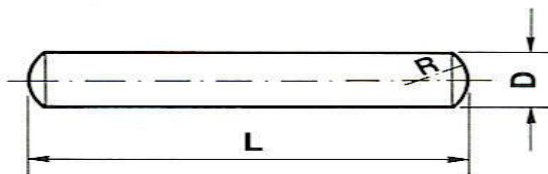
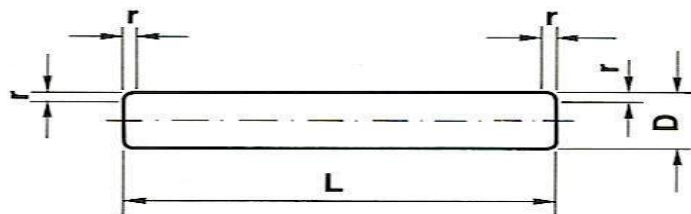


CYLINDRICAL AND CONTROLLED CONTOUR NEEDLE ROLLERS

These rollers can be supplied with two types of ends, either "Flat head" (form B) or "Tallow drop head" (form A).

— Non-ground flat end with connecting radii defined as "Flat head" or "Form B"

— Rounded end (spherical end) defined as "Tallow drop head" or "Form A"

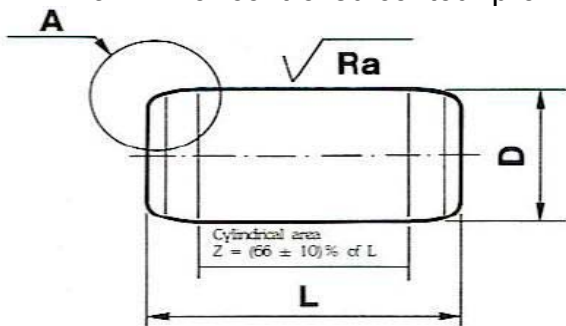


Tolerances

QUALITY	Diameter Tolerance D	Selection Groups D	Max Circularity error μ	Roughness Max Ra μ
G2	0-10μ	2μ	0.8	0.1
G3	0-10μ	3μ	1.2	0.1
G5	0-10μ	5μ	2	0.15

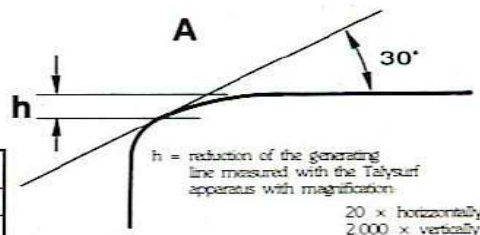
Needle rollers can be supplied with:

- diameters selected in groups of 1μ
- tighter values of length tolerances and possibly also with ground planes
- a "ZB" or controlled contour profile, as specified below



Reduction of the generating line

Model	h in μ m
Normal	$h = (0.1-0.18) \cdot L$
Z B 1	$h = (0.18-0.30) \cdot L$
Z B 2	$h = (0.3-0.5) \cdot L$
Z B 3	$h = (0.5-0.7) \cdot L$



Most Common Sizes of Needle Rollers

D	4.8	5.8	6.8	7.8	9.8	11.8	13.8	15.8	17.8	19.8	21	21.8	23.8	25	27.8	28	29.8	30	32	34.8	35.5	39.8	41	43.8	49.8	59.8
1	X	X	X	X																						
1.5		X	X	X	X																					
2				X	X	X	X	X	X	X																
2.5				X	X	X	X	X	X	X																
3				X	X	X	X	X	X	X		X	X													
3.5							X	X		X		X	X													
4						X		X		X		X	X					X					X			
5										X		X	X					X		X	X	X			X	
6														X				X								X
7											X					X			X				X			

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