

# Needle roller bearings with TWin Cage

## Features

Needle roller bearings with TWin Cage comprise a plastic cage with two adjacent needle rollers per pocket and a machined outer ring, *Figure 1*.



*Figure 1*  
Needle roller bearings  
with TWin Cage



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

In comparison with conventional needle roller bearings, the friction is reduced by up to 25%:

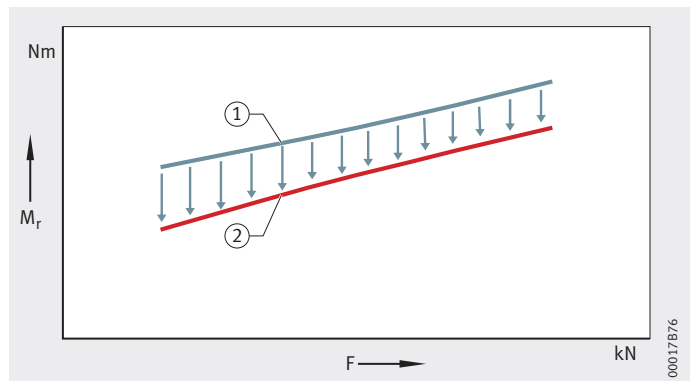
- difference in frictional energy of up to 35 W at 4 000 min<sup>-1</sup>, compared with a standard bearing NK45/20-TV-XL, *Figure 2*
- reduced heat generation
- longer grease operating life and longer lubrication intervals
- higher accuracy due to smaller temperature differences.

$M_r$  = frictional torque  
 $F$  = bearing load

① Standard bearing  
with one needle roller per pocket  
(suffix TV)

② TWin Cage

*Figure 2*  
Lower friction  
in needle roller bearings  
with TWin Cage



## Operating temperature

Open bearings can be used at operating temperatures from -20 °C to +120 °C.

## Suffixes

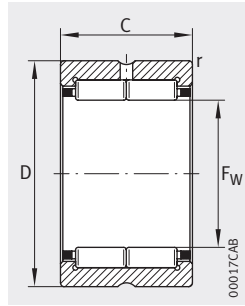
Suffixes for available designs: see table.

## Available designs

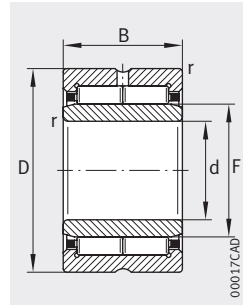
Suffix	Description	Design
TW	Bearing with cage made from glass fibre reinforced polyamide 66 and two short needle rollers per cage pocket	Standard

# Needle roller bearings

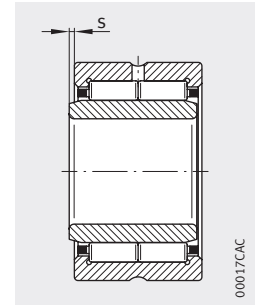
Without inner ring  
With inner ring  
Open



NK...TW



NKI...TW



Axial displacement

**Dimension table** · Dimensions in mm

Designation	Mass m ≈ g	Dimensions						Basic load ratings		Fatigue limit load C <sub>ur</sub> N	Limiting speed n <sub>G</sub> min <sup>-1</sup>	Reference speed n <sub>B</sub> min <sup>-1</sup>	Availability from 2011
		d	F <sub>w</sub>	D	C	r min.	s	dyn. C <sub>r</sub> N	stat. C <sub>0r</sub> N				
<b>NK30/20-TW-XL</b>	61	–	30	40	20	0,3	–	28 000	39 000	7 300	14 800	7 800	2nd quarter
<b>NKI35/20-TW-XL</b>	122	35	40	50	20	0,3	0,5	33 500	53 000	9 900	11 400	6 300	2nd quarter
<b>NKI40/30-TW-XL</b>	216	40	45	55	30	0,3	1	52 000	102 000	18 200	10 200	5 500	3rd quarter
<b>NKI55/25-TW-XL</b>	255	55	60	72	25	0,6	1,5	53 000	98 000	17 000	7 700	4 450	2nd quarter

## Schaeffler Technologies GmbH & Co. KG

Industriestraße 1–3  
91074 Herzogenaurach (Germany)  
Internet [www.ina.com](http://www.ina.com)  
E-Mail [info@schaeffler.com](mailto: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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