SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994 & ANSI/NCSL Z540.3-2006

MITUTOYO AMERICA CORPORATION
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CALIBRATION

Valid To: *See details on footnote* Certificate Number: 0750.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1, 15]:

I. Dimensional

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Adjustable Parallels	(0.375 to 3.00) in (9 to 75) mm	40 µin 1.0 µm	Mu-checker	Chicago
Angle Gages	(5 to 180)°	2.2 arc min	Optical comparator	Chicago
Angle Gage Blocks	Up to 90°	0.56 arc sec	CMM	Chicago
Calipers[7]	Up to 80 in Up to 2000 mm	(120 + 1.0*L*) µin (3.1 + 1.0*L*) µm (120 + 1.3*L*) µin (3.1 + 1.3*L*) µm	Gage blocks & caliper checker	Chicago LA
Check Masters/Caliper Checkers/ Step Gages –	Up to 24 in Up to 300 mm Up to 40 in Up to 1000 mm (> 40 to 60) in (> 1000 to 1500) mm Up to 80 in Up to 2000 mm	(6.0 + 0.5*L*) µin (0.15 + 0.5*L*) µm (10 + 0.5*L*) µin (0.25 + 0.50*L*) µm (10 + 0.70*L*) µin (0.25 + 0.70*L*) µm (70 + 2.0*L*) µin (1.8 + 2.0*L*) µm	Gage blocks CMM CMM CMM	Chicago Cincinnati

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Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Circle Chart (Chart 009)	(0.002 to 26) mm	0.050 µm	Vision CMM	Chicago
Coating Thickness Gage (Digi-Derm & Lamina Checker)	(0.0005 to 0.060) in (0.013 to 1.5) mm	20 µin 0.5 µm	Master films	Chicago
Coordinate Measuring Machines (CMM) & Vision Instruments[3] –				
Length Accuracy	(0 to 1000) mm	$(0.11 + 0.13L)$ µm	Gage blocks[9]	Chicago
	(0 to 1000) mm	$(0.25 + 0.51L)$ µm	Step gage[9]	
	(0 to 5000) mm	$0.71L$ µm	He-Ne laser[9]	
	(0 to 350) mm (> 350 to 1000) mm	$(0.10 + 0.12L)$ µm $(0.06 + 0.25L)$ µm	Linescale[10]	
	(0 to 150) mm	$(0.060 + 0.67L)$ µm	Gage blocks[10]	
Probe Performance	(10 to 51) mm	0.026 µm	Sphere[11]	
	(2 to 4) mm	0.20 µm	Circle chart[10]	
Scanning Performance	(24.9 to 25.5) mm	0.026 µm	Sphere[13]	
Multiple Stylus	(10 to 51) mm	0.026 µm	Sphere[11]	
Rotary Axis Performance	(10 to 30) mm	0.026 µm	Sphere[12]	
Squareness	(0 to 600) mm	$(0.076 + 0.70L)$ µm	Square[10]	
Video Probe	(0.02 to 4) mm	0.50 µm	Pixel chart	
Magnification Offset	0.5x to 30x	1.2 µm	Pixel chart	
Cylindrical Squares				
Parallelism	(1 to 20.7) in (25 to 550) mm	0.25 µin/in 0.25 µm/m	Roundness tester reversal method	Chicago
Squareness	(0 to 20.7) in (0 to 550) mm	8 µin 0.20 µm	Roundness tester	

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Depth Gages (Caliper, Micrometer)	(0 to 12) in (0 to 300) mm	(30 + 1.5*L*) µin (0.8 + 1.5*L*) µm (30 + 1.7*L*) µin (0.8 + 1.7*L*) µm	Gage blocks	Chicago LA
Dial & Test Indicators	(0 to 0.2) in (0 to 5) mm (> 0.2 to 2) in (> 5 to 50) mm (0 to 4) in (0 to 100) mm	20 µin 0.55 µm 160 µin 4.0 µm (6.0 + 5.0*L*) µin (0.15 + 5.0*L*) µm	Dial calibration tester I-checker	Chicago LA Chicago
Dial Indicator Tester	(0 to 0.2) in (0 to 5) mm (0 to 2.4) in (0 to 60) mm	10 µin 0.25 µm 30 µin 0.8 µm	Gage blocks	Chicago LA
Digimatic Indicators[7]	(0 to 2.4) in (0 to 60) mm	(6.5 + 2.0*L*) µin (0.17 + 2.0*L*) µm	Gage blocks	Chicago LA
Digital Protractor	Up to 90°	0.10°	Sine bar & gage blocks	Chicago
Films (Plastic)	(0 to 0.250) in (0 to 6) mm	20 µin 0.5 µm	Linear measuring machine	Chicago
Gage Blocks – Length	 (0.004 to 0.05) in (0.1 to 1.27 mm) (> 0.05 to 4) in (> 1.27 to 100) mm (> 4 to 20) in (> 100 to 500) mm	 1.8 µin 0.05 µm (1.7 + 0.5*L*) µin (0.045 + 0.5*L*) µm (0.7 + 0.95*L*) µin (0.02 + 0.95*L*) µm	 Gage blocks	 Chicago

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Gage Blocks (cont)–				
Length	(> 20 to 40) in (> 500 to 1000) mm	(10 + 0.5*L*) µin (0.25 + 0.5*L*) µm	CMM	Chicago
Parallelism (Variation in Length)	(0.004 to 4) in (0.5 to 100) mm	0.60 µin 0.015 µm	Gage blocks	
	(> 4 to 20) in (> 100 to 500) mm	3.0 µin 0.08 µm		
Central Length Difference[8]	(0.05 to 4) in (0.5 to 100) mm	(1.3 + 0.7*L*) µin (0.033 + 0.7*L*) µm	Comparison between gage block pairs	
Gage Block Comparators[3]	Up to 100 mm	1.3 µin 0.033 µm	Gage blocks	Chicago
Height Gages[7] (Including Heightmatic, QM-Height & Linear Height) –				
Length	Up to 24 in Up to 610 mm	(18 + 0.90*L*) µin (0.46 + 0.90*L*) µm	Step gage	Chicago LA
	Up to 40 in Up to 1000 mm	(36 + 1.2*L*) µin (0.91 + 1.2*L*) µm	Height master	Chicago
	Up to 40 in Up to 1000 mm	(36 + 1.5*L*) µin (0.91 + 1.5*L*) µm		LA
Straightness	Up to 24 in Up to 610 mm	60 µin 1.5 µm	Master square	Chicago LA
Perpendicularity	Up to 24) in Up to 610 mm	(30 + 1.6*L*) µin (0.76 + 1.6*L*) µm	Master square	
Height Masters	Up to 40 in Up to 1000 mm	(6.0 + 0.93*L*) µin (0.15 + 0.93*L*) µm	Master gage blocks	Chicago
	Up to 40 in Up to 1000 mm	(3.0 + 2.2*L*) µin (0.08 + 2.2*L*) µm		LA
I-Checker (Indicator Tester)	Up to 4 in Up to 100 mm	(2.2 + 1.0*L*) µin (0.06 + 1.0*L*) µm	Gage Blocks	Chicago

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Inside Diameter Measuring Instruments (Borematics, Holtest, & Bore Gages)[7]	Up to 12 in Up to 300 mm	(31 + 3.2*D*) µin (0.8 + 3.2*D*) µm	Ring gages	Chicago
Laser Scan Micrometer	Up to 4 in Up to 100 mm Up to 4 in Up to 100 mm	(13 + 3.2*L*) µin (0.33 + 3.2*L*) µm (13 + 3.3*L*) µin (0.33 + 3.3*L*) µm	Pin gages	Chicago LA
Length Standards/ Micrometer Standards Flat End Spherical End	 Up to 60 in Up to 1500 mm Up to 60 in Up to 1500 mm	 (6.0 + 1.6*L*) µin (0.15 + 1.6*L*) µm (30 + 1.6*L*) µin (0.76 + 1.6*L*) µm	 Gage blocks	 Chicago
Line Scales	Up to 16 in Up to 410 mm (> 16 to 24) in (> 410 to 610) mm Up to 40 in Up to 1000 mm	(10 + 0.6*L*) µin (0.25 + 0.6*L*) µm (10 + 0.9*L*) µin (0.25 + 0.9*L*) µm (10 + 0.5*L*) µin (0.25 + 0.5*L*) µm	Vision CMM CMM	Chicago
Linear Gage with Counter[7]	Up to 2.00 in Up to 50 mm	(7.2 + 1.5*L*) µin (0.18 + 1.5*L*) µm (7.1 + 2.0*L*) µin (0.18 + 2.0*L*) µm	Gage blocks	Chicago LA
Litematic	Up to 2 in Up to 50 mm	(4.6 + 0.6*L*) µin (0.12 + 0.6*L*) µm	Gage blocks	Chicago LA
Micrometer Heads	Up to 2 in Up to 51 mm	3 µin 0.08 µm	Linear measuring machine	Chicago

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Micrometers[7] –	Up to 1 in Up to 25 mm	4.0 µin 0.10 µm	Gage blocks	Chicago LA
Outside/Inside/Tubular/ Indicating & Snap/Groove	(1 to 80) in (25 to 2000) mm	(6.0 + 2.0*L*) µin (0.15 + 2.0*L*) µm		
Microscope –				
Linearity (X & Y)	Up to (16 x 8) in Up to (400 x 200) mm	(52 + 1.2*L*) µin (1.3 + 1.2*L*) µm	Stage micrometer scale & angle reticle	Chicago
Magnification	1x to 100x	80 µin or 2.0 µm		
Angular	Up to 360°	1.5 arc min		
Mu-Checker/Amplifier	Up to 0.05 in Up to 1.5 mm	6.0 µin 0.15 µm	Gage blocks	Chicago LA
Optical Flats/Parallels				
Flatness	(0.5 to 12) in (4 to 300) mm	2.0 µin 0.050 µm	Master optical flat	Chicago
	(0.5 to 16) in (4 to 400) mm	(1.1 + 0.3*D*) µin (0.28 + 0.3*D*) µm	Roundness tester	
Parallelism	(0.5 to 2) in (4 to 50) mm	5.0 µin 0.13 µm	Gage blocks	
Overlay Charts – Length	Up to 16 in Up to 400 mm	(22 + 5.0*D*) µin (0.55 + 5.0*D*) µm	Vision CMM	Chicago
Angle	Up to 360°	15 arc sec		
Parallel Bars	(1 to 6) in (25 to 150) mm	40 µin 1.0 µm	Mu-checker	Chicago

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Pins/Plugs/Spheres/ Balls/Hemispheres				
Diameter	Up to 2 in Up to 50 mm	(5.0 + 0.7*D*) µin (0.13 + 0.7*D*) µm	Linear measuring machine & master plugs	Chicago
	(> 2 to 6) in (> 50 to 150) mm	(5.0 + 0.9*D*) µin (0.13 + 0.9*D*) µm		
Roundness	Up to 16 in Up to 400 mm	(0.80 + 0.60*H*) µin (0.02 + 0.60*H*) µm	Roundness tester	
	(0.5 to 2) in (4 to 50) mm	0.20 µin 0.0050 µm	Reversal method on roundness tester	
Pitch Micrometer Standard	(1 to 6) in (1 to 150) mm	(67 + 8.0*L*) µin (1.7 + 8.0*L*) µm	Linear measuring machine	Chicago
Pixel Calibration Charts	Up to 0.16 in Up to 4 mm	(10 + 0.6*L*) µin (0.25 + 0.6*L*) µm	Vision CMM	Chicago
Precision Levels	(5 to 16) in (100 to 406) mm	150 µin 4 µm	Sine bar & gage blocks	Chicago
Precision Sine Plates –	Up to 10 in Up to 250 mm	5.5 arc sec	Gage & angle blocks	Chicago
Precision Vise	Up to 6 in Up to 150 mm	40 µin 1.0 µm	Linear height & muchecker	Chicago
Protractor	Up to 180°	1.5 arc min	Optical comparator	Chicago
Projectors[3, 7] –				
Squareness	Up to 150 mm	(0.63 + 1.7*L*) µm	Steel square	Chicago
Length Accuracy	Up to 300 mm	(1.3 + 0.3*L*) µm	Glass scale	
Magnification	0x to 50x	0.01 %	Glass scales	

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Radius Gages	(0.01 to 2) in (0.25 to 50) mm	0.000 50 in 0.012 mm	Optical comparator	Chicago
Reticles –	Up to 1 in Up to 25 mm	60 µin 1.5 µm	Vision CMM	Chicago
Ring Gages	(0.6 to 4) in (15 to 100) mm (0.04 to 21) in (1 to 535) mm	(6.0 + 1.3*D*) µin (0.15 + 1.3*D*) µm (9.4 + 0.7*D*) µin (0.24 + 0.7*D*) µm	Linear measuring machine & master ring gages CMM	Chicago
Riser Blocks	Up to 24 in Up to 600 mm	(4.3 + 1.0*H*) µin (0.11 + 1.0*H*) µm (2.5 + 2.3*H*) µin (0.06 + 2.3*H*) µm	Gage blocks	Chicago LA
Screw Pitch Gages (Leaf Type)	(4.0 to 84.0) TPI (0.25 to 7.0) mm	250 µin 7 µm	Optical comparator	Chicago
Screw Thread Anvils	60° & 55°	2.2 arc min	Optical comparator	Chicago
Sine Bars	Up to 40 in Up to 1000 mm	(10 + 0.5*L*) µin (0.25 + 0.5*L*) µm	CMM	Chicago
Squares	Up to 24 in Up to 610 mm Up to 40 in Up to 1000 mm	(12 + 5.1*L*) µin (0.3 + 5.1*L*) µm (3.0 + 0.70*L*) µin (0.076 + 0.70*L*) µm	Master square CMM using reversal technique	Chicago

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Specialty Gages –				
1D Length	Up to 100 mm	(0.058 + 0.81*L*) µm	Contact methods	Chicago
	(> 100 to 500) mm	(0.061 + 0.9*L*) µm	Contact methods	Chicago
	(> 500 to 1000) mm	(0.25 + 0.50*L*) µm	Contact methods	Chicago
	Up to 400 mm	(0.25 + 0.60*L*) µm	Non-contact methods	Chicago
	Up to 600 mm	(1.8 + 3.7*L*) µm	Non-contact methods	Cincinnati
	Up to 2000 mm	(1.8 + 2.0*L*) µm	Contact methods	Cincinnati
2D Length	(400 x 400) mm	(0.5 + 2.2*L*) µm	Non-contact methods	Chicago
	(600 x 600) mm	(1.8 + 4.8*L*) µm	Non-contact methods	Cincinnati
	(900 x 1000) mm	(0.38 + 1.5*L*) µm	Contact methods	Chicago
3D Length	(1200 x 2000x1000) mm	(2.8 + 3.5*L*) µm	Contact methods	Cincinnati
	(900 x 1000 x 600) mm	(0.38 + 1.5*L*) µm	Contact methods	Chicago
Form	(1200 x 2000 x 1000) mm	(2.8 + 3.5*L*) µm	Contact methods	Cincinnati
	Up to 50 mm	0.005 µm	Roundness tester	Chicago
	(>50 to 550) mm	0.025 µm	Roundness tester	Chicago
	Up to 500 mm	(0.02 + 0.47*L*) µm	Contact methods	Cincinnati
	Up to 1000 mm	0.050 µm	CMM	Chicago
	Up to 2000 mm	(2.8 + 3.5*L*) µm	Contact methods	Cincinnati
Surface Finish	Ra (0 to 1.0) µm	0.02 µm	Surface roughness tester	Chicago, Cincinnati
	Ra (> 1.0 to 12.7) µm	1.2 % of nominal value		

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Step Height Specimen	(0.01 to 0.120) in (0.25 to 3) mm	4.5 µin 0.12 µm	Gage block comparator	Chicago
Straightedge	Up to 21.7 in Up to 550 mm Up to 21.7 in Up to 550 mm Up to 40 in Up to 1000 mm	8.0 µin 0.20 µm 1.0 µin 0.025 µm 2.0 µin 0.050 µm	Roundness tester Reversal method on roundness tester Reversal method on CMM	Chicago
Surface Finish & Form Measuring Instruments[3, 7] –				
Detector Accuracy	(-30 to 30) mm	(0.052 + 0.6*L*) µm	Gage blocks	Chicago
Straightness	Up to 550) mm	0.025 µm	Straightedge	
Radial Motion	Up to 360°	0.0050 µm	Precision sphere	
Axial Motion	Up to 360°	0.0010 µm	Precision sphere	
Parallelism	(10 to 550) mm	0.13 µm/m	Cylindrical square	
Squareness	(10 to 100) mm	0.28 µm/m	Square reversal	
Length	Up to 200 mm Up to 550 mm	(0.5 + 0.7*L*) µm (0.71*L*) µm	Pitch gage He-Ne laser	
Surface Finish	Up to 10 µm Up to 400 µin	0.02 µm 0.8 µin	Surface finish specimen	
Surface Finish Specimen	Ra (0 to 40) µin Ra (0 to 1.0) µm Ra (> 40 to 500) µin Ra (> 1.0 to 12.7) µm	0.7 µin 0.018 µm 1.2 % of nominal value	Surface finish tester	Chicago
Tap & Drill Gage	(0.001 to 0.500) in (0.025 to 12.70) mm	250 µin 6.3 µm	Optical comparator	Chicago

Parameter/Equipment	Range[4]	CMC[2, 5] (±)	Comments	Location
Thickness Gages (Feeler Type)	(0.001 to 0.050) in (0.025 to 1.27) mm	35 µin 1.0 µm	Linear measuring machine	Chicago
Thickness Measuring Gages (Digital & Dial Inside – Outside Caliper Gages)	Up to 7.2 in Up to 183 mm	(26 + 2.0*L*) µin (0.66 + 2.0*L*) µm (25 + 3.0*L*) µin (0.64 + 3.0*L*) µm	Gage blocks	Chicago LA
Thread Measuring Wires	(2 to 120) TPI (0.2 to 10.0 mm) Pitch (1 to 20) TPI (ACME)	5.0 µin 0.15 µm 0.5 µin	Linear measuring machine	Chicago
Ultrasonic Thickness Gage (Mu Gage)	Up to 2 in Up to 50 mm	(100 + 16*L*) µin (2.5 + 16*L*) µm	Gage blocks	Chicago
V-Anvil Micrometers	Up to 3.4 in Up to 87 mm	(64 + 4.0*L*) µin (1.6 + 4.0*L*) µm	Pin gages	Chicago LA
V-Blocks	Up to 4 in Up to 102 mm	65 µin 1.7 µm	Mu checker with lever head probe	Chicago
Wire Gages	(0.005 to 4) in	250 µin	Optical comparator	Chicago
1-2-3 Blocks – Parallelism Squareness	 (1 x 2 x 3) in	 35 µin or 0.90 µm 40 µin or 1.0 µm	 Mu-checker with lever head probe	 Chicago

II. Dimensional Testing[1]

Parameter/Equipment	Range[4]	Comments	Location
Geometric Measurements[6] –			
1D	Up to 1000 mm	Contact methods	Chicago
	Up to 2000 mm	Contact methods	Cincinnati
	Up to 400 mm	Non-contact methods	Chicago
	Up to 600 mm	Non-contact methods	Cincinnati
2D	Up to (900 x 1000) mm	Contact methods	Chicago
	Up to (400 x 400) mm	Non-contact methods	Chicago
	Up to (600 x 600) mm	Non-contact methods	Cincinnati
	Up to (1200 x 2000) mm	Contact methods	Cincinnati
3D	Up to (900 x 1000 x 600) mm	Contact methods	Chicago
	Up to (1200 x 2000 x 1000) mm	Contact methods	Cincinnati
Form	Up to 1000 mm	Contact methods	Chicago
	Up to 400 mm	Non-contact methods	Chicago
	Up to 2000 mm	Contact methods	Cincinnati
Surface Finish	Ra Up to 12.7 µm	Surface roughness tester	Chicago, Cincinnati

III. Mechanical

Parameter/Equipment	Range[4]	CMC[2] (±)	Comments	Location
Hardness Tester (Leeb Scale)	(500 to 900) HLD	16 HLD	ASTM A956	Chicago
Hardness Test Blocks (Leeb Scale)	(500 to 900) HLD	20 HLD	ASTM A956	Chicago

Parameter/Equipment	Range[4]	CMC[2] (±)	Comments	Location
Durometer Tester Type A & D	(0 to 100) Duro	0.60 Duro	ASTM D2240	Chicago
Indenter Length Indenter Angle Indenter Radius Indenter Tip diameter		200 µin 3.0 arc min 400 µin 400 µin	Vision CMM or optical comparator	
Durometer Test Blocks Type A & D	(0 to 100) Duro	1.0 Duro	ASTM D2240	Chicago
Direct Verification of Rockwell Hardness Testers[3]–			ASTM E18	Chicago
Test Force	(3 to 150) kgf	0.38 % of range	Load cell	
Depth Measuring System	(0 to 0.2) mm	0.47 µm	Linear gage	
Hysteresis	100 HR & 130 HR	0.12 HR		
Testing Cycle	Up to 30 s	0.10 s	Stopwatch	
Direct Verification of Vickers & Knoop Hardness Testers[3]–			ASTM E92	Chicago
Test Force	(0.001 to 120) kgf	0.38 % of range	Load cell	
Indentation Measuring System	(0 to 0.1) mm	0.40 µm	Line scale	
Testing Cycle	Up to 30 s	0.10 s	Stopwatch	
Indirect Verification of Rockwell & Rockwell Superficial Hardness Testers[3]	HRA: High Medium Low HRBW: High Medium Low	 0.20 HRA 0.22 HRA 0.24 HRA 0.43 HRBW 0.54 HRBW 0.66 HRBW	ASTM E18	Chicago

Parameter/Equipment	Range[4]	CMC[2] (±)	Comments	Location
Indirect Verification of Rockwell & Rockwell Superficial Hardness Testers[3] (cont)	HRC: High Medium Low HRD: High Medium Low HR30N: High Medium Low HR30TW: High Medium Low	 0.32 HRC 0.34 HRC 0.35 HRC 0.40 HRD 0.42 HRD 0.51 HRD 0.32 HR30N 0.36 HR30N 0.41 HR30N 0.34 HR30TW 0.42 HR30TW 0.50 HR30TW	ASTM E18	Chicago
Indirect Verification of Vickers & Knoop Hardness Testers[3]				
Macro V	Low Medium High	0.12 HV 1.2 HV 2.4 HV	ASTM E92	Chicago
Micro V	Low Medium High	0.21 HV 1.8 HV 3.6 HV		
Micro K	Low Medium High	0.5 HK 2.1 HK 2.6 HK		

[1] This laboratory offers commercial and field calibration and dimensional testing services.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] Field calibration service is available for this calibration. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

[4] Metric equivalencies for these ranges and associated CMCs are also available.

[5] In the statement of CMC, *L* is the length in inches/meters; *D* is the diameter in inches/meters; *H* is the height in inches/meters and *R* is the resolution in µin/µm.

[6] This test is not equivalent to that of a calibration.

[7] Repeatability of the Unit Under Test has not been utilized in the calculation of the CMC value for this measurement parameter.

[8] The CMC claim is smaller than that of the expanded uncertainty claim for NIST as listed in the BIPM Key Comparison Database. A2LA has evaluated the laboratory's CMC claim and has verified this information to be correct and appropriate.

[9] Calibration method in accordance to ISO 10360-2:2001 or ISO 10360-2:2009.

[10] Calibration method in accordance to ISO 10360-7.

[11] Calibration method in accordance to ISO 10360-5:2020 and ISO 10360-5:2010.

[12] Calibration method in accordance to ISO 10360-3.

[13] Calibration method in accordance to ISO 10360-4:2000 and ISO 10360-5:2020.

[14] The locations of the laboratories that can perform the calibrations are given by a letter code with valid to dates given in the table below:

Location	Code	Valid Dates
965 Corporate Blvd, Aurora, IL 60502	Chicago	05/31/2024
16 925 E. Gale Ave, City of Industry, CA 91745	LA	05/31/2024
8876 Beckett Road, West Chester, OH 45069	Cincinnati	10/31/2025

[15] This scope meets A2LA's *P112 Flexible Scope Policy*.

Accredited Laboratory

A2LA has accredited

MITUTOYO AMERICA CORPORATION

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and the requirements of ANSI/NCSL Z540.3-2006 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 18th day of May 2022.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 750.01
Valid to: See Scope of Accreditation
Revised September 15th, 2023

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.