418 |  3
- type NJ (semi-locating bearing) ➤ 418 |  4
- type NUP (locating bearing) ➤ 418 |  4
- X-life bearings ➤ 419



In addition to the bearings described here, Schaeffler supplies single row cylindrical roller bearings with cage in other types, series and dimensions. These products are described in some cases in special publications. If necessary, please contact Schaeffler. Larger catalogue bearings GL 1.

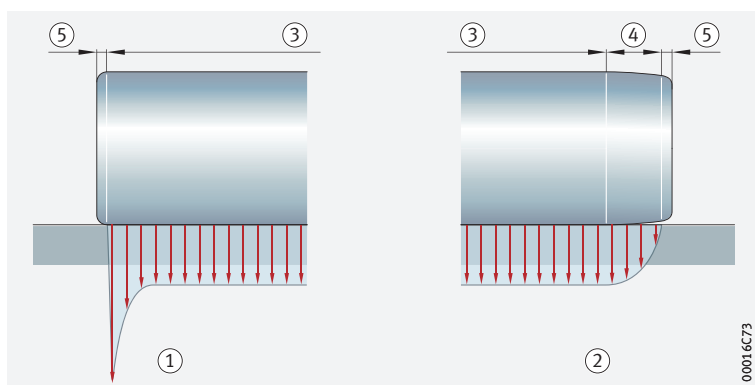
Key features

Bearings of basic design – standard range

Single row cylindrical roller bearings with cage are part of the group of radial roller bearings. In contrast to the ball, the roller has a larger contact area perpendicular to the roller axis. As a result, it can transmit higher forces, has greater rigidity and allows smaller rolling element diameters under the same load. The single row bearings comprise solid outer rings, inner rings and cages that are fitted with a large number of cylindrical rollers. The rollers have profiled ends, i.e. they have a slight lateral curvature towards the ends. This modified line contact between the rolling elements and raceways prevents damaging edge stresses ►417| 2. In all standard designs, the cylindrical rollers are guided between rigid ribs by at least one bearing ring. Together with the cage and rollers, this forms a ready-to-fit unit. The other bearing ring can be removed. As a result, the inner ring and outer ring can be mounted separately. Tight fits can thus be achieved on both rings. Bearings of the basic design are manufactured in many different types that differ essentially in the arrangement of the ribs on the inner ring and outer ring. Depending on the design, they are used as non-locating bearings, semi-locating bearings or locating bearings.

2
Roller profile and stress distribution

- ① Cylindrical roller profile (high stress peaks)
- ② Roller with profiled ends (no stress peak)
- ③ Cylindrical centre region
- ④ Region of logarithmic tapering
- ⑤ Rounding of edge



Type NU

Bearings with non-locating bearing function

In bearings of type NU, the outer ring has two rigid ribs, while the inner ring has no ribs ►418| 3. As a result, axial displacements of the shaft relative to the housing are possible in both directions and within certain limits. During rotational motion, length compensation occurs without constraint in the bearing between the rollers and the raceway without ribs and is therefore practically free from friction. The maximum axial displacement s is given in the product tables. The bearings are used as non-locating bearings, i.e. they cannot guide the shaft axially in either direction ►421| 1.2. For use as semi-locating bearings, they can be combined with the L-section ring HJ ►419| 5.

Type N

Bearings with non-locating bearing function

Cylindrical roller bearings of type N have two rigid ribs on the inner ring, while the outer ring has no ribs ►418| 3. Due to the absence of ribs, axial displacements of the shaft relative to the housing are possible in both directions within the bearing. The maximum axial displacement s is given in the product tables. Bearings of type N are used as non-locating bearings, i.e. they cannot guide the shaft axially in either direction ►421| 1.2.

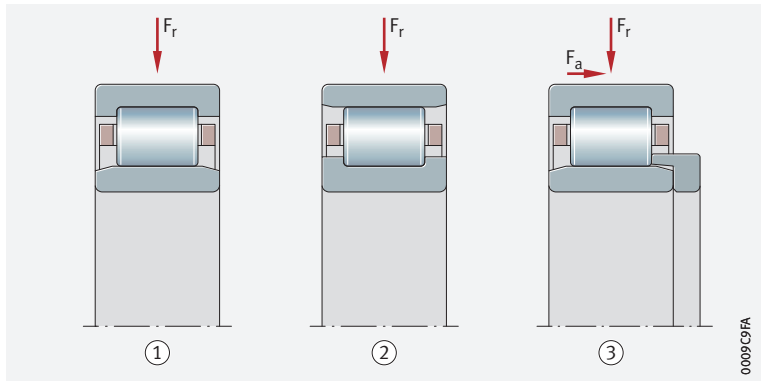


Single row cylindrical roller bearings – non-locating or semi-locating bearings

F_r = radial load

F_a = axial load

- ① Cylindrical roller bearing NU (non-locating bearing)
- ② Cylindrical roller bearing N (non-locating bearing)
- ③ Cylindrical roller bearing NU + L-section ring HJ (semi-locating bearing)



0005/C9FA

Type NJ

Bearings with semi-locating bearing function

Bearings of type NJ have two rigid ribs on the outer ring and one rigid rib on the inner ring ➤ 418 | ④ 4. With these cylindrical roller bearings, axial displacements of the shaft relative to the housing are possible in one direction only. The maximum axial displacement s is given in the product tables. Bearings of type NJ are used as semi-locating bearings, i.e. they can guide the shaft axially in one direction ➤ 421 | 1.2. Semi-locating bearings NJ can be combined with an L-section ring HJ to form a locating bearing unit ➤ 419 | ④ 5.

Type NUP

Bearings with locating bearing function

Cylindrical roller bearings of type NUP have two rigid ribs on the outer ring as well as one rigid rib and one loose rib washer on the inner ring ➤ 418 | ④ 4. With these cylindrical roller bearings, axial displacements between the shaft and the housing are not possible. Bearings of type NUP are used as locating bearings, i.e. they can guide the shaft axially in both directions ➤ 421 | 1.2.

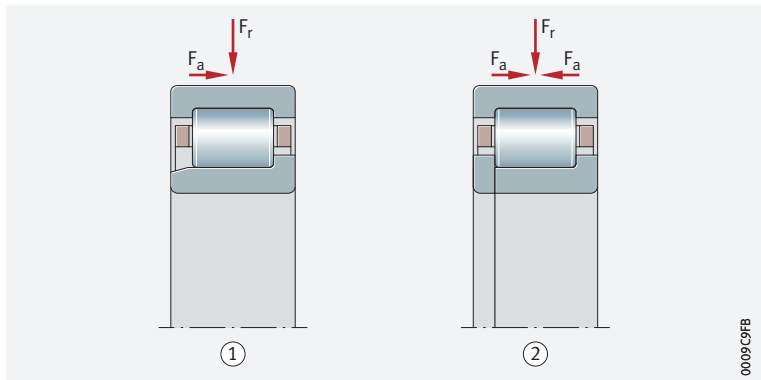


Single row cylindrical roller bearings – semi-locating or locating bearings

F_r = radial load

F_a = axial load

- ① Cylindrical roller bearing NJ (semi-locating bearing)
- ② Cylindrical roller bearing NUP (locating bearing)



0005/C9FB

L-section rings

Functional expansion by means of L-section rings

In order to expand the function of cylindrical roller bearings NU and NJ, these types can be combined with L-section rings HJ ➤ 419 | ④ 5. In this way, bearings NU can perform a semi-locating bearing function, while bearings NJ in combination with L-section rings can perform a locating bearing function ➤ 419 | ④ 5.



Cylindrical roller bearings NU must not be mounted with two L-section rings, since this can lead to axial bracing of the rollers.

Areas of application of L-section rings

L-section rings can be advantageous where:

- the inner ring in locating bearing arrangements that are subjected to high loads has a very tight fit; bearings of type NJ + HJ permit tighter fits than bearings NUP, which have a shortened inner ring and a loose rib washer
- the shaft must be axially guided in one or both directions and bearings NJ or NUP are not available
- the design of the bearing arrangement and the mounting and dismounting of the bearings should be simplified

Design of L-section rings

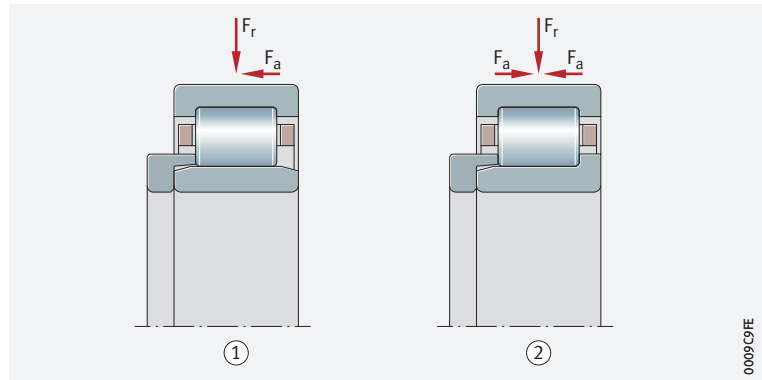
The L-section rings are made from rolling bearing steel and are hardened and ground. The axial runout of the lateral faces corresponds to the normal tolerances of the appropriate bearings. Where available, the L-section rings are listed in the product tables together with the associated bearings (e.g. bearing NJ206-E-TVP2 + L-section ring HJ206-E). Since the L-section rings are not a component of the bearing, these must always be ordered together with the bearing ➤ 430 | 14.

5 Cylindrical roller bearings with L-section rings – semi-locating or locating bearings

F_r = radial load

F_a = axial load

- ① Cylindrical roller bearing NU + L-section ring HJ (semi-locating bearing)
- ② Cylindrical roller bearing NJ + L-section ring HJ (locating bearing)



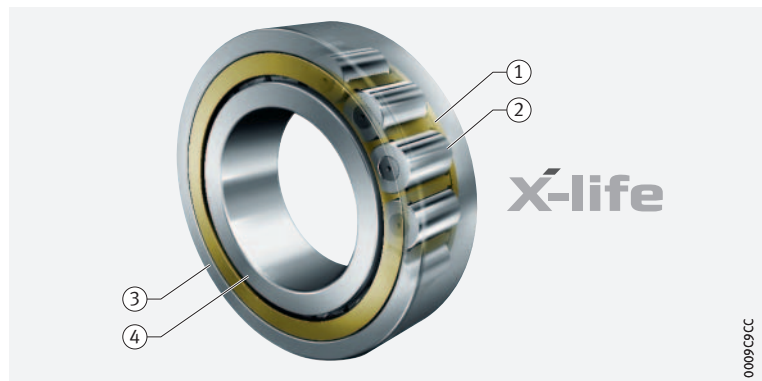
X-life

X-life premium quality

Single row cylindrical roller bearings with cage are supplied up to an outside diameter $D = 320$ mm as X-life bearings ➤ 419 | 6. These bearings exhibit considerably higher performance than comparable standard cylindrical roller bearings. This is achieved, for example, through the modified internal construction, the optimised contact geometry between the rollers and raceways, the better surface quality ➤ 420 | 7 and the optimised roller guidance and lubricant film formation.

6 Cylindrical roller bearing in X-life design

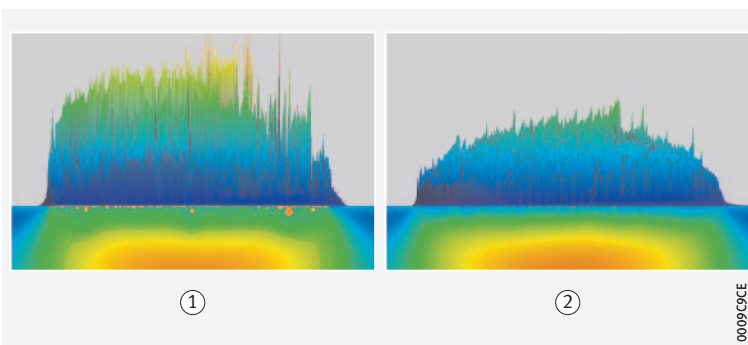
- ① Brass cage
- ② Cylindrical roller, honed
- ③ Outer ring, honed
- ④ Inner ring, honed



7

Comparison of surface qualities

- ① Standard surface – a rough surface causes stress peaks under radial load
- ② X-life surface – a higher surface quality reduces stress peaks; this increases the bearing operating life



Increased customer benefits due to X-life

Interchangeable with comparable standard bearings

Lower operating costs, higher machine availability

Suffix XL

Advantages

These technical enhancements offer a range of advantages, such as:

- a more favourable load distribution in the bearing and thus a higher dynamic load carrying capacity of the bearings ➤ 417 | 2 and ➤ 420 | 8
- a higher fatigue limit load
- lower heat generation in the bearing
- lower lubricant consumption and therefore longer maintenance intervals if relubrication is carried out
- a measurably longer operating life of the bearings
- high operational security
- compact, environmentally-friendly bearing arrangements

Since X-life cylindrical roller bearings have the same dimensions as the corresponding standard bearings, the latter can be replaced without any problems by the higher-performance X-life bearings. The major advantages of X-life can therefore also be used for existing bearing arrangements with standard bearings.

In conclusion, these advantages improve the overall cost-efficiency of the bearing position significantly and thus bring about a sustainable increase in the efficiency of the machine and equipment.

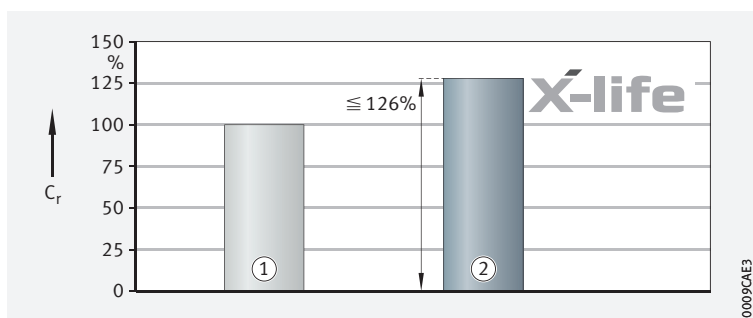
X-life cylindrical roller bearings include the suffix XL in the designation ➤ 429 | 1.12 and ➤ 438 | 1.

8

Cylindrical roller bearing with cage: comparison of basic dynamic load rating C_r with bearings without X-life quality

C_r = radial basic dynamic load rating

- ① Bearing without X-life quality
- ② X-life cylindrical roller bearing



Areas of application

Due to their special technical features, X-life cylindrical roller bearings are highly suitable, for example, for bearing arrangements in:

- heavy industry (steel production)
- power transmission (gearbox engineering)
- processing machines and construction machinery
- wind turbines (gearbox applications)



X-life indicates a high product performance density and thus a particularly significant benefit to the customer. Further information on X-life ► 10.

1.2 Load carrying capacity

☞ *Designed for very high radial loads*

Depending on the type, single row cylindrical roller bearings can support not only very high radial forces but also high axial loads on one or both sides:

- The types N and NU can only support radial loads. If NU bearings are combined with an L-section ring, these can also support axial loads on one side ► 418 | ☐ 3.
- The type NJ can support axial loads on one side and radial loads. If this type is combined with an L-section ring, it can support axial loads on both sides ► 419 | ☐ 5.
- The type NUP can support axial loads on both sides and radial loads



☞ *Higher capacity roller set in variant E*

Bearings with the suffix E have a higher capacity roller set and are thus designed for very high load carrying capacity.

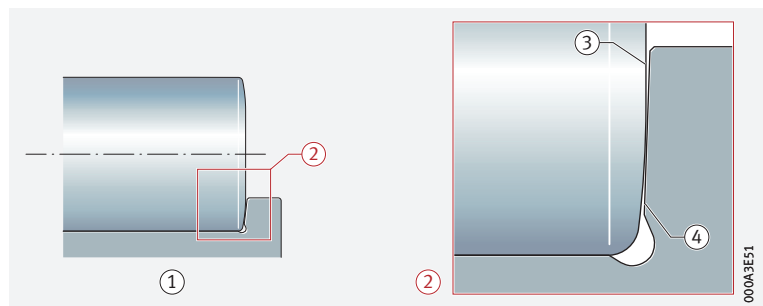
Higher axial load carrying capacity of bearings with toroidal crowned roller end face

☞ *Neither wear nor fatigue occurs on the rib contact running and roller end faces*

In the case of cylindrical roller bearings with toroidal crowned rollers (TB design), the axial load carrying capacity has been significantly improved with the aid of new calculation and manufacturing methods. A special curvature of the roller end faces facilitates optimum contact conditions between the rollers and ribs ► 421 | ☐ 9. As a result, the axial contact pressures on the rib are significantly minimised and a lubricant film capable of supporting higher loads is formed. Under standard operating conditions, this completely eliminates wear and fatigue at the rib contact running and roller end faces. In addition, the frictional torque is reduced by up to 50%. The bearing temperature during operation is therefore significantly lower. Bearings of the toroidal crowned design are available for a bore diameter of, or larger than, $d = 170 \text{ mm}$ ► 438 | ☐.

☐ 9
Contact geometry
of roller end face/rib face –
modified roller end faces

- ① Cylindrical roller with inner ring
- ② Detail (representation not to scale)
- ③ End of roller
- ④ Rib



Ratio $F_a/F_r \leq 0,4$ or $0,6$

Load ratio F_a/F_r
The bearings can support axial loads on one side by means of the ribs on the inner and outer ring. In order to ensure problem-free running (tilting of the rollers is prevented), they must always be subjected to radial load at the same time as axial load. The ratio F_a/F_r must not exceed the value 0,4. For bearings with toroidal crowned roller ends (TB design), values up to 0,6 are permissible.

The load F_r describes the radial load for a single row bearing. For multi-row bearings, F_r must be divided by the number of rows.



Continuous axial loading without simultaneous radial loading is not permissible.

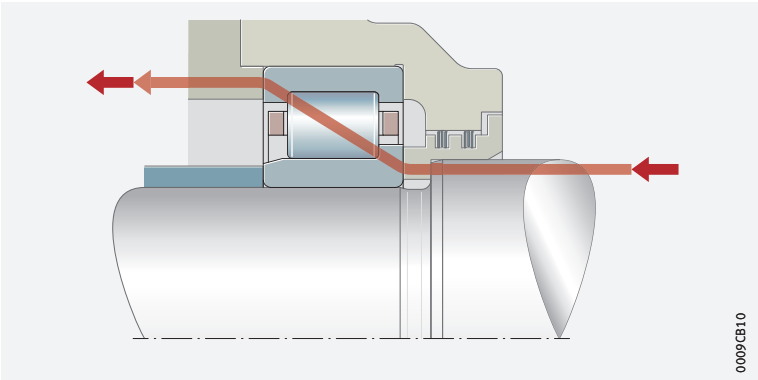
Permissible axial load

Influencing factors on the axial load carrying capacity

Axial loads are supported by the bearing ribs and the roller end faces $\blacktriangleright$ 418 | 4. The axial load carrying capacity of the bearing is therefore essentially dependent on:

- the size of the sliding surfaces between the ribs and the end faces of the rolling elements
- the sliding velocity at the ribs
- the lubrication of the contact surfaces
- tilting of the bearing
- friction

10
Force flow under axial load – semi-locating bearing NJ



Calculation of permissible axial load – cylindrical rollers with conventional roller ends

Bearings with standard roller ends

The permissible axial load $F_{a\text{ per}}$ can be calculated from the hydrodynamic load carrying capacity of the contact $\blacktriangleright$ 422 | 1.

f1
Permissible axial load – bearings of standard design

$$F_{a\text{ per}} = k_S \cdot k_B \cdot d_M^{1,54} \cdot n^{-0,6} \leq F_{a\text{ max}}$$

Legend

$F_{a\text{ per}}$	N	Permissible continuous axial load. In order to prevent unacceptably high temperatures in the bearing, $F_{a\text{ per}}$ must not be exceeded
$F_{a\text{ max}}$	N	Maximum continuous axial load in relation to rib fracture. In order to prevent unacceptably high pressures at the contact surfaces, $F_{a\text{ max}}$ must not be exceeded
k_S	–	Factor as a function of lubrication method $\blacktriangleright$ 423 1. The factor takes into consideration the lubrication method used for the bearing. The better the lubrication and, in particular, the heat dissipation, the higher the permissible axial load
k_B	–	Factor as a function of bearing series $\blacktriangleright$ 423 2
d_M	mm	Mean bearing diameter $d_M = (D + d)/2$ $\blacktriangleright$ 438
n	min ⁻¹	Operating speed.

 1
Factor k_S

Lubrication method	Factor k_S	
	from	to
Minimal heat dissipation, drip feed oil lubrication, oil mist lubrication, low operating viscosity ($\nu < 0,5 \cdot \nu_1$)	7,5	10
Poor heat dissipation, oil sump lubrication, oil spray lubrication, low oil flow	10	15
Good heat dissipation, recirculating oil lubrication (pressurised oil lubrication)	12	18
Very good heat dissipation, recirculating oil lubrication with oil cooling, high operating viscosity ($\nu > 2 \cdot \nu_1$)	16	24



The precondition for these k_S values is an operating viscosity of the lubricant of at least the reference viscosity ν_1 in accordance with DIN ISO 281:2010.



Doped lubricating oils should be used, such as CLP (DIN 51517) and HLP (DIN 51524) of ISO VG grades 32 to 460, as well as ATF oils (DIN 51502) and transmission oils (DIN 51512) of SAE viscosity grades 75W to 140W.



2
Bearing factor k_B

Series	Factor k_B
NJ2...-E, NJ22...-E, NUP2...-E, NUP22...-E	15
NJ3...-E, NJ23...-E, NUP3...-E, NUP23...-E	20
NJ4	22



Calculation of permissible axial load – cylindrical rollers with toroidal roller ends

 **Higher axial loads possible**

For bearings with toroidal roller ends, the permissible axial loads are 50% higher ➤ 423 |  2.



2
Permissible axial load – bearings of TB design

$$F_{a\text{ per}} = 1,5 \cdot k_S \cdot k_B \cdot d_M^{1,54} \cdot n^{-0,6} \leq F_{a\text{ max}}$$

Calculation of maximum permissible axial load



For bearings with rollers of the standard or TB design, the maximum permissible axial load $F_{a\text{ max}}$ ➤ 423 |  3 is calculated from the rib strength and the security against wear. This must not be exceeded, even if $F_{a\text{ per}}$ gives higher values ➤ 423 |  4.



3
Maximum axial load – bearings of standard and TB design

$$F_{a\text{ max}} = 0,075 \cdot k_B \cdot d_M^{2,1}$$



4
Permissible axial load

$$F_{a\text{ per}} \leq F_{a\text{ max}}$$

Axial load under shaft deflection

 **Permissible axial load under shaft deflection of up to 2°**

Under considerable shaft deflection, the shaft shoulder presses against the inner ring rib. In combination with the active axial load, this can lead to high alternating loading of the inner ring ribs. Under a shaft deflection of up to 2°, the permissible axial load can be estimated ➤ 423 |  5.



If more severe tilting is present, a separate strength analysis is required. In this case, please contact Schaeffler.



5
Axial load under misalignment

$$F_{as} = 20 \cdot d_M^{1,42}$$

Legend

F_{as} | N | Permissible axial load under misalignment.

1.3

Compensation of angular misalignments

☞ *Angular deviations are misalignments between the inner and outer ring*

The possible misalignment between the inner ring and outer ring is influenced by the internal bearing construction, the operating clearance, the forces acting on the bearing etc. Due to these complex relationships, it is not possible to give generally valid absolute values here. However, misalignments (angular deviations) between the inner ring and outer ring will generally always have an effect on the running noise and the operating life of the bearings.

☞ *Permissible tilting*

The permissible guide values at which, based on experience, there is no significant reduction in operating life are as follows:

- 4' for series 10, 19, 2, 3, 4
- 3' for series 22, 23

☞ *Scope of values*

The values apply to:

- bearing arrangements with static misalignment (consistent position of the shaft and housing axis)
- bearings that are not required to perform an axial guidance function
- bearings subjected to small loads (with $C_{0r}/P \geq 5$)



Checking by means of the calculation program BEARINX is recommended in all cases. If there is any uncertainty regarding possible misalignment, please consult Schaeffler.

1.4

Lubrication

☞ *Oil or grease lubrication*

Single row cylindrical roller bearings with cage are not greased. They must be lubricated with oil or grease.

☞ *Compatibility with plastic cages*

When using bearings with plastic cages, compatibility between the lubricant and the cage material must be ensured if synthetic oils, lubricating greases with a synthetic oil base or lubricants containing a high proportion of EP additives are used.



If there is any uncertainty regarding the suitability of the selected lubricant for the application, please consult Schaeffler or the lubricant manufacturer.

☞ *Observe oil change intervals*

Aged oil and additives in the oil can impair the operating life of plastics at high temperatures. As a result, stipulated oil change intervals must be strictly observed.

1.5

Sealing

☞ *Provide seals in the adjacent construction*

The bearings are not sealed; i. e. sealing of the bearing position must be carried out in the adjacent construction. This must reliably prevent:

- moisture and contaminants from entering the bearing
- the egress of lubricant from the bearing

1.6

Speeds

☞ *Speeds in the product tables*

The product tables generally give two speeds for the bearings:

- the kinematic limiting speed n_G
- the thermal speed rating n_{Gr}

Limiting speeds



The limiting speed n_G is the kinematically permissible speed of the bearing. Even under favourable mounting and operating conditions, this value should not be exceeded without prior consultation with Schaeffler ► 64.

Bearings with solid brass cages have a significantly higher limiting speed for oil lubrication.

Values for grease lubrication

For the grease lubrication of bearings without seals or shields, 85% of the value stated in the product tables is permissible in each case. For the grease lubrication of bearings with solid brass cages, 65% of the value stated in the product tables is permissible in each case.

Reference speeds

n_{gr} is used to calculate n_g

The thermal speed rating n_{gr} is not an application-oriented speed limit, but is a calculated ancillary value for determining the thermally safe operating speed n_g ➤ 64.

1.7 Noise

The Schaeffler Noise Index (SGI) has been developed as a new feature for comparing the noise level of different bearing types and series. As a result, a noise evaluation of rolling bearings can now be carried out for the first time.

Schaeffler Noise Index

The SGI value is based on the maximum permissible noise level of a bearing in accordance with internal standards, which is calculated on the basis of ISO 15242. In order that different bearing types and series can be compared, the SGI value is plotted against the basic static load rating C_0 .

This permits direct comparisons between bearings with the same load carrying capacity. The upper limit value is given in each of the diagrams. This means that the average noise level of the bearings is lower than illustrated in the diagram.



The Schaeffler Noise Index is an additional performance characteristic in the selection of bearings for noise-sensitive applications. The specific suitability of a bearing for an application in terms of installation space, load carrying capacity or speed limit for example, must be checked independently of this.



The Noise Index is currently available for the main series. Additional series will be updated and introduced in subsequent publications.

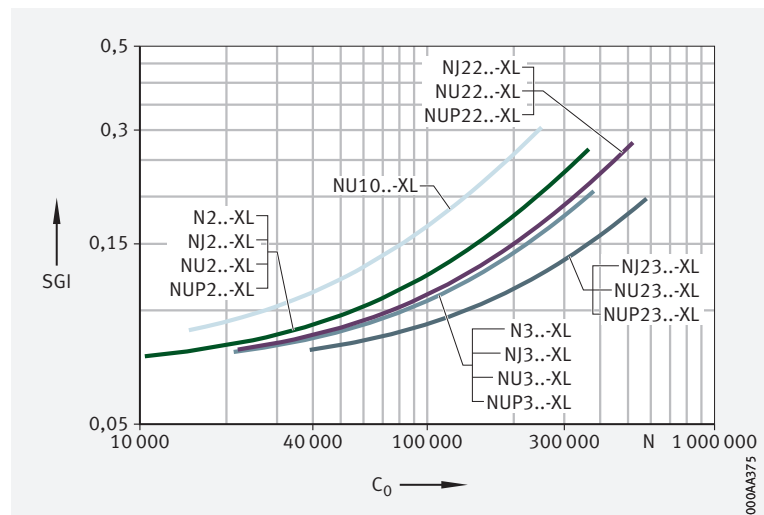
Further information:

■ medias <https://medias.schaeffler.com>

11

Schaeffler Noise Index
for single row cylindrical
roller bearings with cage

SGI = Schaeffler Noise Index
 C_0 = basic static load rating



1.8 Temperature range

 Limiting values

The operating temperature of the bearings is limited by:

- the dimensional stability of the bearing rings and cylindrical rollers
- the cage
- the lubricant

Possible operating temperatures of single row cylindrical roller bearings
➤ 426 |  3.

 Permissible temperature ranges

Operating temperature	Single row cylindrical roller bearings	
	with polyamide cage PA66	with brass or sheet steel cage
	-30 °C to +120 °C	-30 °C to +150 °C For continuous operating temperatures higher than +120 °C, please contact us



In the event of anticipated temperatures which lie outside the stated values, please contact Schaeffler.

1.9 Cages

 The right cage for any purpose

 Standard materials are plastic, brass and steel

Approximately two-thirds of Schaeffler cylindrical roller bearings are supplied with cages. For standard applications, the cage materials used essentially are plastic, brass and sheet steel. A large number of cage types and sizes are designed using these three materials. As a result, the right bearing – in accordance with the operating conditions – is always available. For cylindrical roller bearings standardised in accordance with DIN 5412, there are four standard cages available for selection. A summary of the various cage characteristics and their suitability for certain applications is shown in ➤ 427 |  4.

 Plastic cage TVP2

The highly versatile plastic cage TVP2 is the standard cage for bearings up to a medium bearing diameter ➤ 427 |  5. In comparison with metal cages, it has a range of advantages: low mass, low running noises due to good damping, high elasticity, good tribological characteristics with steel rolling elements and very good emergency running characteristics. This cage is thus a good choice for applications that allow the use of a plastic cage. Due to their wide-ranging positive characteristics, such plastic cages are now in use in many millions of bearings and applications.

 Two-piece solid brass cage M1

A classic design of brass cage is the two-piece, riveted-bar brass cage M1 ➤ 427 |  5. It comprises a so-called comb cage and a cage cover. The cage parts are joined by means of hot riveting, where the rivet pin is integrated in the cage comb.

 One-piece, milled brass cage MPAX/MPBX

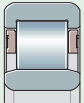
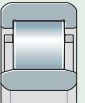
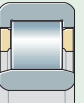
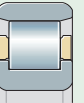
The brass cage MPAX or MPBX is intended for demanding conditions, such as the high speeds and radial accelerations occurring in planetary gear bearing arrangements ➤ 427 |  4. The optimised pocket geometry and the minimised mass allow a lower running temperature than comparable brass cages. The cages differ in the type of rib guidance. Cage MPAX is guided on the outer ring rib and cage MPBX is guided on the inner ring rib.

🔧 Sheet steel cage JP3

For applications that require increased temperature resistance, good lubrication and high geometrical stability of the cage, a bearing with a sheet steel cage is often the most economical solution ➤427|📊4. With the aid of highly developed manufacturing technologies, the geometry of the crosspieces and thus the running contact of the rollers on the cage bars is significantly improved. This goes hand in hand with a favourable surface structure, which has a positive influence on lubricant film formation.

📊4
Cage, cage characteristics,
suitability

+++ = extremely suitable
+ = suitable
- = less suitable

Criteria	Cage				
	TVP2	M1	JP3	MPAX	MPBX
					
Large number of rolling elements	+	+	+	+	+
High radial cage rigidity	-	+++	+	+++	+++
Low mass	+++	-	+	-	-
Good emergency running (damage case)	-	+++	+	+++	+++
Low noise	+++	+	+	+	+
High guidance normal acceleration	+	+	+	+++	+++
Strong vibrations	+	+	+	+++	+++
Relubrication facility	-	-	+++	+	+
Grease/oil compatibility	-	+	+++	+	+
Application temperatures > 120 °C	-	+	+++	+	+
Large temperature fluctuations	-	+	+++	+	+

🔧 Solid cages made from brass and polyamide PA66 are used as standard

Standard cages are shown in ➤427|📊5. The cage design is dependent on the bearing series and the bore code. Other cage designs are available by agreement. With such cages, however, suitability for high speeds and temperatures as well as the basic load ratings may differ from the values for the bearings with standard cages.



For high continuous temperatures and applications with difficult operating conditions, bearings with brass cages should be used. If there is any uncertainty regarding cage suitability, please consult Schaeffler.

📊5
Cage, cage suffix, bore code

Bearing series	Solid cage made from polyamide PA66	Solid brass cage
	TVP2 standard Bore code	M1 standard
NU10	-	from 05
NU19	-	from 92
NU2..-E, NJ2..-E, NUP2..-E	up to 26	from 28
NU3..-E, NJ3..-E, NUP3..-E	up to 28	from 30
NU4, NJ4	-	all
NU22..-E, NJ22..-E	up to 26	from 28
NU23..-E, NJ23..-E	up to 22	from 24
N2..-E	up to 20, 22 to 26	21, from 28
N3..-E	up to 16	from 17
NUP22..-E	up to 26	from 28
NUP23..-E	up to 22	from 24

1.10

Internal clearance

Radial internal clearance

 *The standard is CN* Cylindrical roller bearings with cage are manufactured as standard with the radial internal clearance CN (normal) ➤ 428 |  6. CN is not stated in the designation.



Certain sizes are also available by agreement with the larger internal clearance C3, C4 and C5 ➤ 428 |  6.



The values for radial internal clearance correspond to DIN 620-4:2004 (ISO 5753-1:2009) ➤ 428 |  6. They are valid for bearings which are free from load and measurement forces (without elastic deformation).

 6
*Radial internal clearance
of single row cylindrical
roller bearings with cage*

Nominal bore diameter d mm		Radial internal clearance							
		CN (Group N)		C3 (Group 3)		C4 (Group 4)		C5 (Group 5)	
		μm		μm		μm		μm	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.
–	24	20	45	35	60	50	75	65	90
24	30	20	45	35	60	50	75	70	95
30	40	25	50	45	70	60	85	80	105
40	50	30	60	50	80	70	100	98	125
50	65	40	70	60	90	80	110	110	140
65	80	40	75	65	100	90	125	130	165
80	100	50	85	75	110	105	140	155	190
100	120	50	90	85	125	125	165	180	220
120	140	60	105	100	145	145	190	200	245
140	160	70	120	115	165	165	215	225	275
160	180	75	125	120	170	170	220	250	300
180	200	90	145	140	195	195	250	275	330
200	225	105	165	160	220	220	280	305	365
225	250	110	175	170	235	235	300	330	395
250	280	125	195	190	260	260	330	370	440
280	315	130	205	200	275	275	350	410	485
315	355	145	225	225	305	305	385	455	535
355	400	190	280	280	370	370	460	510	600
400	450	210	310	310	410	410	510	565	665
450	500	220	330	330	440	440	550	625	735
500	560	240	360	360	480	480	600	690	810
560	630	260	380	380	500	500	620	780	900
630	710	285	425	425	565	565	705	865	1005

1.11 Dimensions, tolerances

Dimension standards



The main dimensions of cylindrical roller bearings correspond to ISO 15:2017 (DIN 616:2000 and DIN 5412-1:2005).
The main dimensions of L-section rings HJ correspond to ISO 246:1995 (DIN 5412-1:2005).

Chamfer dimensions



The limiting dimensions for chamfer dimensions correspond to DIN 620-6:2004. Overview and limiting values ➤137|7.11.
Nominal value of chamfer dimension ➤438|

Tolerances



The dimensional tolerances of cylindrical roller bearings correspond to the tolerance class Normal, the running tolerance to the tolerance class 6 in accordance with ISO 492:2014. Tolerance values in accordance with ISO 492 ➤126|

1.12 Suffixes

Suffixes describe the design and features of a bearing in more detail.

 **7**
Suffixes and
corresponding descriptions

Suffix	Description of suffix	
C3	Radial internal clearance C3 (larger than normal)	Available by agreement
C4	Radial internal clearance C4 (larger than C3)	
C5	Radial internal clearance C5 (larger than C4)	
E	Increased capacity design	Standard
EX	Increased capacity design, design modified in accordance with standard (parts from these bearings must not be interchanged with parts from bearings of the same size of the previous design E)	
JP3	Sheet steel window cage, single-piece, roller-guided	Available by agreement
J30P	Black oxide coated (Durotect B)	
MPAX	Solid brass cage, single-piece, rib-guided on outer ring	
MPBX	Solid brass cage, single-piece, rib-guided on inner ring	
M1	Solid brass cage, two-piece, roller-guided	Standard
M1A	Solid brass cage, two-piece, rib-guided on outer ring	Available by agreement
M1B	Solid brass cage, two-piece, rib-guided on inner ring	
TB	Bearing with increased axial load carrying capacity (toroidal crowned design)	Standard, dependent on bearing size
TVP2	Solid window cage made from glass fibre reinforced polyamide PA66	Standard
XL	X-life bearing	

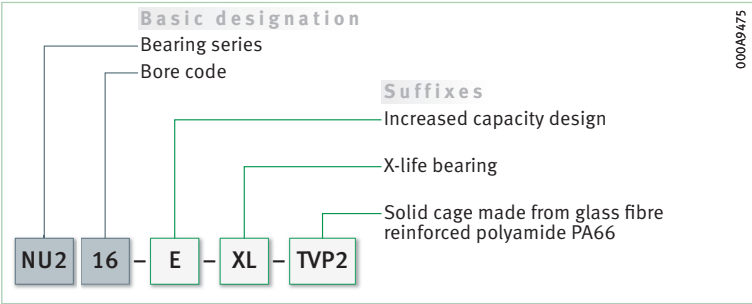


1.13 Structure of bearing designation

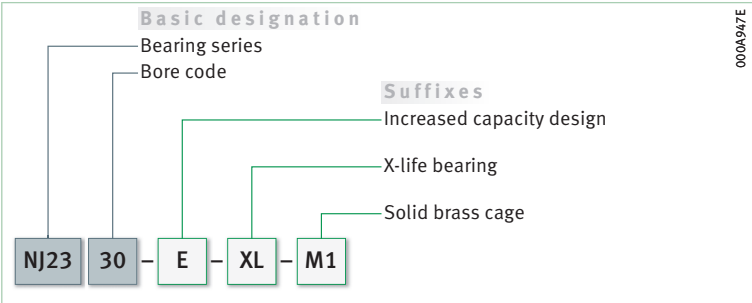
Examples of composition of bearing designation

With **medias** interchange, equivalent Schaeffler bearing designations can be determined for bearing designations from other rolling bearing manufacturers <https://www.schaeffler.de/std/1B69>.
The designation of bearings follows a set model.
Examples ➤ 430 | 12 to ➤ 430 | 14. The composition of designations is subject to DIN 623-1 ➤ 102 | 10.

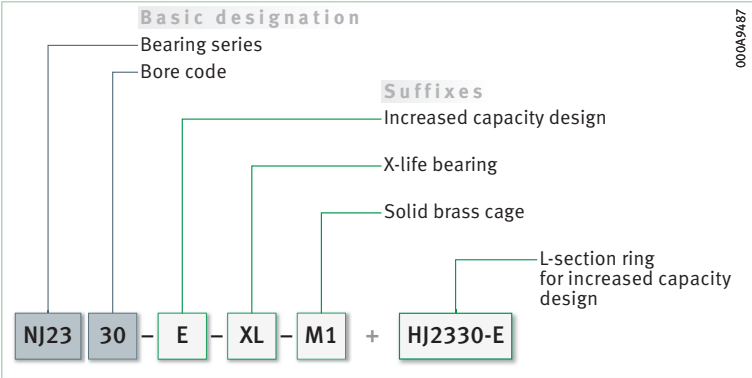
12
Single row cylindrical roller bearing with cage – bearing with non-locating bearing function: designation structure



13
Single row cylindrical roller bearing with cage – bearing with semi-locating bearing function: designation structure



14
Single row cylindrical roller bearing with cage, type NJ with L-section ring – bearing with locating bearing function: designation structure



1.14 Dimensioning

$P = F_r$ under purely radial load of constant magnitude and direction

Equivalent dynamic bearing load

The basic rating life equation $L = (C_r/P)^P$ used in the dimensioning of bearings under dynamic load assumes a load of constant magnitude and direction. In radial bearings, this is a purely radial load F_r . If this condition is met, the bearing load F_r is used in the rating life equation for P ($P = F_r$).

Cylindrical roller bearings with non-locating bearing function

Non-locating bearings can only support radial loads. For these bearings ➤ 430 | 6.

6
Equivalent dynamic load

$$P = F_r$$

 *P is a substitute force for combined load and various load cases*

 $F_a/F_r \leq e$ or $F_a/F_r > e$

Cylindrical roller bearings with semi-locating or locating bearing function

If the condition described above is not met, i.e. if, in addition to the radial force F_r , there is also an axial force F_a , a constant radial force must first be determined for the rating life calculation that (in relation to the rating life) represents an equivalent load. This force is known as the equivalent dynamic bearing load P .

The calculation of P is dependent on the load ratio F_a/F_r and the calculation factors e and Y ➤ 431 |  7 and ➤ 431 |  8.

 7
Equivalent dynamic load

$$\frac{F_a}{F_r} \leq e \Rightarrow P = F_r$$

 8
Equivalent dynamic load

$$\frac{F_a}{F_r} > e \Rightarrow P = 0,92 \cdot F_r + Y \cdot F_a$$

Legend

P	N	Equivalent dynamic bearing load
F_r	N	Radial load
F_a	N	Axial load
e, Y	–	Factors ➤ 431  8.

 8
Factors e and Y

Bearing series	Calculation factors	
	e	Y
NJ2, NUP2, NJ3, NUP3, NJ4	0,2	0,6
NJ22, NUP22, NJ23, NUP23	0,3	0,4



Equivalent static bearing load

 $P_0 = F_{0r}$ For cylindrical roller bearings subjected to static load ➤ 431 |  9.

 9
Equivalent static load

$$P_0 = F_{0r}$$

Legend

P_0	N	Equivalent static bearing load
F_{0r}	N	Largest radial load present (maximum load).

Static load safety factor

 $S_0 = C_0/P_0$ In addition to the basic rating life $L (L_{10h})$, it is also always necessary to check the static load safety factor S_0 ➤ 431 |  10.

 10
Static load safety factor

$$S_0 = \frac{C_0}{P_0}$$

Legend

S_0	–	Static load safety factor
C_0	N	Basic static load rating
P_0	N	Equivalent static bearing load.

1.15

Minimum load

 *In order to prevent damage due to slippage, a minimum radial load of $P > C_{0r}/60$ is necessary during continuous operation*

In order that no slippage occurs between the contact partners, the cylindrical roller bearings must be constantly subjected to a sufficiently high radial load. For continuous operation, experience shows that a minimum radial load of the order of $P > C_{0r}/60$ is thus necessary. In most cases, however, the radial load is already higher than the requisite minimum load due to the weight of the supported parts and the external forces.



If the minimum radial load is lower than indicated above, please consult Schaeffler.

1.16 Design of bearing arrangements

 *Support bearing rings over their entire circumference and width*

In order to allow full utilisation of the load carrying capacity of the bearings and achieve the requisite rating life, the bearing rings must be rigidly and uniformly supported by means of contact surfaces over their entire circumference and over the entire width of the raceway. Support can be provided by means of a cylindrical seating surface. The seating and contact surfaces should not be interrupted by grooves, holes or other recesses. The accuracy of mating parts must meet specific requirements [▶ 433](#)  9 to [▶ 434](#)  11.

Radial location

 *For secure radial location, tight fits are necessary*

In addition to supporting the rings adequately, the bearings must also be securely located in a radial direction, to prevent creep of the bearing rings on the mating parts under load. This is generally achieved by means of tight fits between the bearing rings and the mating parts. If the rings are not secured adequately or correctly, this can cause severe damage to the bearings and adjacent machine parts. Influencing factors, such as the conditions of rotation, magnitude of the load, internal clearance, temperature conditions, design of the mating parts and the mounting and dismounting options must be taken into consideration in the selection of fits.



If shock type loads occur, tight fits (transition fit or interference fit) are required to prevent the rings from coming loose at any point. Clearance, transition or interference fits [▶ 152](#)  6 and [▶ 160](#)  7.



The following information provided in Technical principles must be taken into consideration in the design of bearing arrangements:

- criteria for selection of fits [▶ 146](#)
- conditions of rotation [▶ 147](#)
- tolerance classes for cylindrical shaft seats (radial bearings) [▶ 149](#)  2
- shaft fits [▶ 152](#)  6
- tolerance classes for bearing seats in housings (radial bearings) [▶ 150](#)  4
- housing fits [▶ 160](#)  7

Axial location

 *The bearings must also be securely located in an axial direction*

As a tight fit alone is not normally sufficient to also locate the bearing rings securely on the shaft and in the housing bore in an axial direction, this must usually be achieved by means of an additional axial location or retention method. The axial location of the bearing rings must be matched to the type of bearing arrangement. Shaft and housing shoulders, housing covers, nuts, spacer rings, retaining rings, adapter and withdrawal sleeves etc., are fundamentally suitable [▶ 434](#)  15.

Dimensional, geometrical and running accuracy of cylindrical seats

 *A minimum of IT6 should be provided for the shaft seat and a minimum of IT7 for the housing seat*

The accuracy of the cylindrical bearing seat on the shaft and in the housing should correspond to the accuracy of the bearing used. For cylindrical roller bearings with the tolerance class Normal, the shaft seat should correspond to a minimum of standard tolerance grade IT6 and in the housing seat to a minimum of IT7; with tolerance class 6, the shaft seat should correspond to a minimum of IT5 and the housing seat to a minimum of IT6. Guide values for the geometrical and positional tolerances of the bearing seating surfaces [▶ 433](#)  9. Tolerances t_1 to t_3 in accordance with [▶ 170](#)  11. Numerical values for IT grades [▶ 433](#)  10.

 **9**
*Guide values
 for the geometrical and
 positional tolerances
 of bearing seating surfaces*

Bearing tolerance class		Bearing seating surface	Standard tolerance grades to ISO 286-1 (IT grades)			
to ISO 492	to DIN 620		Diameter tolerance	Roundness tolerance	Parallelism tolerance	Total axial runout tolerance of abutment shoulder
				t ₁	t ₂	t ₃
Normal	PN (P0)	Shaft	IT6 (IT5)	Circumferential load IT4/2	Circumferential load IT4/2	IT4
				Point load IT5/2	Point load IT5/2	
		Housing	IT7 (IT6)	Circumferential load IT5/2	Circumferential load IT5/2	IT5
				Point load IT6/2	Point load IT6/2	
6	P6	Shaft	IT5	Circumferential load IT3/2	Circumferential load IT3/2	IT3
				Point load IT4/2	Point load IT4/2	
		Housing	IT6	Circumferential load IT4/2	Circumferential load IT4/2	IT4
				Point load IT5/2	Point load IT5/2	



 **10**
*Numerical values
 for ISO standard tolerances
 (IT grades) to ISO 286-1:2010*

IT grade	Nominal dimension in mm					
	over 10	18	30	50	80	120
	incl. 18	30	50	80	120	180
	Values in µm					
IT3	3	4	4	5	6	8
IT4	5	6	7	8	10	12
IT5	8	9	11	13	15	18
IT6	11	13	16	19	22	25
IT7	18	21	25	30	35	40
continued ▼						

 **10**
*Numerical values
 for ISO standard tolerances
 (IT grades) to ISO 286-1:2010*

IT grade	Nominal dimension in mm					
	over 180	250	315	400	500	630
	incl. 250	315	400	500	630	800
	Values in µm					
IT3	10	12	13	15	16	18
IT4	14	16	18	20	22	25
IT5	20	23	25	27	32	36
IT6	29	32	36	40	44	50
IT7	46	52	57	63	70	80
continued ▲						

Roughness of cylindrical bearing seating surfaces

Ra must not be too high

The roughness of the bearing seats must be matched to the tolerance class of the bearings. The mean roughness value Ra must not be too high, in order to maintain the interference loss within limits. The shafts must be ground, while the bores must be precision turned. Guide values as a function of the IT grade of bearing seating surfaces >434| 11.

11
Roughness values
for cylindrical bearing seating
surfaces – guide values

Table with 6 columns: Nominal diameter of the bearing seat d (D) mm, Recommended mean roughness value for ground bearing seats Ramax μm, and Diameter tolerance (IT grade) with sub-columns IT7, IT6, IT5, IT4. Rows show values for over, incl., and specific diameter ranges (80, 500, 1 250 mm).

1) For the mounting of bearings using the hydraulic method, a value Ra = 1,6 μm must not be exceeded.

Mounting dimensions for the contact surfaces of bearing rings

The contact surfaces for the rings must be of sufficient height

The mounting dimensions of the shaft and housing shoulders, and spacer rings etc., must ensure that the contact surfaces for the bearing rings are of sufficient height. The transition from the bearing seat to the abutment shoulder must be designed with rounding to DIN 5418:1993 or an undercut to DIN 509:2006. Proven mounting dimensions for the radii and diameters of abutment shoulders are given in the product tables >434| 15 and >438|. These dimensions are limiting dimensions (maximum or minimum dimensions); the actual values should not be higher or lower than specified.

Rib support in axially loaded bearings

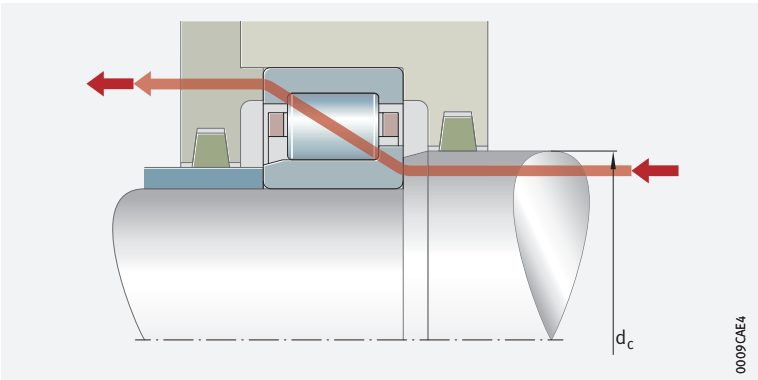
Ribs under axial load must be supported over their entire height and entire circumference. The size and axial runout accuracy of the contact surfaces on the inner ring rib must be observed especially in the case of cylindrical roller bearings subjected to high loads, since these factors also influence the uniformity of the rib load and the running accuracy of the shaft. This means that the ribs may be subjected to damaging alternating stresses even in the case of very small misalignments. If the mounting dimensions indicated in the product tables are observed, the problems described can be reliably avoided >438|.

Support in semi-locating bearings

In semi-locating bearings, it is sufficient to support the bearing rings on one side, on the rib supporting the axial load >434| 15.

15
Support of the inner ring rib –
type NJ (semi-locating bearing)

dc = recommended height of shaft shoulder with axially loaded rib
Arrow = force flow



1.17

Mounting and dismounting



The mounting and dismounting options for cylindrical roller bearings, by thermal, hydraulic or mechanical methods, must be taken into consideration in the design of the bearing position.

☞ *Since one bearing ring can be removed, the bearings are easy to mount.*

Together with the cage and rollers, the bearing ring with the two rigid ribs forms a ready-to-mount unit. The other bearing ring can be removed. As a result, the bearing parts can be mounted separately from each other ► 416 | 1.1. This gives simplified mounting of the bearings, especially when the two bearing rings have a tight fit.

Schaeffler Mounting Handbook

☞ *Rolling bearings must be handled with great care*

Rolling bearings are well-proven precision machine elements for the design of economical and reliable bearing arrangements, which offer high operational security. In order that these products can function correctly and achieve the envisaged operating life without detrimental effect, they must be handled with care.



The Schaeffler Mounting Handbook MH 1 gives comprehensive information about the correct storage, mounting, dismounting and maintenance of rotary rolling bearings <https://www.schaeffler.de/std/1D53>. It also provides information which should be observed by the designer, in relation to the mounting, dismounting and maintenance of bearings, in the original design of the bearing position. This book is available from Schaeffler on request.



1.18

Legal notice regarding data freshness

☞ *The further development of products may also result in technical changes to catalogue products*

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.



We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

Link to electronic product catalogue

The following link will take you to the Schaeffler electronic product catalogue: <https://medias.schaeffler.com>.

1.19 Further information



In addition to the data in this chapter, the following chapters in Technical principles must also be observed in the design of bearing arrangements:

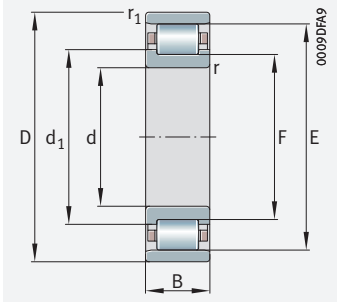
- Determining the bearing size ➤ 34
- Rigidity ➤ 54
- Friction and increases in temperature ➤ 56
- Speeds ➤ 64
- Bearing data ➤ 97
- Lubrication ➤ 70
- Sealing ➤ 185
- Design of bearing arrangements ➤ 141
- Mounting and dismounting ➤ 194



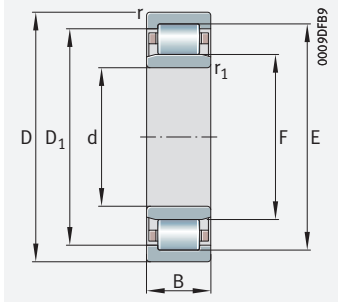


Cylindrical roller bearings with cage

Non-locating bearings



N

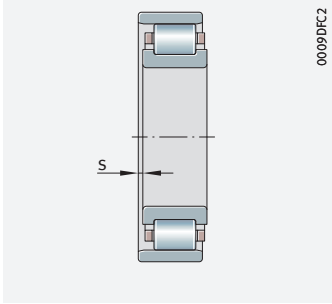


NU

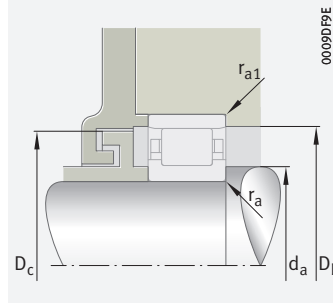
d = 15 – 35 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass	Designation
d	D	B	dyn. C _r	stat. C _{0r}	C _{ur}	n _G	n _{0r}	m	X-life ▶ 419
			N	N	N	min ⁻¹	min ⁻¹	≈ kg	
15	35	11	15 100	10 400	1 640	27 000	17 900	0,047	N202-E-XL-TVP2
	35	11	15 100	10 400	1 440	27 000	17 900	0,048	NU202-E-XL-TVP2
17	40	12	20 800	14 600	2 230	22 900	15 300	0,068	N203-E-XL-TVP2
	40	12	20 800	14 600	1 910	22 900	15 300	0,069	NU203-E-XL-TVP2
	40	16	28 500	21 900	3 550	22 900	13 200	0,051	NU2203-E-XL-TVP2
	47	14	30 000	21 200	2 700	19 600	13 500	0,121	NU303-E-XL-TVP2
20	47	14	32 500	24 700	3 950	19 200	12 800	0,112	N204-E-XL-TVP2
	47	14	32 500	24 700	3 000	19 200	12 800	0,114	NU204-E-XL-TVP2
	47	18	38 500	31 000	5 200	19 200	11 100	0,146	NU2204-E-XL-TVP2
	52	15	37 500	27 000	3 150	17 200	11 900	0,153	NU304-E-XL-TVP2
	52	21	49 500	39 000	6 300	17 200	9 700	0,215	NU2304-E-XL-TVP2
25	47	12	18 500	14 800	1 820	26 000	12 900	0,092	NU1005-XL-M1
	52	15	34 500	27 500	4 450	17 200	11 600	0,135	N205-E-XL-TVP2
	52	15	34 500	27 500	3 400	17 200	11 600	0,137	NU205-E-XL-TVP2
	52	18	41 500	34 500	5 800	17 200	9 600	0,165	NU2205-E-XL-TVP2
	62	17	49 000	37 500	5 700	14 400	10 100	0,242	N305-E-XL-TVP2
	62	17	49 000	37 500	4 550	14 400	10 100	0,245	NU305-E-XL-TVP2
	62	24	67 000	56 000	9 300	14 400	8 200	0,349	NU2305-E-XL-TVP2
30	55	13	22 900	19 300	2 470	22 400	11 000	0,134	NU1006-XL-M1
	62	16	46 000	37 500	5 500	14 200	9 600	0,205	N206-E-XL-TVP2
	62	16	46 000	37 500	4 450	14 200	9 600	0,207	NU206-E-XL-TVP2
	62	20	58 000	50 000	8 000	14 200	8 000	0,255	NU2206-E-XL-TVP2
	72	19	61 000	48 000	7 900	12 400	8 900	0,366	N306-E-XL-TVP2
	72	19	61 000	48 000	6 200	12 400	8 900	0,368	NU306-E-XL-TVP2
	72	27	86 000	75 000	13 400	12 400	7 200	0,529	NU2306-E-XL-TVP2
	90	23	84 000	65 000	8 500	13 400	8 100	0,858	NU406-XL-M1
35	62	14	29 000	26 000	3 250	19 700	9 700	0,177	NU1007-XL-M1
	72	17	59 000	50 000	7 800	12 300	8 100	0,301	N207-E-XL-TVP2
	72	17	59 000	50 000	6 300	12 300	8 100	0,303	NU207-E-XL-TVP2
	72	23	73 000	65 000	10 700	12 300	7 200	0,406	NU2207-E-XL-TVP2
	80	21	76 000	63 000	10 800	10 900	7 900	0,486	N307-E-XL-TVP2
	80	21	76 000	63 000	8 300	10 900	7 900	0,486	NU307-E-XL-TVP2
	80	31	108 000	98 000	17 900	10 900	6 600	0,723	NU2307-E-XL-TVP2
	100	25	103 000	83 000	10 900	11 800	7 000	1,14	NU407-XL-M1

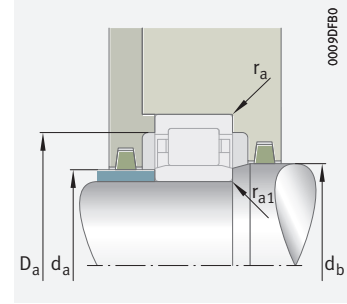
medias <https://www.schaeffler.de/std/1F9A>



Axial displacement "s"
for N and NU



Mounting dimensions
for N



Mounting dimensions
for NU

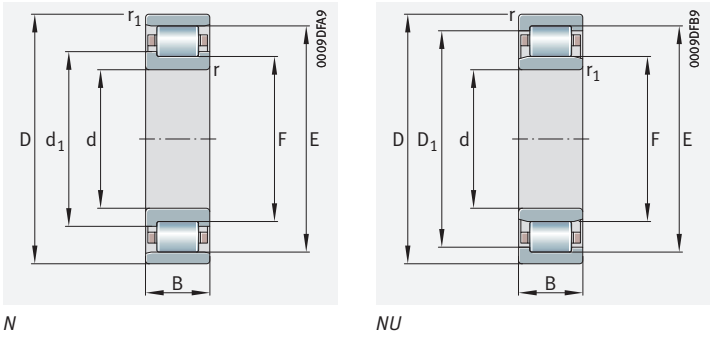
Dimensions								Mounting dimensions							
d	r	r ₁	s	E	F	D ₁	d ₁	d _a		d _b	D _a	D _b	D _c	r _a	r _{a1}
	min.	min.				≈	≈	min.	max.	min.	max.	min.	max.	max.	max.
15	0,6	0,3	0,5	30,3	19,3	–	21,6	17,4	–	–	32,6	31	29	0,6	0,3
	0,6	0,3	1,6	30,3	19,3	28	–	17,4	18,5	20	32,6	–	–	0,6	0,3
17	0,6	0,3	1,2	35,1	22,1	–	24,9	21	–	–	36	36	34	0,6	0,3
	0,6	0,3	1,2	35,1	22,1	32,5	–	21	21,5	23	36	–	–	0,6	0,3
	0,6	0,3	1,7	35,1	22,1	32,5	–	21	21,5	23	36	–	–	0,6	0,3
	1	0,6	1,2	40,2	24,2	37,1	–	21,2	23,5	25	42,8	–	–	1	0,6
20	1	0,6	0,8	41,5	26,5	–	29,7	24	–	–	41	43	40	1	0,6
	1	0,6	0,8	41,5	26,5	38,8	–	24	26	29	41	–	–	1	0,6
	1	0,6	1,8	41,5	26,5	38,8	–	24	26	29	41	–	–	1	0,6
	1,1	0,6	1	45,5	27,5	42,4	–	24	27	30	45	–	–	1	0,6
	1,1	0,6	1,9	45,5	27,5	42,4	–	24	27	30	45	–	–	1	0,6
25	0,6	0,3	2,4	41,5	30,5	39,3	–	27	30	32	44	–	–	0,6	0,3
	1	0,6	1,3	46,5	31,5	–	34,7	29	–	–	46	48	45	1	0,6
	1	0,6	1,2	46,5	31,5	43,8	–	29	31	34	46	–	–	1	0,6
	1	0,6	1,7	46,5	31,5	43,8	–	29	31	34	46	–	–	1	0,5
	1,1	1,1	1,4	54	34	–	38,1	32	–	–	55	55	53	1	1
	1,1	1,1	1,5	54	34	50,7	–	32	33	37	55	–	–	1	1
	1,1	1,1	1,9	54	34	50,7	–	32	33	37	55	–	–	1	1
30	1	0,6	2,4	48,5	36,5	46,1	–	33	35	38	50	–	–	1	0,6
	1	0,6	1,4	55,5	37,5	–	41,1	34	–	–	56	57	54	1	0,6
	1	0,6	1,5	55,5	37,5	52,5	–	34	37	40	56	–	–	1	0,6
	1	0,6	1,6	55,5	37,5	52,5	–	34	37	40	56	–	–	1	0,6
	1,1	1,1	0,6	62,5	40,5	–	45	37	–	–	65	64	61	1	1
	1,1	1,1	1,2	62,5	40,5	59,2	–	37	40	44	65	–	–	1	1
	1,1	1,1	2,2	62,5	40,5	59,2	–	37	40	44	65	–	–	1	1
	1,5	1,5	2,3	73	45	68,4	–	41	44	47	79	–	–	1,5	1,5
35	1	0,6	2,6	55	42	52,4	–	38	41	44	57	–	–	1	0,6
	1,1	0,6	0,7	64	44	–	48	39	–	–	65	65	63	1	0,6
	1,1	0,6	0,7	64	44	61	–	39	43	46	65	–	–	1	0,6
	1,1	0,6	2,2	64	44	61	–	39	43	46	65	–	–	1	0,6
	1,5	1,1	0,6	70,2	46,2	–	51	42	–	–	71	71	69	1,5	1
	1,5	1,1	0,6	70,2	46,2	66,6	–	42	45	48	71	–	–	1,5	1
	1,5	1,1	3	70,2	46,2	66,6	–	42	45	48	71	–	–	1,5	1
	1,5	1,5	2,6	83	53	78,2	–	46	52	55	89	–	–	1,5	1,5





Cylindrical roller bearings with cage

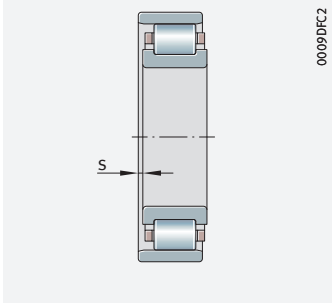
Non-locating bearings



d = 40 – 55 mm

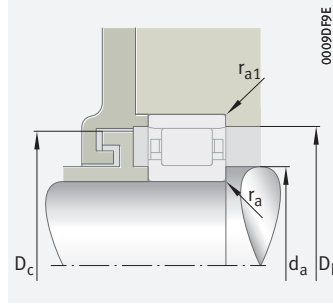
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass	Designation
d	D	B	dyn. C _r	stat. C _{0r}	C _{ur}	n _G	n _{∅r}	m	► 429 1.12 ► 430 1.13 X-life ► 419
			N	N	N	min ⁻¹	min ⁻¹	≈ kg	
40	68	15	33 500	30 500	3 900	17 700	8 900	0,216	NU1008-XL-M1
	80	18	63 000	53 000	8 500	10 900	7 500	0,358	N208-E-XL-TVP2
	80	18	63 000	53 000	6 800	10 900	7 500	0,379	NU208-E-XL-TVP2
	80	23	83 000	75 000	12 900	10 900	6 300	0,492	NU2208-E-XL-TVP2
	90	23	96 000	79 000	13 900	9 500	7 100	0,656	N308-E-XL-TVP2
	90	23	96 000	79 000	10 500	9 500	7 100	0,659	NU308-E-XL-TVP2
	90	33	132 000	119 000	22 000	9 500	5 800	0,958	NU2308-E-XL-TVP2
	110	27	119 000	95 000	12 700	10 500	6 500	1,47	NU408-XL-M1
45	75	16	40 000	37 500	4 900	16 000	8 100	0,277	NU1009-XL-M1
	85	19	72 000	63 000	10 500	10 200	7 000	0,434	N209-E-XL-TVP2
	85	19	72 000	63 000	8 300	10 200	7 000	0,434	NU209-E-XL-TVP2
	85	23	87 000	82 000	14 100	10 200	5 800	0,532	NU2209-E-XL-TVP2
	100	25	116 000	99 000	17 600	8 500	6 400	0,891	N309-E-XL-TVP2
	100	25	116 000	99 000	13 500	8 500	6 400	0,893	NU309-E-XL-TVP2
	100	36	163 000	154 000	28 500	8 500	5 200	1,3	NU2309-E-XL-TVP2
	120	29	143 000	119 000	16 000	9 600	5 900	1,87	NU409-XL-M1
50	80	16	42 500	41 500	5 400	15 000	7 400	0,305	NU1010-XL-M1
	90	20	75 000	69 000	11 400	9 700	6 600	0,488	N210-E-XL-TVP2
	90	20	75 000	69 000	9 000	9 700	6 600	0,487	NU210-E-XL-TVP2
	90	23	92 000	88 000	15 300	9 700	5 300	0,573	NU2210-E-XL-TVP2
	110	27	128 000	110 000	20 400	7 800	6 100	1,16	N310-E-XL-TVP2
	110	27	131 000	114 000	15 700	7 800	6 000	1,16	NU310-E-XL-TVP2
	110	40	193 000	187 000	35 500	7 800	4 900	1,75	NU2310-E-XL-TVP2
	130	31	175 000	148 000	20 200	8 600	5 300	2,33	NU410-XL-M1
55	90	18	49 500	50 000	6 800	13 500	6 900	0,446	NU1011-XL-M1
	100	21	99 000	95 000	16 400	8 700	5 800	0,668	N211-E-XL-TVP2
	100	21	99 000	95 000	13 000	8 700	5 800	0,665	NU211-E-XL-TVP2
	100	25	117 000	118 000	21 000	8 700	4 700	0,796	NU2211-E-XL-TVP2
	120	29	159 000	139 000	26 000	7 000	5 500	1,48	N311-E-XL-TVP2
	120	29	159 000	139 000	19 500	7 000	5 500	1,48	NU311-E-XL-TVP2
	120	43	235 000	230 000	44 000	7 000	4 500	2,23	NU2311-E-XL-TVP2
	140	33	187 000	164 000	22 500	8 200	5 100	2,83	NU411-XL-M1

medias <https://www.schaeffler.de/std/1F9A>



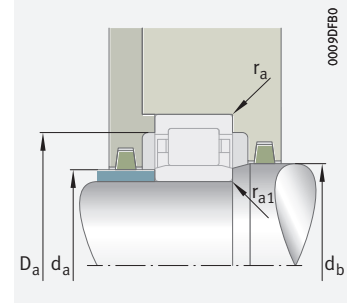
0009DFC2

Axial displacement "s"
for N and NU



0009DPE

Mounting dimensions
for N



0009DFB0

Mounting dimensions
for NU

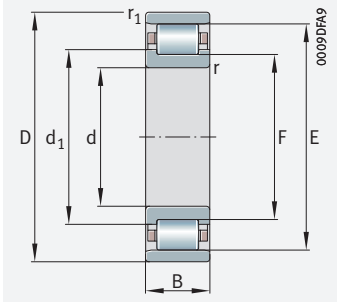
Dimensions								Mounting dimensions							
d	r	r ₁	s	E	F	D ₁	d ₁	d _a		d _b	D _a	D _b	D _c	r _a	r _{a1}
	min.	min.				≈	≈	min.	max.	min.	max.	min.	max.	max.	max.
40	1	0,6	2	61	47	58,2	–	43	46	49	63	–	–	1	0,6
	1,1	1,1	1	71,5	49,5	–	54	47	–	–	73	73	70	1	1
	1,1	1,1	1	71,5	49,5	68,3	–	47	49	52	73	–	–	1	1
	1,1	1,1	1,5	71,5	49,5	68,3	–	47	49	52	73	–	–	1	1
	1,5	1,5	1,2	80	52	–	57,6	49	–	–	81	81	79	1,5	1,5
	1,5	1,5	1,3	80	52	75,9	–	49	51	55	81	–	–	1,5	1,5
	1,5	1,5	2,7	80	52	75,9	–	49	51	55	81	–	–	1,5	1,5
	2	2	2,8	92	58	86,4	–	53	57	60	97	–	–	2	2
45	1	0,6	2,5	67,5	52,5	64,5	–	48	52	54	70	–	–	1	0,6
	1,1	1,1	1	76,5	54,5	–	59	52	–	–	78	78	75	1	1
	1,1	1,1	1	76,5	54,5	73,3	–	52	54	57	78	–	–	1	1
	1,1	1,1	1,5	76,5	54,5	73,3	–	52	54	57	78	–	–	1	1
	1,5	1,5	1	88,5	58,5	–	64,4	54	–	–	91	90	87	1,5	1,5
	1,5	1,5	1	88,5	58,5	84,1	–	54	57	60	91	–	–	1,5	1,5
	1,5	1,5	2,5	88,5	58,5	84,1	–	54	57	60	91	–	–	1,5	1,5
	2	2	2,9	100,5	64,5	94,6	–	58	63	66	107	–	–	2	2
50	1	0,6	2,1	72,5	57,5	69,5	–	53	57	59	75	–	–	1	0,6
	1,1	1,1	1,3	81,5	59,5	–	64	57	–	–	83	83	80	1	1
	1,1	1,1	1,3	81,5	59,5	78,3	–	57	58	62	83	–	–	1	1
	1,1	1,1	1,3	81,5	59,5	78,3	–	57	58	62	83	–	–	1	1
	2	2	1,7	97	65	–	71,3	61	–	–	99	98	96	2	2
	2	2	1,7	97	65	92,5	–	61	63	67	99	–	–	2	2
	2	2	3,2	97	65	92,5	–	61	63	67	99	–	–	2	2
	2,1	2,1	3	110,8	70,8	104,3	–	64	69	73	116	–	–	2	2
55	1,1	1	2,4	80,5	64,5	77,3	–	60	63	66	84	–	–	1,1	1
	1,5	1,1	0,8	90	66	–	70,8	62	–	–	91	91	89	1,5	1
	1,5	1,1	0,8	90	66	86,6	–	62	65	68	91	–	–	1,5	1
	1,5	1,1	1,3	90	66	86,6	–	62	65	68	91	–	–	1,5	1
	2	2	1,8	106,5	70,5	–	77,5	66	–	–	109	108	105	2	2
	2	2	1,8	106,5	70,5	101,4	–	66	69	72	109	–	–	2	2
	2	2	3,3	106,5	70,5	101,4	–	66	69	72	109	–	–	2	2
	2,1	2,1	3,3	117,2	77,2	110,7	–	69	76	79	126	–	–	2	2



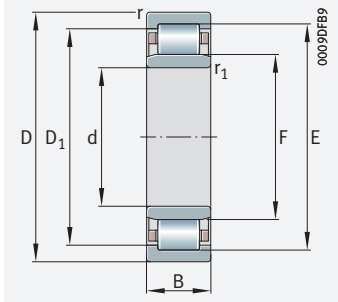


Cylindrical roller bearings with cage

Non-locating bearings



N

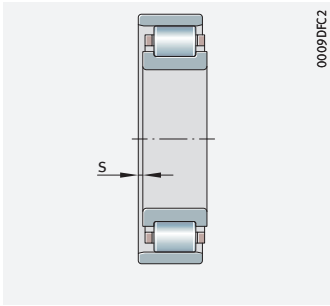


NU

d = 60 – 75 mm

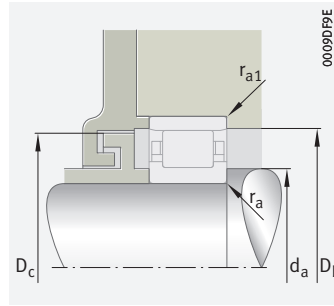
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass	Designation
d	D	B	dyn. C _r	stat. C _{0r}	C _{ur}	n _G	n _{0r}	m	
			N	N	N	min ⁻¹	min ⁻¹	≈ kg	
60	95	18	52 000	55 000	7 400	12 800	6 400	0,48	NU1012-XL-M1
	110	22	112 000	103 000	14 200	7 700	5 300	0,824	NU212-E-XL-TVP2
	110	22	112 000	103 000	18 100	7 700	5 300	0,827	N212-E-XL-TVP2
	110	28	152 000	153 000	28 000	7 700	4 300	1,08	NU2212-E-XL-TVP2
	130	31	177 000	157 000	29 000	6 500	5 200	1,84	N312-E-XL-TVP2
	130	31	177 000	157 000	21 900	6 500	5 200	1,85	NU312-E-XL-TVP2
	130	46	265 000	260 000	51 000	6 500	4 250	2,78	NU2312-E-XL-TVP2
	150	35	211 000	184 000	24 900	7 500	4 800	3,41	NU412-XL-M1
65	100	18	53 000	58 000	7 800	12 200	5 900	0,507	NU1013-XL-M1
	120	23	128 000	120 000	21 200	7 100	4 900	1,05	N213-E-XL-TVP2
	120	23	128 000	120 000	16 800	7 100	4 900	1,04	NU213-E-XL-TVP2
	120	31	177 000	182 000	34 000	7 100	4 100	1,43	NU2213-E-XL-TVP2
	140	33	214 000	191 000	35 000	5 900	4 800	2,28	N313-E-XL-TVP2
	140	33	214 000	191 000	26 500	5 900	4 800	2,28	NU313-E-XL-TVP2
	140	48	295 000	285 000	55 000	5 900	4 000	3,32	NU2313-E-XL-TVP2
	160	37	230 000	203 000	27 000	7 000	4 600	4,08	NU413-XL-M1
70	110	20	77 000	81 000	10 400	10 700	5 500	0,706	NU1014-XL-M1
	125	24	141 000	138 000	24 700	6 800	4 650	1,16	N214-E-XL-TVP2
	125	24	141 000	138 000	19 500	6 800	4 650	1,15	NU214-E-XL-TVP2
	125	31	185 000	195 000	36 500	6 800	3 850	1,52	NU2214-E-XL-TVP2
	150	35	242 000	222 000	40 500	5 500	4 500	2,79	N314-E-XL-TVP2
	150	35	242 000	222 000	30 500	5 500	4 500	2,79	NU314-E-XL-TVP2
	150	51	325 000	325 000	61 000	5 500	3 800	4,02	NU2314-E-XL-TVP2
	180	42	285 000	255 000	33 500	6 200	4 250	5,97	NU414-XL-M1
75	115	20	78 000	85 000	11 000	10 300	5 200	0,737	NU1015-XL-M1
	130	25	155 000	157 000	28 000	6 500	4 400	1,29	N215-E-XL-TVP2
	130	25	155 000	157 000	22 200	6 500	4 400	1,27	NU215-E-XL-TVP2
	130	31	192 000	208 000	38 500	6 500	3 600	1,6	NU2215-E-XL-TVP2
	160	37	285 000	265 000	47 000	5 100	4 150	3,34	N315-E-XL-TVP2
	160	37	285 000	265 000	35 500	5 100	4 150	3,33	NU315-E-XL-TVP2
	160	55	390 000	395 000	73 000	5 100	3 550	4,95	NU2315-E-XL-TVP2
	190	45	325 000	295 000	38 000	5 800	4 100	7,09	NU415-XL-M1

medias <https://www.schaeffler.de/std/1F9A>



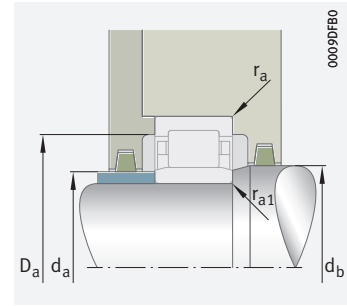
0009DFC2

Axial displacement "s"
for N and NU



0009DPE

Mounting dimensions
for N



0009DFB0

Mounting dimensions
for NU

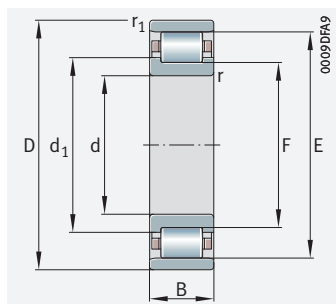
Dimensions								Mounting dimensions							
d	r	r ₁	s	E	F	D ₁	d ₁	d _a		d _b	D _a	D _b	D _c	r _a	r _{a1}
	min.	min.				≈	≈	min.	max.	min.	max.	min.	max.	max.	max.
60	1,1	1	2,4	85,5	69,5	–	82,3	65	68	71	89	–	–	1,1	1
	1,5	1,5	1,6	100	72	–	96,1	69	71	75	101	–	–	1,5	1,5
	1,5	1,5	1,6	100	72	77,6	–	69	–	–	101	101	99	1,5	1,5
	1,5	1,5	1,6	100	72	–	96,1	69	71	75	101	–	–	1,5	1,5
	2,1	2,1	1,9	115	77	84,4	–	72	–	–	118	116	114	2,1	2,1
	2,1	2,1	1,8	115	77	–	109,6	72	75	79	118	–	–	2,1	2,1
	2,1	2,1	3,5	115	77	–	109,6	72	75	79	118	–	–	2,1	2,1
	2,1	2,1	3,4	127	83	–	119,5	74	82	85	136	–	–	2	2
65	1,1	1	3,3	90,5	74,5	87,3	–	70	73	76	94	–	–	1,1	1
	1,5	1,5	1,4	108,5	78,5	–	84,4	74	–	–	111	110	107	1,5	1,5
	1,5	1,5	1,4	108,5	78,5	104,3	–	74	77	81	111	–	–	1,5	1,5
	1,5	1,5	1,9	108,5	78,5	104,3	–	74	77	81	111	–	–	1,5	1,5
	2,1	2,1	1,4	124,5	82,5	–	90,5	77	–	–	128	126	123	2,1	2,1
	2,1	2,1	1,5	124,5	82,5	118,6	–	77	81	85	128	–	–	2,1	2,1
	2,1	2,1	4	124,5	82,5	118,6	–	77	81	85	128	–	–	2,1	2,1
	2,1	2,1	3,5	135,3	89,3	127,7	–	79	88	91	146	–	–	2	2
70	1,1	1	2,5	100	80	96	–	75	78	82	104	–	–	1	1
	1,5	1,5	1,2	113,5	83,5	–	89,4	79	–	–	116	115	112	1,5	1,5
	1,5	1,5	1,2	113,5	83,5	109,4	–	79	82	86	116	–	–	1,5	1,5
	1,5	1,5	1,6	113,5	83,5	109,4	–	79	82	86	116	–	–	1,5	1,5
	2,1	2,1	1,6	133	89	–	97,4	82	–	–	138	135	131	2,1	2,1
	2,1	2,1	1,7	133	89	126,8	–	82	87	92	138	–	–	2,1	2,1
	2,1	2,1	4,7	133	89	126,8	–	82	87	92	138	–	–	2,1	2,1
	3	3	4	152	100	142,7	–	86	99	102	164	–	–	2,5	2,5
75	1,1	1	2,5	105	85	101,7	–	80	83	87	109	–	–	1,1	1
	1,5	1,5	1,1	118,5	88,5	–	94,4	84	–	–	121	120	117	1,5	1,5
	1,5	1,5	1,2	118,5	88,5	114,4	–	84	87	90	121	–	–	1,5	1,5
	1,5	1,5	1,6	118,5	88,5	114,4	–	84	87	90	121	–	–	1,5	1,5
	2,1	2,1	1,1	143	95	–	104,1	87	–	–	148	145	141	2,1	2,1
	2,1	2,1	1,2	143	95	136,2	–	87	93	97	148	–	–	2,1	2,1
	2,1	2,1	4,2	143	95	136,2	–	87	93	97	148	–	–	2,1	2,1
	3	3	4,5	160,5	104,5	150,7	–	91	103	107	174	–	–	2,5	2,5



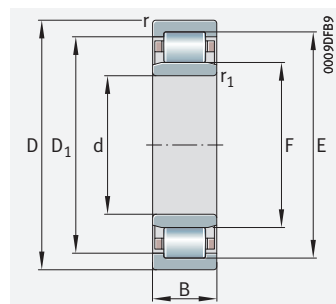


Cylindrical roller bearings with cage

Non-locating bearings



N

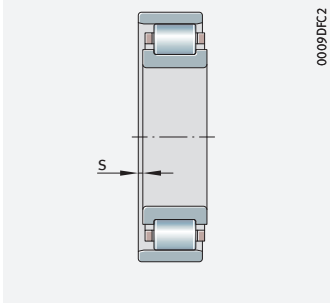


NU

d = 80 – 95 mm

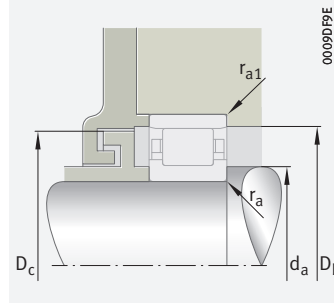
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass	Designation
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G	n_{Gr}	m	
			N	N	N	min^{-1}	min^{-1}	≈ kg	
80	125	22	91 000	99 000	13 200	9 400	5 000	0,99	NU1016-XL-M1
	140	26	166 000	168 000	29 500	6 100	4 200	1,55	N216-E-XL-TVP2
	140	26	166 000	168 000	23 100	6 100	4 200	1,55	NU216-E-XL-TVP2
	140	33	221 000	244 000	44 500	6 100	3 400	2,01	NU2216-E-XL-TVP2
	170	39	300 000	275 000	50 000	4 800	4 100	4,12	N316-E-XL-TVP2
	170	39	300 000	275 000	37 500	4 800	4 100	3,96	NU316-E-XL-TVP2
	170	58	420 000	425 000	80 000	4 800	3 450	5,89	NU2316-E-XL-TVP2
	200	48	395 000	365 000	47 000	5 400	3 750	8,37	NU416-XL-M1
85	130	22	93 000	103 000	13 700	9 000	4 750	1,04	NU1017-XL-M1
	150	28	194 000	194 000	34 000	5 600	4 000	1,92	N217-E-XL-TVP2
	150	28	194 000	194 000	26 500	5 600	4 000	1,91	NU217-E-XL-TVP2
	150	36	255 000	275 000	50 000	5 600	3 300	2,5	NU2217-E-XL-TVP2
	180	41	340 000	325 000	58 000	5 900	3 800	5,3	N317-E-XL-M1
	180	41	320 000	300 000	40 500	4 550	3 900	4,62	NU317-E-XL-TVP2
	180	60	435 000	445 000	82 000	4 550	3 300	6,72	NU2317-E-XL-TVP2
	210	52	420 000	385 000	49 000	5 200	3 850	9,85	NU417-XL-M1
90	140	24	111 000	124 000	16 600	8 400	4 550	1,36	NU1018-XL-M1
	160	30	215 000	217 000	37 500	5 200	3 900	2,37	N218-E-XL-TVP2
	160	30	215 000	217 000	29 500	5 200	3 900	2,36	NU218-E-XL-TVP2
	160	40	285 000	315 000	57 000	5 200	3 250	3,17	NU2218-E-XL-TVP2
	190	43	370 000	350 000	60 000	5 500	3 650	6,19	N318-E-XL-M1
	190	43	370 000	350 000	45 500	4 250	3 650	5,39	NU318-E-XL-TVP2
	190	64	510 000	530 000	94 000	4 250	3 000	8,04	NU2318-E-XL-TVP2
	225	54	465 000	425 000	54 000	4 800	3 500	11,8	NU418-XL-M1
95	145	24	113 000	130 000	17 200	8 100	4 350	1,42	NU1019-XL-M1
	170	32	260 000	265 000	45 000	4 850	3 650	2,89	N219-E-XL-TVP2
	170	32	260 000	265 000	35 000	4 850	3 650	2,88	NU219-E-XL-TVP2
	170	43	340 000	370 000	66 000	4 850	3 050	3,9	NU2219-E-XL-TVP2
	200	45	390 000	380 000	65 000	5 300	3 550	7,12	N319-E-XL-M1
	200	45	390 000	380 000	49 000	4 050	3 550	6,32	NU319-E-XL-TVP2
	200	67	540 000	580 000	101 000	4 050	2 800	9,4	NU2319-E-XL-TVP2
	240	55	495 000	470 000	59 000	4 550	3 200	13,9	NU419-XL-M1

medias <https://www.schaeffler.de/std/1F9A>



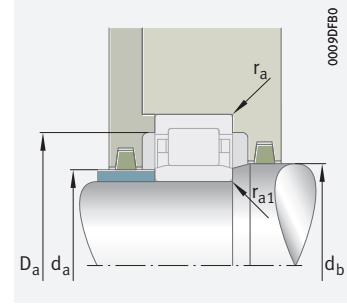
0009DFC2

Axial displacement “s”
for N and NU



0009DPE

Mounting dimensions
for N



0009DFB0

Mounting dimensions
for NU

Dimensions

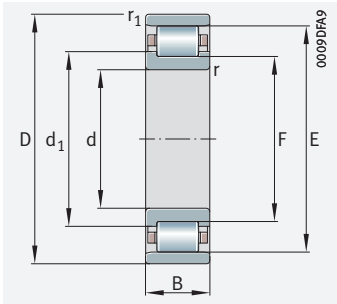
d	r	r ₁	s	E	F	D ₁	d ₁	Mounting dimensions							
								d _a		d _b	D _a	D _b	D _c	r _a	r _{a1}
								min.	max.						
80	1,1	1	2,7	113,5	91,5	109,8	–	85	90	94	119	–	–	1	1
	2	2	1,2	127,3	95,3	–	101,5	91	–	–	129	129	126	2	2
	2	2	1,3	127,3	95,3	122,9	–	91	94	97	129	–	–	2	2
	2	2	1,3	127,3	95,3	122,9	–	91	94	97	129	–	–	2	2
	2,1	2,1	0,6	151	101	–	110,4	92	–	–	158	153	149	2,1	2,1
	2,1	2,1	0,7	151	101	143,9	–	92	99	105	158	–	–	2,1	2,1
	2,1	2,1	3,7	151	101	143,9	–	92	99	105	158	–	–	2,1	2,1
	3	3	4,6	170	110	159,7	–	96	109	112	184	–	–	2,5	2,5
85	1,1	1	4	118,5	96,5	114,8	–	90	95	99	124	–	–	1	1
	2	2	0,7	136,5	100,5	–	107,5	96	–	–	139	138	135	2	2
	2	2	0,8	136,5	100,5	131,5	–	96	99	104	139	–	–	2	2
	2	2	1,3	136,5	100,5	131,5	–	96	99	104	139	–	–	2	2
	3	3	1,1	160	108	–	117,8	99	–	–	166	162	158	2,5	2,5
	3	3	1,3	160	108	152,7	–	99	106	110	166	–	–	2,5	2,5
	3	3	4,7	160	108	152,7	–	99	106	110	166	–	–	2,5	2,5
	4	4	5,2	177	113	165,7	–	105	111	115	190	–	–	3	3
90	1,5	1,1	3	127	103	122,9	–	96	101	106	133	–	–	1,5	1
	2	2	1,4	145	107	–	114,3	101	–	–	149	147	143	2	2
	2	2	1,5	145	107	139,7	–	101	105	109	149	–	–	2	2
	2	2	2,5	145	107	139,7	–	101	105	109	149	–	–	2	2
	3	3	1,3	169,5	113,5	–	124	104	–	–	176	171	168	2,5	2,5
	3	3	1,5	169,5	113,5	161,6	–	104	111	117	176	–	–	2,5	2,5
	3	3	5	169,5	113,5	161,6	–	104	111	117	176	–	–	2,5	2,5
	4	4	5	191,5	123,5	179,7	–	110	122	125	205	–	–	3	3
95	1,5	1,1	3,1	132	108	127,9	–	101	106	111	138	–	–	1,5	1
	2,1	2,1	0,6	154,5	112,5	–	120,5	107	–	–	158	156	153	2,1	2,1
	2,1	2,1	0,7	154,5	112,5	148,6	–	107	111	116	158	–	–	2,1	2,1
	2,1	2,1	2,2	154,5	112,5	148,6	–	107	111	116	158	–	–	2,1	2,1
	3	3	1,4	177,5	121,5	–	132	109	–	–	186	179	176	2,5	2,5
	3	3	1,4	177,5	121,5	169,6	–	109	119	124	186	–	–	2,5	2,5
	3	3	5,6	177,5	121,5	169,6	–	109	119	124	186	–	–	2,5	2,5
	4	4	5,2	201,5	133,5	189,7	–	115	132	136	220	–	–	3	3



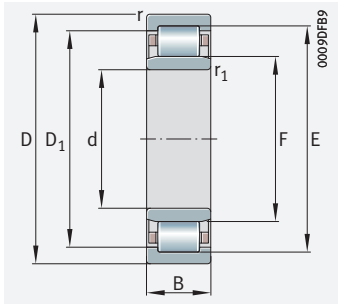


Cylindrical roller bearings with cage

Non-locating bearings



N

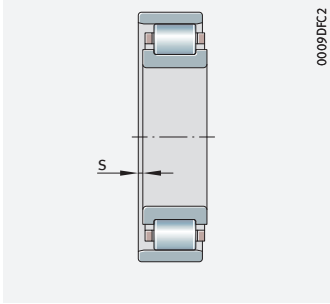


NU

d = 100 – 130 mm

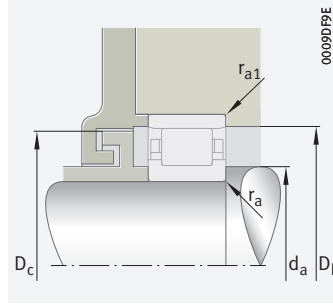
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass	Designation
d	D	B	dyn. C _r	stat. C _{0r}	C _{ur}	n _G	n _{Dr}	m	➤ 429 1.12 ➤ 430 1.13 X-life ➤ 419
			N	N	N	min ⁻¹	min ⁻¹	≈ kg	
100	150	24	116 000	135 000	17 700	7 800	4 150	1,46	NU1020-XL-M1
	180	34	295 000	305 000	52 000	4 550	3 450	3,5	N220-E-XL-TVP2
	180	34	295 000	305 000	40 500	4 550	3 450	3,49	NU220-E-XL-TVP2
	180	46	395 000	445 000	78 000	4 550	2 900	4,77	NU2220-E-XL-TVP2
	215	47	450 000	425 000	72 000	4 850	3 350	8,75	N320-E-XL-M1
	215	47	450 000	425 000	54 000	3 700	3 350	7,67	NU320-E-XL-TVP2
	215	73	680 000	720 000	126 000	3 700	2 500	12,1	NU2320-E-XL-TVP2
	250	58	550 000	530 000	65 000	4 350	2 950	15,8	NU420-XL-M1
105	160	26	132 000	154 000	20 000	7 300	4 050	1,84	NU1021-XL-M1
	190	36	310 000	320 000	54 000	5 600	3 400	4,63	N221-E-XL-M1
	190	36	310 000	320 000	41 500	4 350	3 400	4,08	NU221-E-XL-TVP2
	260	60	610 000	590 000	71 000	4 150	2 750	17,7	NU421-XL-M1
110	170	28	167 000	191 000	25 000	6 700	3 850	2,31	NU1022-XL-M1
	200	38	345 000	365 000	47 000	4 100	3 250	4,84	NU222-E-XL-TVP2
	200	38	345 000	365 000	60 000	4 100	3 250	4,85	N222-E-XL-TVP2
	200	53	455 000	520 000	88 000	4 100	2 750	6,76	NU2222-E-XL-TVP2
	240	50	495 000	475 000	60 000	3 350	3 050	10,3	NU322-E-XL-TVP2
	240	50	520 000	510 000	86 000	4 350	2 950	11,7	N322-E-XL-M1
	240	80	750 000	800 000	140 000	3 350	2 290	16,6	NU2322-E-XL-TVP2
	280	65	680 000	660 000	80 000	3 850	2 550	22,4	NU422-XL-M1
120	180	28	175 000	208 000	27 000	6 400	3 550	2,47	NU1024-XL-M1
	215	40	390 000	415 000	69 000	3 750	3 050	5,67	N224-E-XL-TVP2
	215	40	390 000	415 000	54 000	3 750	3 050	5,8	NU224-E-XL-TVP2
	215	58	530 000	610 000	105 000	3 750	2 500	8,38	NU2224-E-XL-TVP2
	260	55	610 000	600 000	73 000	3 050	2 650	13,3	NU324-E-XL-TVP2
	260	55	610 000	600 000	97 000	3 950	2 650	15,3	N324-E-XL-M1
	260	86	930 000	1 010 000	170 000	3 950	1 980	23,5	NU2324-E-XL-M1
	310	72	850 000	840 000	99 000	3 450	2 200	30,8	NU424-XL-M1
130	200	33	212 000	250 000	32 000	5 700	3 500	3,74	NU1026-XL-M1
	230	40	425 000	445 000	56 000	3 500	2 800	6,5	NU226-E-XL-TVP2
	230	40	425 000	445 000	71 000	3 500	2 800	6,51	N226-E-XL-TVP2
	230	64	620 000	730 000	121 000	3 500	2 280	10,4	NU2226-E-XL-TVP2
	280	58	680 000	670 000	81 000	2 850	2 430	16,2	NU326-E-XL-TVP2
	280	58	720 000	720 000	115 000	3 700	2 340	18,4	N326-E-XL-M1
	280	93	1 080 000	1 220 000	200 000	3 700	1 750	28,8	NU2326-E-XL-M1

medias <https://www.schaeffler.de/std/1F9A>



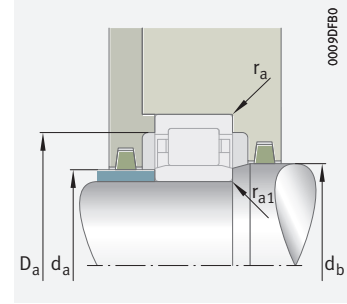
0009DFC2

Axial displacement "s"
for N and NU



0009DPE

Mounting dimensions
for N



0009DFB0

Mounting dimensions
for NU

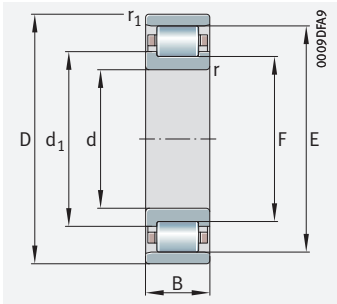
Dimensions								Mounting dimensions							
d	r	r ₁	s	E	F	D ₁	d ₁	d _a		d _b	D _a	D _b	D _c	r _a	r _{a1}
	min.	min.				≈	≈	min.	max.	min.	max.	min.	max.	max.	max.
100	1,5	1,1	2,9	137	113	132,9	–	106	111	116	143	–	–	1,5	1
	2,1	2,1	1,4	163	119	–	127,3	112	–	–	168	165	161	2,1	2,1
	2,1	2,1	1,5	163	119	156,9	–	112	117	122	168	–	–	2,1	2,1
	2,1	2,1	2,5	163	119	156,9	–	112	117	122	168	–	–	2,1	2,1
	3	3	1,2	191,5	127,5	–	139,4	114	–	–	201	193	190	2,5	2,5
	3	3	1,2	191,5	127,5	182	–	114	125	132	201	–	–	2,5	2,5
	3	3	4,2	191,5	127,5	182	–	114	125	132	201	–	–	2,5	2,5
	4	4	5,7	211	139	198,2	–	120	137	141	230	–	–	3	3
105	2	1,1	4,5	145,5	119,5	141	–	111	118	122	151	–	–	2	1
	2,1	2,1	1,2	171,5	125,5	–	134,5	117	–	–	178	173	170	2,1	2,1
	2,1	2,1	1,3	171,5	125,5	165,1	–	117	123	128	178	–	–	2,1	2,1
	4	4	5,7	220,5	144,5	207,4	–	125	143	147	240	–	–	3	3
110	2	1,1	3,2	155	125	–	149,7	116	124	128	161	–	–	2	1
	2,1	2,1	1,5	180,5	132,5	–	173,8	122	130	135	188	–	–	2,1	2,1
	2,1	2,1	1,4	180,5	132,5	141,6	–	122	–	–	188	182	179	2	2
	2,1	2,1	4	180,5	132,5	–	173,8	122	130	135	188	–	–	2,1	2,1
	3	3	1,3	211	143	–	200,9	124	140	145	226	–	–	2,5	2,5
	3	3	1,3	211	143	155,6	–	124	–	–	226	213	209	2,5	2,5
	3	3	5,8	211	143	–	200,9	124	140	145	226	–	–	2,5	2,5
	4	4	6,2	235	155	–	220,9	130	153	157	260	–	–	3	3
120	2	1,1	3,2	165	135	–	159,7	126	134	138	171	–	–	2	1
	2,1	2,1	1,4	195,5	143,5	153,2	–	132	–	–	203	197	194	2,1	2,1
	2,1	2,1	1,4	195,5	143,5	–	187,8	132	141	146	203	–	–	2,1	2,1
	2,1	2,1	4,5	195,5	143,5	–	187,8	132	141	146	203	–	–	2,1	2,1
	3	3	3,5	230	154	–	218,7	134	151	156	246	–	–	2,5	2,5
	3	3	3,5	230	154	168,7	–	134	–	–	246	232	228	2,5	2,5
	3	3	7,2	230	154	–	218,7	134	151	156	246	–	–	2,5	2,5
	5	5	6,9	260	170	–	243,9	144	168	172	286	–	–	4	4
130	2	1,1	3,9	182	148	–	175,9	136	146	151	191	–	–	2	1
	3	3	1,2	209,5	153,5	–	201,2	144	151	158	216	–	–	2,5	2,5
	3	3	1,2	209,5	153,5	164	–	144	–	–	216	212	207	2,5	2,5
	3	3	5,2	209,5	153,5	–	201,2	144	151	158	216	–	–	2,5	2,5
	4	4	3,5	247	167	–	235,2	147	164	169	263	–	–	3	3
	4	4	3,5	247	167	181,7	–	147	–	–	263	249	245	3	3
	4	4	8,1	247	167	–	235,2	147	164	169	263	–	–	3	3



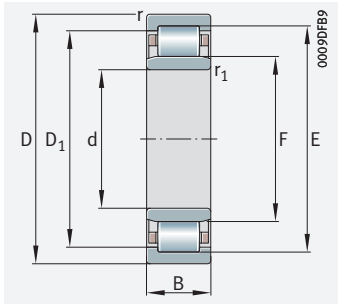


Cylindrical roller bearings with cage

Non-locating bearings



N

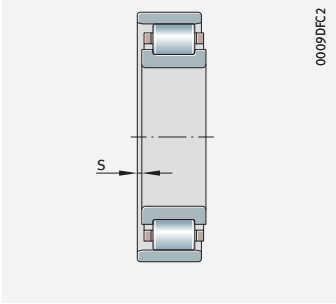


NU

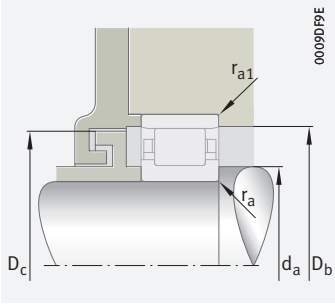
d = 140 – 180 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass	Designation
d	D	B	dyn. C _r	stat. C _{0r}	C _{ur}	n _G	n _{Dr}	m	➤ 429 1.12 ➤ 430 1.13 X-life ➤ 419
			N	N	N	min ⁻¹	min ⁻¹	≈ kg	
140	210	33	216 000	265 000	33 000	5 400	3 250	3,94	NU1028-XL-M1
	250	42	460 000	510 000	79 000	4 250	2 600	9,3	N228-E-XL-M1
	250	42	460 000	510 000	62 000	4 250	2 600	9,31	NU228-E-XL-M1
	250	68	670 000	830 000	134 000	4 250	2 050	14,5	NU2228-E-XL-M1
	300	62	790 000	800 000	126 000	3 450	2 170	22,5	N328-E-XL-M1
	300	62	790 000	800 000	95 000	2 650	2 170	20,1	NU328-E-XL-TVP2
	300	102	1 210 000	1 390 000	224 000	3 450	1 620	36	NU2328-E-XL-M1
150	225	35	248 000	310 000	39 000	5 100	3 100	4,93	NU1030-XL-M1
	270	45	520 000	590 000	90 000	3 950	2 350	11,8	N230-E-XL-M1
	270	45	520 000	590 000	70 000	3 950	2 350	11,9	NU230-E-XL-M1
	270	73	780 000	970 000	156 000	3 950	1 850	18,6	NU2230-E-XL-M1
	320	65	900 000	930 000	141 000	3 200	1 940	26,9	N330-E-XL-M1
	320	65	900 000	930 000	108 000	3 200	1 940	27	NU330-E-XL-M1
	320	108	1 380 000	1 600 000	250 000	3 200	1 460	43,4	NU2330-E-XL-M1
160	240	38	290 000	355 000	44 000	4 650	3 000	5,92	NU1032-XL-M1
	290	48	590 000	670 000	102 000	3 650	2 160	14,7	N232-E-XL-M1
	290	48	590 000	670 000	80 000	3 650	2 160	14,7	NU232-E-XL-M1
	290	80	940 000	1 170 000	189 000	3 600	1 660	23,7	NU2232-E-XL-M1
	340	68	860 000	1 060 000	130 000	3 000	1 770	32,6	N332-E-M1
	340	68	860 000	1 060 000	94 000	3 000	1 770	31,8	NU332-E-M1
	340	114	1 300 000	1 800 000	231 000	3 000	1 350	51,5	NU2332-E-M1
170	260	42	350 000	435 000	52 000	4 300	2 750	8,03	NU1034-XL-M1
	310	52	700 000	780 000	118 000	3 350	1 970	18	N234-E-XL-M1
	310	52	700 000	780 000	93 000	3 350	1 970	18,1	NU234-E-XL-M1
	310	86	1 130 000	1 400 000	218 000	3 300	1 470	29,4	NU2234-E-XL-M1
	360	72	960 000	1 210 000	141 000	2 800	1 610	37,9	N334-E-TB-M1
	360	72	960 000	1 210 000	97 000	2 800	1 610	38	NU334-E-TB-M1
	360	120	1 490 000	2 070 000	232 000	2 800	1 210	61,4	NU2334-EX-TB-M1
180	280	46	425 000	520 000	64 000	3 900	2 550	10,5	NU1036-XL-M1
	320	52	730 000	830 000	124 000	3 250	1 850	18,9	N236-E-XL-M1
	320	52	730 000	830 000	98 000	3 250	1 850	18,9	NU236-E-XL-M1
	320	86	1 180 000	1 490 000	230 000	3 200	1 380	30,7	NU2236-E-XL-M1
	380	75	1 040 000	1 320 000	103 000	2 650	1 500	43,9	NU336-E-TB-M1
	380	126	1 680 000	2 330 000	260 000	2 600	1 120	71,8	NU2336-EX-TB-M1

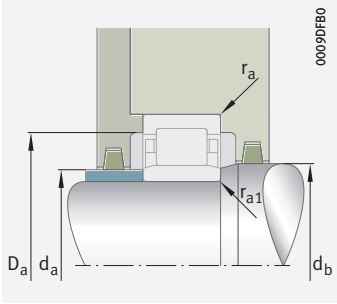
medias <https://www.schaeffler.de/std/1F9A>



Axial displacement "s"
for N and NU



Mounting dimensions
for N



Mounting dimensions
for NU

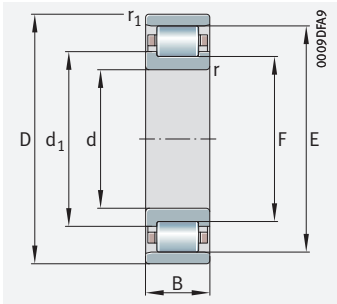
Dimensions								Mounting dimensions							
d	r	r ₁	s	E	F	D ₁	d ₁	d _a		d _b	D _a	D _b	D _c	r _a	r _{a1}
	min.	min.				≈	≈	min.	max.	min.	max.	min.	max.	max.	max.
140	2	1,1	3,8	192	158	185,9	–	146	156	161	201	–	–	2	1
	3	3	3,8	225	169	–	179,4	154	–	–	236	227	223	2,5	2,5
	3	3	3,8	225	169	216,7	–	154	166	171	236	–	–	2,5	2,5
	3	3	7	225	169	216,7	–	154	166	171	236	–	–	2,5	2,5
	4	4	5,2	264	180	–	195,4	157	–	–	283	266	262	3	3
	4	4	5,2	264	180	251,7	–	157	176	182	283	–	–	3	3
	4	4	9,2	264	180	251,7	–	157	176	182	283	–	–	3	3
150	2,1	1,5	4,2	205,5	169,5	199	–	158	167	173	215	–	–	2,1	1,5
	3	3	4	242	182	–	193,1	164	–	–	256	244	240	2,5	2,5
	3	3	4	242	182	233,2	–	164	179	184	256	–	–	2,5	2,5
	3	3	7,5	242	182	233,2	–	164	179	184	256	–	–	2,5	2,5
	4	4	5,5	283	193	–	209,5	167	–	–	303	285	281	3	3
	4	4	5,5	283	193	269,8	–	167	190	195	303	–	–	3	3
	4	4	9,7	283	193	269,8	–	167	190	195	303	–	–	3	3
160	2,1	1,5	4,3	220	180	212,9	–	168	178	184	230	–	–	2,1	1,5
	3	3	4,1	259	195	–	206,8	174	–	–	276	261	257	2,5	2,5
	3	3	4,1	259	195	249,6	–	174	192	197	276	–	–	2,5	2,5
	3	3	7,2	261	193	251,1	–	174	192	197	276	–	–	2,5	2,5
	4	4	5,5	300	204	–	221,6	177	–	–	323	302	298	3	3
	4	4	5,6	300	204	286	–	177	200	211	323	–	–	3	3
	4	4	9,9	300	204	286	–	177	200	211	323	–	–	3	3
170	2,1	2,1	4,8	237	193	229,1	–	180	190	197	250	–	–	2,1	2,1
	4	4	4,3	279	207	–	218,4	187	–	–	293	281	277	3	3
	4	4	4,3	279	207	268,5	–	187	204	211	293	–	–	3	3
	4	4	7,2	281	205	269,9	–	187	204	211	293	–	–	3	3
	4	4	5,9	318	218	–	238	187	–	–	343	320	316	3	3
	4	4	6	318	218	298	–	187	215	221	343	–	–	3	3
	4	4	10,2	320	216	299,2	–	187	214	218	343	–	–	3	3
180	2,1	2,1	5	255	205	245,9	–	190	203	209	270	–	–	2,1	2,1
	4	4	4,7	289	217	–	230,2	197	–	–	303	292	286	3	3
	4	4	4,7	289	217	278,6	–	197	214	221	303	–	–	3	3
	4	4	7,2	291	215	280	–	197	214	221	303	–	–	3	3
	4	4	6,1	335	231	314,2	–	197	228	234	363	–	–	3	3
	4	4	10,5	339	227	316,6	–	197	225	229	363	–	–	3	3



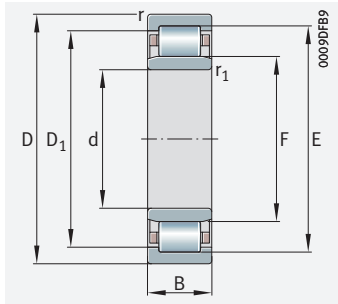


Cylindrical roller bearings with cage

Non-locating bearings



N

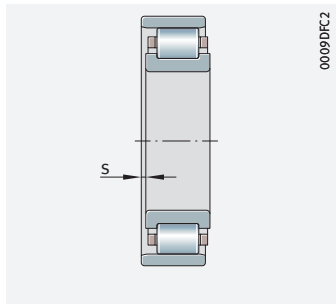


NU

d = 190 – 280 mm

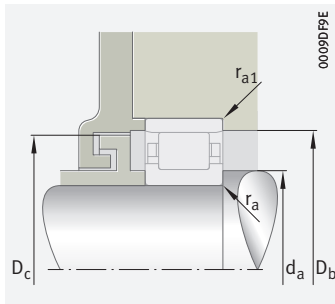
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass	Designation
d	D	B	dyn. C _r	stat. C _{0r}	C _{ur}	n _G	n _{Dr}	m	➤ 429 1.12 ➤ 430 1.13 X-life ➤ 419
			N	N	N	min ⁻¹	min ⁻¹	≈ kg	
190	290	46	435 000	550 000	66 000	3 800	2 410	10,9	NU1038-XL-M1
	340	55	680 000	930 000	112 000	3 050	1 720	22,8	N238-E-M1
	340	55	680 000	930 000	83 000	3 050	1 720	22,8	NU238-E-M1
	340	92	1 090 000	1 650 000	206 000	3 000	1 290	37,1	NU2238-E-M1
	400	78	1 120 000	1 440 000	110 000	2 550	1 400	50,6	NU338-E-TB-M1
	400	132	1 890 000	2 650 000	295 000	2 440	1 010	83,1	NU2338-EX-TB-M1
200	310	51	470 000	600 000	71 000	3 550	2 310	14,1	NU1040-XL-M1
	360	58	750 000	1 040 000	123 000	2 900	1 600	27,2	N240-E-M1
	360	58	750 000	1 040 000	92 000	2 900	1 600	27,2	NU240-E-M1
	360	98	1 220 000	1 880 000	230 000	2 850	1 180	44,7	NU2240-E-M1
	420	80	1 180 000	1 520 000	116 000	2 410	1 320	57,3	NU340-E-TB-M1
	420	138	2 040 000	2 900 000	315 000	2 330	940	95,6	NU2340-EX-TB-M1
220	340	56	510 000	770 000	69 000	3 150	2 040	20,5	NU1044-M1
	400	65	950 000	1 330 000	106 000	2 600	1 380	38,1	NU244-E-M1
	400	108	1 630 000	2 370 000	255 000	2 440	1 000	61,6	NU2244-EX-TB-M1
	460	88	1 440 000	1 890 000	138 000	2 170	1 140	75,5	NU344-E-TB-M1
	460	145	2 350 000	3 350 000	350 000	2 110	830	121	NU2344-EX-TB-M1
240	360	56	540 000	840 000	74 000	3 000	1 850	19,9	NU1048-M1
	440	72	1 160 000	1 650 000	175 000	2 320	1 210	51,5	N248-E-TB-M1
	440	72	1 140 000	1 610 000	125 000	2 320	1 220	51,8	NU248-E-TB-M1
	440	120	1 850 000	2 800 000	295 000	2 250	900	82,8	NU2248-EX-TB-M1
	500	95	1 720 000	2 280 000	162 000	1 980	1 000	95,7	NU348-E-TB-M1
	500	155	2 600 000	3 750 000	380 000	1 940	750	151	NU2348-EX-TB-M1
260	400	65	650 000	1 010 000	90 000	2 700	1 690	29,7	NU1052-M1
	480	80	1 350 000	1 890 000	142 000	2 100	1 110	68,4	NU252-E-TB-M1
	480	130	2 180 000	3 350 000	350 000	2 060	780	109	NU2252-E-TB-M1
	540	102	1 910 000	2 600 000	187 000	1 840	900	121	NU352-E-TB-M1
	540	165	3 100 000	4 500 000	455 000	1 780	660	189	NU2352-EX-TB-M1
280	420	65	680 000	1 100 000	96 000	2 550	1 550	31,4	NU1056-M1
	500	80	1 400 000	2 020 000	150 000	2 020	1 020	72,1	NU256-E-TB-M1
	500	130	2 270 000	3 600 000	370 000	1 980	720	114	NU2256-E-TB-M1
	580	108	2 180 000	3 050 000	205 000	1 700	790	147	NU356-E-TB-M1
	580	175	3 500 000	5 200 000	510 000	1 640	590	234	NU2356-EX-TB-M1

medias <https://www.schaeffler.de/std/1F9A>



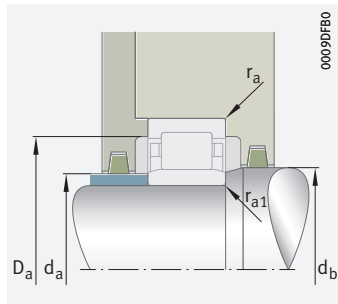
0009DFC2

Axial displacement "s"
for N and NU



0009DPE

Mounting dimensions
for N



0009DFB0

Mounting dimensions
for NU

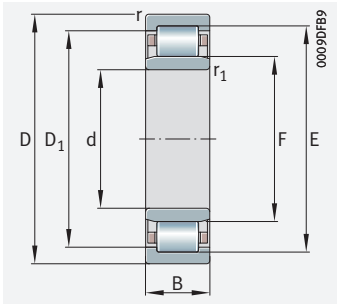
Dimensions								Mounting dimensions							
d	r	r ₁	s	E	F	D ₁	d ₁	d _a		d _b	D _a	D _b	D _c	r _a	r _{a1}
	min.	min.				≈	≈	min.	max.	min.	max.	min.	max.	max.	max.
190	2,1	2,1	5	265	215	255,9	–	200	213	219	280	–	–	2,1	2,1
	4	4	4,7	306	230	–	244	207	–	–	323	309	303	3	3
	4	4	4,7	306	230	295	–	207	227	234	323	–	–	3	3
	4	4	8	308	228	296,4	–	207	227	234	323	–	–	3	3
	5	5	6,3	353	245	331,4	–	210	242	248	380	–	–	4	4
	5	5	11	360	240	336	–	210	237,8	242,2	380	–	–	4	4
200	2,1	2,1	8,3	281	229	271,5	–	210	226	233	300	–	–	2,1	2,1
	4	4	4,8	323	243	–	257,6	217	–	–	343	326	320	3	3
	4	4	4,8	323	243	311,5	–	217	240	247	343	–	–	3	3
	4	4	8,2	325	241	312,9	–	217	240	247	343	–	–	3	3
	5	5	6,3	370	258	347,6	–	220	255	261	400	–	–	4	4
	5	5	11,3	377	253	352,2	–	220	250,7	255,3	400	–	–	4	4
220	3	3	6,2	310	250	298,9	–	232	248	254	328	–	–	2,5	2,5
	4	4	5,5	358	268	344,9	–	237	265	271	383	–	–	3	3
	4	4	8,4	367	259	345,4	–	237	256,7	261,3	383	–	–	3	3
	5	5	7	406	282	381,2	–	240	279	285	440	–	–	4	4
	5	5	11,9	413	277	385,8	–	240	274,7	279,3	440	–	–	4	4
	5	5	11,9	413	277	385,8	–	240	274,7	279,3	440	–	–	4	4
240	3	3	6,4	330	270	318,9	–	252	268	275	348	–	–	2,5	2,5
	4	4	6	393	293	–	313	257	–	–	423	396	390	3	3
	4	4	6	393	293	373	–	257	290	296	423	–	–	3	3
	4	4	10,2	399	287	376,6	–	257	284,5	289,5	423	–	–	3	3
	5	5	7,4	442	306	414,8	–	260	303	309	480	–	–	4	4
	5	5	13,3	447	303	418,2	–	260	300,5	305,5	480	–	–	4	4
260	4	4	7,2	364	296	351,3	–	275	292	300	385	–	–	3	3
	5	5	6,2	429	317	406,6	–	280	314	320	460	–	–	4	4
	5	5	10,5	433	313	409	–	280	310	316	460	–	–	4	4
	6	6	10	477	337	449	–	286	334,3	339,7	514	–	–	5	5
	6	6	13,7	484	324	452	–	286	321,3	326,7	514	–	–	5	5
	6	6	13,7	484	324	452	–	286	321,3	326,7	514	–	–	5	5
280	4	4	7,2	384	316	371,3	–	295	312	321	405	–	–	3	3
	5	5	6,3	449	337	426,6	–	300	334	340	480	–	–	4	4
	5	5	10,5	453	333	429	–	300	330	336	480	–	–	4	4
	6	6	8,7	512	362	482	–	306	359	366	554	–	–	5	5
	6	6	13,8	521	351	487	–	306	348	354	554	–	–	5	5
	6	6	13,8	521	351	487	–	306	348	354	554	–	–	5	5



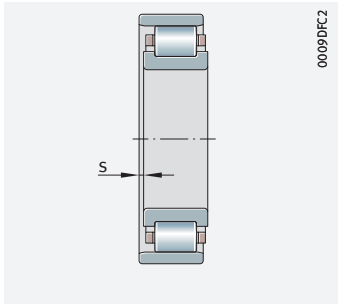


Cylindrical roller bearings with cage

Non-locating bearings



NU

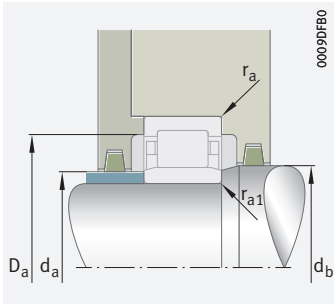


Axial displacement “s” for NU

d = 300 – 710 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass	Designation
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{Dr} min ⁻¹	m ≈ kg	➤ 429 1.12 ➤ 430 1.13
300	460	74	900 000	1 430 000	122 000	2 290	1 390	44,6	NU1060-M1
	540	85	1 600 000	2 330 000	170 000	1 860	920	90,4	NU260-E-TB-M1
	540	140	2 700 000	4 100 000	415 000	1 780	650	143	NU2260-EX-TB-M1
320	480	74	910 000	1 490 000	125 000	2 200	1 300	46,9	NU1064-M1
	580	92	1 810 000	2 700 000	190 000	1 730	830	113	NU264-EX-TB-M1
	580	150	3 150 000	4 900 000	470 000	1 650	570	180	NU2264-EX-TB-M1
340	520	82	1 120 000	1 830 000	150 000	2 010	1 190	63,2	NU1068-M1
360	540	82	1 150 000	1 910 000	155 000	1 940	1 110	65,9	NU1072-M1
	650	170	3 600 000	5 800 000	540 000	1 490	510	254	NU2272-E-TB-M1
380	560	82	1 170 000	1 990 000	160 000	1 880	1 050	69,1	NU1076-M1
	680	175	4 050 000	6 700 000	620 000	1 420	450	288	NU2276-E-TB-M1
400	600	90	1 380 000	2 330 000	178 000	1 730	980	90,1	NU1080-TB-M1
420	620	90	1 410 000	2 430 000	185 000	1 680	920	92,9	NU1084-TB-M1
440	650	94	1 560 000	2 750 000	202 000	1 600	860	107	NU1088-TB-M1
460	620	74	1 020 000	1 970 000	157 000	1 770	860	63,1	NU1992-M1
	680	100	1 680 000	2 950 000	217 000	1 530	830	125	NU1092-TB-M1
480	650	78	1 150 000	2 250 000	179 000	1 680	810	74,2	NU1996-M1
	700	100	1 720 000	3 100 000	225 000	1 490	780	129	NU1096-TB-M1
500	720	100	1 750 000	3 200 000	232 000	1 450	750	133	NU10/500-TB-M1
560	750	85	1 460 000	2 950 000	227 000	1 450	660	105	NU19/560-M1
	820	115	2 700 000	5 100 000	335 000	1 250	590	213	NU10/560-TB-M1
600	800	90	1 960 000	3 900 000	275 000	1 300	570	125,3	NU19/600-E-TB-M1
670	900	103	2 040 000	4 250 000	295 000	1 190	530	186	NU19/670-TB-M1
710	950	106	2 230 000	4 750 000	330 000	1 130	485	213	NU19/710-TB-M1

medias <https://www.schaeffler.de/std/1F9A>



Mounting dimensions
for NU

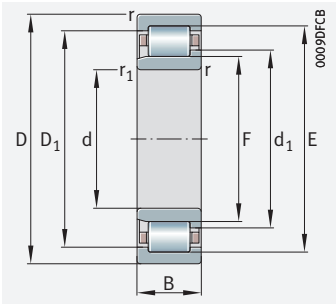
Dimensions							Mounting dimensions					
d	r	r ₁	s	E	F	D ₁	d _a		d _b	D _a	r _a	r _{a1}
	min.	min.				≈	min.	max.	min.	max.	max.	max.
300	4	4	7,9	420	340	405,2	315	336	345	445	3	3
	5	5	6,9	484	364	460	320	359	367	520	4	4
	5	5	12,2	495	355	467	320	352	358	520	4	4
320	4	4	11,5	440	360	425,1	335	356	365	465	3	3
	5	5	7,5	520	392	494,4	340	388,5	395,5	560	4	4
	5	5	11,9	530	380	500	340	376,5	383,5	560	4	4
340	5	5	12,5	475	385	458,2	357	381	390	503	4	4
360	5	5	12,5	495	405	478,1	377	400	410	523	4	4
	6	6	15	588	428	556	386	424	432	624	5	5
380	5	5	9	515	425	498,1	397	420	430	543	4	4
	6	6	13,8	615	451	582,2	406	446	456	654	5	5
400	5	5	9,5	550	450	530	417	445	455	583	4	4
420	5	5	9,6	570	470	550	437	465	475	603	4	4
440	6	6	9,8	597	493	576,2	463	488	498	627	5	5
460	4	4	8,4	578	502	562,8	475	498	506	605	3	3
	6	6	11,2	624	516	602,4	483	510	522	657	5	5
480	5	5	6,8	605	525	589	497	521	529	633	4	4
	6	6	10,7	644	536	622,4	503	530	542	677	5	5
500	6	6	10,7	664	556	642,4	523	550	562	697	5	5
560	5	5	9,6	700	610	682	577	606	614	733	4	4
	6	6	9,8	754	626	728,4	583	620	632	797	5	5
600	5	5	9,9	748	652	735,4	617	647	657	783	4	4
670	6	6	11,3	839	731	817	693	726	736	877	5	5
710	6	6	9,3	886	774	863,6	733	769	779	927	5	5



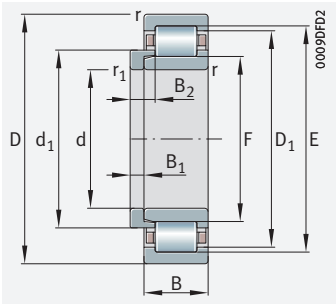


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

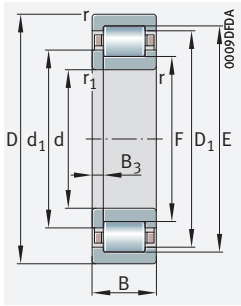


NJ and HJ
Locating bearings

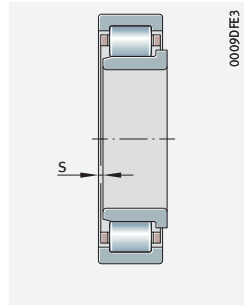
d = 15 – 20 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation	
d	D	B	dyn. C _r	stat. C _{0r}				Bearing	L-section ring	Bearing	L-section ring
			N	N	N	n _G min ⁻¹	n _{gr} min ⁻¹	≈ kg	≈ kg		
15	35	11	15 100	10 400	1 620	27 000	17 900	0,049	–	NJ202-E-XL-TVP2	–
	35	11	15 100	10 400	1 620	27 000	17 900	0,049	0,005	NJ202-E-XL-TVP2	HJ202-E
17	40	12	20 800	14 600	2 220	22 900	15 300	0,07	–	NJ203-E-XL-TVP2	–
	40	12	20 800	14 600	2 220	22 900	15 300	0,07	0,008	NJ203-E-XL-TVP2	HJ203-E
	40	12	20 800	14 600	2 230	22 900	15 300	0,073	–	NUP203-E-XL-TVP2	–
	40	16	28 500	21 900	3 550	22 900	13 200	0,053	–	NJ2203-E-XL-TVP2	–
	40	16	28 500	21 900	3 550	22 900	13 200	0,053	0,008	NJ2203-E-XL-TVP2	HJ2203-E
	40	16	28 500	21 900	3 550	22 900	13 200	0,055	–	NUP2203-E-XL-TVP2	–
	47	14	30 000	21 200	3 400	19 600	13 500	0,124	–	NJ303-E-XL-TVP2	–
	47	14	30 000	21 200	3 400	19 600	13 500	0,124	0,014	NJ303-E-XL-TVP2	HJ303-E
	47	14	30 000	21 200	3 400	19 600	13 500	0,142	–	NUP303-E-XL-TVP2	–
20	47	14	32 500	24 700	3 950	19 200	12 800	0,117	–	NJ204-E-XL-TVP2	–
	47	14	32 500	24 700	3 950	19 200	12 800	0,117	0,011	NJ204-E-XL-TVP2	HJ204-E
	47	14	32 500	24 700	3 950	19 200	12 800	0,119	–	NUP204-E-XL-TVP2	–
	47	18	38 500	31 000	5 200	19 200	11 100	0,15	–	NJ2204-E-XL-TVP2	–
	47	18	38 500	31 000	5 200	19 200	11 100	0,15	0,012	NJ2204-E-XL-TVP2	HJ2204-E
	47	18	38 500	31 000	5 200	19 200	11 100	0,154	–	NUP2204-E-XL-TVP2	–
	52	15	37 500	27 000	3 950	17 200	11 900	0,156	–	NJ304-E-XL-TVP2	–
	52	15	37 500	27 000	3 950	17 200	11 900	0,156	0,017	NJ304-E-XL-TVP2	HJ304-E
	52	15	37 500	27 000	3 950	17 200	11 900	0,16	–	NUP304-E-XL-TVP2	–
	52	21	49 500	39 000	6 300	17 200	9 700	0,219	–	NJ2304-E-XL-TVP2	–
	52	21	49 500	39 000	6 300	17 200	9 700	0,219	0,019	NJ2304-E-XL-TVP2	HJ2304-E
	52	21	49 500	39 000	6 300	17 200	9 700	0,224	–	NUP2304-E-XL-TVP2	–

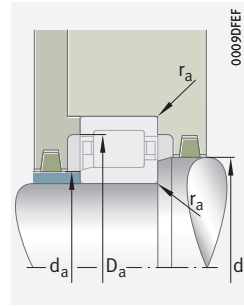
medias <https://www.schaeffler.de/std/1F9A>



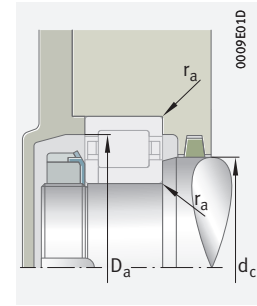
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃
	min.	min.				≈	≈			
15	0,6	0,3	1,6	30,3	19,3	28	21,6	–	–	–
	0,6	0,3	–	30,3	19,3	28	21,6	2,5	5	–
17	0,6	0,3	1,2	35,1	22,1	32,5	24,7	–	–	–
	0,6	0,3	–	35,1	22,1	32,5	24,7	3	5,5	–
	0,6	0,3	–	35,1	22,1	32,5	24,7	–	–	2,5
	0,6	0,3	1,7	35,1	22,1	32,5	24,7	–	–	–
	0,6	0,3	–	35,1	22,1	32,5	24,7	3	6	–
	0,6	0,6	–	35,1	22,1	32,5	24,7	–	–	3
	1	0,6	1,2	40,2	24,2	37,1	27,6	–	–	–
	1	0,6	–	40,2	24,2	37,1	27,6	4	6,5	–
	1	0,6	–	40,2	24,2	37,1	27,6	–	–	2,5
20	1	0,6	1	41,5	26,5	38,8	29,7	–	–	–
	1	0,6	–	41,5	26,5	38,8	29,7	3	5,5	–
	1	0,6	–	41,5	26,5	38,8	29,7	–	–	2,5
	1	0,6	1,8	41,5	26,5	38,8	29,7	–	–	–
	1	0,6	–	41,5	26,5	38,8	29,7	3	6,5	–
	1	0,6	–	41,5	26,5	38,8	29,7	–	–	3,5
	1,1	0,6	1	45,5	27,5	42,4	31,3	–	–	–
	1,1	0,6	–	45,5	27,5	42,4	31,3	4	6,5	–
	1,1	0,6	–	45,5	27,5	42,4	31,3	–	–	2,5
	1,1	0,6	1,9	45,5	27,5	42,4	31,3	–	–	–
	1,1	0,6	–	45,5	27,5	42,4	31,3	4	7,5	–
	1,1	0,6	–	45,5	27,5	42,4	31,3	–	–	3,5

Mounting dimensions

d _a	d _c	D _a	r _a
min. ¹⁾	max.	min.	max. ¹⁾
17,4	18,5	22	32,6
17,4	–	22	32,6
21	21,5	28	36
21	–	28	36
21	–	28	36
21	21,5	26	36
21	–	26	36
21	–	26	36
21,2	23,5	28	42,8
21,2	–	28	42,8
21,2	–	28	42,8
24	26	32	41
24	–	32	41
24	–	32	41
24	26	32	41
24	–	32	41
24	–	32	41
24	–	32	41
24	27	33	45
24	–	33	45
24	–	33	45
24	27	33	45
24	–	33	45
24	–	33	45

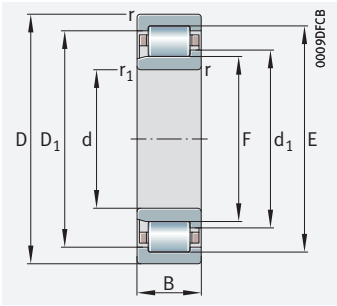
¹⁾ Under axial load, observe the dimensions D₁ and d₁.



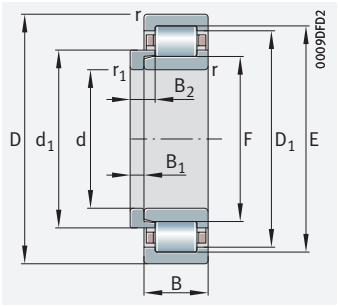


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

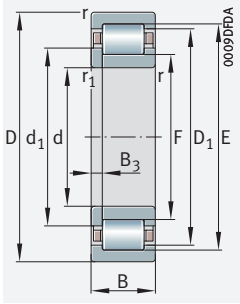


NJ and HJ
Locating bearings

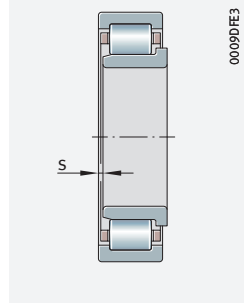
d = 25 – 30 mm

Main dimensions			Basic load ratings		Fatigue limit load C_{ur} N	Limiting speed n_G min^{-1}	Speed rating $n_{\emptyset r}$ min^{-1}	Mass m		Designation ► 429 1.12 ► 430 1.13 X-life ► 419	
d	D	B	dyn. C_r N	stat. C_{0r} N				Bear- ing $\approx$ kg	L-section ring $\approx$ kg	Bearing	L-section ring
25	52	15	34 500	27 500	4 450	17 200	11 600	0,14	–	NJ205-E-XL-TVP2	–
	52	15	34 500	27 500	4 450	17 200	11 600	0,14	0,014	NJ205-E-XL-TVP2	HJ205-E
	52	15	34 500	27 500	4 450	17 200	11 600	0,145	–	NUP205-E-XL-TVP2	–
	52	18	41 500	34 500	5 800	17 200	9 600	0,17	–	NJ2205-E-XL-TVP2	–
	52	18	41 500	34 500	5 800	17 200	9 600	0,17	0,015	NJ2205-E-XL-TVP2	HJ2205-E
	52	18	41 500	34 500	5 800	17 200	9 600	0,174	–	NUP2205-E-XL-TVP2	–
	62	17	49 000	37 500	5 700	14 400	10 100	0,25	–	NJ305-E-XL-TVP2	–
	62	17	49 000	37 500	5 700	14 400	10 100	0,25	0,025	NJ305-E-XL-TVP2	HJ305-E
	62	17	49 000	37 500	5 700	14 400	10 100	0,256	–	NUP305-E-XL-TVP2	–
	62	24	66 000	54 000	9 300	14 400	8 300	0,356	–	NJ2305-E-XL-TVP2	–
	62	24	66 000	54 000	9 300	14 400	8 300	0,356	0,027	NJ2305-E-XL-TVP2	HJ2305-E
	62	24	67 000	56 000	9 300	14 400	8 200	0,364	–	NUP2305-E-XL-TVP2	–
30	62	16	46 000	37 500	5 500	14 200	9 600	0,213	–	NJ206-E-XL-TVP2	–
	62	16	46 000	37 500	5 500	14 200	9 600	0,213	0,024	NJ206-E-XL-TVP2	HJ206-E
	62	16	46 000	37 500	5 500	14 200	9 600	0,219	–	NUP206-E-XL-TVP2	–
	62	20	58 000	50 000	7 900	14 200	8 000	0,261	–	NJ2206-E-XL-TVP2	–
	62	20	58 000	50 000	7 900	14 200	8 000	0,261	0,025	NJ2206-E-XL-TVP2	HJ2206-E
	62	20	58 000	50 000	8 000	14 200	8 000	0,268	–	NUP2206-E-XL-TVP2	–
	72	19	61 000	48 000	7 800	12 400	8 900	0,376	–	NJ306-E-XL-TVP2	–
	72	19	61 000	48 000	7 800	12 400	8 900	0,376	0,042	NJ306-E-XL-TVP2	HJ306-E
	72	19	61 000	48 000	7 900	12 400	8 900	0,385	–	NUP306-E-XL-TVP2	–
	72	27	86 000	75 000	13 300	12 400	7 200	0,54	–	NJ2306-E-XL-TVP2	–
	72	27	86 000	75 000	13 300	12 400	7 200	0,54	0,044	NJ2306-E-XL-TVP2	HJ2306-E
	72	27	86 000	75 000	13 300	12 400	7 200	0,551	–	NUP2306-E-XL-TVP2	–
	90	23	84 000	65 000	11 200	13 400	8 100	0,872	–	NJ406-XL-M1	–
	90	23	84 000	65 000	11 200	13 400	8 100	0,872	0,082	NJ406-XL-M1	HJ406

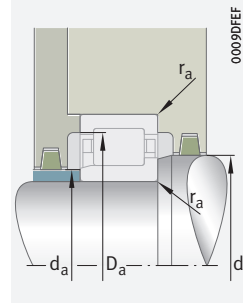
medias <https://www.schaeffler.de/std/1F9A>



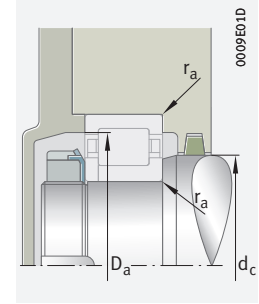
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃
	min.	min.				≈	≈			
25	1	0,6	1,2	46,5	31,5	43,8	34,7	–	–	–
	1	0,6	–	46,5	31,5	43,8	34,7	3	6	–
	1	0,6	–	46,5	31,5	43,8	34,7	–	–	3
	1	0,6	1,7	46,5	31,5	43,8	34,7	–	–	–
	1	0,6	–	46,5	31,5	43,8	34,7	3	6,5	–
	1	0,6	–	46,5	31,5	43,8	34,7	–	–	3,5
	1,1	1,1	1,5	54	34	50,7	38,1	–	–	–
	1,1	1,1	–	54	34	50,7	38,1	4	7	–
	1,1	1,1	–	54	34	50,7	38,1	–	–	3
	1,1	1,1	1,9	54	34	50,7	38,1	–	–	–
	1,1	1,1	–	54	34	50,7	38,1	4	8	–
	1,1	1,1	–	54	34	50,7	38,1	–	–	4
30	1	0,6	1,5	55,5	37,5	52,5	41,1	–	–	–
	1	0,6	–	55,5	37,5	52,5	41,1	4	7	–
	1	0,6	–	55,5	37,5	52,5	41,1	–	–	3
	1	0,6	1,6	55,5	37,5	52,5	41,3	–	–	–
	1	0,6	–	55,5	37,5	52,5	41,3	4	7,5	–
	1	0,6	–	55,5	37,5	52,5	41,3	–	–	3,5
	1,1	1,1	1,2	62,5	40,5	59,2	45	–	–	–
	1,1	1,1	–	62,5	40,5	59,2	45	5	8,5	–
	1,1	1,1	–	62,5	40,5	59,2	45	–	–	3,5
	1,1	1,1	2,2	62,5	40,5	59,2	45	–	–	–
	1,1	1,1	–	62,5	40,5	59,2	45	5	9,5	–
	1,1	1,1	–	62,5	40,5	59,2	45	–	–	4,5
	1,5	1,5	2,3	73	45	68,4	50,3	–	–	–
	1,5	1,5	–	73	45	68,4	50,3	7	11,5	–

Mounting dimensions

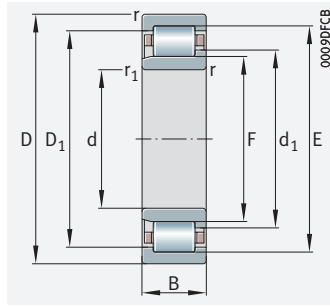
d _a	d _c	D _a	r _a
min. ¹⁾	max.	min.	max. ¹⁾
29	31	37	46
29	–	37	46
29	–	37	46
29	31	37	46
29	–	37	46
29	–	37	46
32	33	40	55
32	–	40	55
32	–	40	55
32	33	40	55
32	–	40	55
32	–	40	55
34	37	44	56
34	–	44	56
34	–	44	56
34	37	44	56
34	–	44	56
34	–	44	56
34	–	44	56
37	40	48	65
37	–	48	65
37	–	48	65
37	40	48	65
37	–	48	65
37	–	48	65
41	44	52	79
41	–	52	79

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

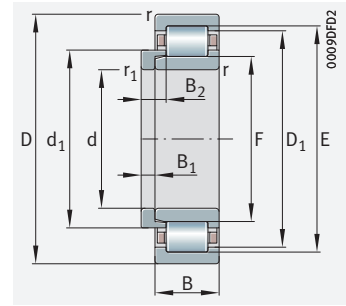


Cylindrical roller bearings with cage

Semi-locating bearings,
locating bearings



NJ
Semi-locating bearing

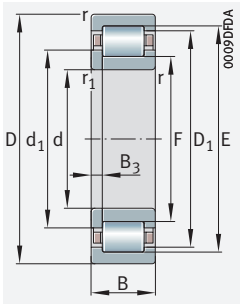


NJ and HJ
Locating bearings

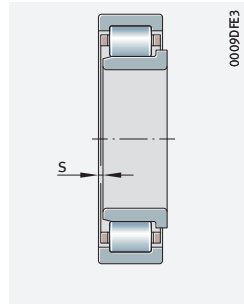
d = 35 – 40 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation ► 429 1.12 ► 430 1.13 X-life ► 419	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{thr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
35	72	17	59 000	50 000	7 700	12 300	8 100	0,309	–	NJ207-E-XL-TVP2	–
	72	17	59 000	50 000	7 700	12 300	8 100	0,309	0,032	NJ207-E-XL-TVP2	HJ207-E
	72	17	59 000	50 000	7 800	12 300	8 100	0,317	–	NUP207-E-XL-TVP2	–
	72	23	73 000	65 000	10 700	12 300	7 200	0,416	–	NJ2207-E-XL-TVP2	–
	72	23	73 000	65 000	10 700	12 300	7 200	0,416	0,035	NJ2207-E-XL-TVP2	HJ2207-E
	72	23	73 000	65 000	10 700	12 300	7 200	0,427	–	NUP2207-E-XL-TVP2	–
	80	21	76 000	63 000	10 800	10 900	7 900	0,496	–	NJ307-E-XL-TVP2	–
	80	21	76 000	63 000	10 800	10 900	7 900	0,496	0,06	NJ307-E-XL-TVP2	HJ307-E
	80	21	76 000	63 000	10 800	10 900	7 900	0,506	–	NUP307-E-XL-TVP2	–
	80	31	108 000	98 000	17 900	10 900	6 600	0,736	–	NJ2307-E-XL-TVP2	–
	80	31	108 000	98 000	17 900	10 900	6 600	0,736	0,063	NJ2307-E-XL-TVP2	HJ2307-E
	80	31	108 000	98 000	17 900	10 900	6 600	0,751	–	NUP2307-E-XL-TVP2	–
40	100	25	103 000	83 000	14 500	11 800	7 000	1,16	–	NJ407-XL-M1	–
	100	25	103 000	83 000	14 500	11 800	7 000	1,16	0,127	NJ407-XL-M1	HJ407
	80	18	63 000	53 000	8 500	10 900	7 500	0,389	–	NJ208-E-XL-TVP2	–
	80	18	63 000	53 000	8 500	10 900	7 500	0,389	0,049	NJ208-E-XL-TVP2	HJ208-E
	80	18	63 000	53 000	8 500	10 900	7 500	0,399	–	NUP208-E-XL-TVP2	–
	80	23	83 000	75 000	12 900	10 900	6 300	0,504	–	NJ2208-E-XL-TVP2	–
	80	23	83 000	75 000	12 900	10 900	6 300	0,504	0,05	NJ2208-E-XL-TVP2	HJ2208-E
	80	23	83 000	75 000	12 900	10 900	6 300	0,518	–	NUP2208-E-XL-TVP2	–
	90	23	96 000	79 000	13 800	9 500	7 100	0,674	–	NJ308-E-XL-TVP2	–
	90	23	96 000	79 000	13 800	9 500	7 100	0,674	0,087	NJ308-E-XL-TVP2	HJ308-E
	90	23	96 000	79 000	13 900	9 500	7 100	0,688	–	NUP308-E-XL-TVP2	–
	90	33	132 000	119 000	21 900	9 500	5 800	0,978	–	NJ2308-E-XL-TVP2	–
	90	33	132 000	119 000	21 900	9 500	5 800	0,978	0,091	NJ2308-E-XL-TVP2	HJ2308-E
	90	33	132 000	119 000	21 900	9 500	5 800	0,999	–	NUP2308-E-XL-TVP2	–
	110	27	119 000	95 000	17 100	10 500	6 500	1,5	–	NJ408-XL-M1	–
	110	27	119 000	95 000	17 100	10 500	6 500	1,5	0,148	NJ408-XL-M1	HJ408

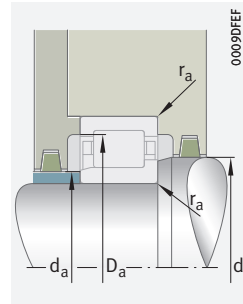
medias <https://www.schaeffler.de/std/1F9A>



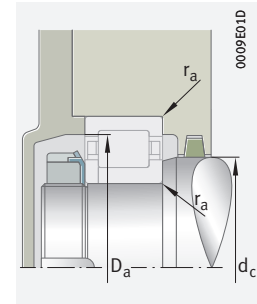
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

Mounting dimensions

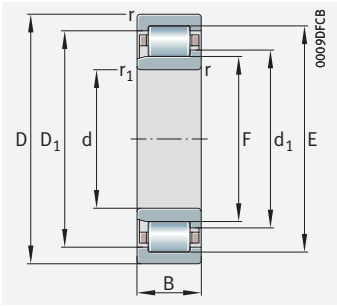
d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃	d _a		d _c	D _a	r _a
											min. ¹⁾	max.		min.	max. ¹⁾
35	1,1	0,6	0,7	64	44	61	48	–	–	–	39	43	50	65	1
	1,1	0,6	–	64	44	61	48	4	7	–	39	–	50	65	1
	1,1	0,6	–	64	44	61	48	–	–	3	39	–	50	65	1
	1,1	0,6	2,2	64	44	61	48	–	–	–	39	43	50	65	1
	1,1	0,6	–	64	44	61	48	4	8,5	–	39	–	50	65	1
	1,1	0,6	–	64	44	61	48	–	–	4,5	39	–	50	65	1
	1,5	1,1	0,6	70,2	46,2	66,6	51	–	–	–	42	45	53	71	1,5
	1,5	1,1	–	70,2	46,2	66,6	51	6	9,5	–	42	–	53	71	1,5
	1,5	1,1	–	70,2	46,2	66,6	51	–	–	3,5	42	–	53	71	1,5
	1,5	1,1	2,1	70,2	46,2	66,6	51	–	–	–	42	45	53	71	1,5
	1,5	1,1	–	70,2	46,2	66,6	51	6	11	–	42	–	53	71	1,5
	1,5	1,5	–	70,2	46,2	66,6	51	–	–	5	42	–	53	71	1,5
40	1,5	1,5	2,6	83	53	78,2	58,8	–	–	–	46	52	61	89	1,5
	1,5	1,5	–	83	53	78,2	58,8	8	13	–	46	–	61	89	1,5
	1,1	1,1	1	71,5	49,5	68,3	54	–	–	–	47	49	56	73	1
	1,1	1,1	–	71,5	49,5	68,3	54	5	8,5	–	47	–	56	73	1
	1,1	1,1	–	71,5	49,5	68,3	54	–	–	3,5	47	–	56	73	1
	1,1	1,1	1,5	71,5	49,5	68,3	54	–	–	–	47	49	56	73	1
	1,1	1,1	–	71,5	49,5	68,3	54	5	9	–	47	–	56	73	1
	1,1	1,1	–	71,5	49,5	68,3	54	–	–	4	47	–	56	73	1
	1,5	1,5	1,3	80	52	75,9	57,6	–	–	–	49	51	60	81	1,5
	1,5	1,5	–	80	52	75,9	57,6	7	11	–	49	–	60	81	1,5
	1,5	1,5	–	80	52	75,9	57,6	–	–	4	49	–	60	81	1,5
	1,5	1,5	2,7	80	52	75,9	57,6	–	–	–	49	51	60	81	1,5
	1,5	1,5	–	80	52	75,9	57,6	7	12,5	–	49	–	60	81	1,5
	1,5	1,5	–	80	52	75,9	57,6	–	–	5,5	49	–	60	81	1,5
	2	2	2,8	92	58	86,4	64,6	–	–	–	53	57	67	97	2
	2	2	–	92	58	86,4	64,6	8	13	–	53	–	67	97	2

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

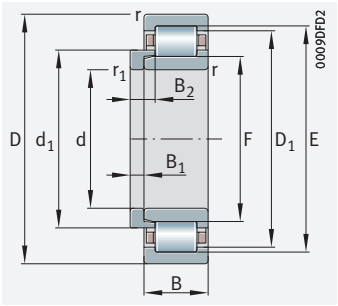


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

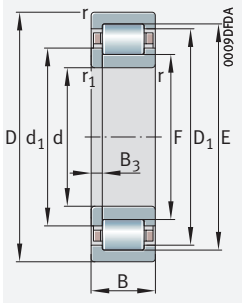


NJ and HJ
Locating bearings

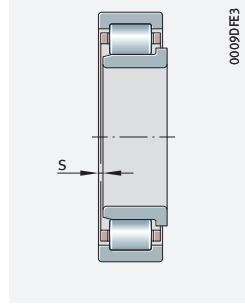
d = 45 – 50 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{thr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
45	85	19	72 000	63 000	10 500	10 200	7 000	0,445	–	NJ209-E-XL-TVP2	–
	85	19	72 000	63 000	10 500	10 200	7 000	0,445	0,054	NJ209-E-XL-TVP2	HJ209-E
	85	19	72 000	63 000	10 500	10 200	7 000	0,457	–	NUP209-E-XL-TVP2	–
	85	23	87 000	82 000	14 100	10 200	5 800	0,544	–	NJ2209-E-XL-TVP2	–
	85	23	87 000	82 000	14 100	10 200	5 800	0,544	0,055	NJ2209-E-XL-TVP2	HJ2209-E
	85	23	87 000	82 000	14 100	10 200	5 800	0,559	–	NUP2209-E-XL-TVP2	–
	100	25	116 000	99 000	17 500	8 500	6 400	0,913	–	NJ309-E-XL-TVP2	–
	100	25	116 000	99 000	17 500	8 500	6 400	0,913	0,109	NJ309-E-XL-TVP2	HJ309-E
	100	25	116 000	99 000	17 600	8 500	6 400	0,937	–	NUP309-E-XL-TVP2	–
	100	36	163 000	154 000	28 500	8 500	5 200	1,33	–	NJ2309-E-XL-TVP2	–
	100	36	163 000	154 000	28 500	8 500	5 200	1,33	0,115	NJ2309-E-XL-TVP2	HJ2309-E
	100	36	163 000	154 000	28 500	8 500	5 200	1,36	–	NUP2309-E-XL-TVP2	–
50	120	29	143 000	119 000	21 700	9 600	5 900	1,9	–	NJ409-XL-M1	–
	120	29	143 000	119 000	21 700	9 600	5 900	1,9	0,181	NJ409-XL-M1	HJ409
	90	20	75 000	69 000	11 300	9 700	6 600	0,503	–	NJ210-E-XL-TVP2	–
	90	20	75 000	69 000	11 300	9 700	6 600	0,503	0,06	NJ210-E-XL-TVP2	HJ210-E
	90	20	75 000	69 000	11 400	9 700	6 600	0,517	–	NUP210-E-XL-TVP2	–
	90	23	92 000	88 000	15 300	9 700	5 300	0,586	–	NJ2210-E-XL-TVP2	–
	90	23	92 000	88 000	15 300	9 700	5 300	0,586	0,06	NJ2210-E-XL-TVP2	HJ210-E
	90	23	92 000	88 000	15 300	9 700	5 300	0,597	–	NUP2210-E-XL-TVP2	–
	110	27	131 000	114 000	20 400	7 800	6 000	1,19	–	NJ310-E-XL-TVP2	–
	110	27	131 000	114 000	20 400	7 800	6 000	1,19	0,149	NJ310-E-XL-TVP2	HJ310-E
	110	27	131 000	114 000	20 500	7 800	6 000	1,21	–	NUP310-E-XL-TVP2	–
	110	40	193 000	187 000	35 500	7 800	4 900	1,77	–	NJ2310-E-XL-TVP2	–
	110	40	193 000	187 000	35 500	7 800	4 900	1,77	0,156	NJ2310-E-XL-TVP2	HJ2310-E
	110	40	193 000	187 000	35 500	7 800	4 900	1,82	–	NUP2310-E-XL-TVP2	–
	130	31	175 000	148 000	27 500	8 600	5 300	2,36	–	NJ410-XL-M1	–
	130	31	175 000	148 000	27 500	8 600	5 300	2,36	0,238	NJ410-XL-M1	HJ410

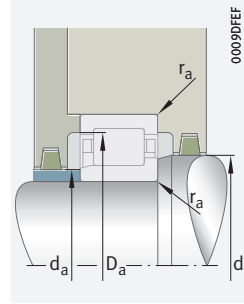
medias <https://www.schaeffler.de/std/1F9A>



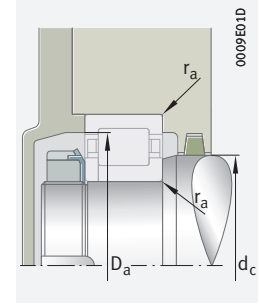
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

Mounting dimensions

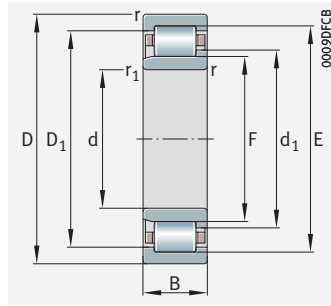
d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃	d _a		d _c	D _a	r _a
											min. ¹⁾	max.			
45	1,1	1,1	1,9	76,5	54,5	73,3	59	–	–	–	52	54	61	78	1
	1,1	1,1	–	76,5	54,5	73,3	59	5	8,5	–	52	–	61	78	1
	1,1	1,1	–	76,5	54,5	73,3	59	–	–	3,5	52	–	61	78	1
	1,1	1,1	1,5	76,5	54,5	73,3	59	–	–	–	52	54	61	78	1
	1,1	1,1	–	76,5	54,5	73,3	59	5	9	–	52	–	61	78	1
	1,1	1,1	–	76,5	54,5	73,3	59	–	–	4	52	–	61	78	1
	1,5	1,5	1	88,5	58,5	84,1	64,4	–	–	–	54	57	66	91	1,5
	1,5	1,5	–	88,5	58,5	84,1	64,4	7	11,5	–	54	–	66	91	1,5
	1,5	1,5	–	88,5	58,5	84,1	64,4	–	–	4,5	54	–	66	91	1,5
	1,5	1,5	2,5	88,5	58,5	84,1	64,4	–	–	–	54	57	66	91	1,5
	1,5	1,5	–	88,5	58,5	84,1	64,4	7	13	–	54	–	66	91	1,5
	1,5	1,5	–	88,5	58,5	84,1	64,4	–	–	6	54	–	66	91	1,5
50	2	2	2,9	100,5	64,5	94,6	71,6	–	–	–	58	63	74	107	2
	2	2	–	100,5	64,5	94,6	71,6	8	13,5	–	58	–	74	107	2
	1,1	1,1	1,3	81,5	59,5	78,3	64	–	–	–	57	58	67	83	1
	1,1	1,1	–	81,5	59,5	78,3	64	5	9	–	57	–	67	83	1
	1,1	1,1	–	81,5	59,5	78,3	64	–	–	4	57	–	67	83	1
	1,1	1,1	1,3	81,5	59,5	78,3	64	–	–	–	57	58	67	83	1
	1,1	1,1	–	81,5	59,5	78,3	64	5	9	–	57	–	67	83	1
	1,1	1,1	–	81,5	59,5	78,3	64	–	–	4	57	–	67	83	1
	2	2	1,7	97	65	92,5	71,3	–	–	–	61	63	73	99	2
	2	2	–	97	65	92,5	71,3	8	13	–	61	–	73	99	2
	2	2	–	97	65	92,5	71,3	–	–	5	61	–	73	99	2
	2	2	4,2	97	65	92,5	71,3	–	–	–	61	63	73	99	2
	2	2	–	97	65	92,5	71,3	8	14,5	–	61	–	73	99	2
	2	2	–	97	65	92,5	71,3	–	–	6,5	61	–	73	99	2
	2,1	2,1	3	110,8	70,8	104,3	78,6	–	–	–	64	69	81	116	2
	2,1	2,1	–	110,8	70,8	104,3	78,6	9	14,5	–	64	–	81	116	2

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

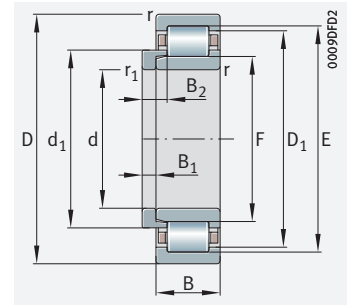


Cylindrical roller bearings with cage

Semi-locating bearings,
locating bearings



NJ
Semi-locating bearing

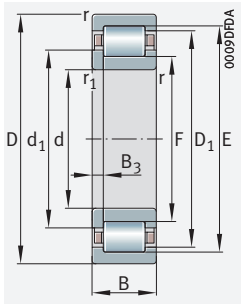


NJ and HJ
Locating bearings

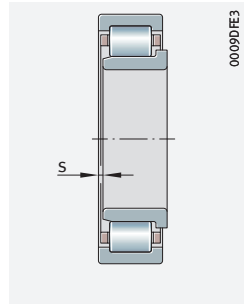
d = 55 – 60 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{thr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
55	100	21	99 000	95 000	16 400	8 700	5 800	0,679	–	NJ211-E-XL-TVP2	–
	100	21	99 000	95 000	16 400	8 700	5 800	0,679	0,087	NJ211-E-XL-TVP2	HJ211-E
	100	21	99 000	95 000	16 400	8 700	5 800	0,693	–	NUP211-E-XL-TVP2	–
	100	25	117 000	118 000	21 000	8 700	4 700	0,812	–	NJ2211-E-XL-TVP2	–
	100	25	117 000	118 000	21 000	8 700	4 700	0,812	0,087	NJ2211-E-XL-TVP2	HJ2211-E
	100	25	117 000	118 000	21 000	8 700	4 700	0,828	–	NUP2211-E-XL-TVP2	–
	120	29	159 000	139 000	25 500	7 000	5 500	1,51	–	NJ311-E-XL-TVP2	–
	120	29	159 000	139 000	25 500	7 000	5 500	1,51	0,192	NJ311-E-XL-TVP2	HJ311-E
	120	29	159 000	139 000	26 000	7 000	5 500	1,54	–	NUP311-E-XL-TVP2	–
	120	43	235 000	230 000	44 000	7 000	4 500	2,27	–	NJ2311-E-XL-TVP2	–
	120	43	235 000	230 000	44 000	7 000	4 500	2,27	0,2	NJ2311-E-XL-TVP2	HJ2311-E
	120	43	235 000	230 000	44 000	7 000	4 500	2,31	–	NUP2311-E-XL-TVP2	–
	140	33	187 000	164 000	30 500	8 200	5 100	2,88	–	NJ411-XL-M1	–
	140	33	187 000	164 000	30 500	8 200	5 100	2,88	0,302	NJ411-XL-M1	HJ411
60	110	22	112 000	103 000	18 000	7 700	5 300	0,845	–	NJ212-E-XL-TVP2	–
	110	22	112 000	103 000	18 000	7 700	5 300	0,845	0,106	NJ212-E-XL-TVP2	HJ212-E
	110	22	112 000	103 000	18 100	7 700	5 300	0,865	–	NUP212-E-XL-TVP2	–
	110	28	152 000	153 000	28 000	7 700	4 300	1,1	–	NJ2212-E-XL-TVP2	–
	110	28	152 000	153 000	28 000	7 700	4 300	1,1	0,106	NJ2212-E-XL-TVP2	HJ212-E
	110	28	152 000	153 000	28 000	7 700	4 300	1,12	–	NUP2212-E-XL-TVP2	–
	130	31	177 000	157 000	29 000	6 500	5 200	1,89	–	NJ312-E-XL-TVP2	–
	130	31	177 000	157 000	29 000	6 500	5 200	1,89	0,229	NJ312-E-XL-TVP2	HJ312-E
	130	31	177 000	157 000	29 000	6 500	5 200	1,93	–	NUP312-E-XL-TVP2	–
	130	46	265 000	260 000	50 000	6 500	4 250	2,83	–	NJ2312-E-XL-TVP2	–
	130	46	265 000	260 000	50 000	6 500	4 250	2,83	0,238	NJ2312-E-XL-TVP2	HJ2312-E
	130	46	265 000	260 000	50 000	6 500	4 250	2,88	–	NUP2312-E-XL-TVP2	–
	150	35	211 000	184 000	33 500	7 500	4 800	3,47	–	NJ412-XL-M1	–
	150	35	211 000	184 000	33 500	7 500	4 800	3,47	0,347	NJ412-XL-M1	HJ412

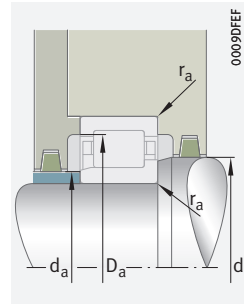
medias <https://www.schaeffler.de/std/1F9A>



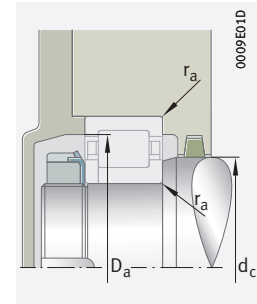
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃
	min.	min.				≈	≈			

Mounting dimensions

d _a	d _c	D _a	r _a
min. ¹⁾	max.	min.	max. ¹⁾

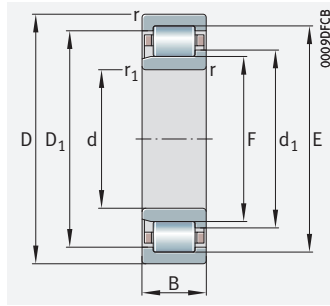
55	1,5	1,1	0,8	90	66	86,6	70,8	–	–	–	62	65	73	91	1,5
	1,5	1,1	–	90	66	86,6	70,8	6	9,5	–	62	–	73	91	1,5
	1,5	1,1	–	90	66	86,6	70,8	–	–	3,5	62	–	73	91	1,5
	1,5	1,1	1,3	90	66	86,6	70,8	–	–	–	62	65	73	91	1,5
	1,5	1,1	–	90	66	86,6	70,8	6	10	–	62	–	73	91	1,5
	1,5	1,1	–	90	66	86,6	70,8	–	–	4	62	–	73	91	1,5
	2	2	1,8	106,5	70,5	101,4	77,5	–	–	–	66	69	80	109	2
	2	2	–	106,5	70,5	101,4	77,5	9	14	–	66	–	80	109	2
	2	2	–	106,5	70,5	101,4	77,5	–	–	5	66	–	80	109	2
	2	2	3,3	106,5	70,5	101,4	77,5	–	–	–	66	69	80	109	2
	2	2	–	106,5	70,5	101,4	77,5	9	15,5	–	66	–	80	109	2
	2	2	–	106,5	70,5	101,4	77,5	–	–	6,5	66	–	80	109	2
60	2,1	2,1	3,3	117,2	77,2	110,7	85	–	–	–	69	76	87	126	2,1
	2,1	2,1	–	117,2	77,2	110,7	85	10	16,5	–	69	–	87	126	2,1
	1,5	1,5	1,6	100	72	96,1	77,6	–	–	–	69	71	80	101	1,5
	1,5	1,5	–	100	72	96,1	77,6	6	10	–	69	–	80	101	1,5
	1,5	1,5	–	100	72	96,1	77,6	–	–	4	69	–	80	101	1,5
	1,5	1,5	1,6	100	72	96,1	77,6	–	–	–	69	71	80	101	1,5
	1,5	1,5	–	100	72	96,1	77,6	6	10	–	69	–	80	101	1,5
	1,5	1,5	–	100	72	96,1	77,6	–	–	4	69	–	80	101	1,5
	2,1	2,1	1,8	115	77	109,6	84,4	–	–	–	72	75	86	118	2,1
	2,1	2,1	–	115	77	109,6	84,4	9	14,5	–	72	–	86	118	2,1
	2,1	2,1	–	115	77	109,6	84,4	–	–	5,5	72	–	86	118	2,1
	2,1	2,1	3,5	115	77	109,6	84,4	–	–	–	72	75	86	118	2,1
	2,1	2,1	–	115	77	109,6	84,4	9	16	–	72	–	86	118	2,1
	2,1	2,1	–	115	77	109,6	84,4	–	–	7	72	–	86	118	2,1
	2,1	2,1	3,4	127	83	119,5	91,6	–	–	–	74	82	94	136	2
	2,1	2,1	–	127	83	119,5	91,6	10	16,5	–	74	–	94	136	2

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

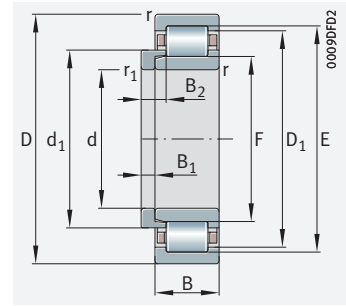


Cylindrical roller bearings with cage

Semi-locating bearings,
locating bearings



NJ
Semi-locating bearing

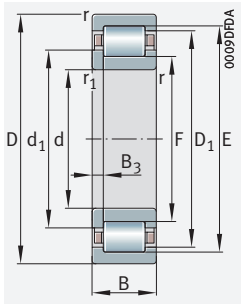


NJ and HJ
Locating bearings

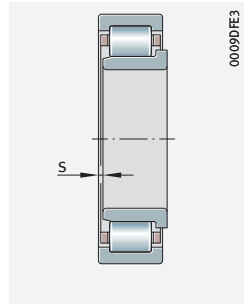
d = 65 – 70 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation ► 429 1.12 ► 430 1.13 X-life ► 419	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{thr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
65	120	23	128 000	120 000	21 000	7 100	4 900	1,06	–	NJ213-E-XL-TVP2	–
	120	23	128 000	120 000	21 000	7 100	4 900	1,06	0,127	NJ213-E-XL-TVP2	HJ213-E
	120	23	128 000	120 000	21 200	7 100	4 900	1,09	–	NUP213-E-XL-TVP2	–
	120	31	177 000	182 000	33 500	7 100	4 100	1,46	–	NJ2213-E-XL-TVP2	–
	120	31	177 000	182 000	33 500	7 100	4 100	1,46	0,13	NJ2213-E-XL-TVP2	HJ2213-E
	120	31	177 000	182 000	34 000	7 100	4 100	1,54	–	NUP2213-E-XL-TVP2	–
	140	33	214 000	191 000	35 000	5 900	4 800	2,32	–	NJ313-E-XL-TVP2	–
	140	33	214 000	191 000	35 000	5 900	4 800	2,32	0,285	NJ313-E-XL-TVP2	HJ313-E
	140	33	214 000	191 000	35 000	5 900	4 800	2,37	–	NUP313-E-XL-TVP2	–
	140	48	295 000	285 000	54 000	5 900	4 000	3,38	–	NJ2313-E-XL-TVP2	–
	140	48	295 000	285 000	54 000	5 900	4 000	3,38	0,303	NJ2313-E-XL-TVP2	HJ2313-E
	140	48	295 000	285 000	54 000	5 900	4 000	3,45	–	NUP2313-E-XL-TVP2	–
	160	37	230 000	203 000	36 500	7 000	4 600	4,15	–	NJ413-XL-M1	–
	160	37	230 000	203 000	36 500	7 000	4 600	4,15	0,432	NJ413-XL-M1	HJ413
70	125	24	141 000	138 000	24 500	6 800	4 650	1,18	–	NJ214-E-XL-TVP2	–
	125	24	141 000	138 000	24 500	6 800	4 650	1,18	0,155	NJ214-E-XL-TVP2	HJ214-E
	125	24	141 000	138 000	24 700	6 800	4 650	1,2	–	NUP214-E-XL-TVP2	–
	125	31	185 000	195 000	36 000	6 800	3 850	1,54	–	NJ2214-E-XL-TVP2	–
	125	31	185 000	195 000	36 000	6 800	3 850	1,54	0,157	NJ2214-E-XL-TVP2	HJ2214-E
	125	31	185 000	195 000	36 500	6 800	3 850	1,58	–	NUP2214-E-XL-TVP2	–
	150	35	242 000	222 000	40 000	5 500	4 500	2,84	–	NJ314-E-XL-TVP2	–
	150	35	242 000	222 000	40 000	5 500	4 500	2,84	0,328	NJ314-E-XL-TVP2	HJ314-E
	150	35	242 000	222 000	40 500	5 500	4 500	2,89	–	NUP314-E-XL-TVP2	–
	150	51	325 000	325 000	60 000	5 500	3 800	4,1	–	NJ2314-E-XL-TVP2	–
	150	51	325 000	325 000	60 000	5 500	3 800	4,1	0,352	NJ2314-E-XL-TVP2	HJ2314-E
	150	51	325 000	325 000	60 000	5 500	3 800	4,18	–	NUP2314-E-XL-TVP2	–
	180	42	285 000	255 000	46 000	6 200	4 250	6,07	–	NJ414-XL-M1	–
	180	42	285 000	255 000	46 000	6 200	4 250	6,07	0,63	NJ414-XL-M1	HJ414

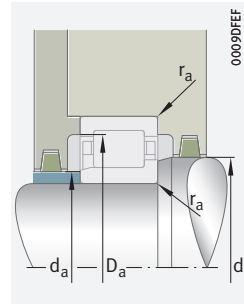
medias <https://www.schaeffler.de/std/1F9A>



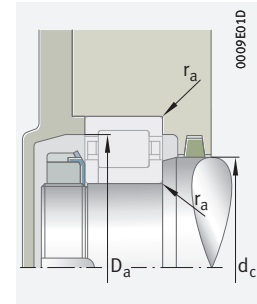
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃
	min.	min.				≈	≈			
65	1,5	1,5	1,4	108,5	78,5	104,3	84,4	–	–	–
	1,5	1,5	–	108,5	78,5	104,3	84,4	6	10	–
	1,5	1,5	–	108,5	78,5	104,3	84,4	–	–	4
	1,5	1,5	1,9	108,5	78,5	104,3	84,4	–	–	–
	1,5	1,5	–	108,5	78,5	104,3	84,4	6	10,5	–
	1,5	1,5	–	108,5	78,5	104,3	84,4	–	–	4,5
	2,1	2,1	1,5	124,5	82,5	118,6	90,5	–	–	–
	2,1	2,1	–	124,5	82,5	118,6	90,5	10	15,5	–
	2,1	2,1	–	124,5	82,5	118,6	90,5	–	–	5,5
	2,1	2,1	4	124,5	82,5	118,6	90,5	–	–	–
	2,1	2,1	–	124,5	82,5	118,6	90,5	10	18	–
	2,1	2,1	–	124,5	82,5	118,6	90,5	–	–	8
70	1,5	1,5	1,2	113,5	83,5	109,4	89,4	–	–	–
	1,5	1,5	–	113,5	83,5	109,4	89,4	7	11	–
	1,5	1,5	–	113,5	83,5	109,4	89,4	–	–	4
	1,5	1,5	1,6	113,5	83,5	109,4	89,4	–	–	–
	1,5	1,5	–	113,5	83,5	109,4	89,4	7	11,5	–
	1,5	1,5	–	113,5	83,5	109,4	89,4	–	–	4,5
	2,1	2,1	1,7	133	89	126,8	97,4	–	–	–
	2,1	2,1	–	133	89	126,8	97,4	10	15,5	–
	2,1	2,1	–	133	89	126,8	97,4	–	–	5,5
	2,1	2,1	4,7	133	89	126,8	97,4	–	–	–
	2,1	2,1	–	133	89	126,8	97,4	10	18,5	–
	2,1	2,1	–	133	89	126,8	97,4	–	–	8,5
	3	3	4	152	100	142,7	110,3	–	–	–
	3	3	–	152	100	142,7	110,3	12	20	–

Mounting dimensions

d _a		d _c	D _a	r _a
min. ¹⁾	max.	min.	max. ¹⁾	max.
74	77	87	111	1,5
74	–	87	111	1,5
74	–	87	111	1,5
74	77	87	111	1,5
74	–	87	111	1,5
74	–	87	111	1,5
77	81	93	128	2,1
77	–	93	128	2,1
77	–	93	128	2,1
77	81	93	128	2,1
77	–	93	128	2,1
77	–	93	128	2,1
79	88	100	146	2,1
79	–	100	146	2,1
79	82	92	116	1,5
79	–	92	116	1,5
79	–	92	116	1,5
79	–	92	116	1,5
79	–	92	116	1,5
79	–	92	116	1,5
82	87	100	138	2,1
82	–	100	138	2,1
82	–	100	138	2,1
82	87	100	138	2,1
82	–	100	138	2,1
82	–	100	138	2,1
86	99	112	164	2,5
86	–	112	164	2,5

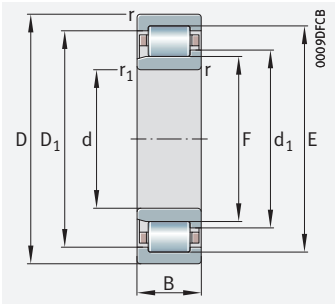


¹⁾ Under axial load, observe the dimensions D₁ and d₁.

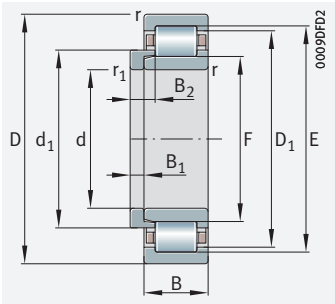


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

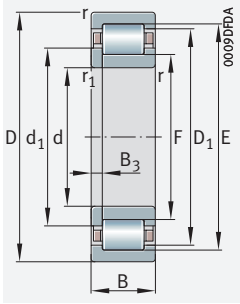


NJ and HJ
Locating bearings

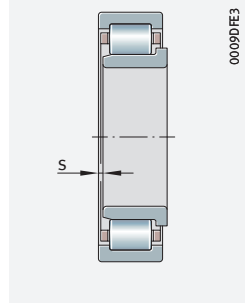
d = 75 – 80 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation ►429 1.12 ►430 1.13 X-life ►419	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{thr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
75	130	25	155 000	157 000	28 000	6 500	4 400	1,3	–	NJ215-E-XL-TVP2	–
	130	25	155 000	157 000	28 000	6 500	4 400	1,3	0,164	NJ215-E-XL-TVP2	HJ215-E
	130	25	155 000	157 000	28 000	6 500	4 400	1,33	–	NUP215-E-XL-TVP2	–
	130	31	192 000	208 000	38 500	6 500	3 600	1,64	–	NJ2215-E-XL-TVP2	–
	130	31	192 000	208 000	38 500	6 500	3 600	1,64	0,165	NJ2215-E-XL-TVP2	HJ2215-E
	130	31	192 000	208 000	38 500	6 500	3 600	1,67	–	NUP2215-E-XL-TVP2	–
	160	37	285 000	265 000	47 000	5 100	4 150	3,39	–	NJ315-E-XL-TVP2	–
	160	37	285 000	265 000	47 000	5 100	4 150	3,39	0,407	NJ315-E-XL-TVP2	HJ315-E
	160	37	285 000	265 000	47 000	5 100	4 150	3,45	–	NUP315-E-XL-TVP2	–
	160	55	390 000	395 000	73 000	5 100	3 550	5,04	–	NJ2315-E-XL-TVP2	–
	160	55	390 000	395 000	73 000	5 100	3 550	5,04	0,436	NJ2315-E-XL-TVP2	HJ2315-E
	160	55	390 000	395 000	73 000	5 100	3 550	5,14	–	NUP2315-E-XL-TVP2	–
80	190	45	325 000	295 000	51 000	5 800	4 100	7,21	–	NJ415-XL-M1	–
	190	45	325 000	295 000	51 000	5 800	4 100	7,21	0,737	NJ415-XL-M1	HJ415
	140	26	166 000	168 000	29 500	6 100	4 200	1,58	–	NJ216-E-XL-TVP2	–
	140	26	166 000	168 000	29 500	6 100	4 200	1,58	0,22	NJ216-E-XL-TVP2	HJ216-E
	140	26	166 000	168 000	29 500	6 100	4 200	1,62	–	NUP216-E-XL-TVP2	–
	140	33	221 000	244 000	44 000	6 100	3 400	2,04	–	NJ2216-E-XL-TVP2	–
	140	33	221 000	244 000	44 000	6 100	3 400	2,04	0,22	NJ2216-E-XL-TVP2	HJ216-E
	140	33	221 000	244 000	44 500	6 100	3 400	2,08	–	NUP2216-E-XL-TVP2	–
	170	39	300 000	275 000	50 000	4 800	4 100	4,03	–	NJ316-E-XL-TVP2	–
	170	39	300 000	275 000	50 000	4 800	4 100	4,03	0,456	NJ316-E-XL-TVP2	HJ316-E
	170	39	300 000	275 000	50 000	4 800	4 100	4,11	–	NUP316-E-XL-TVP2	–
	170	58	420 000	425 000	79 000	4 800	3 450	6	–	NJ2316-E-XL-TVP2	–
	170	58	420 000	425 000	79 000	4 800	3 450	6	0,488	NJ2316-E-XL-TVP2	HJ2316-E
	170	58	420 000	425 000	79 000	4 800	3 450	6,11	–	NUP2316-E-XL-TVP2	–
	200	48	395 000	365 000	64 000	5 400	3 750	8,52	–	NJ416-XL-M1	–
	200	48	395 000	365 000	64 000	5 400	3 750	8,52	0,808	NJ416-XL-M1	HJ416

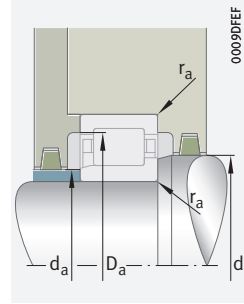
medias <https://www.schaeffler.de/std/1F9A>



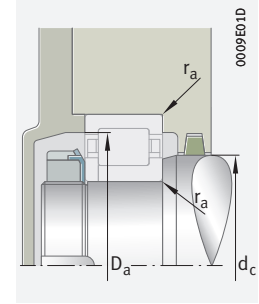
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

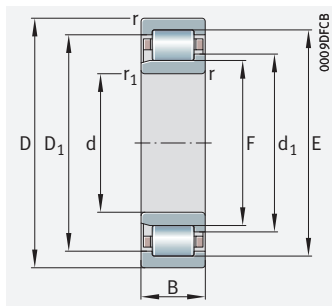
d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃	Mounting dimensions				
											d _a		d _c	D _a	r _a
	min.	min.				≈	≈				min. ¹⁾	max.	min.	max. ¹⁾	max.
75	1,5	1,5	1,2	118,5	88,5	114,4	94,4	–	–	–	84	87	96	121	1,5
	1,5	1,5	–	118,5	88,5	114,4	94,4	7	11	–	84	–	96	121	1,5
	1,5	1,5	–	118,5	88,5	114,4	94,4	–	–	4	84	–	96	121	1,5
	1,5	1,5	1,6	118,5	88,5	114,4	94,4	–	–	–	84	87	96	121	1,5
	1,5	1,5	–	118,5	88,5	114,4	94,4	7	11,5	–	84	–	96	121	1,5
	1,5	1,5	–	118,5	88,5	114,4	94,4	–	–	4,5	84	–	96	121	1,5
	2,1	2,1	1,2	143	95	136,2	104,1	–	–	–	87	93	106	148	2,1
	2,1	2,1	–	143	95	136,2	104,1	11	16,5	–	87	–	106	148	2,1
	2,1	2,1	–	143	95	136,2	104,1	–	–	5,5	87	–	106	148	2,1
	2,1	2,1	4,2	143	95	136,2	104,1	–	–	–	87	93	106	148	2,1
	2,1	2,1	–	143	95	136,2	104,1	11	19,5	–	87	–	106	148	2,1
	2,1	2,1	–	143	95	136,2	104,1	–	–	8,5	87	–	106	148	2,1
	3	3	4,5	160,5	104,5	150,7	115,8	–	–	–	91	103	118	174	2,5
	3	3	–	160,5	104,5	150,7	115,8	13	21,5	–	91	–	118	174	2,5
80	2	2	1,3	127,3	95,3	122,9	101,5	–	–	–	91	94	104	129	2
	2	2	–	127,3	95,3	122,9	101,5	8	12,5	–	91	–	104	129	2
	2	2	–	127,3	95,3	122,9	101,5	–	–	4,5	91	–	104	129	2
	2	2	1,3	127,3	95,3	122,9	101,5	–	–	–	91	94	104	129	2
	2	2	–	127,3	95,3	122,9	101,5	8	12,5	–	91	–	104	129	2
	2	2	–	127,3	95,3	122,9	101,5	–	–	4,5	91	–	104	129	2
	2,1	2,1	0,7	151	101	143,9	110,4	–	–	–	92	99	114	158	2,1
	2,1	2,1	–	151	101	143,9	110,4	11	17	–	92	–	114	158	2,1
	2,1	2,1	–	151	101	143,9	110,4	–	–	6	92	–	114	158	2,1
	2,1	2,1	3,7	151	101	143,9	110,4	–	–	–	92	99	114	158	2,1
	2,1	2,1	–	151	101	143,9	110,4	11	20	–	92	–	114	158	2,1
	2,1	2,1	–	151	101	143,9	110,4	–	–	9	92	–	114	158	2,1
	3	3	4,6	170	110	159,7	121,8	–	–	–	96	109	124	184	2,5
	3	3	–	170	110	159,7	121,8	13	22	–	96	–	124	184	2,5

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

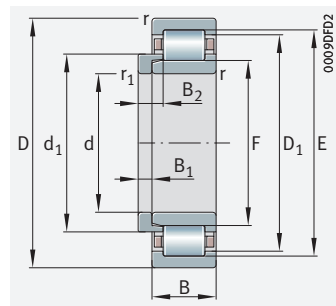


Cylindrical roller bearings with cage

Semi-locating bearings,
locating bearings



NJ
Semi-locating bearing

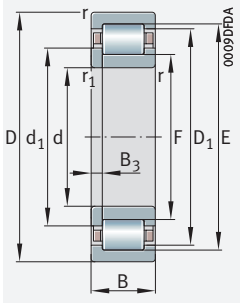


NJ and HJ
Locating bearings

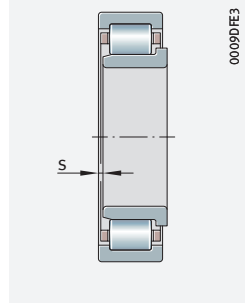
d = 85 – 90 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation ► 429 1.12 ► 430 1.13 X-life ► 419	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{thr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
85	150	28	194 000	194 000	34 000	5 600	4 000	1,95	–	NJ217-E-XL-TVP2	–
	150	28	194 000	194 000	34 000	5 600	4 000	1,95	0,247	NJ217-E-XL-TVP2	HJ217-E
	150	28	194 000	194 000	34 000	5 600	4 000	2,08	–	NUP217-E-XL-TVP2	–
	150	36	255 000	275 000	49 500	5 600	3 300	2,55	–	NJ2217-E-XL-TVP2	–
	150	36	255 000	275 000	49 500	5 600	3 300	2,55	0,249	NJ2217-E-XL-TVP2	HJ2217-E
	150	36	255 000	275 000	49 500	5 600	3 300	2,6	–	NUP2217-E-XL-TVP2	–
	180	41	320 000	300 000	54 000	4 550	3 900	4,71	–	NJ317-E-XL-TVP2	–
	180	41	320 000	300 000	54 000	4 550	3 900	4,71	0,566	NJ317-E-XL-TVP2	HJ317-E
	180	41	320 000	300 000	54 000	4 550	3 900	4,8	–	NUP317-E-XL-TVP2	–
	180	60	435 000	445 000	81 000	4 550	3 300	6,85	–	NJ2317-E-XL-TVP2	–
	180	60	435 000	445 000	81 000	4 550	3 300	6,85	0,606	NJ2317-E-XL-TVP2	HJ2317-E
	180	60	435 000	445 000	81 000	4 550	3 300	6,99	–	NUP2317-E-XL-TVP2	–
	210	52	420 000	385 000	67 000	5 200	3 850	10	–	NJ417-XL-M1	–
	210	52	420 000	385 000	67 000	5 200	3 850	10	0,901	NJ417-XL-M1	HJ417
90	160	30	215 000	217 000	37 500	5 200	3 900	2,41	–	NJ218-E-XL-TVP2	–
	160	30	215 000	217 000	37 500	5 200	3 900	2,41	0,317	NJ218-E-XL-TVP2	HJ218-E
	160	30	215 000	217 000	37 500	5 200	3 900	2,46	–	NUP218-E-XL-TVP2	–
	160	40	285 000	315 000	56 000	5 200	3 250	3,23	–	NJ2218-E-XL-TVP2	–
	160	40	285 000	315 000	56 000	5 200	3 250	3,23	0,323	NJ2218-E-XL-TVP2	HJ2218-E
	160	40	285 000	315 000	56 000	5 200	3 250	3,29	–	NUP2218-E-XL-TVP2	–
	190	43	370 000	350 000	60 000	4 250	3 650	5,49	–	NJ318-E-XL-TVP2	–
	190	43	370 000	350 000	60 000	4 250	3 650	5,49	0,623	NJ318-E-XL-TVP2	HJ318-E
	190	43	370 000	350 000	60 000	4 250	3 650	5,59	–	NUP318-E-XL-TVP2	–
	190	64	510 000	530 000	94 000	4 250	3 000	8,19	–	NJ2318-E-XL-TVP2	–
	190	64	510 000	530 000	94 000	4 250	3 000	8,19	0,669	NJ2318-E-XL-TVP2	HJ2318-E
	190	64	510 000	530 000	94 000	4 250	3 000	8,35	–	NUP2318-E-XL-TVP2	–
	225	54	465 000	425 000	74 000	4 800	3 500	11,8	–	NJ418-XL-M1	–
	225	54	465 000	425 000	74 000	4 800	3 500	11,8	1,1	NJ418-XL-M1	HJ418

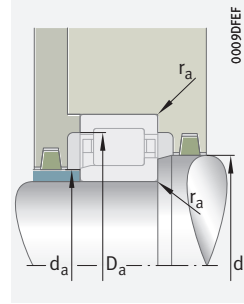
medias <https://www.schaeffler.de/std/1F9A>



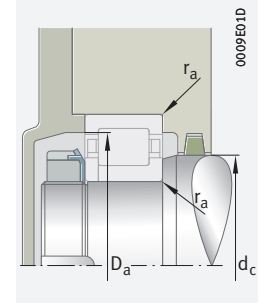
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃
	min.	min.				≈	≈			
85	2	2	0,8	136,5	100,5	131,5	107,5	–	–	–
	2	2	–	136,5	100,5	131,5	107,5	8	12,5	–
	2	2	–	136,5	100,5	131,5	107,5	–	–	4,5
	2	2	1,3	136,5	100,5	131,5	107,5	–	–	–
	2	2	–	136,5	100,5	131,5	107,5	8	13	–
	2	2	–	136,5	100,5	131,5	107,5	–	–	5
	3	3	1,3	160	108	152,7	117,8	–	–	–
	3	3	–	160	108	152,7	117,8	12	18,5	–
	3	3	–	160	108	152,7	117,8	–	–	6,5
	3	3	4,7	160	108	152,7	117,8	–	–	–
	3	3	–	160	108	152,7	117,8	12	22	–
	3	3	–	160	108	152,7	117,8	–	–	10
90	4	4	5,2	177	113	165,7	125,8	–	–	–
	4	4	–	177	113	165,7	125,8	14	24	–
	2	2	1,5	145	107	139,7	114,3	–	–	–
	2	2	–	145	107	139,7	114,3	9	14	–
	2	2	–	145	107	139,7	114,3	–	–	5
	2	2	2,5	145	107	139,7	114,3	–	–	–
	2	2	–	145	107	139,7	114,3	9	15	–
	2	2	–	145	107	139,7	114,3	–	–	6
	3	3	1,5	169,5	113,5	161,6	124	–	–	–
	3	3	–	169,5	113,5	161,6	124	12	18,5	–
	3	3	–	169,5	113,5	161,6	124	–	–	6,5
	3	3	5	169,5	113,5	161,6	124	–	–	–
	3	3	–	169,5	113,5	161,6	124	12	22	–
	3	3	–	169,5	113,5	161,6	124	–	–	10
	4	4	5	191,5	123,5	179,7	136,8	–	–	–
	4	4	–	191,5	123,5	179,7	136,8	14	24	–

Mounting dimensions

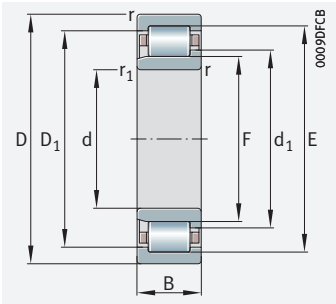
d _a		d _c		D _a		r _a	
min. ¹⁾	max.	min.	max.	min.	max. ¹⁾	min.	max.
96	99	110	139	2			
96	–	110	139	2			
96	–	110	139	2			
96	99	110	139	2			
96	–	110	139	2			
96	–	110	139	2			
99	106	119	166	2,5			
99	–	119	166	2,5			
99	–	119	166	2,5			
99	106	119	166	2,5			
99	–	119	166	2,5			
99	–	119	166	2,5			
105	111	128	190	3			
105	–	128	190	3			
101	105	116	149	2			
101	–	116	149	2			
101	–	116	149	2			
101	105	116	149	2			
101	–	116	149	2			
101	–	116	149	2			
104	111	127	176	2,5			
104	–	127	176	2,5			
104	–	127	176	2,5			
104	111	127	176	2,5			
104	–	127	176	2,5			
104	–	127	176	2,5			
110	122	139	205	3			
110	–	139	205	3			

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

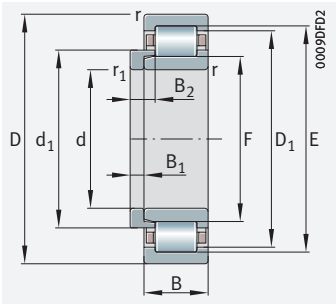


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

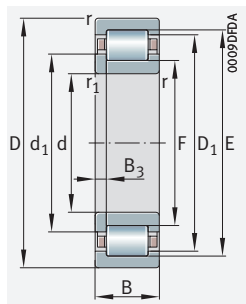


NJ and HJ
Locating bearings

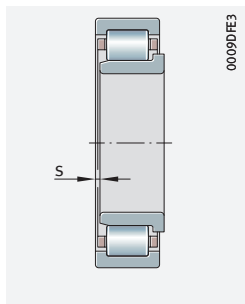
d = 95 – 105 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{thr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
95	170	32	260 000	265 000	45 000	4 850	3 650	2,94	–	NJ219-E-XL-TVP2	–
	170	32	260 000	265 000	45 000	4 850	3 650	2,94	0,352	NJ219-E-XL-TVP2	HJ219-E
	170	32	260 000	265 000	45 000	4 850	3 650	2,99	–	NUP219-E-XL-TVP2	–
	170	43	340 000	370 000	65 000	4 850	3 050	3,98	–	NJ2219-E-XL-TVP2	–
	170	43	340 000	370 000	65 000	4 850	3 050	3,98	0,366	NJ2219-E-XL-TVP2	HJ2219-E
	170	43	340 000	370 000	65 000	4 850	3 050	4,05	–	NUP2219-E-XL-TVP2	–
	200	45	390 000	380 000	65 000	4 050	3 550	6,44	–	NJ319-E-XL-TVP2	–
	200	45	390 000	380 000	65 000	4 050	3 550	6,44	0,777	NJ319-E-XL-TVP2	HJ319-E
	200	45	390 000	380 000	65 000	4 050	3 550	6,56	–	NUP319-E-XL-TVP2	–
	200	67	540 000	580 000	101 000	4 050	2 800	9,58	–	NJ2319-E-XL-TVP2	–
	200	67	540 000	580 000	101 000	4 050	2 800	9,58	0,83	NJ2319-E-XL-TVP2	HJ2319-E
	200	67	540 000	580 000	100 000	4 050	2 800	9,77	–	NUP2319-E-XL-TVP2	–
	240	55	495 000	470 000	81 000	4 550	3 200	14,1	–	NJ419-XL-M1	–
	240	55	495 000	470 000	81 000	4 550	3 200	14,1	1,36	NJ419-XL-M1	HJ419
100	180	34	295 000	305 000	52 000	4 550	3 450	3,55	–	NJ220-E-XL-TVP2	–
	180	34	295 000	305 000	52 000	4 550	3 450	3,55	0,436	NJ220-E-XL-TVP2	HJ220-E
	180	34	295 000	305 000	52 000	4 550	3 450	3,61	–	NUP220-E-XL-TVP2	–
	180	46	395 000	445 000	77 000	4 550	2 900	4,85	–	NJ2220-E-XL-TVP2	–
	180	46	395 000	445 000	77 000	4 550	2 900	4,85	0,446	NJ2220-E-XL-TVP2	HJ2220-E
	180	46	395 000	445 000	77 000	4 550	2 900	4,92	–	NUP2220-E-XL-TVP2	–
	215	47	450 000	425 000	72 000	3 700	3 350	7,82	–	NJ320-E-XL-TVP2	–
	215	47	450 000	425 000	72 000	3 700	3 350	7,82	0,883	NJ320-E-XL-TVP2	HJ320-E
	215	47	450 000	425 000	72 000	3 700	3 350	7,96	–	NUP320-E-XL-TVP2	–
	215	73	680 000	720 000	125 000	3 700	2 500	12,3	–	NJ2320-E-XL-TVP2	–
	215	73	680 000	720 000	125 000	3 700	2 500	12,3	0,934	NJ2320-E-XL-TVP2	HJ2320-E
	215	73	680 000	720 000	125 000	3 700	2 500	12,5	–	NUP2320-E-XL-TVP2	–
	250	58	550 000	530 000	88 000	4 350	2 950	16,1	–	NJ420-XL-M1	–
	250	58	550 000	530 000	88 000	4 350	2 950	16,1	1,55	NJ420-XL-M1	HJ420
105	190	36	310 000	320 000	54 000	4 350	3 400	4,17	–	NJ221-E-XL-TVP2	–
	190	36	310 000	320 000	54 000	4 350	3 400	4,17	0,51	NJ221-E-XL-TVP2	HJ221-E
	190	36	310 000	320 000	54 000	4 350	3 400	4,26	–	NUP221-E-XL-TVP2	–
	260	60	610 000	590 000	97 000	4 150	2 750	18	–	NJ421-XL-M1	–
	260	60	610 000	590 000	97 000	4 150	2 750	18	1,65	NJ421-XL-M1	HJ421

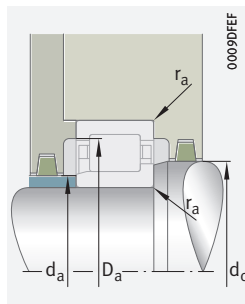
medias <https://www.schaeffler.de/std/1F9A>



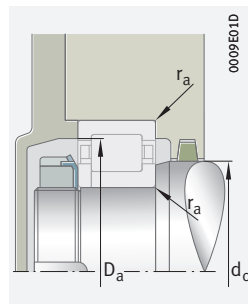
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

Mounting dimensions

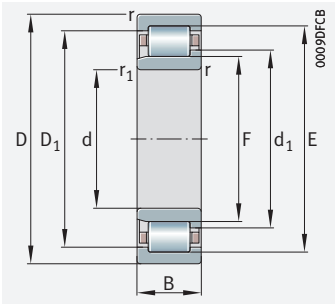
d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃	d _a		d _c	D _a	r _a
											min. ¹⁾	max.			
95	2,1	2,1	0,7	154,5	112,5	148,6	120,5	–	–	–	107	111	123	158	2,1
	2,1	2,1	–	154,5	112,5	148,6	120,5	9	14	–	107	–	123	158	2,1
	2,1	2,1	–	154,5	112,5	148,6	120,5	–	–	5	107	–	123	158	2,1
	2,1	2,1	2,2	154,5	112,5	148,6	120,5	–	–	–	107	111	123	158	2,1
	2,1	2,1	–	154,5	112,5	148,6	120,5	9	15,5	–	107	–	123	158	2,1
	2,1	2,1	–	154,5	112,5	148,6	120,5	–	–	6,5	107	–	123	158	2,1
	3	3	1,4	177,5	121,5	169,6	132	–	–	–	109	119	134	186	2,5
	3	3	–	177,5	121,5	169,6	132	13	20,5	–	109	–	134	186	2,5
	3	3	–	177,5	121,5	169,6	132	–	–	7,5	109	–	134	186	2,5
	3	3	5,6	177,5	121,5	169,6	132	–	–	–	109	119	134	186	2,5
	3	3	–	177,5	121,5	169,6	132	13	24,5	–	109	–	134	186	2,5
	3	3	–	177,5	121,5	169,6	132	–	–	11,5	109	–	134	186	2,5
	4	4	5,2	201,5	133,5	189,7	146,8	–	–	–	115	132	149	220	3
	4	4	–	201,5	133,5	189,7	146,8	15	25,5	–	115	–	149	220	3
100	2,1	2,1	1,5	163	119	156,9	127,3	–	–	–	112	117	130	168	2,1
	2,1	2,1	–	163	119	156,9	127,3	10	15	–	112	–	130	168	2,1
	2,1	2,1	–	163	119	156,9	127,3	–	–	5	112	–	130	168	2,1
	2,1	2,1	3	163	119	156,9	127,3	–	–	–	112	117	130	168	2,1
	2,1	2,1	–	163	119	156,9	127,3	10	16	–	112	–	130	168	2,1
	2,1	2,1	–	163	119	156,9	127,3	–	–	6	112	–	130	168	2,1
	3	3	1,2	191,5	127,5	182	139,4	–	–	–	114	125	143	201	2,5
	3	3	–	191,5	127,5	182	139,4	13	20,5	–	114	–	143	201	2,5
	3	3	–	191,5	127,5	182	139,4	–	–	7,5	114	–	143	201	2,5
	3	3	4,2	191,5	127,5	182	139,4	–	–	–	114	125	143	201	2,5
	3	3	–	191,5	127,5	182	139,4	13	23,5	–	114	–	143	201	2,5
	3	3	–	191,5	127,5	182	139,4	–	–	10,5	114	–	143	201	2,5
	4	4	5,7	211	139	198,2	152,8	–	–	–	120	137	156	230	3
	4	4	–	211	139	198,2	152,8	16	27	–	120	–	156	230	3
105	2,1	2,1	1,3	171,5	125,5	165,1	134,5	–	–	–	117	123	137	178	2,1
	2,1	2,1	–	171,5	125,5	165,1	134,5	10	16	–	117	–	137	178	2,1
	2,1	2,1	–	171,5	125,5	165,1	134,5	–	–	6	117	–	137	178	2,1
	4	4	5,7	220,5	144,5	207,4	158,8	–	–	–	125	143	162	240	3
	4	4	–	220,5	144,5	207,4	158,8	16	27	–	125	–	162	240	3

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

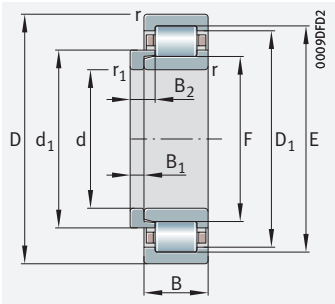


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

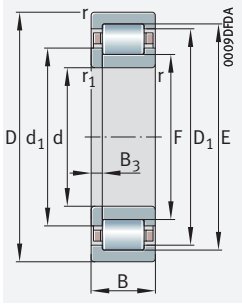


NJ and HJ
Locating bearings

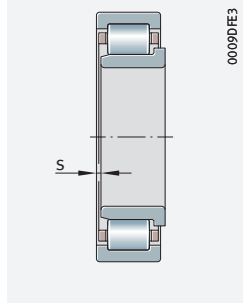
d = 110 – 120 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m	Designation	
d	D	B	dyn. C _r	stat. C _{0r}	C _{ur}	n _G	n _{gr}	Bear- ing	L-section ring	Bearing
N			N	N	N	min ⁻¹	min ⁻¹	≈ kg	≈ kg	L-section ring
110	200	38	345 000	365 000	60 000	4 100	3 250	4,93	–	NJ222-E-XL-TVP2
	200	38	345 000	365 000	60 000	4 100	3 250	4,93	0,616	NJ222-E-XL-TVP2
	200	38	345 000	365 000	60 000	4 100	3 250	5,02	–	NUP222-E-XL-TVP2
	200	53	455 000	520 000	88 000	4 100	2 750	6,89	–	NJ2222-E-XL-TVP2
	200	53	455 000	520 000	88 000	4 100	2 750	6,89	0,647	NJ2222-E-XL-TVP2
	200	53	455 000	520 000	88 000	4 100	2 750	7,02	–	NUP2222-E-XL-TVP2
	240	50	495 000	475 000	80 000	3 350	3 050	10,3	–	NJ322-E-XL-TVP2
	240	50	495 000	475 000	80 000	3 350	3 050	10,3	1,21	NJ322-E-XL-TVP2
	240	50	495 000	475 000	80 000	3 350	3 050	10,7	–	NUP322-E-XL-TVP2
	240	80	750 000	800 000	138 000	3 350	2 290	16,9	–	NJ2322-E-XL-TVP2
	240	80	750 000	800 000	138 000	3 350	2 290	16,9	1,3	NJ2322-E-XL-TVP2
	240	80	750 000	800 000	137 000	3 350	2 290	17,2	–	NUP2322-E-XL-TVP2
	280	65	680 000	660 000	107 000	3 850	2 550	22,8	–	NJ422-XL-M1
	280	65	680 000	660 000	107 000	3 850	2 550	22,8	2,1	NJ422-XL-M1
120	215	40	390 000	415 000	70 000	3 750	3 050	5,91	–	NJ224-E-XL-TVP2
	215	40	390 000	415 000	70 000	3 750	3 050	5,91	0,707	NJ224-E-XL-TVP2
	215	40	390 000	415 000	69 000	3 750	3 050	6,02	–	NUP224-E-XL-TVP2
	215	58	530 000	610 000	104 000	3 750	2 500	8,54	–	NJ2224-E-XL-TVP2
	215	58	530 000	610 000	104 000	3 750	2 500	8,54	0,75	NJ2224-E-XL-TVP2
	215	58	530 000	610 000	104 000	3 750	2 500	8,7	–	NUP2224-E-XL-TVP2
	260	55	610 000	600 000	97 000	3 050	2 650	13,5	–	NJ324-E-XL-TVP2
	260	55	610 000	600 000	97 000	3 050	2 650	13,5	1,41	NJ324-E-XL-TVP2
	260	55	610 000	600 000	97 000	3 050	2 650	13,8	–	NUP324-E-XL-TVP2
	260	86	930 000	1 010 000	169 000	3 950	1 980	23,8	–	NJ2324-E-XL-M1
	260	86	930 000	1 010 000	169 000	3 950	1 980	23,8	1,49	NJ2324-E-XL-M1
	260	86	930 000	1 010 000	168 000	3 950	1 980	24,1	–	NUP2324-E-XL-M1
	310	72	850 000	840 000	131 000	3 450	2 200	31,3	–	NJ424-XL-M1
	310	72	850 000	840 000	131 000	3 450	2 200	31,3	2,61	NJ424-XL-M1

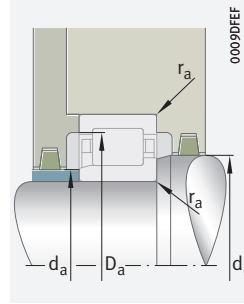
medias <https://www.schaeffler.de/std/1F9A>



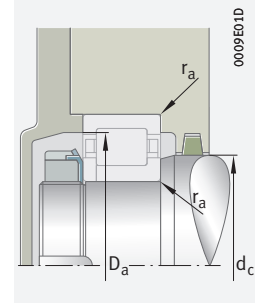
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

Mounting dimensions

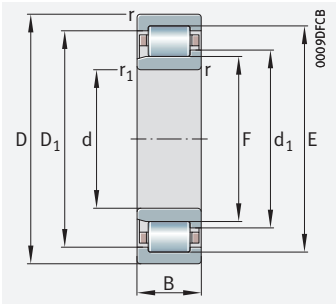
d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃	d _a		d _c	D _a	r _a
											min. ¹⁾	max.		min.	max. ¹⁾
110	2,1	2,1	1,5	180,5	132,5	173,8	141,6	–	–	–	122	130	144	188	2,1
	2,1	2,1	–	180,5	132,5	173,8	141,6	11	17	–	122	–	144	188	2,1
	2,1	2,1	–	180,5	132,5	173,8	141,6	–	–	6	122	–	144	188	2,1
	2,1	2,1	4	180,5	132,5	173,8	141,6	–	–	–	122	130	144	188	2,1
	2,1	2,1	–	180,5	132,5	173,8	141,6	11	19,5	–	122	–	144	188	2,1
	2,1	2,1	–	180,5	132,5	173,8	141,6	–	–	8,5	122	–	144	188	2,1
	3	3	1,3	211	143	200,9	155,6	–	–	–	124	140	158	226	2,5
	3	3	–	211	143	200,9	155,6	14	22	–	124	–	158	226	2,5
	3	3	–	211	143	200,9	155,6	–	–	8	124	–	158	226	2,5
	3	3	5,8	211	143	200,9	155,6	–	–	–	124	140	158	226	2,5
	3	3	–	211	143	200,9	155,6	14	26,5	–	124	–	158	226	2,5
	3	3	–	211	143	200,9	155,6	–	–	12,5	124	–	158	226	2,5
	4	4	6,2	235	155	220,9	170,3	–	–	–	130	153	173	260	3
	4	4	–	235	155	220,9	170,3	17	29,5	–	130	–	173	260	3
120	2,1	2,1	1,4	195,5	143,5	187,8	153,2	–	–	–	132	141	156	203	2,1
	2,1	2,1	–	195,5	143,5	187,8	153,2	11	17	–	132	–	156	203	2,1
	2,1	2,1	–	195,5	143,5	187,8	153,2	–	–	6	132	–	156	203	2,1
	2,1	2,1	4,5	195,5	143,5	187,8	153,2	–	–	–	132	141	156	203	2,1
	2,1	2,1	–	195,5	143,5	187,8	153,2	11	20	–	132	–	156	203	2,1
	2,1	2,1	–	195,5	143,5	187,8	153,2	–	–	9	132	–	156	203	2,1
	3	3	3,5	230	154	218,7	168,1	–	–	–	134	151	171	246	2,5
	3	3	–	230	154	218,7	168,1	14	22,5	–	134	–	171	246	2,5
	3	3	–	230	154	218,7	168,1	–	–	8,5	134	–	171	246	2,5
	3	3	7,2	230	154	218,7	168,1	–	–	–	134	151	171	246	2,5
	3	3	–	230	154	218,7	168,1	14	26	–	134	–	171	246	2,5
	3	3	–	230	154	218,7	168,1	–	–	12	134	–	171	246	2,5
	5	5	6,9	260	170	243,9	187,3	–	–	–	144	168	190	286	4
	5	5	–	260	170	243,9	187,3	17	30,5	–	144	–	190	286	4

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

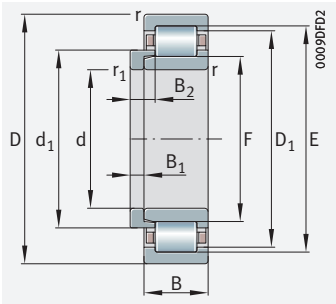


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

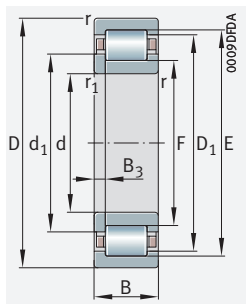


NJ and HJ
Locating bearings

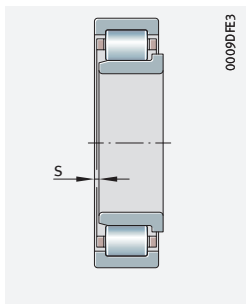
d = 130 – 140 mm

Main dimensions			Basic load ratings		Fatigue limit load C_{ur} N	Limiting speed n_G min^{-1}	Speed rating n_{gr} min^{-1}	Mass m		Designation ► 429 1.12 ► 430 1.13 X-life ► 419	
d	D	B	dyn. C_r N	stat. C_{0r} N				Bear- ing $\approx$ kg	L-section ring $\approx$ kg	Bearing	L-section ring
130	230	40	425 000	445 000	71 000	3 500	2 800	6,63	–	NJ226-E-XL-TVP2	–
	230	40	425 000	445 000	71 000	3 500	2 800	6,63	0,78	NJ226-E-XL-TVP2	HJ226-E
	230	40	425 000	445 000	71 000	3 500	2 800	6,74	–	NUP226-E-XL-TVP2	–
	230	64	620 000	730 000	120 000	3 500	2 280	10,6	–	NJ2226-E-XL-TVP2	–
	230	64	620 000	730 000	120 000	3 500	2 280	10,6	0,849	NJ2226-E-XL-TVP2	HJ2226-E
	230	64	620 000	730 000	120 000	3 500	2 280	10,8	–	NUP2226-E-XL-TVP2	–
	280	58	680 000	670 000	107 000	2 850	2 430	16,5	–	NJ326-E-XL-TVP2	–
	280	58	680 000	670 000	107 000	2 850	2 430	16,5	1,64	NJ326-E-XL-TVP2	HJ326-E
	280	58	680 000	670 000	106 000	2 850	2 430	16,7	–	NUP326-E-XL-TVP2	–
	280	93	1 080 000	1 220 000	198 000	3 700	1 750	29,2	–	NJ2326-E-XL-M1	–
	280	93	1 080 000	1 220 000	198 000	3 700	1 750	29,2	1,77	NJ2326-E-XL-M1	HJ2326-E
	280	93	1 080 000	1 220 000	197 000	3 700	1 750	29,7	–	NUP2326-E-XL-M1	–
140	250	42	460 000	510 000	78 000	4 250	2 600	9,46	–	NJ228-E-XL-M1	–
	250	42	460 000	510 000	78 000	4 250	2 600	9,46	0,986	NJ228-E-XL-M1	HJ228-E
	250	42	460 000	510 000	79 000	4 250	2 600	9,61	–	NUP228-E-XL-M1	–
	250	68	670 000	830 000	133 000	4 250	2 050	14,7	–	NJ2228-E-XL-M1	–
	250	68	670 000	830 000	133 000	4 250	2 050	14,7	1,08	NJ2228-E-XL-M1	HJ2228-E
	250	68	670 000	830 000	133 000	4 250	2 050	16,8	–	NUP2228-E-XL-M1	–
	300	62	790 000	800 000	126 000	2 650	2 170	20,5	–	NJ328-E-XL-TVP2	–
	300	62	790 000	800 000	126 000	2 650	2 170	20,5	2,03	NJ328-E-XL-TVP2	HJ328-E
	300	62	790 000	800 000	126 000	2 650	2 170	20,8	–	NUP328-E-XL-TVP2	–
	300	102	1 210 000	1 390 000	222 000	3 450	1 620	36,6	–	NJ2328-E-XL-M1	–
	300	102	1 210 000	1 390 000	222 000	3 450	1 620	36,6	2,2	NJ2328-E-XL-M1	HJ2328-E
	300	102	1 210 000	1 390 000	221 000	3 450	1 620	37,1	–	NUP2328-E-XL-M1	–

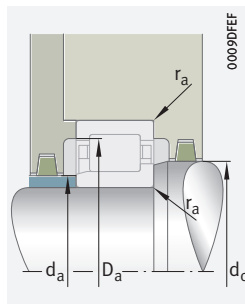
medias <https://www.schaeffler.de/std/1F9A>



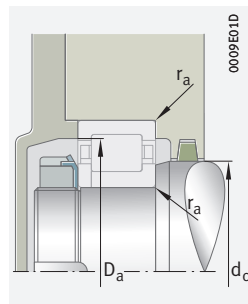
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃
	min.	min.				≈	≈			
130	3	3	1,2	209,5	153,5	201,2	164	–	–	–
	3	3	–	209,5	153,5	201,2	164	11	17	–
	3	3	–	209,5	153,5	201,2	164	–	–	6
	3	3	5,2	209,5	153,5	201,2	164	–	–	–
	3	3	–	209,5	153,5	201,2	164	11	21	–
	3	3	–	209,5	153,5	201,2	164	–	–	10
	4	4	3,5	247	167	235,2	181,7	–	–	–
	4	4	–	247	167	235,2	181,7	14	23	–
	4	4	–	247	167	235,2	181,7	–	–	9
	4	4	8,1	247	167	235,2	181,7	–	–	–
	4	4	–	247	167	235,2	181,7	14	28	–
	4	4	–	247	167	235,2	181,7	–	–	14
140	3	3	3,8	225	169	216,7	179,4	–	–	–
	3	3	–	225	169	216,7	179,4	11	18	–
	3	3	–	225	169	216,7	179,4	–	–	7
	3	3	7	225	169	216,7	179,4	–	–	–
	3	3	–	225	169	216,7	179,4	11	23	–
	3	3	–	225	169	216,7	179,4	–	–	12
	4	4	5,2	264	180	251,7	195,4	–	–	–
	4	4	–	264	180	251,7	195,4	15	25	–
	4	4	–	264	180	251,7	195,4	–	–	10
	4	4	9,2	264	180	251,7	195,4	–	–	–
	4	4	–	264	180	251,7	195,4	15	31	–
	4	4	–	264	180	251,7	195,4	–	–	16

Mounting dimensions

d _a		d _c	D _a	r _a
min. ¹⁾	max.	min.	max. ¹⁾	max.
144	151	168	216	2,5
144	–	168	216	2,5
144	–	168	216	2,5
144	151	168	216	2,5
144	–	168	216	2,5
144	–	168	216	2,5
147	164	184	263	3
147	–	184	263	3
147	–	184	263	3
147	164	184	263	3
147	–	184	263	3
147	–	184	263	3
154	166	182	236	2,5
154	–	182	236	2,5
154	–	182	236	2,5
154	166	182	236	2,5
154	–	182	236	2,5
154	–	182	236	2,5
157	176	198	283	3
157	–	198	283	3
157	–	198	283	3
157	176	198	283	3
157	–	198	283	3
157	–	198	283	3

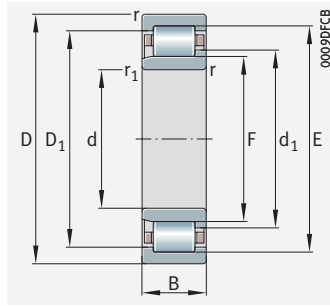


¹⁾ Under axial load, observe the dimensions D₁ and d₁.

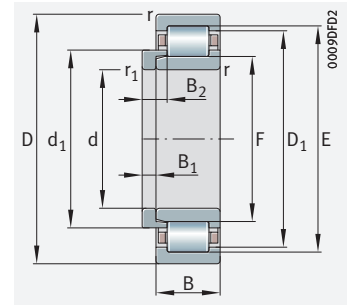


Cylindrical roller bearings with cage

Semi-locating bearings,
locating bearings



NJ
Semi-locating bearing

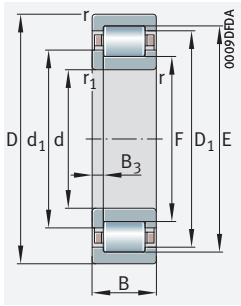


NJ and HJ
Locating bearings

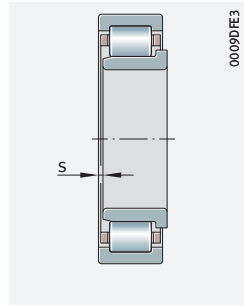
d = 150 – 170 mm

Main dimensions			Basic load ratings		Fatigue limit load C_{ur} N	Limiting speed n_G min^{-1}	Speed rating n_{gr} min^{-1}	Mass m		Designation ► 429 1.12 ► 430 1.13 X-life ► 419	
d	D	B	dyn. C_r N	stat. C_{or} N				Bear- ing $\approx$ kg	L-section ring $\approx$ kg	Bearing	L-section ring
150	270	45	520 000	590 000	90 000	3 950	2 350	12	–	NJ230-E-XL-M1	–
	270	45	520 000	590 000	90 000	3 950	2 350	12	1,26	NJ230-E-XL-M1	HJ230-E
	270	45	520 000	590 000	90 000	3 950	2 350	12,2	–	NUP230-E-XL-M1	–
	270	73	780 000	970 000	155 000	3 950	1 850	18,9	–	NJ2230-E-XL-M1	–
	270	73	780 000	970 000	155 000	3 950	1 850	18,9	1,36	NJ2230-E-XL-M1	HJ2230-E
	270	73	780 000	970 000	154 000	3 950	1 850	19,2	–	NUP2230-E-XL-M1	–
	320	65	900 000	930 000	141 000	3 200	1 940	27,4	–	NJ330-E-XL-M1	–
	320	65	900 000	930 000	141 000	3 200	1 940	27,4	2,33	NJ330-E-XL-M1	HJ330-E
	320	65	900 000	930 000	141 000	3 200	1 940	27,8	–	NUP330-E-XL-M1	–
	320	108	1 380 000	1 600 000	250 000	3 200	1 460	44,1	–	NJ2330-E-XL-M1	–
	320	108	1 380 000	1 600 000	250 000	3 200	1 460	44,1	2,55	NJ2330-E-XL-M1	HJ2330-E
	320	108	1 380 000	1 600 000	249 000	3 200	1 460	44,8	–	NUP2330-E-XL-M1	–
160	290	48	590 000	670 000	102 000	3 650	2 160	14,9	–	NJ232-E-XL-M1	–
	290	48	590 000	670 000	102 000	3 650	2 160	14,9	1,47	NJ232-E-XL-M1	HJ232-E
	290	48	590 000	670 000	102 000	3 650	2 160	15,2	–	NUP232-E-XL-M1	–
	290	80	940 000	1 170 000	187 000	3 600	1 660	24,1	–	NJ2232-E-XL-M1	–
	290	80	940 000	1 170 000	187 000	3 600	1 660	24,1	1,56	NJ2232-E-XL-M1	HJ2232-E
	290	80	940 000	1 170 000	185 000	3 600	1 660	24,5	–	NUP2232-E-XL-M1	–
	340	68	860 000	1 060 000	130 000	3 000	1 770	32,3	–	NJ332-E-M1	–
	340	68	860 000	1 060 000	130 000	3 000	1 770	32,3	2,58	NJ332-E-M1	HJ332-E
	340	114	1 300 000	1 800 000	229 000	3 000	1 350	52,3	–	NJ2332-E-M1	–
	340	114	1 300 000	1 800 000	229 000	3 000	1 350	52,3	2,85	NJ2332-E-M1	HJ2332-E
170	310	52	700 000	780 000	119 000	3 350	1 970	18,4	–	NJ234-E-XL-M1	–
	310	52	700 000	780 000	119 000	3 350	1 970	18,4	1,58	NJ234-E-XL-M1	HJ234-E
	310	52	700 000	780 000	118 000	3 350	1 970	18,6	–	NUP234-E-XL-M1	–
	310	86	1 130 000	1 400 000	216 000	3 300	1 470	29,8	–	NJ2234-E-XL-M1	–
	310	86	1 130 000	1 400 000	216 000	3 300	1 470	29,8	1,78	NJ2234-E-XL-M1	HJ2234-E
	310	86	1 130 000	1 400 000	215 000	3 300	1 470	30,2	–	NUP2234-E-XL-M1	–
	360	72	960 000	1 210 000	140 000	2 800	1 610	38,6	–	NJ334-E-TB-M1	–
	360	72	960 000	1 210 000	140 000	2 800	1 610	38,6	3,21	NJ334-E-TB-M1	HJ334-E
	360	120	1 490 000	2 070 000	231 000	2 800	1 210	62,3	–	NJ2334-EX-TB-M1	–
	360	120	1 490 000	2 070 000	231 000	2 800	1 210	62,3	3,53	NJ2334-EX-TB-M1	HJ2334-E

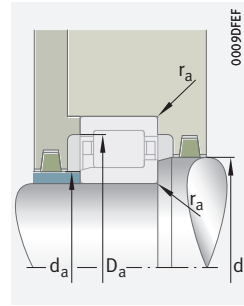
medias <https://www.schaeffler.de/std/1F9A>



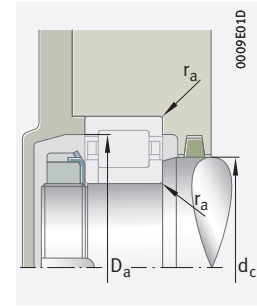
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

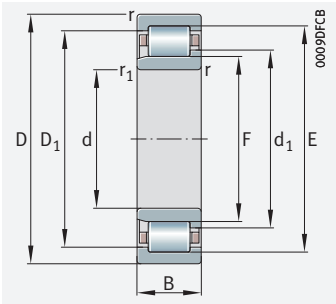
d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃	d _a		d _c	D _a	r _a
	min.	min.				≈	≈				min. ¹⁾	max.	min.	max. ¹⁾	max.
150	3	3	4	242	182	233,2	193,1	–	–	–	164	179	196	256	2,5
	3	3	–	242	182	233,2	193,1	12	19,5	–	164	–	196	256	2,5
	3	3	–	242	182	233,2	193,1	–	–	7,5	164	–	196	256	2,5
	3	3	7,5	242	182	233,2	193,1	–	–	–	164	179	196	256	2,5
	3	3	–	242	182	233,2	193,1	12	24,5	–	164	–	196	256	2,5
	3	3	–	242	182	233,2	193,1	–	–	12,5	164	–	196	256	2,5
	4	4	5,5	283	193	269,8	209,5	–	–	–	167	190	213	303	3
	4	4	–	283	193	269,8	209,5	15	25	–	167	–	213	303	3
	4	4	–	283	193	269,8	209,5	–	–	10	167	–	213	303	3
	4	4	9,7	283	193	269,8	209,5	–	–	–	167	190	213	303	3
	4	4	–	283	193	269,8	209,5	15	31,5	–	167	–	213	303	3
	4	4	–	283	193	269,8	209,5	–	–	16,5	167	–	213	303	3
160	3	3	4,1	259	195	249,6	206,8	–	–	–	174	192	210	276	2,5
	3	3	–	259	195	249,6	206,8	12	20	–	174	–	210	276	2,5
	3	3	–	259	195	249,6	206,8	–	–	8	174	–	210	276	2,5
	3	3	7,2	261	193	251,1	205,5	–	–	–	174	192	210	276	2,5
	3	3	–	261	193	251,1	205,5	12	24,5	–	174	–	210	276	2,5
	3	3	–	261	193	251,1	205,5	–	–	12,5	174	–	210	276	2,5
	4	4	5,6	300	204	286	221,6	–	–	–	177	200	228	323	3
	4	4	–	300	204	286	221,6	15	25	–	177	–	228	323	3
	4	4	9,9	300	204	286	221,6	–	–	–	177	200	228	323	3
	4	4	–	300	204	286	221,6	15	32	–	177	–	228	323	3
170	4	4	4,3	279	207	268,5	218,4	–	–	–	187	204	223	293	3
	4	4	–	279	207	268,5	218,4	12	20	–	187	–	223	293	3
	4	4	–	279	207	268,5	218,4	–	–	8	187	–	223	293	3
	4	4	7,2	281	205	269,9	219	–	–	–	187	204	223	293	3
	4	4	–	281	205	269,9	219	12	24	–	187	–	223	293	3
	4	4	–	281	205	269,9	219	–	–	12	187	–	223	293	3
	4	4	6	–	218	298	238	–	–	–	187	215	240	343	3
	4	4	–	–	218	298	238	16	27	–	187	–	240	343	3
	4	4	10,2	–	216	299,2	236,8	–	–	–	187	214	238,3	343	3
	4	4	–	–	216	299,2	236,8	16	33,5	–	187	–	238,3	343	3

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

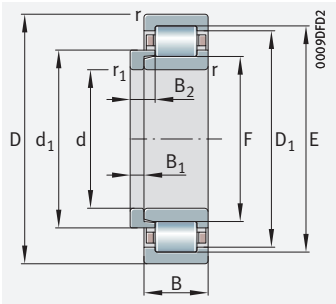


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

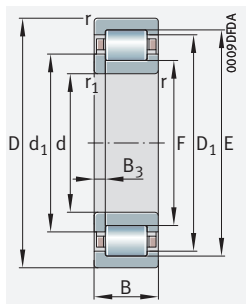


NJ and HJ
Locating bearings

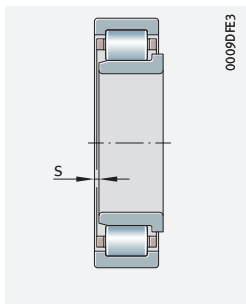
d = 180 – 200 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{gr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
180	320	52	730 000	830 000	124 000	3 250	1 850	19,2	–	NJ236-E-XL-M1	–
	320	52	730 000	830 000	124 000	3 250	1 850	19,2	1,76	NJ236-E-XL-M1	HJ236-E
	320	52	730 000	830 000	124 000	3 250	1 850	17,3	–	NUP236-E-XL-M1	–
	320	86	1 180 000	1 490 000	228 000	3 200	1 380	31,1	–	NJ2236-E-XL-M1	–
	320	86	1 180 000	1 490 000	228 000	3 200	1 380	31,1	1,87	NJ2236-E-XL-M1	HJ2236-E
	320	86	1 180 000	1 490 000	227 000	3 200	1 380	31,6	–	NUP2236-E-XL-M1	–
	380	75	1 040 000	1 320 000	145 000	2 650	1 500	44,6	–	NJ336-E-TB-M1	–
	380	75	1 040 000	1 320 000	145 000	2 650	1 500	44,6	3,77	NJ336-E-TB-M1	HJ336-E
	380	126	1 680 000	2 330 000	260 000	2 600	1 120	72,9	–	NJ2336-EX-TB-M1	–
	380	126	1 680 000	2 330 000	260 000	2 600	1 120	72,9	4,05	NJ2336-EX-TB-M1	HJ2336-E
190	340	55	680 000	930 000	113 000	3 050	1 720	23,2	–	NJ238-E-M1	–
	340	55	680 000	930 000	113 000	3 050	1 720	23,2	2,17	NJ238-E-M1	HJ238-E
	340	55	680 000	930 000	112 000	3 050	1 720	23,5	–	NUP238-E-M1	–
	340	92	1 090 000	1 650 000	204 000	3 000	1 290	37,7	–	NJ2238-E-M1	–
	340	92	1 090 000	1 650 000	204 000	3 000	1 290	37,7	2,31	NJ2238-E-M1	HJ2238-E
	400	132	1 890 000	2 650 000	290 000	2 440	1 010	84,4	–	NJ2338-EX-TB-M1	–
	400	132	1 890 000	2 650 000	290 000	2 440	1 010	84,4	4,8	NJ2338-EX-TB-M1	HJ2338-E
200	360	58	750 000	1 040 000	124 000	2 900	1 600	27,5	–	NJ240-E-M1	–
	360	58	750 000	1 040 000	124 000	2 900	1 600	27,5	2,62	NJ240-E-M1	HJ240-E
	360	58	750 000	1 040 000	123 000	2 900	1 600	28	–	NUP240-E-M1	–
	360	98	1 220 000	1 880 000	229 000	2 850	1 180	45,3	–	NJ2240-E-M1	–
	360	98	1 220 000	1 880 000	229 000	2 850	1 180	45,3	2,78	NJ2240-E-M1	HJ2240-E
	420	80	1 180 000	1 520 000	165 000	2 410	1 320	58,1	–	NJ340-E-TB-M1	–
	420	80	1 180 000	1 520 000	165 000	2 410	1 320	58,1	4,94	NJ340-E-TB-M1	HJ340-E
	420	138	2 040 000	2 900 000	315 000	2 330	940	97,2	–	NJ2340-EX-TB-M1	–
	420	138	2 040 000	2 900 000	315 000	2 330	940	97,2	5,28	NJ2340-EX-TB-M1	HJ2340-E

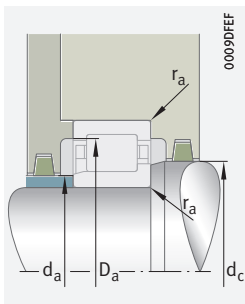
medias <https://www.schaeffler.de/std/1F9A>



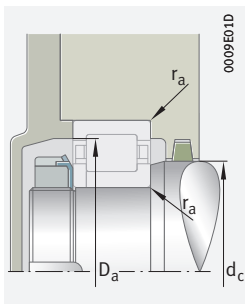
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions

d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃
	min.	min.				≈	≈			
180	4	4	4,7	289	217	278,6	230,2	–	–	–
	4	4	–	289	217	278,6	230,2	12	20	–
	4	4	–	289	217	278,6	230,2	–	–	8
	4	4	7,2	291	215	280	229	–	–	–
	4	4	–	291	215	280	229	12	24	–
	4	4	–	291	215	280	229	–	–	12
	4	4	6,1	–	231	314,2	251,8	–	–	–
	4	4	–	–	231	314,2	251,8	17	28,5	–
	4	4	10,5	–	227	316,6	249,4	–	–	–
	4	4	–	–	227	316,6	249,4	17	35	–
190	4	4	4,7	306	230	295	244	–	–	–
	4	4	–	306	230	295	244	13	21,5	–
	4	4	–	306	230	295	244	–	–	8,5
	4	4	8	308	228	296,4	242,7	–	–	–
	4	4	–	308	228	296,4	242,7	13	26,5	–
	5	5	11	–	240	336	264	–	–	–
	5	5	–	–	240	336	264	18	36,5	–
200	4	4	4,8	323	243	311,5	257,6	–	–	–
	4	4	–	323	243	311,5	257,6	14	23	–
	4	4	–	323	243	311,5	257,6	–	–	9
	4	4	8,2	325	241	312,9	256,3	–	–	–
	4	4	–	325	241	312,9	256,3	14	28	–
	5	5	6,3	–	258	347,6	280,4	–	–	–
	5	5	–	–	258	347,6	280,4	18	30	–
	5	5	11,3	–	253	352,2	277,8	–	–	–
	5	5	–	–	253	352,2	277,8	18	37	–

Mounting dimensions

d _a		d _c	D _a	r _a
min. ¹⁾	max.			
min.	max. ¹⁾	min.	max. ¹⁾	max.
197	214	233	303	3
197	–	233	303	3
197	–	233	303	3
197	214	233	303	3
197	–	233	303	3
197	–	233	303	3
197	228	254	363	3
197	–	254	363	3
197	225	250,6	363	3
197	–	250,6	363	3
207	227	247	323	3
207	–	247	323	3
207	–	247	323	3
207	227	247	323	3
207	–	247	323	3
210	237,8	265,3	380	4
210	–	265,3	380	4
217	240	261	343	3
217	–	261	343	3
217	–	261	343	3
217	240	261	343	3
217	–	261	343	3
220	255	282	400	4
220	–	282	400	4
220	250,7	279	400	4
220	–	279	400	4

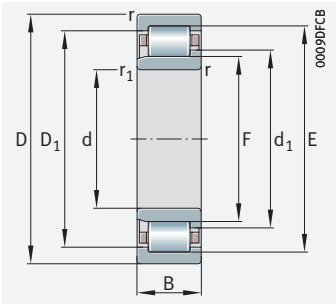
¹⁾ Under axial load, observe the dimensions D₁ and d₁.



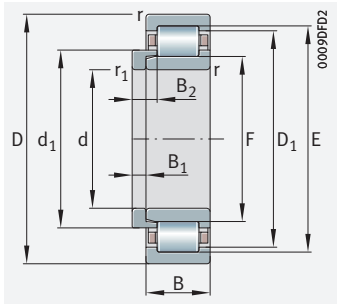


Cylindrical roller bearings with cage

Semi-locating bearings, locating bearings



NJ
Semi-locating bearing

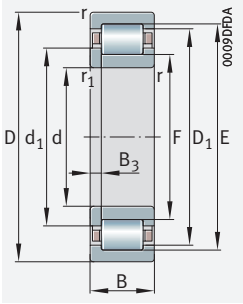


NJ and HJ
Locating bearings

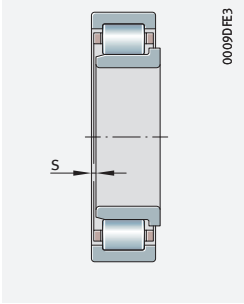
d = 220 – 280 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Speed rating	Mass m		Designation ▶429 1.12 ▶430 1.13	
d	D	B	dyn. C _r N	stat. C _{0r} N	C _{ur} N	n _G min ⁻¹	n _{gr} min ⁻¹	Bear- ing ≈ kg	L-section ring ≈ kg	Bearing	L-section ring
220	400	65	950 000	1 330 000	152 000	2 600	1 380	38,7	–	NJ244-E-M1	–
	400	65	950 000	1 330 000	152 000	2 600	1 380	38,7	3,55	NJ244-E-M1	HJ244-E
	400	65	950 000	1 330 000	152 000	2 600	1 380	39,3	–	NUP244-E-M1	–
	400	108	1 630 000	2 370 000	255 000	2 440	1 000	63,4	–	NUP2244-EX-TB-M1	–
	460	145	2 350 000	3 350 000	350 000	2 110	830	124	–	NUP2344-EX-TB-M1	–
240	440	72	1 140 000	1 610 000	174 000	2 320	1 220	52,5	–	NJ248-E-TB-M1	–
	440	72	1 140 000	1 610 000	174 000	2 320	1 220	52,5	4,6	NJ248-E-TB-M1	HJ248-E
	500	95	1 720 000	2 280 000	238 000	1 980	1 000	97	–	NJ348-E-TB-M1	–
	500	95	1 720 000	2 280 000	238 000	1 980	1 000	97	8,3	NJ348-E-TB-M1	HJ348-E
260	480	80	1 350 000	1 890 000	195 000	2 100	1 110	69,4	–	NJ252-E-TB-M1	–
	480	80	1 350 000	1 890 000	195 000	2 100	1 110	69,4	5,92	NJ252-E-TB-M1	HJ252-E
280	580	108	2 180 000	3 050 000	295 000	1 700	790	149	–	NJ356-E-TB-M1	–
	580	108	2 180 000	3 050 000	295 000	1 700	790	149	13,7	NJ356-E-TB-M1	HJ356-E

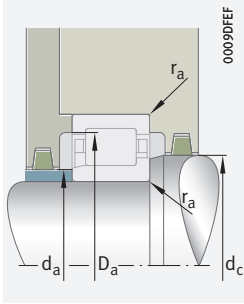
medias <https://www.schaeffler.de/std/1F9A>



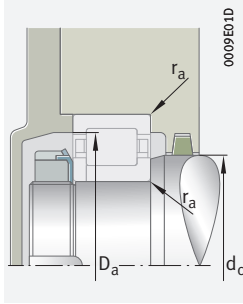
NUP
Locating bearing



Axial displacement "s"
for NJ



Mounting dimensions
for NJ



Mounting dimensions
for NUP

Dimensions											Mounting dimensions				
d	r	r ₁	s	E	F	D ₁	d ₁	B ₁	B ₂	B ₃	d _a		d _c	D _a	r _a
	min.	min.				≈	≈				min. ¹⁾	max.	min.	max. ¹⁾	max.
220	4	4	5,5	358	268	344,9	285,2	–	–	–	237	265	288	383	3
	4	4	–	358	268	344,9	285,2	15	25	–	237	–	288	383	3
	4	4	–	358	268	344,9	285,2	–	–	10	237	–	288	383	3
	4	4	–	367	259	345,4	280,6	–	–	14	237	–	282,3	383	3
	5	5	–	413	277	385,8	304,2	–	–	20	240	–	305,1	440	4
240	4	4	6	–	293	373	313	–	–	–	257	290	315	423	3
	4	4	–	–	293	373	313	16	27	–	257	–	315	423	3
	5	5	7,4	–	306	414,8	333,2	–	–	–	260	303	335	480	4
	5	5	–	–	306	414,8	333,2	22	35,5	–	260	–	335	480	4
260	5	5	6,2	–	317	406,6	339,7	–	–	–	280	314	341	460	4
	5	5	–	–	317	406,6	339,7	18	30	–	280	–	341	460	4
280	6	6	8,7	–	362	482	392	–	–	–	306	359	393,4	554	5
	6	6	–	–	362	482	392	26	42,5	–	306	–	393,4	554	5

¹⁾ Under axial load, observe the dimensions D₁ and d₁.

