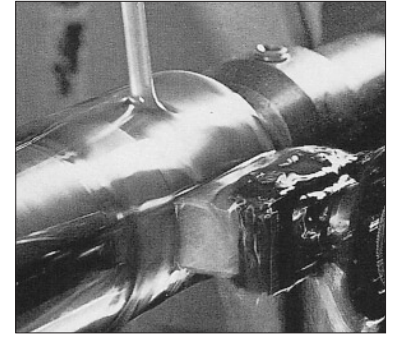
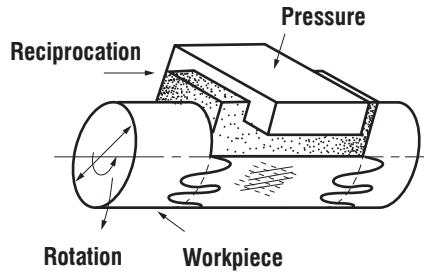


An abrasive process for the superfine machining of sealing and bearing surfaces, Piston rods and rollers. Ground surface are generally evaluated using the following criteria: Peak-to-Valley depth, percentage of contact area waviness (irregularities) in a longitudinal direction (feed spirals), and circumferential direction (chatter marks), and the concentricity.



Designation of KINIK Superfinishing Stones (Example)

80	100 x 8 x 8	WA	3000	3	V	S
Superfinishing Stones Shape No.	Size (L x W x T)	Abrasive	Grain Size	Grade 1.2.....8.9. (Soft----->Hard)	Bond	Impregnation S.B.X. etc

Recommendations:

Application (Material)	Achievable peak-to-valley height R max. (um)	Recommendation	
		Plunger-Cut	Through-Feed
Unhardened steel Tensile strength up to 70kg/mm ²	0.3-0.8	GC1500, 4VS	GC2000, 4VS
	0.1-0.3	GC3000, 4VS	
Heat-treated steel, Tensile strength ~100kg/mm ²	0.3-0.8	WA1500, 2VS	GC2000, 3VS
	0.1-0.3	GC3000, 4VS	
Hardened steel < 64HRC	0.3-0.6	WA1500, 2VS	GC2000, 3VS
	0.1-0.3	GC3000, 3VS	
Hardened steel > 64HRC	0.3-0.6	GC1500, 3VS	GC3000, 2VS
	0.1-0.3	GC3000, 2VS	
Nitriding steel	0.3-0.6	GC1500, 3VS	GC3000, 2VS
	0.1-0.3	GC3000, 2VS	
Chromium plated	0.3-0.6	WA1500, 2VS	GC3000, 4VS
	0.1-0.3	WA3000, 2VS	
Grey cast and chilled cast iron	0.3-0.6	GC3000, 2VS	GC2000, 3VS
	0.1-0.3	GC3000, 3VS	

Standard Sizes

Throughfeed and plunge-cut superfinishing of cylindrical workpiece

Standard Sizes		For workpiece (ømm)	Stone area (cm ²)
mm	inch		
50 x 18 x 3	2" x 0.71" x 0.12"	4.5 ~ 8	1.5
50 x 18 x 5	2" x 0.71" x 0.20"	7.5 ~ 13	2.5
60 x 18 x 8	2.4" x 0.71" x 0.32"	12 ~ 21	4.8
60 x 18 x 13	2.4" x 0.71" x 0.50"	20 ~ 34	7.8
60 x 28 x 18	2.4" x 1.12" x 0.71"	26 ~ 47	11
60 x 28 x 28	2.4" x 1.12" x 1.12"	41 ~ 75	17
60 x 28 x 36	2.4" x 1.12" x 1.42"	75 and over	17

Needle rollers

Standard Sizes		For workpiece (ømm)	Stone area (cm ²)
mm	inch		
50 x 40 x 0.8	2" x 1.57" x 0.032"	1.0 ~ 1.5	0.4
50 x 40 x 1	2" x 1.57" x 0.045"	2.0 ~ 2.5	0.5
50 x 40 x 1.5	2" x 1.57" x 0.060"	2.5 ~ 3.0	0.75
50 x 40 x 2	2" x 1.57" x 0.080"	3.0 ~ 3.5	1.0
50 x 40 x 12.5	2" x 1.57" x 0.100"	3.5 ~ 4.0	1.25

Superfinishing of ball bearing races

The stone sizes depend on the race diameter and the groove sizes. Pre-shaping of the superfinishing stone is usually done manually.

Note: For superfinishing extremely hard materials, for instance, oxide ceramics, glass or carbide, the use of diamond or CBN sticks is recommended.

