

I. Dimensional

Parameter/Equipment	Range	CMC ^{2,6} (±)	Comments
UMM, Supermic™	Up to 11.5 in	(10 + 0.7L) μin	Gage blocks
Bore Mic (Intramic)	(0.10 to 8.0)''	40 μin + 0.6R	Ring gauges
Calipers ³	Up to 40 in	20 μin + 0.6R	Gage blocks
Cylindrical Square – Squareness, Straightness, Roundness	Up to 12 in	24 μin	Federal comparator 232, surface plate
Dial Indicator ³	(0.01 to 2) in	170 μin	Dial indicator checker
End Standards	Up to 1 in (1 to 4) in (4 to 6) in (6 to 24) in (24 to 36) in	11 μin 26 μin 36 μin 77 μin 110 μin	Laser measurement machine (LMM)
Feeler Gages	Up to 0.06 in	0.1 % IV + 20 μin	Gage blocks, or LMM and gage blocks
Height Gages	Up to 48 in	61 μin + 9.6 μin/in	Gage blocks, Federal comparator 232

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Micrometers ³ – Inside Outside Depth	Up to 1 in (1 to 4) in (4 to 6) in (6 to 24) in (24 to 36) in Up to 36 in Up to 12 in	11 μin + 0.6R 26 μin + 0.6R 37 μin + 0.6R 85 μin + 0.6R 120 μin + 0.6R 12 μin/in + 0.6R 12 μin/in + 0.6R	Gage blocks, LMM
Stage Micrometer Standard	(0.004 to 2) in	20 μin + 10 μin/in	LMM/Agilent 5519A Laser
Optical Comparator ³ – Length Magnification Angle	Up to 11 in 10× to 100× Up to 45°	100 μin 0.6R 0.033°	Gage blocks, magnification balls
Outside Diameter – Pins/Plugs/Balls	Up to 10 in	15 μin	P & W Supermic
Protractors	Up to 90°	0.01°	Sine plate, gage blocks, cylindrical square
Paint Coat Thickness – Thin Film Shims Paint Thickness Gauge	(0.001 to 0.060) in	0.1 % IV + 20 μin 100 μin + 0.6R	LMM, gage blocks Calibrated shims
Roughness ³	(7 to 9) μin (12 to 20) μin 120 n	1.7 μin 1.6 μin 4.6 μin	Roughness standards
Ultrasonic Thickness Gauges	Up to 5 in	100 μin + 0.6R	LMM, gage blocks

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Rulers ³	(1 to 120) in	0.005 % IV + 0.6R	LMM
Sine Plate, Sine Bar, Fixed Points	5 in 10 in 20 in	190 μin 160 μin 450 μin	Angle blocks, gage blocks, Federal comparator 232
Levels – Digital Bubble	120 in 96 in	0.25” 0.6R	Sine plate, gage blocks
Tape Measure	Up to 300 ft	0.01 % + 0.6R	LMM
Flatness ³	(2 to 6) in	3 μin	Optical flat
Surface Plate ³	72 in × 240 in	100 μin	Autocollimator
Thread Rings	(Up to 1.5) in (1.5 to 4) in (4 to 6) in Minor Diameter	220 μin 270 μin 320 μin 200 μin	Master thread plugs Plain pins/plugs, bore plugs, optical comparator
Thread Wires	(4 to 80) tpi	13 μin	LMM, P & Supermic, gage blocks
Thread Plugs	(0.1 to 4) in (4 to 80) tpi	75 μin 75 μin	P & W Supermic,, gage blocks, master thread wires
Ring Gages	(0.25 to 8.0) in	25 μin	P & W Supermic , gage blocks, master ring gages