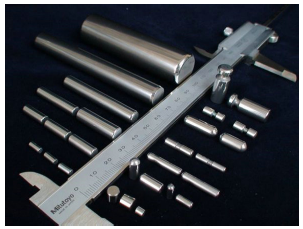
ANSI/ABMA STD 2026: HARDENED NEEDLE ROLLERS (HRC58~62) G2G3G5 MANUFACTURER! SUPPLIER OF PRECISION CYLINDRICAL ROLLERS 52100 OR STAINLESS STEEL (316/304 /400C).

Needle rollers are a type of cylindrical roller used in bearings. They are characterized by their: Small diameter relative to their length (typically 4 to 10 times longer than their diameter). Thin, cylindrical shape, which allows for a high load capacity in a compact space.

rounded end needle rollers

rounded end needle rollers are a type of needle roller commonly used in needle roller bearings. as the name suggests, these rollers have rounded ends, which differentiate them from flat-ended needle rollers.



flat ended needle rollers and cylindrical rollers

It is widely used in auto, lathe, metallurgical, textile, printing industry & other various machinery equipment. With this kind of bearing, machine design can realize the goal of small-scale & lightweight.

standard sizes of needle rollers and cylindrical rollers

loose needle rollers,cylindrical pins, needle rolling elements,

φ1x5.8	φ1x6.8	φ1x7.8	φ1x9.8				
φ1.5x5.8	φ1.5x6.8	φ1.5x7.8	φ1.5x9.8	φ1.5x11.8	φ1.5x13.8		
φ2x6.8	φ2x7.8	φ2x9.8	φ2x11.8	φ2x13.8	φ2x15.8	φ2x17.8	φ2x19.8
φ2.5x7.8	φ2.5x9.8	φ2.5x11.8	φ2.5x13.8	φ2.5x15.8	φ2.5x17.8	φ2.5x19.8	φ2.2x21.8

- home
- products
- contact
- equipments
- needle rollers
- standard sizes or stocks
- NRB flat ended
- NRA round ended
- V chamfering
- logarithmic profile
- special shape
- crowned ended
- ultrafine needles
- short rollers
- manufacturing process
- G2G3G5
- different ends
- hardened chrome steel
- hardened stainless steel
- precision accuracy
- FAQ
- drive pins
- steel balls
- cylindrical roller
- dowel pins

φ2.5x23.8							
φ3x9.8	φ3x11.8	φ3x13.8	φ3x15.8	φ3x17.8	φ3x19.8	φ3x21.8	φ3x23.8
φ3x25.8	φ3x27.8	φ3x29.8					
φ3.5x11.8	φ3.5x13.8	φ3.5x15.8	φ3.5x17.8	φ3.5x19.8	φ3.2x21.8	φ3.5x23.8	&phi 3.5x25.8
φ3.5x27.8	φ3.5x29.8	φ3.5x34.8					
φ4x11.8	φ4x13.8	φ4x15.8	φ4x17.8	φ4x19.8	φ4x21.8	φ4x23.8	φ4x25.8
φ4x27.8	φ4x29.8	φ4x34.8	φ4x39.8				
φ5x15.8	φ5x17.8	φ5x19.8	φ5x21.8	φ5x23.8	φ5x25.8	φ5x27.8	φ5x29.8
φ5x34.8	φ5x39.8	φ5x49.8					
φ5.5x17.8	φ5.5x19.8	φ5.5x21.8	φ5.5x23.8	φ5.5x25.8	φ5.5x27.8	φ5.5x29.8	
φ5.5x31.8	φ5.5x34.8		φ5.5x37.8	φ5.5x39.8			
φ6x17.8	φ6x19.8	φ6x21.8	φ6x23.8	φ6x25.8	φ6x27.8	φ6x29.8	φ6x34.8
φ6x39.8	φ6x49.8	φ6x59.8					
loose needle rollers,cylindrical rollers, needle rolling elements, bearing,precision needle rollers							

Advantages (Why Use the needle rolls?)

Extremely High Radial Load Capacity: Their long, thin shape allows them to distribute load over a larger contact area. This is their biggest advantage.

Compact Design: They allow for bearing arrangements with a very small radial cross-section. This is crucial in applications where space is limited (e.g., automotive transmissions, two-stroke engines).

Low Inertia: Their small mass allows for low rotational inertia, beneficial in high-acceleration applications. Cost-Effective: When used without separate inner/outer rings, they reduce the number of components and total cost.

the rounded shape helps distribute stress more evenly along the contact surface between the rollers and the bearing races, reducing the risk of stress concentration and potential damage.

rounded end needle rollers facilitate better distribution of lubricant within the bearing assembly, promoting smoother operation and reducing friction and wear

diameter tolerances, outer diameter surface roughness

cylindrical rollers, precision rollers, bearing rolling elements

grade tolerance	▽Rw[a]max	DwL[a]max	Dwmp[ab]max	S[Dw]max	I [CDw][c]max	diameter gauge value (μm)

G2,	0.2mm,	1mm,	-2mm,	-4mm,	-2/-4mm,	2mm
G2,	0.2mm,	1mm,	-3mm,	-5mm,	-3/-5mm,	2mm
G2,	0.2mm,	1mm,	-4mm,	-6mm,	-4/-6mm,	2mm
G2,	0.2mm,	1mm,	-5mm,	-7mm,	-5/-7mm,	2mm
G2,	0.2mm,	1mm,	-6mm,	-8mm,	-6/-8mm,	2mm
G2,	0.2mm,	1mm,	-7mm,	-9mm,	-7/-9mm,	2mm
G2,	0.2mm,	1mm,	-8mm,	-10mm,	-8/-10mm,	2mm
G3,	0.2mm,	1.5mm,	0mm,	-3mm,	0/-3mm,	3mm
G3,	0.2mm,	1.5mm,	1.5mm,	-4.5mm,	1.5/-4.5mm,	3mm
G3,	0.2mm,	1.5mm,	-3mm,	-6mm,	-3/-6mm,	3mm
G3,	0.2mm,	1.5mm,	-4.5mm,	-7.5mm,	-4.5/-7.5mm,	3mm
G3,	0.2mm,	1.5mm,	-6mm,	-9mm,	-6/-9mm,	3mm
G3,	0.2mm,	1.5mm,	-7mm,	-10mm,	-7/-10mm,	3mm
G5,	0.2mm,	2.5mm,	0mm,	-5mm,	0/-5mm,	5mm
G5,	0.2mm,	2.5mm,	0mm,	-5mm,	0/-5mm,	5mm
G5,	0.2mm,	2.5mm,	-3mm,	-8mm,	-3/-8mm,	5mm
G5,	0.2mm,	2.5mm,	-5mm,	-10mm,	-5/-10mm,	5mm
needle rollers, precision rollers, bearing rollers, roller bearings parts, cylindrical rolling elements						

Design of needle pin rollers

They are installed into a prepared housing (the outer race) and run directly on a hardened and ground shaft (which acts as the inner race). This design is extremely space-saving and cost-effective.

High Load Capacity: Because they can be packed in tightly (with full complement design), they offer a very high radial load capacity for their small cross-sectional size.

Common Uses: They are ideal for applications where space is limited and the shaft and housing can be precision-hardened.

length tolerances of needle rollers

needle rollers, precision rollers, bearing rolling elements

Lw/mm >	Lw/mm <	T^{Lw}(h13)U	T^{Lw}(h13)L
3,	6,	0,	-0.18
6,	10,	0,	-0.22
10,	18,	0,	-27
18,	30,	0,	-33
30,	50,	0,	-39

50,	80,	0,	-46
cylindrical rollers, precision rollers, bearing rollers, roller bearings parts, cylindrical rolling elements			

Related Types of needle bearings

Needle Roller Bearings: The complete assembly, usually including needle rollers, a cage, and often an outer ring.

Drawn Cup Needle Bearings: A very common type where the outer ring is a thin, drawn cup, making installation extremely simple and compact.

Needle Thrust Bearings: Designed specifically to handle axial loads.

needle rollers main use is as rolling elements in bearings where they are particularly useful when space is limited and a high radial load is required. They are also useful as locating pins and mini shafts.

we have over 20 years of manufacturing experience of precision rolelrs. we had most stock, delivery time: send to europe, USA, or canada only 3-5 work days

we are professional manufacture of bearing rollers and cylindrical needle rollers. we produce rollers of diameter 0.5 mm to 60 mm. the rollers could satisfy the request of DIN 5402 G2 rollers.

chamfer limits of flat ends needle rollers

precision needle rollers, needle roller bearing pins

$D_w$exceed	$D_w$to	T_{Smin}	diameter direction T_{Smin}	axis direction T_{Smin}
-	1	0.1	0.3	0.5
1	1.5	0.1	0.4	0.6
1.5	3	0.1	0.6	0.8
3	6	0.1	0.9	1
needle rollers, needle roller bearings, miniature pins, needle rollers suppliers, precision shafts				

Features for bearing needles

Shape: Long, thin cylinders. This gives them a high length-to-diameter ratio.

Size: They have the smallest diameter profile of all roller bearing types.

Cages: They are often held in place by a cage or retainer to prevent them from skewing and touching each other. They can also be used as a full complement (without a cage, maximum number of rollers) for even higher load capacity at the expense of maximum speed.

Raceways: They can run directly on hardened shafts or within hardened housings, acting as the inner and outer raceways, which saves space and cost. Alternatively, they are used with separate thin-walled raceways.

V-block measurement for roundness of needle rollers

precision needle rollers of loose roller bearing pins

angle	wave numbers									
	3	5	7	9	11	13	15	17	19	21
90°C	2	2	-	-	2	2	-	-	2	2
120°C	1	2	2	1	-	-	1	2	2	
needle rollers, needle roller bearings, miniature pins, needle rollers suppliers, precision shafts										

Common Applications of bearing roller needles

You'll find needle rollers anywhere a compact, robust bearing is needed for oscillating or rotating motion:

Automotive: Transmissions (gearboxes), rocker arm pivots, universal joints, pumps, and compressors.

Aerospace: Actuators, control systems.

Industrial Machinery: Printing presses, textile machinery, agricultural equipment.

Power Tools: Drills, grinders.

Motorcycles & Bicycles: Transmission and engine components

Typically Radial Load Only: Standard needle rollers are not designed to handle significant axial (thrust) loads. Special combined needle/thrust bearings are needed for that.

Requires Hardened Surfaces: The shafts and housings they run against must be hardened and finely finished, as the rollers contact them directly.

IN SUMMARY: NEEDLE ROLLERS ARE THE LONG, THIN, WORKHORSE ROLLERS THAT ENABLE ENGINEERS TO SUPPORT VERY HEAVY RADIAL LOADS IN APPLICATIONS WHERE SPACE IS AT AN ABSOLUTE PREMIUM.