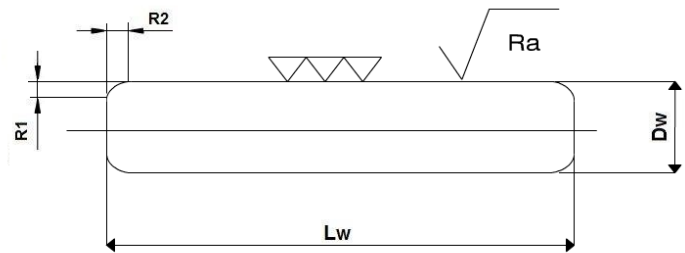


CYLINDRICAL NEEDLE-ROLLERS

TYPE NRB



Cylindrical needle-rollers are suitable in different applications, mainly:

- Full complement bearings
- Planetary drives
- Needle roller cages
- Cross units
- Cages for linear guides
- Rotating elements in general

MATERIALS NORMALLY USED

Production of cylindrical needle-rollers is mainly made with steel for bearings: **UNI 100 Cr 6**.

100Cr6 is a steel used in over 90% of roller bearings, thanks to its properties:

- high adhesive wear resistance, also thanks to lubrication.
- Abrasive wear resistance due to low non-metallic inclusions and uniformity in the distribution of hard carbides which grind any inclusions ;
- fatigue resistance thanks to homogeneity of the structure: the steel can be treated to the heart due to the presence of chromium.

Cylindrical needle-rollers are hardened and tempered with value **HRC 58 – 65** (670 / 840 HV) in order to achieve the maximum mechanical strength.

Chemical composition :

Material	C %	Mn %	Si %	P %	S %	Cr %
100Cr6	0,93 ÷ 1,05	0,25 ÷ 0,45	0,15 ÷ 0,35	≤ 0,015	≤ 0,025	1,35 ÷ 1,60

International equivalents:

ITALY	SPAIN	GERMANY	CHINA	USA
UNI 100 Cr 6	UNE F 1310	W. nr. 1.3505	GCr15	AISI/SAE 52100

Cylindrical needle-rollers can be manufactured with special steel like:

AISI 302	AISI 304	AISI 316	AISI 420-C
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PRODUCT RANGE

Cylindrical needle-rollers type NRB are produced in standard and special size:

- Diameter from 1,0 mm. to 6,0 mm.
- Length from 3,8 mm. to 49,8 mm.

TECNHNICAL CHARACTERISTIC

GRADE	DIAMETER TOLERANCE (μm)	SORTING GROUPS VDwL (μm)	MAX ROUNDNESS DEVIATION ΔR_w (μm)	MAX SURFACE ROUGHNESS Ra (μm)	LENGTH (mm)		LENGTH TOLERANCE h13 (mm)
					DA	A	
G2	+ 0 - 10	2	1,0	0,20	-	6	+ 0 - 0,180
					6	10	+ 0 - 0,220
					10	18	+ 0 - 0,270
G5	+ 0 - 10	5	2,5	0,25	18	30	+ 0 - 0,330
					30	50	+ 0 - 0,390

D _w		S _{Dw} max
FROM	TO	
-	3	0,16
3	6	0,24

D _w		r' 1s min r' 2s min	r' 1s max	r' 2s max
FROM	TO			
-	1,5	0,1	0,4	0,6
1,5	3	0,2	0,6	0,8
3	6	0,3	0,8	1

Cylindrical needle-rollers can be have improve variants like:

- diameter sorted in groups of 1 μm
- length tolerance values more restricted
- Needle-rollers with logarithmic profile

Cylindrical needle-rollers can be manufactured with different types of materials and tolerances, if the quantity required is enough for a productions.