

Needle roller bearings with increased performance density

Features

Needle roller bearings with the suffix D have a steel cage that is profiled and has been produced using improved forming technology. The cage is designed such that the bearing can accommodate a larger number of needle rollers of greater length while the bearing dimensions remain unchanged, *Figure 1*.

Due to the larger number of rolling elements and the increase in their load-bearing length, the basic load ratings are increased by up to 25%. As a result, the bearings can support significantly higher loads within the same design envelope.

These needle roller bearings open up possibilities for designing machines and subassemblies that require less space but have the same performance level.



Figure 1
Needle roller bearings with the suffix D



The needle roller bearings are X-life bearings and have raceways with an optimised surface. This gives higher load carrying capacity and longer rating life.

Advantages

The needle roller bearings of improved design offer several advantages:

- downsizing through increased performance density
- better utilisation of the design envelope
- reduced frictional torque due to an improved bearing position
- high load carrying capacity
- lower mass.

Operating temperature

Open bearings can be used at operating temperatures from $-20\text{ }^{\circ}\text{C}$ to $+120\text{ }^{\circ}\text{C}$.

Suffixes

Suffixes for available designs: see table.

Available designs

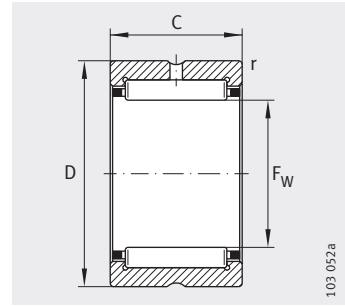
Suffix	Description	Design
D	Bearing with improved steel cage for downsizing option	Standard

Design and safety guidelines

Design and safety guidelines: see Catalogue HR 1, Rolling Bearings. If inner rings are to be used, please consult the engineering service of the Schaeffler Group.

Needle roller bearings

Without inner ring
Open

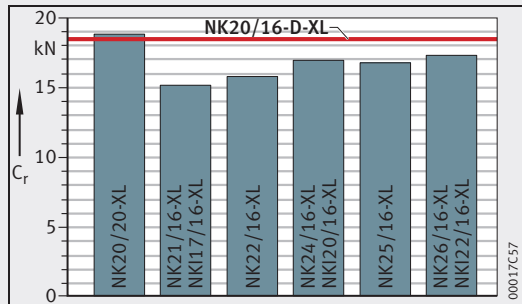


NK

103 052a

Dimension table · Dimensions in mm

Designation	Mass m ≈g	Dimensions				Basic load ratings		Fatigue limit load C_{ur} N	Limiting speed n_G min ⁻¹	Reference speed n_B min ⁻¹	Availability from 2011
		F_w	D	C	r min.	dyn. C_r N	stat. C_{0r} N				
NK14/16-D-XL	21,4	14	22	16	0,3	15 400	17 100	2 850	24 600	14 600	2nd quarter
NK20/16-D-XL	28,4	20	28	16	0,3	18 500	23 900	4 050	21 100	10 900	2nd quarter
NK28/20-D-XL	58	28	37	20	0,3	29 000	41 500	7 400	15 800	8 100	3rd quarter
NK37/20-D-XL	83	37	47	20	0,3	34 000	56 000	9 900	12 300	6 300	4th quarter
NK55/25-D-XL	195	55	68	25	0,6	57 000	111 000	19 400	8 400	43 50	2nd quarter



Comparison of basic load ratings of standard bearings and improved needle roller bearing NK..-D

Schaeffler Technologies GmbH & Co. KG

Industriestraße 1–3
91074 Herzogenaurach (Germany)
Internet www.ina.com
E-Mail info@schaeffler.com

In Germany:
Phone 0180 5003872
Fax 0180 5003873

From other countries:
Phone +49 9132 82-0
Fax +49 9132 82-4950

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