



NEEDLE ROLLER BEARINGS

The reference range **made in Japan**

NTN® **SNR**®

www.ntn-snr.com



With You

NTN-SNR The strength of a group



NTN Corporation, one of the world leaders in bearings, specialized particularly in the design, development and production of needle roller bearings and rollers.

With NTN-SNR BEARINGS, benefit from this know-how near you with:

- A very wide range of needle roller bearings, rollers and components
- An undisputed leader in Japan for industrial applications
- More than 50 years of experience in design and production of these products
- The systematic search for excellence, manifested by a high level of performance and exceptional quality
- Extended service life and unfailing reliability, as recognised by thousands of customers who use them worldwide

Globally, NTN Corporation is an expert in product life cycle management, and is typified by the accessibility and commitment of its teams.

**NTN-SNR ACCOMPANIES YOU
ON THE ROAD TO RELIABILITY AND PERFORMANCE**





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The reference range made in Japan

Premium quality at your doorstep



NTN HAS THE BEARING YOU NEED

THE WIDEST OFFER ON THE MARKET

- Needle roller and cage assemblies
- Drawn cup needle roller bearings
- Needle roller bearings with solid rings
- Combined bearings
- Cam followers and cam followers on shafts
- Needle roller thrust bearings
- Components



A KNOW-HOW MADE IN JAPAN

NTN, THE No. 1 FOR NEEDLE ROLLER BEARINGS AND ROLLERS IN JAPAN

With 100 % Japanese mastery, from design to production, NTN has products tested by the biggest names in the global industry for over 50 years.



RECOGNISED PREMIUM QUALITY

OUR STEEL SELECTION MAKES THE DIFFERENCE

By opting for superior steel quality, combined with a design that is ultra-compact, rigid and withstands heavy radial loads, NTN offers bearings with increased service life of up to 3 times compared to the standard ones.



A PRODUCT AVAILABILITY CLOSER TO YOU

EUROPEAN STOCK FOR SHORT DELIVERY TIMES

NTN-SNR has a stock of over 2,000 references in European stock to provide excellent availability. In addition, there is a centralised global stock in Japan. Search for the availability of our products in real time via our E-Shop portal.

(eshop.ntn-snr.com)



SERVICE AND SUPPORT AT YOUR DOORSTEP

TECHNICAL SUPPORT BASED IN EUROPE TO ASSIST YOU

Customised studies, recommendations for your specific applications, Experts & Tools training, our NTN-SNR experts are there to support you.

Our on-line tools:

- CROSS REFERENCES
- TECHNICAL DATA SHEETS
- PLACING ORDERS



Check out our video
You **Tube**





NEEDLE ROLLER BEARINGS ARE ESSENTIAL
ON A DAILY BASIS AND IN NUMEROUS SECTORS OF ACTIVITIES
AND APPLICATIONS.

Wherever compactness is required, where reliability and durability requirements are strong, NTN has the solution in its needle roller bearings offering. With more than 320 million units produced each year, working together with original equipment manufacturers (OEMs) for more than 50 years, NTN has acquired this know-how which are benefiting thousands of customers today.



MOTORISED PORTABLE TOOLS CHAINSAW

The extreme requirements of this application are reflected in the natural qualities of NTN needle roller bearings: compactness, high load capacity, resistance to overheating (motor) and poor lubrication.

NTN is the preferred supplier of the world's leading professional chainsaws.



ENGINE ①: CAGE H

➤ In the development of engines, the design of crankshaft bearings and needle roller bearings located at the ends of the rods represents a difficulty: high temperatures, poor lubrication conditions and high loads, in particular due to the very high centrifugal forces. Two-stroke chainsaw engines are demanding applications that NTN can handle with needle roller bearings. Our bearings have been tested under the most severe conditions and have demonstrated their technical superiority.

By mastering the design and manufacturing processes, using the best materials, heat treatments and surface treatments, type H needle roller and cage assemblies have become the reference on this market. NTN equips millions of professional chainsaws around the world.

TWO-WHEELERS MOTORCYCLES

Recognised by leading manufacturers of two-wheelers, NTN needle roller bearings guarantee perfect safety and exceptional durability. Along all the kilometres, from the motorcycle to the competition sports bike, NTN brings complete peace of mind.



STARTER ①: K

- Needle roller and cage assemblies are subject to strong acceleration and a high starting torque during each use.

CRANKSHAFT ②: KBK

- Needle roller and cage assemblies for connecting rod assemblies withstand high loads due to the particularly severe centrifugal forces.

TRANSMISSION ③: NKZ

- The large speed variations & the impacts in the transmission during gear changes place very high strain on the gearbox bearings. The solid outer ring makes it possible to compensate for the relative lack of rigidity of the crankcase.

SUSPENSION ARM JOINT ④: HK AND HMK

- The drawn cup needle roller bearing with solid lubrication (LP03) is extremely suitable for oscillating applications; it is designed to last for the service life of the motorcycle.

CONSTRUCTION MACHINERY

EXCAVATOR

Construction machinery uses a large number of needle roller bearings, all available in the NTN range. Reliability and robustness are the key points sought by users, which is why NTN has been supplying the world's leading manufacturers for decades.



VARIABLE DISPLACEMENT PUMP ①: GPK

- This cradle-shaped bearing operates in oscillating motion. It is used to enable the angular movement of the swash plate of the hydraulic pump, which directly depends on the instantaneous flow rate of the pump. In addition to its compactness, the functional accuracy of the bearing ensures excellent control of the flow variations of the variable displacement hydraulic pump.

WHEEL REDUCER (FINAL DRIVE) AND SUPERSTRUCTURE ORIENTATION EPICYCLIC GEARING ②: K

- The needle roller and cage assemblies are used in planetary gears. In this type of complex transmission, despite their great compactness and sometimes extreme operating conditions, these robust and reliable bearings withstand heavy loads, ensuring a longer service life of the equipment.

AGRICULTURE

SWATHER

Towed machines are subjected to rough treatment: impacts, dust, humidity, mud, etc. The seasons follow one another with their share of challenges and it is no coincidence that the extreme robustness of NTN needle roller bearings has impressed the most demanding manufacturers.



VERTICAL SPINDLE SHAPER ①: KR

- ▶ The complex movement of the arms of the swather is created by the rollers rolling in a cam. In the open version, the bearing and the cam are subject to ingress of pollution. In a sealed housing, the roller will not require any maintenance. It will then withstand the seasons without any maintenance.

WHEEL ROTATION THRUST BEARING ②: AXK + GS + WS

- ▶ The thrust bearing serves as an interface between the chassis and the directional part including the wheel, enabling its orientation during turns. The thrust bearing must withstand the weight of the swather by absorbing the impacts coming from the wheels.

MACHINES & EQUIPMENT BOARDING

In an increasingly demanding industrial world, the operation of machinery and equipment in industrial production and logistics no longer tolerates shut-downs. Often invisible, NTN needle roller bearings are nevertheless ubiquitous in factories, as in our daily lives. By their reliability and durability, they operate unnoticed, guaranteeing the operators the proper functioning of their equipment.



HORIZONTAL GUIDANCE ①: KRV







- The cam follower on a full complement shaft is used to smoothly guide the telescopic part of the tunnel into the first section. The roller then rolls on a rail, it is put under stress at low speed, with a very heavy load generated by the weight of passengers and a very long overhang.

VERTICAL GUIDANCE ②: NUKR

- The cam follower on a double-row roller shaft is used in the frame to place the tunnel in the correct position in front of the aircraft door. It must therefore withstand a heavy weight, endure impacts and vibrations due to passengers walking in the tunnel. It enables vertical guidance by rolling on a rail. The design of this roller also makes it possible to withstand axial loads during the manoeuvres of the tunnel.





PRE-SELECTION GUIDE

NTN needle roller bearings are all characterised by their excellent capacity/overall dimensions ratio. To get the most out of their performance, it is important to choose the type of needle roller bearings according to three characteristics of the housing and the shaft: circularity and rigidity, surface condition and roughness, and hardness.

		Housing characteristics			Shaft characteristics		
		Circularity and rigidity	Surface condition (roughness)	Hardness	Circularity and rigidity	Surface condition (roughness)	Hardness
	Needle roller and cage assembly	++	++	++	++	++	++
	Drawn cup needle roller bearing	++	+	+	++	++	++
	Bearing with solid rings without inner rings	+	+	0	++	++	++
	Bearing with solid rings with inner rings	+	+	0	+	+	0
	Cam follower	/	+(if the roller rolls on a raceway)	+(if the roller rolls on a raceway)	+	+	0
	Cam follower on shaft	/	+(if the roller rolls on a raceway)	+(if the roller rolls on a raceway)	/	/	/

















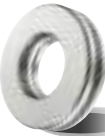





SELECTION GUIDE

Simplify your search by selecting the type of product and the main technical characteristics desired.

Category	Radial load	Axial load	Speed	Precision	Ease of mounting	Series	Type of bearing	Main characteristics	Product presentation page	Technical ref. page
 Needle roller and cage assemblies	●	●	●	●	●	K	Needle roller and cage assemblies	Standard cage, very rigid	16	36 - 40
						K.ZW	Needle roller and cage assemblies	Machined cage with two needle rows	16	
						KMJ/PCJ	Needle roller and cage assemblies	Drawn steel cage, M-shaped profile	16	
						KJ.S	Needle roller and cage assemblies	Drawn steel cage	16	
						KV.S	Needle roller and cage assemblies	Drawn steel cage of large thickness, very rigid, V-shaped profile	16	
						GK	Needle roller and cage assemblies in two parts	Machined cage in two parts	16	
 Needle roller and cage assemblies for connecting rod	●	●	●	●	●	PK	Needle roller and cage assemblies for big-end	Machined needle roller and cage assemblies	17	41
						KMJ.S	Needle roller and cage assemblies for big-end	Drawn steel cage	17	
						KBK	Needle roller and cage assemblies for small-end	Machined cage	17	
						KV.S	Needle roller and cage assemblies for small-end	Drawn steel cage	17	
						H	High performance needle roller and cage assemblies	Special cage for high speeds and heavy loads	17	
 Drawn cup needle roller bearings	●	●	●	●	●	HK/HKS	Drawn cup needle roller bearings	Standard bushing, polyamide resin or steel moulding cage	18	42 - 46
						HK.L/L	Drawn cup needle roller bearings	Standard bushing, sealed	18	
						HK.ZWD	Drawn cup needle roller bearings	Double-row drawn cup needle roller bearings	18	
						DCL/SC	Drawn cup needle roller bearings	Standard bushing in imperial dimensions	18	
						HMK/DCH	Drawn cup needle roller bearings	High capacity bushing	18	
						HMK.L/L	Drawn cup needle roller bearings	High capacity bushing, sealed	18	
						HMK.ZWD	Drawn cup needle roller bearings	High capacity double-row bushing	18	
						BK/BKS	Drawn cup needle roller bearings closed end	Standard bushing, polyamide resin or steel moulding cage	19	
						BK.L	Drawn cup needle roller bearings closed end	Standard bushing, sealed	19	
						BK.ZWD	Drawn cup needle roller bearings closed end	Double-row standard drawn cup needle roller bearings	19	
 Needle roller bearings with solid rings	●	●	●	●	●	RNA48/RNA49/RNA59/RNA69	Bearing without inner ring	Very rigid outer ring, dimensions according to ISO 15 standard	20	47 - 51
						RNA49.R	Bearing without inner ring	Very rigid outer ring, with ribs, dimensions according to ISO 15 standard	20	
						RNA69.R	Bearing without inner ring	Very rigid outer ring, with ribs, dimensions according to ISO 15 standard	20	
						NK/NKS/NKZ	Bearing without inner ring	Very rigid outer ring, many cage choices	20	
						NK.R/MR	Bearing without inner ring	Very rigid outer ring, with ribs, many cage choices	20	
						NA48/NA49/NA59	Bearing with inner ring	Very rigid bearing, dimensions according to ISO 15 standard	21	42 - 54
						NA49.R/NA59.R/NA69.R	Bearing with inner ring	Very rigid bearing, dimensions according to ISO 15 standard	21	
						NK.R+1R/MR+M1	Bearing with inner ring	Very rigid bearing, range of cage choices	21	
						NK+1R/NKS+1R	Bearing with inner ring	Very rigid bearing, range of cage choices	21	




















DIFFICULT MOUNTING	FAIRLY EASY MOUNTING	EASY MOUNTING
MEDIUM PRECISION	GOOD PRECISION	EXCELLENT PRECISION
NOT SUITABLE FOR SPEED RANGES	SUITABLE FOR SPEED RANGES	VERY SUITABLE FOR HIGH SPEED
UNSUITABLE	LOW CAPACITY	GOOD CAPACITY

SELECTION GUIDE (CONTINUED)

Category	Radial load	Axial load	Speed	Precision	Ease of mounting	Series	Type of bearing	Main characteristics	Product presentation page	Technical ref. page
Needle roller bearings with separable solid rings 						RNAO	Bearing without inner ring	Separable cage and outer ring for easier mounting	22	55
						RNAO..ZW	Bearing without inner ring	Double-row separable cage and outer ring for easier mounting	22	
						NAO	Bearing with inner ring	Separable cage, inner ring and outer ring for easier mounting	22	56
						NAO..ZW	Bearing with inner ring	Separable double-row cage, inner ring and outer ring for easier mounting	22	
Combined bearings 						NKX	Needle roller bearing + thrust ball bearing	Open thrust ball bearing to withstand axial loads (uni-directional)	24	62
						NKX..Z	Needle roller bearing + thrust ball bearing	Thrust ball bearing with shield to withstand axial loads (uni-directional)	24	
						NKXR	Needle roller bearing + thrust roller bearing	Open thrust roller bearing to withstand axial loads (uni-directional)	25	
		NKXR..Z	Needle roller bearing + thrust roller bearing	Thrust roller bearing with shield to withstand axial loads (uni-directional)	25					
						NK1A	Needle roller bearing + balls	Four point contact ball bearing to withstand axial loads (bi-directional)	24	63
						ARN	Needle roller bearing + thrust roller bearing	High capacity bi-directional thrust roller bearing used at the end of ball screws	25	
Thrust bearings 						AXK	Thrust bearing cage	Brass or steel cage (according to diameter)	26	76
						K811/K812	Thrust bearing cage	Cylindrical roller cage, in steel or aluminium	26	
						K874	Thrust bearing cage	Cylindrical roller cage in aluminium	26	
						K893	Thrust bearing cage	Cylindrical roller cage in aluminium	26	
						811/812	Complete thrust bearing	Cylindrical roller thrust bearing, solid washers, cage K811 or K812	27	78
						874	Complete thrust bearing	Cylindrical roller thrust bearing, solid washers, cage K874	27	
						893	Complete thrust bearing	Cylindrical roller thrust bearing, solid washers, cage K893	27	
						AS	Thrust bearing washer	Pressed steel support washer	27	
						WS811/ WS812/ WS874/ WS893	Thrust bearing washer	Solid support washer guided by the outer diameter	27	77
						GS811/ GS812/ GS874/ GS893	Thrust bearing washer	Solid support washer guided by the inner diameter	27	
						DIFFICULT MOUNTING FAIRLY EASY MOUNTING EASY MOUNTING				
						MEDIUM PRECISION GOOD PRECISION EXCELLENT PRECISION				
						NOT SUITABLE FOR SPEED RANGES SUITABLE FOR SPEED RANGES VERY SUITABLE FOR HIGH SPEED				
						UNSUITABLE LOW CAPACITY GOOD CAPACITY				



SELECTION GUIDE (CONTINUED AND CONCLUDED)

Category	Radial load	Axial load	Speed	Precision	Ease of mounting	Series	Type of bearing	Main characteristics	Product presentation page	Technical ref. page				
 Cam followers						RNA22..LL	Cam follower without inner ring	Needle rollers suitable for speed range, without inner ring, with two seals	28	71				
						RNAB2	Cam follower without inner ring	Needle rollers suitable for speed range, without inner ring, of separable type	28					
						NA22..LL	Cam follower with inner ring	Needle rollers suitable for speed range, with inner ring, with two seals	28	72				
						NATR	High capacity cam follower	Needle roller, high radial load capacity, labyrinth sealing	28					
					NATR..LL	High capacity cam follower	Needle roller, high radial load capacity, with two seals	28	73					
					NATV/NACV	High capacity full complement cam follower	Full complement needle roller, high load capacity, but low operating speed	29						
					NATV..LL/ NACV..LL	High capacity full complement cam follower	Full complement needle roller, sealed, high load capacity, but low operating speed	29						
					NUTR/NUTR2/ NUTR3	Very high capacity cam follower	Roller bearing, very high radial load capacity, also accepts axial loads	29		73 - 75				
					NUTW/NUTW2/ NUTW3	Very high capacity cam follower	Roller bearing, very high radial load capacity, also accepts axial loads	29						
 Cam followers on shafts						KR/CR	Cam follower on shaft with needle roller and cage assemblies	Adapted to the speed range, version without seals	30	64 - 67				
						KR..LL	Cam follower on shaft with needle roller and cage assemblies	Adapted to the speed range, version with two seals	30					
						KRT	Cam follower on shaft with needle roller and cage assemblies	Adapted to the speed range, version without seals, tapped hole	30					
						KRT..LL	Cam follower on shaft with needle roller and cage assemblies	Adapted to the speed range, version with two seals, tapped hole	30					
	KRU	Cam follower on shaft with needle roller and cage assemblies	Adapted to the speed range, version without seals, eccentric axis	30										
					KRV/CRV	Cam follower on shaft without needle roller and cage assemblies	Adapted to high radial loads, version without seals	31	70					
					KRV..LL/ CRV..LL	Cam follower on shaft without needle roller and cage assemblies	Adapted to high radial loads, version with seals	31						
					KRVT	Cam follower on shaft without needle roller and cage assemblies	Adapted to high radial loads, version without seals, tapped hole	31						
					KRVT..LL	Cam follower on shaft without needle roller and cage assemblies	Adapted to high radial loads, version without seals, tapped hole	31						
					KRVU	Cam follower on shaft without needle roller and cage assemblies	Adapted to high radial loads, version without seals, eccentric axis	31						
					KRVU..LL	Cam follower on shaft without needle roller and cage assemblies	Adapted to very high radial loads, version with seals, eccentric axis	31	70					
					NUKR	Cam follower on roller shaft	Adapted to very high radial loads and moderate axial loads	32						
					NUKRT	Cam follower on roller shaft	Adapted to very high radial loads and moderate axial loads, tapped hole	32						
					NUKRU	Cam follower on roller shaft	Adapted to very high radial loads and moderate axial loads, tapped hole, eccentric axis	32						
					Inner rings						1R/M1	Inner ring	Solid ring acting as a raceway	23
Needles										A	Needle with round tips	Semi-standard needle, can also act as pin or axis	33	-
					F	Needle with flat ends	Standard needle, the most common, can also act as pin or axis	33						
Stop segments						BR	Stop segments	Stop segment for housing	33	-				
						WR	Stop segments	Stop segment for shaft	33	-				
Seals						G	Single lip seal, T°C: -25° C to +120° C.	Designed to retain grease (not oil) and prevent dust entry	33	-				
						GD	Double lip seal, T°C: -25° C to +120° C.	Designed to retain grease (not oil) and prevent dust entry	33	-				
<div><div><div>DIFFICULT MOUNTING</div><div>FAIRLY EASY MOUNTING</div><div>EASY MOUNTING</div></div><div><div>MEDIUM PRECISION</div><div>GOOD PRECISION</div><div>EXCELLENT PRECISION</div></div><div><div>NOT SUITABLE FOR SPEED RANGES</div><div>SUITABLE FOR SPEED RANGES</div><div>VERY SUITABLE FOR HIGH SPEED</div></div><div><div>UNSUITABLE</div><div>LOW CAPACITY</div><div>GOOD CAPACITY / HIGH CAPACITY / VERY HIGH CAPACITY</div></div></div>														

NEEDLE ROLLER AND CAGE ASSEMBLIES



Description:

They consist of a single cage without inner or outer ring.
The shaft and housing are used as the raceway surface.

Advantage:

- Compact and light-weight.



K

Single-row needle roller and cage assembly

Diameter under needles:

- Machined cage: 3 to 285 mm
- Welded cage (S): 10 to 100 mm
- Polyamide cage (T2): 3 to 74 mm

K..ZW

Double-row machined cage

Diameter under needles: 8 to 285 mm



KJ..S

Pressed steel cage

Type of cage: Welded

Diameter under needles: 20 to 40 mm

KMJ/PCJ

M-shaped profile needle roller and cage assemblies in pressed steel

- **KMJ:** Metric dimension series
- **PCJ:** Imperial dimension series

Diameter under needles:

- With pressed cage 15 to 100 mm
- With welded cage: 10 to 40 mm



KV..S

Pressed steel cage of large thickness, very rigid, V-shaped profil

Type of cage: Welded

Diameter under needles: 7 to 100 mm

GK

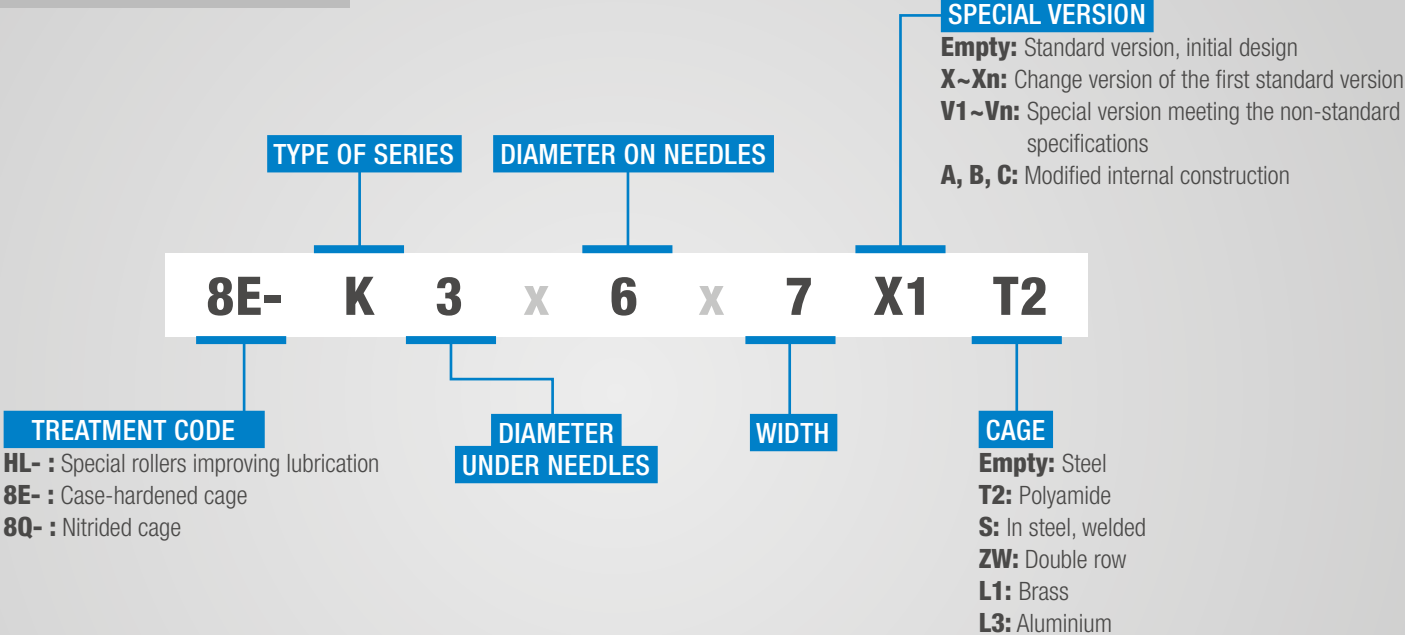
Cage in two parts

Type of cage: Welded

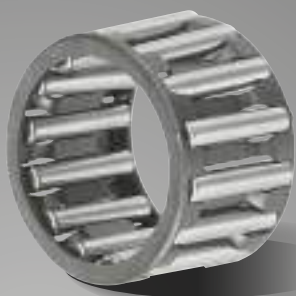
Diameter under needles: 8 to 285 mm



DESIGNATIONS



NEEDLE ROLLER AND CAGE ASSEMBLIES FOR CONNECTING ROD



Description:

They are suitable for the severe conditions of small and medium-sized engine and compressor connecting rods. They withstand rapid variations in loads and load directions, high temperatures and low lubrication.

Advantages:

- Resistance to extreme operating conditions due to the design, materials and production processes used.

Optional:

- Possibilities of specific surface treatments of the cage for the harshest applications.



KBK

M-shaped profile - designed for connecting rod and piston shaft

Type of cage: Machined

Diameter under needles: 7 to 25 mm

KV..S

Pressed steel cage of large thickness, very rigid, V-shaped profile

Type of cage: Welded

Diameter under needles: 7 to 100 mm



H

Ultra high performance cage

Type of cage: Reinforced, surface treatment

Diameter under needles: 10 to 38 mm

PK

M-shaped profile - designed for connecting rod and piston shaft

Type of cage: Machined

Diameter under needles: 10 to 38 mm

Note: Possibility of surface treatment on the cage



KMJ..S

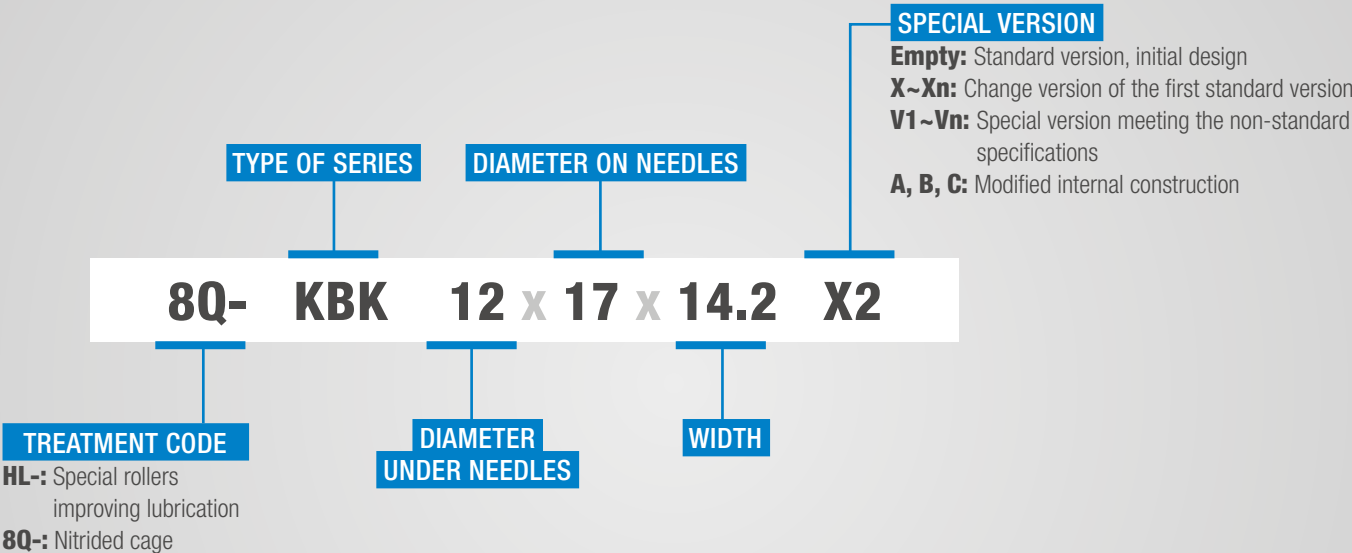
Pressed steel cage - M-shaped profile

Type of cage: Welded

Diameter under needles: 10 to 38 mm

Note: Possibility of surface treatment on the cage

DESIGNATIONS



DRAWN CUP NEEDLE ROLLER BEARINGS



Description:

They are open or closed, without inner ring or stop segment. The shaft is used as the raceway. The needles and the cage are not removable. The drawn cup needle roller bearings fit into compact designs due to their thin outer ring.

Advantages:

- Extreme hardness thanks to the raceway of the thermally treated outer ring.
- Easy handling

Optional:

- Heavy series HMK capable of withstanding extreme loads.

OPEN END



HK / HKS

- **HK:** Single row
 - **HKS:** Special series
- Diameter under needles:** 3 to 50 mm
- Note:** Suffix F: improved service life (up to 3 times) and easy mounting

HK..L

- Sealed series
- Diameter under needles:** 12 to 50 mm
- Seal:** One side



HK..LL

- Sealed series
- Diameter under needles:** 12 to 50 mm
- Seal:** Two sides



HK..ZWD

- Double row
- Diameter under needles:** 15 to 30 mm
- Note:** Lubrication hole on the outer ring (D)



DCL / SCE

- Imperial dimension series
- Diameter under needles:** 6.35 to 50.8 mm
- Note:** Single and double row



OPEN END HIGH CAPACITY



HMK / DCH

- **HMK:** Metric dimension series
 - **DCH:** Imperial dimension series
- Diameter under needles:** 15 to 50 mm

HMK..L

- Sealed series
- Diameter under needles:** 15 to 50 mm
- Seal:** One side
- Note:** Bearing length and load are lower than the HMK model of the same dimension



HMK..LL

- Sealed series
- Diameter under needles:** 15 to 50 mm
- Seal:** Two sides
- Note:** Bearing length and load are lower than the HMK model of the same dimension



HMK..ZWD

- Double row
- Diameter under needles:** 30 to 50 mm
- Note:** Lubrication hole on the outer ring (D)



WITH CLOSED END



BK / BKS

- **BK** : Single row
 - **BKS** : Special series
- Diameter under needles: 12 to 50 mm



BK..L

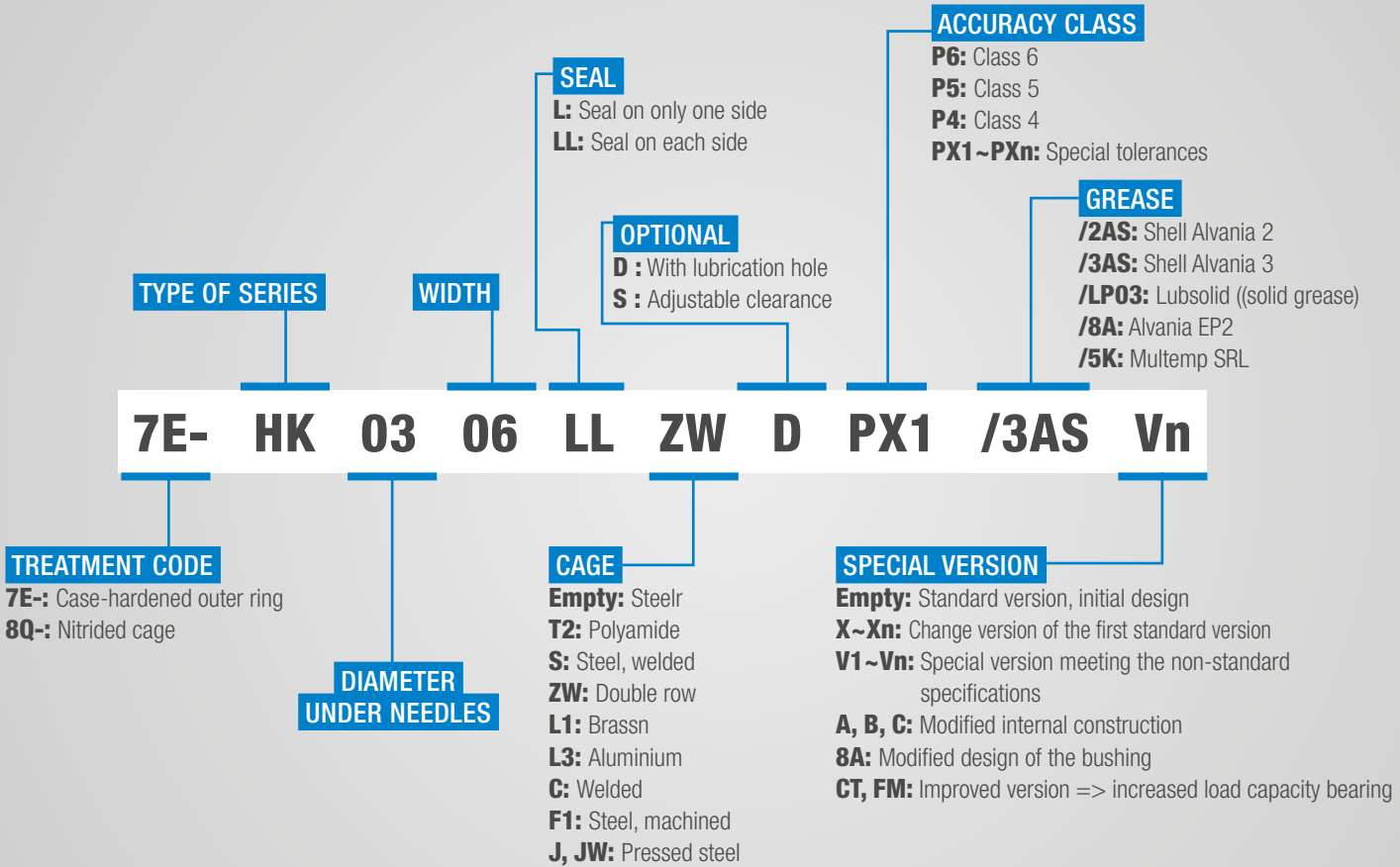
Single row with seal
Diameter under needles: 12 to 50 mm

BK..ZWD

Double row
Diameter under needles: 12 to 50 mm
Note: Lubrication hole on the outer ring version (D)



DESIGNATIONS



NEEDLE ROLLER BEARINGS WITH SOLID RINGS



Description:

They consist of a solid outer ring, needles and a cage.
The outer ring and the needle roller and cage assemblies are inseparable due to the shoulders or side plates.
They are suitable for high speeds and high loads.

Advantages:

- Excellent operating precision.
- High rigidity

Optional:

- Exists with one or two seals (suffix L and LL), greased and suitable for an operating temperature between -25 °C and + 120 °C.

BEARINGS WITHOUT INNER RING



RNA48 / RNA49 / RNA59 / RNA69

Dimensions according to standards JIS B 15 or ISO 15 (series 48/49/59/69)

Diameter under needles:

- 145 to 390 mm (RNA48)
- 7 to 490 mm (RNA49)
- 20 to 160 mm (RNA59)
- 22 to 110 mm (RNA69)

RNA49..R

Dimensions compliant with the JIS B 15 or ISO 15 standards

Diameter under needles:

- 14 to 490 mm
- 14 to 58 mm (with sealing)

Note: Version with shoulders (R)



RNA69..R

Dimensions compliant with the JIS B 15 or ISO 15 standards

Diameter under needles:

- 15 to 35 mm
- 40 to 110 mm (double row cage)

Note: Version with shoulders (R)

NK / NKS / NKZ

- **NK:** High rigidity outer ring/high precision/standard
- **NKS:** Optimised NK version
- **NKZ:** NK version with increased load capacity

Diameter under needles:

- 5 to 12 mm (NK)
- Two side plates: 8 to 40 mm (NKS)
- A ribs and a side plate: 43 to 110 mm (NKS)
- Two ribs: 115 to 170 mm (NKS)



NK..R / MR

Solid outer ring with two ribs

- **NK..R:** Metric dimension series
- **MR:** Imperial dimension series

Diameter under needles:

- 14 to 165 mm (NK..R)
- 15.87 to 234.95 mm (MR)

BEARINGS WITH INNER RING



NA48 / NA49 / NA59

Dimensions compliant with the JIS B 15 or ISO 15 standards

Shaft diameter:

- 120 to 380 mm (NA48)
- 5 to 9 mm (NA49)
- 15 to 140 mm (NA59)

Note: Single or double row

NA49..R / NA59..R / NA69..R

Dimensions compliant with the JIS B 15 or ISO 15 standards

Shaft diameter:

- 5 to 9 mm (NA49..R)
- 15 to 140 mm (NA59..R)
- 120 to 380 mm (NA69..R)

Note: Single or double row



NK+1R / NKS+1R

- **NK+1R:** Set made up of a NK and an inner ring (1R)
- **NKS+1R:** Version with high load capacity

Shaft diameter:

- 5 to 150 mm (NK+1R)
- 6 to 150 mm (NKS+1R)

NK..R+1R / MR+M1

Series with shoulders

- **NK..R+1R:** Metric dimension series
- **MR+ M1:** Imperial dimension series

Shaft diameter:

- 10 to 150 mm (NK..R+1R)
- 9.525 to 203.2 mm (MR+M1)



DESIGNATIONS

WIDTH

- d:** Bore diameter
48: Dimensions according to ISO15
49: Dimensions according to ISO15
59: Dimensions according to ISO15
69: Dimensions according to ISO15

CLEARANCE

- Empty:** Class N (standard)
C2, C3, C4: ISO radial clearance class
NA: Special clearance, non standard

CAGE

- Empty:** Steel
T2: Polyamide
S: Steel, welded
ZW: Double row
L1: Brass
L3: Aluminium
C: Welded
F1: Steel, machined
J, JW: Pressed steel

GREASE

- /2AS:** Shell Alvania 2
/3AS: Shell Alvania 3
/LP03: LUBSOLID (solid grease)
/8A: Alvania EP2
/5K: Multemp SRL

OUTER DIAMETER

- In mm:** For the 1R
In 1/16^{ème} of an inch: For the M1

TYPE OF SERIES

INNER RING

- 1R:** Metric dimension series
M1: Imperial dimension series

8E- NK 14 / 16 C3 R LL ZW D PX1 /3AS Vn + 1R 10 x 14 x 16

TREATMENT CODE

- HL-:** Special rollers improving lubrication
7E-: Case-hardened outer ring
8E-: Case-hardened bearing
8Q-: Nitrided cage

CODING

- RNA, NA:** Bore diameter code
NK (+1R): Diameter under rollers/wid
MR (+M1): Dimensions in 1/16 of an inch; diameter under roller X outer diameter X width

SEAL

- L:** Seal on only one side
LL: Seal on each side

OPTIONAL

- D:** With lubrication hole
D1: With lubrication groove and holer

TOLERANCE CLASSES CODE

- P6:** Class 6
P5: Class 5
P4: Class 4
PX1~PXn: Special tolerance

OPTIONAL

- R:** Outer ring with ribs
T: Increased load capacity bearing

SPECIAL VERSION

- Vide:** Standard version, initial design
X~Xn: Change version of the first standard version
V1~Vn: Special version meeting the non-standard specifications
A, B, C: Modified internal construction

BORE DIAMETER

- In mm:** For the 1R
In 1/16^{ème} of an inch: For the M1

WIDTH

- In mm:** For the 1RR
In 1/16^{ème} of an inch: For the M1

NEEDLE ROLLER BEARINGS WITH SEPARABLE SOLID RINGS







Description:

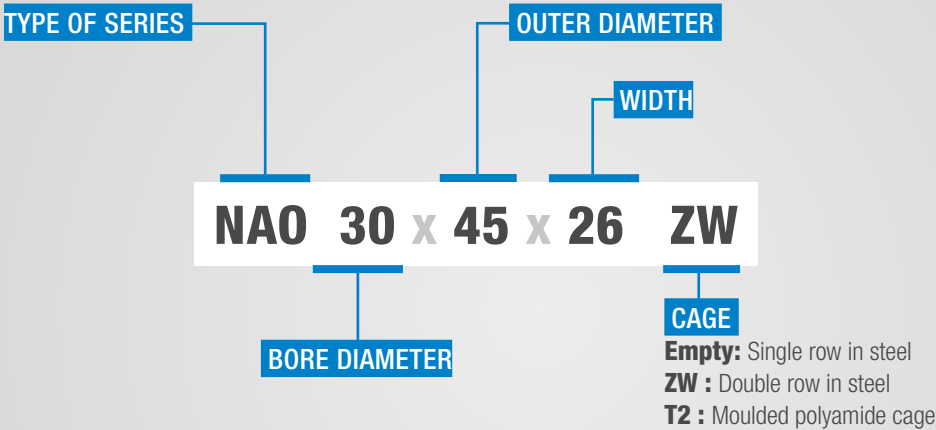
The outer ring and needle roller and cage assemblies are separable as the ring has neither shoulder nor groove.
The outer ring cannot regulate the axial displacement of the needle roller and cage assemblies, this is why the bearing must be mounted so that the needle roller and cage assemblies are guided by the shaft or housing.

Advantages:

- Excellent operating precision.
- The clearance can be perfectly controlled by suitably combining the inner and outer rings with the needle roller and cage assemblies.
- The inner ring and outer ring can be individually crimped onto a shaft or in a housing to facilitate mounting of the bearing.

	RNAO Outer ring with high rigidity/ high precision Type of cage: Single row Diameter under needles: 5 to 10 mm	➔	RNAO..ZW Outer ring with high rigidity/ high precision Type of cage: Double row Diameter under needles: 8 to 80 mm	
	NAO Set made up of RNAO and an inner ring (1R) Diameter under needles: 8 to 90 mm	➔	NAO..ZW Set made up of RNAO and an inner ring (1R) Type of cage: Double row Diameter under needles: 10 to 70 mm	

DESIGNATIONS



INNER RINGS



Description:

Many needle roller bearings use the shaft as a raceway surface without the use of an inner ring. However, it is recommended to use the inner rings with the needle roller bearings, when the shaft can neither be heat treated nor ground.



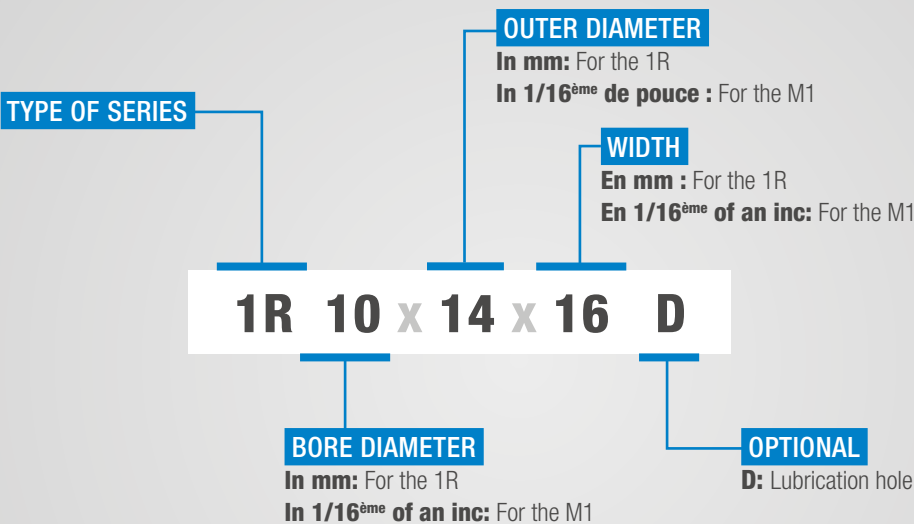
1R / M1

- **1R:** Metric dimension series
- **M1:** Imperial dimension series

Diameter under needles:

- 5 to 440 mm (1R)
- 9.525 to 203.2 mm (M1)

DESIGNATIONS



COMBINED BEARINGS



Description:

They consist of a radial needle roller bearing to withstand a radial load and a thrust ball bearing or needle bearing to withstand an axial load, combined to form a bearing unit.

Advantage:

- Two-in-one bearing: compactness and high radial and axial load capacities.

NEEDLE ROLLER BEARINGS WITH THRUST BALL BEARING



NKX

Bearing with thrust ball bearing/
open type/for axial load
Shaft diameter: 10 to 70 mm

Note:

- Radial bearing: with needles
- Thrust bearing: with balls

NKX..T2

Bearing with thrust ball bearing/
open type/for axial load
Type of cage: Polyamide
Shaft diameter: 10 to 35 mm



NKX..T2Z

Bearing with thrust ball bearing/
open type/for axial load/with shield
Type of cage: Polyamide
Shaft diameter: 10 to 35 mm



NK1A59

Needle roller bearing with a ACBB
for axial load
Shaft diameter: 15 to 70 mm

Note:

- Radial bearing: with needles
- Thrust bearing: angular contact

NEEDLE ROLLER BEARINGS WITH THRUST ROLLER BEARING



NKXR
Cylindrical roller thrust bearing/
open type/for axial load
Shaft diameter: 15 to 50 mm
Note:
• Radial bearing: with needles
• Thrust bearing: with rollers



ARN
Needle roller bearing with a double direction
needle thrust bearing/for high load capacity
Shaft diameter: 30 to 70 mm
Note:
• Radial bearing: with needles
• Thrust bearing: with rollers

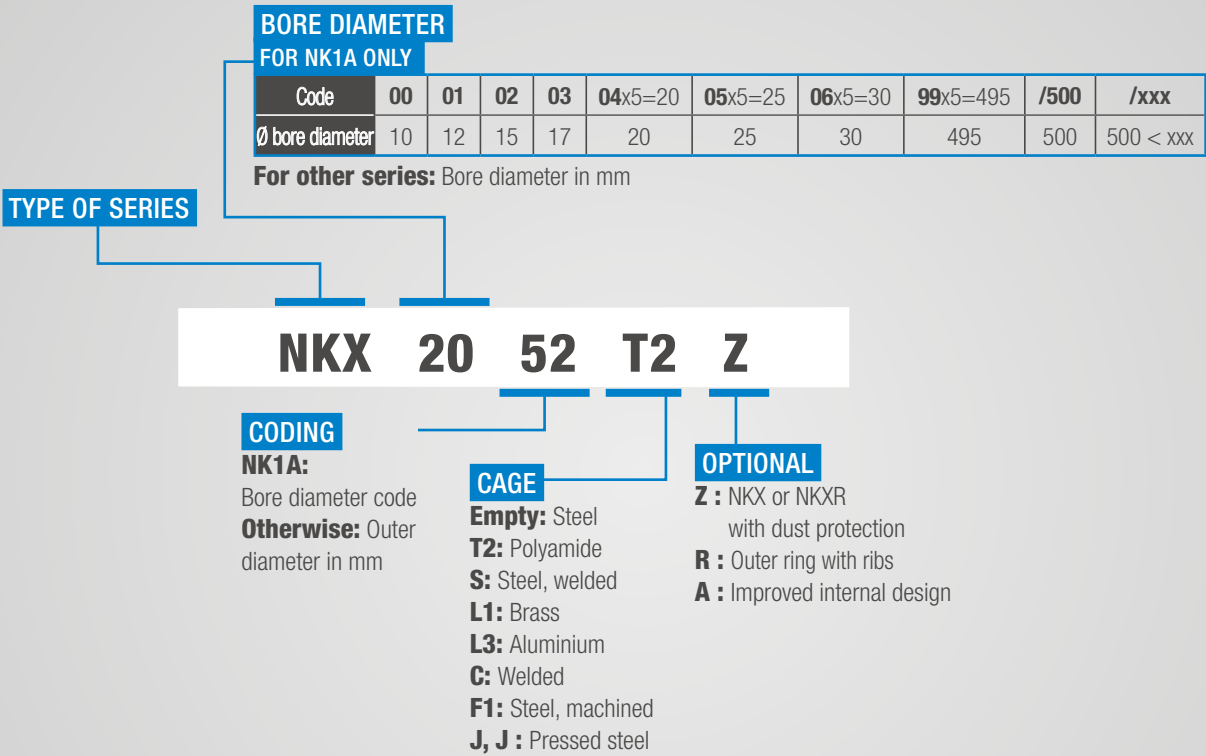
NKXR..T2
Cylindrical roller thrust bearing/
open type/for axial load
Type of cage: Polyamide
Shaft diameter: 15 to 50 mm



NKXR..T2Z
Cylindrical roller thrust bearing/
open type/for axial load/with shield
Type of cage: Polyamide
Shaft diameter: 15 to 50 mm



DESIGNATIONS



THRUST BEARINGS



Description:

Single or double acting, they are designed to withstand axial loads. The family of thrust bearings is made up of several products: needle roller and cage assemblies, thrust washer, inner ring, outer ring, complete thrust bearing.

Advantage:

- Wide range of complete thrust bearings, ready for mounting.

Optional:

- Wide selection of cage materials.

THRUST BEARING CAGES WITH NEEDLES OR ROLLERS



K811 / K812..T2

Cylindrical polyamide roller cage

Shaft diameter:

- 10 to 120 mm (K811)
- 30 to 80 mm (K812)

Note: Compliant with the 11 and 12 dimensions series defined by JIS B 1512

K811 / K812

Cylindrical roller cage in aluminium

Shaft diameter:

- 130 to 160 mm (K811)
- 85 to 140 mm (K812)

Note: Compliant with the 11 and 12 dimensions series defined by JIS B 1512



K811 / K812..JW

Cage with cylindrical rollers in pressed steel

Shaft diameter:

- 10 to 90 mm

Note: Compliant with the 11 and 12 dimensions series defined by JIS B 1512

K893

Cylindrical roller cage in aluminium

Shaft diameter:

- 30 to 110 mm

Note: Compliant with the 93 dimensions series defined by JIS B 1512



K874

Cylindrical roller cage in aluminium

Shaft diameter:

- 40 to 90 mm

Note: Compliant with the 74 dimensions series defined by JIS B 1512

AXK / NTC

Needle roller and cage assemblies in pressed steel

Shaft diameter:

- **AXK** : Metric dimension series
- **NTC** : Imperial dimension series

Shaft diameter:

- 10 to 120 mm

Note: Can be used in combination with a support washer



AXK

Needle roller and cage assemblies in brass

Shaft diameter:

- 130 to 160 mm

Note: Can be used in combination with an AS type support washer

THRUST BEARING WASHER



GS811 / GS812 / GS874 / GS893

Solid washer guided by the outer diameter

Shaft diameter:

- 10 to 160 mm

Note: Rigidity and precision of operation superior to that of the AS support washer

WS811 / WS812 / WS874 / WS893

Solid washer guided by the shaft (bore diameter)

Shaft diameter:

- 10 to 150 mm

Note: Rigidity and operating accuracy superior to the AS support washer



AS11 / NWA / NWB

Plywood: Pressed steel washer

- **AS11** : Metric dimension series

- **NWA / NWB** : Imperial dimension series

Diameter under needles: 10 to 130 mm

COMPLETE THRUST BEARINGS



811 / 812

Cylindrical roller thrust bearing 11/12 Series, consisting of WS811 / 812, GS811 / 812 and K811 / 812

Shaft diameter:

- 10 to 160 mm (811)

- 30 to 140 mm (812)

Note: Compliant with the 11 and 12 dimensions series defined by JIS B 1512

874

Cylindrical roller thrust bearing - Series 74, consisting of WS874, GS874 and K874

Shaft diameter:

- 40 to 90 mm

Note: Compliant with the 74 dimensions series defined by JIS B 1512



893

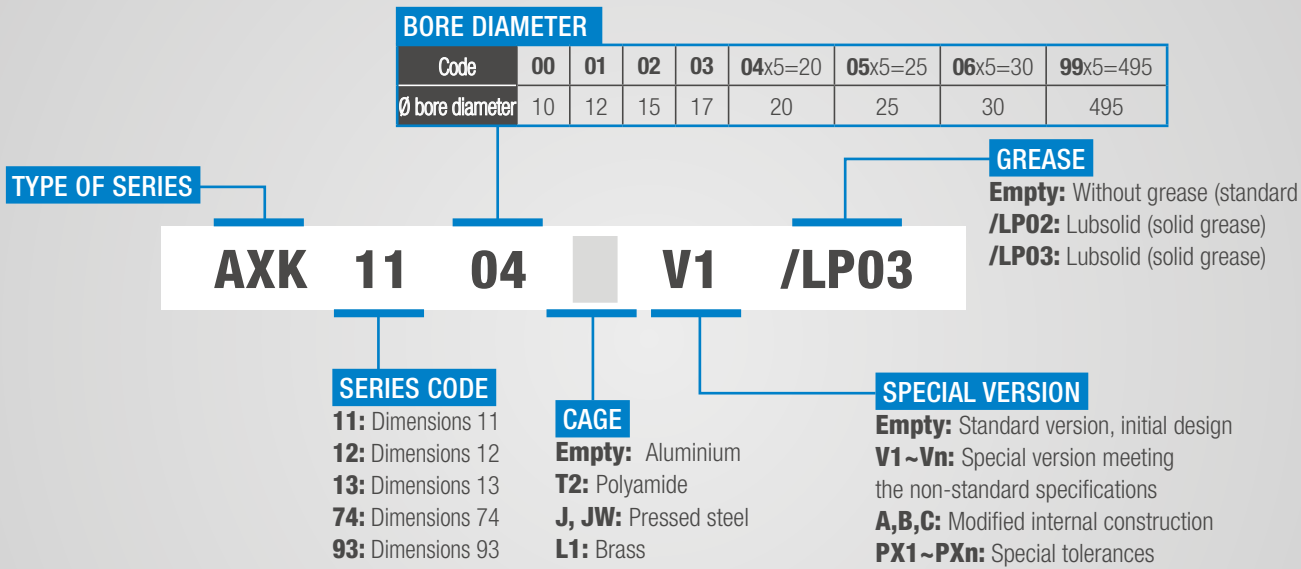
Cylindrical roller thrust bearing - Series 93, consisting of WS893, GS893 and K893

Shaft diameter: 30 to 110 mm

Note: The WS893 and GS893 support washers are used together.

Compliant with the 93 dimensions series defined by JIS B 1512

DESIGNATIONS



ROLLER FOLLOWERS



Description:

It is a bearing whose thick outer ring rolls on a cam track.

Advantage:

- Wide choice of variants depending on the requirements (high speeds, heavy loads, impacts).

Optional:

- Rounded outer ring: reduction of the edge loads that are applied on the contact surface between the track and the outer ring.

Without inner ring, with cage, suitable for **HIGH SPEEDS**



RNAB2

Separable type

Roller diameter: 16 to 90 mm

Shaft diameter: 7 to 68 mm

NOTE: Without seal

RNA22..LL

Roller diameter: 19 to 90 mm

Shaft diameter: 10 to 58 mm

NOTE: With seal



With cage and inner ring, suitable for **HIGH SPEEDS**



NATR

Non-separable type

Roller diameter: 16 to 90 mm

Shaft diameter: 5 to 50 mm

NATR..LL

Non-separable type

Roller diameter: 16 to 90 mm

Shaft diameter: 5 to 50 mm

NOTE: With seal



NA22..LL

Roller diameter: 19 to 90 mm

Shaft diameter: 6 to 50 mm

NOTE: With seal

Full complement, suitable for **HIGH RADIAL LOADS**



NATV / NACV

- **NATV:** Metric dimension series Non separable
- **NACV:** Imperial dimension series Non separable/cylindrical outer ring

Roller diameter:

- 16 to 90 mm (NATV)
- 19.05 to 152.4 mm (NACV)

Shaft diameter:

- 5 to 50 mm (NATV)
- 6.35 to 57.15 mm (NACV)



NATV..LL / NACV..LL

Non separable and sealed

Roller diameter: 16 to 90 mm

Shaft diameter: 5 to 50 mm



Full complement, suitable for **HIGH RADIAL LOADS AND SHOCKS**



NUTR / NUTR2 / NUTR3

Double row of cylindrical rollers/ non separable type

Roller diameter: 35 to 110 mm

Shaft diameter: 15 to 50 mm

NOTE:

- Labyrinth seal
- Greased
- Withstands moderate axial load

NUTW / NUTW2 / NUTW3

Double row of cylindrical rollers/ non separable type

Roller diameter: 35 to 90 mm

Shaft diameter: 15 to 50 mm

NOTE:

- With centring rim
- Labyrinth seal
- Greased
- Withstands moderate axial load



DESIGNATIONS

BORE DIAMETER

NATR et NATV: Bore diameter in mm

NACV: Bore diameter in 1/16th of an inch

RNA, NA, NUTR et NUTW:

Code	/6	/8	00	01	02	03	04x5=20	05x5=25	06x5=30	99x5=495	/500	500 < xxx
Ø bore diameter	6	8	10	12	15	17	20	25	30	495	500	500 < xxx

TYPE OF SERIES

NATR 14 X T2 LL /3AS

OUTER RING SHAPE

Empty: Radius of the ring
R = 500 mm

X: Cylindrical outer ring

SEAL

L: Seal on only one side

LL: Seal on each side

GREASE

Empty: Ungreased bearing

/2AS: Shell Alvania 2

/3AS: Shell Alvania 3

/LP03: Lubsolid (solid grease)

/8A: Alvania EP2

/5K: Multemp SRL

/L588: Pyrononc Universal N6C

CAGE

T2: Polyamide

DO: Without lubrication hole

F: Improved version

C: Special version for interchangeability in Europe

T: Increased load capacity

CAM FOLLOWERS



Description:
Cam follower with a shaft instead of an inner ring. Supplied with its nut, lubrication system and plugs.

- Advantages:**
- Wide choice of variants depending on the requirements (high speeds, heavy loads, impacts).
 - Easy mounting thanks to the shaft thread.

- Options:**
- Rounded outer ring: reduction of the edge loads that are applied on the contact surface between the track and the outer ring.
 - Suffix H version: tightening with hexagonal wrench.
 - Suffix F version: optimised needle profile and special heat treatment.
 - Suffix D0 version: permanently greased with high performance grease.

With cage, suitable for **HIGH SPEEDS**



- KR / CR**
- **KR** : Metric dimension series with cage
 - **CR** : Imperial dimension series
- Roller diameter:**
- 10 to 90 mm (KR)
 - 12.7 to 57.15 mm (CR)
- Shaft diameter:**
- 3 to 30 mm (KR)
 - 4.826 to 22.225 mm (CR)
- Note:**
- Without seal
 - Series with cage in metric dimensions
 - Shaft side: hexagon socket hole or slot for screw

- KR..LL / CR..LL**
- **KR..LL** : Metric dimension series with cage
 - **CR..LL** : Imperial dimension series
- Roller diameter:**
- 10 to 90 mm (KR..LL)
 - 15.875 to 57.15 mm (CR..LL)
- Shaft diameter:**
- 3 to 30 mm (KR..LL)
 - 6.35 to 22.225mm (CR..LL)
- Note:**
- With seal



- KRT**
- Standard Series - slot for screwdriver and tapped hole
- Roller diameter:** 16 to 90 mm
- Shaft diameter:** 6 to 30 mm
- Note:**
- Without seal

- KRT..LL**
- Standard Series - slot for screwdriver and tapped hole
- Roller diameter:** 16 to 90 mm
- Shaft diameter:** 6 to 30 mm
- Note:**
- With seal



- KRU**
- Design identical to the KR but with an eccentric axis
- Roller diameter:** 16 to 90 mm
- Shaft diameter:** 6 to 30 mm
- Note:**
- Pre-greased
 - Available in sealed version (LL)
 - Check interchangeability

Full complement, suitable for **HIGH RADIAL LOADS**



KRV / CRV

- **KRV** : Series without cage for load capacity
- **CRV** : Imperial dimension series

Roller diameter:

- 10 to 90 mm (KRV)
- 12.7 to 152.4 mm (CRV)

Shaft diameter:

- 3 to 30 mm (KRV)
- 4.826 to 6.5 mm (CRV)

Note:

- Without seal
- Series without cage
- Shaft side: with screwdriver slot
- Pre-greased

KRV..LL / CRV..LL

- **KRV..LL** : Series without cage for load capacity
- **CRV..LL** : Imperial dimension series

Roller diameter:

- 10 to 90 mm (KRV)
- 12.7 to 152.4 mm (CRV)

Shaft diameter:

- 3 to 30 mm (KRV..LL)
- 4.826 to 63.5 mm (CRV..LL)

Note:

- With seal
- Shaft side: with screwdriver slot
- Pre-greased



KRVT

Slot for screwdriver and tapped hole

Roller diameter: 16 to 90 mm

Shaft diameter: 6 to 30 mm

Note:

- Version without cage

KRVT..LL

Sealed series - slot for screwdriver and tapped hole

Roller diameter: 16 to 90 mm

Shaft diameter: 6 to 30 mm

Note:

- With seal



KRVU

Identical to the KRVT but with an eccentric axis

Roller diameter: 16 to 90 mm

Shaft diameter: 6 to 30 mm

Note:

- Pre-greased
- Check interchangeability

KRVU..LL

Sealed series

Roller diameter: 16 to 90 mm

Shaft diameter: 6 to 30 mm

Note:

- Pre-greased
- Check interchangeability



With two rows of cylindrical rollers, full complement, with shields, suitable for **VERY HIGH RADIAL LOADS AND IMPACTS**



NUKR

Version with screwdriver slot or hexagonal hole (H)
Roller diameter: 30 to 180 mm
Shaft diameter: 12 to 64 mm

Note:

- Without cage, protected
- With seal
- Pre-greased
- Withstands moderate axial load



NUKRU

Identical to the NUKRT but with an eccentric axis
Roller diameter: 30 to 180 mm
Shaft diameter: 12 to 64 mm

Note:

- Without cage, protected, eccentric
- Shaft side: with screwdriver slot and tapped hole
- Pre-greased
- Check interchangeability
- Withstands moderate axial load

NUKRT

Identical to NKR but with screwdriver slot and tapped hole
Roller diameter: 30 to 180 mm
Shaft diameter: 12 to 64 mm

Note:

- Without cage, protected
- Pre-greased
- Withstands moderate axial load



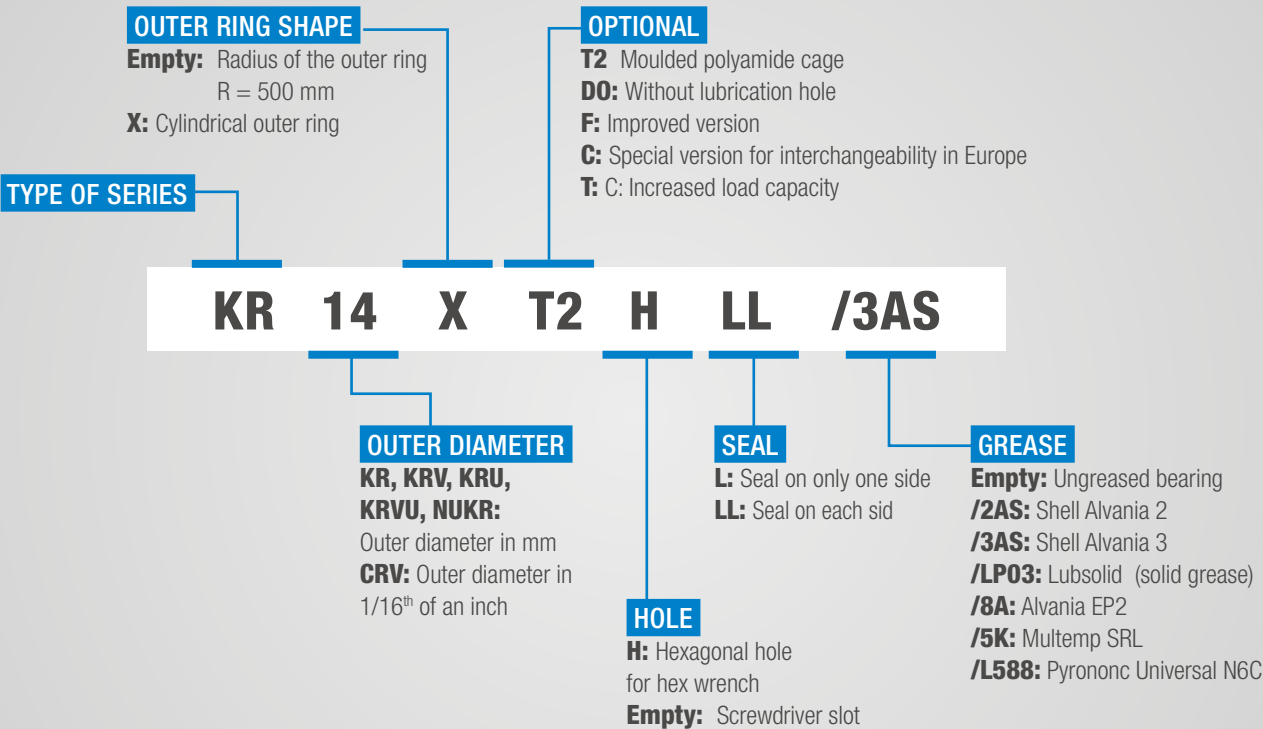
VARIATIONS

Suffix «D0» version: greased for life with high performance grease

Suffix «H» version: tightening with hexagonal wrench

Version without suffix «X»: rounded outer diameter

DESIGNATIONS





COMPONENTS

In addition to its needle roller bearing ranges, NTN offers a range of high quality components

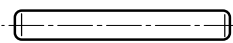
NEEDLES

Description: All NTN needles are made of steel with high carbon and chromium content, machined by grinding and super-finishing after heat treatment.

Advantage: Extreme hardness for a longer service life.

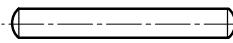
Options:

- With or without crown
- Optional special surface treatment
- Available in many lengths and from 1.5 to 5 mm in diameter



F

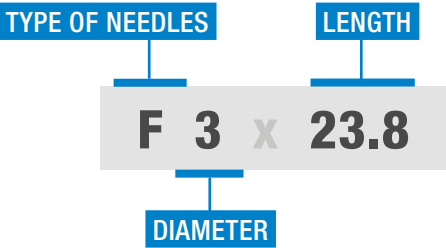
Needles with flat tips
Length: 5.8 to 49.8 mm
Needle diameter: 1.5 to 5 mm



A

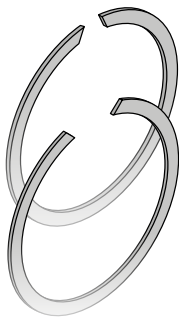
Needles with round tips
Length: 5.8 to 49.8 mm
Needle diameter: 1.5 to 5 mm

DESIGNATIONS



STOP SEGMENTS

Description: For shaft or housing, these stop segments are exclusively used to fix or axially guide a ring or a cage.



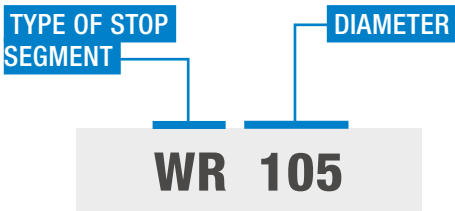
WR

Stop segment for shaft
Shaft diameter: 4 to 400 mm

BR

Stop segment for housing
Housing diameter: 7 to 440 mm

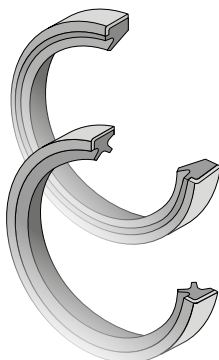
DESIGNATIONS



SEALS

Description: These are special seals for needle roller bearings. Their section is designed to adapt to these bearing.

Options: Two different types of seals are available: the G series with one lip and the GD series with two lips. The latter is intended to retain the grease and prevent dust from entering.



G

Single lip seal
Inner diameter: 4 à 50 mm

GD

Double lip seal
Inner diameter: 14 à 50 mm

DESIGNATIONS

