SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
& ANSI/NSCL Z540-1-1994

INSPECTION MEASUREMENT COMPANY
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CALIBRATION

Valid To: July 31, 2012 Certificate Number: 1030.01

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

I. Dimensional

Parameter/Equipment	Range	CMC[2,6] (±)	Comments
Angle Blocks	(0 to 90) °	0.30°	Optical comparator, angle blocks
Bore Gages	(0 to 4.001) in	0.6*R*	Plain ring gage
Bore Gages[3]	(0 to 4.001) in	(0.6*R* + 10*T*) µin	Plain ring gage
Calipers[4]	(0 to 80) in	0.6*R*	Plain ring gage and gage blocks
Calipers[3,4]	(0 to 80) in	(0.6*R* + 10*T*) µin	Plain ring gage and gage blocks
Cylindrical Ring Gages[4]	(0.04 to 0.3) in (0.3 to 1) in (1 to 10) in	10 µin 10 µin (10 + 9.6*L*) µin	Helios LMM; ring masters

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Parameter/Equipment	Range	CMC[2,6] (±)	Comments
Depth Micrometers[4]	(0 to 12) in	0.6*R*	Gage blocks
Depth Micrometers[3,4]	(0 to 12) in	(0.6*R* + 10*T*) µin	Gage blocks
Dial Test Indicators[4]	To 0.1 in	0.6*R*	Indicator checker
Dial Test Indicators[3,4]	To 0.1 in	(0.6*R* + 10*T*) µin	Indicator checker
Travel Indicators	To 4.0 in	0.6*R*	Indicator checker
Travel Indicators[3]	To 4.0 in	(0.6*R* + 10*T*) µin	Indicator checker
Feeler Gages	(0 to 0.05) in	200 µin	Micro Cal
Gage Blocks	(0.005 to 1) in (1 to 4) in (5 to 20) in	4 µin (2.5 + 1.5*L*) µin (5 + 1.2*L*) µin	DHC DHC SHC
Gage Pins – Class ZZ to Z Class Y to XXX	 (0 to 1) in (0 to 10) in	 50 µin (10 + 9.6*L*) µin	 Laser micrometer Helios LMM
Spheres	(0 to 5) in	(10 + 9.6*D*) µin	Helios LMM
Granite Surface Plates[5]	To 32 ft^2	(100 + 2.1*L*) µin	Granite straight edge
Snap Gages	(0.30 to 10) in	(10 + 9.6*L*) µin	Helios LMM, gage blocks
Height Gages	(0 to 60) in	(200 + 25*L*) µin	Gage blocks
Height Gages[3]	(0 to 60) in	(10*T* + 25*L* + 200) µin	Gage blocks
Inside Micrometers	(0.5 to 20) in	0.6*R*	Helios LMM

Parameter/Equipment	Range	CMC[2,6] (±)	Comments
Micrometer Standards[4]	(1 to 20) in (21 to 60) in	(10 + 9.6*L*) µin (15 + 1.2*L*) µin	Helios LMM SHC
Optical Comparators[4,5] & Vision Systems			
Magnification	5X, 10X, 25X, 31.25X, 50X. 62.5X, 100X	(200 + 10*T*) µin	Glass scales, Magnification checker gage balls
Linear Axis - X & Y	(0 to 6) in (6 to 24) in	(200 + 10*T*) µin (34*L* + 10*T*) µin	
Squareness		(200 + 10*T*) µin	
Radius		(200 + 10*T*) µin	
Angularity	(0 to 90) °	(0.6*R* + 10*T*) µin	
Outside Micrometers[4]	(0 to 20) in	0.6*R*	Gage blocks, gage ball
Outside Micrometers[3,4]	(0 to 20) in	(0.6*R* + 10*T*) µin	Gage blocks, gage ball
Protractors	(0 to 90) °	0.6*R*	Angle blocks
Radius Gages[4]	($^1/_{16}$ to 1.0) in	500 µin	Optical comparator
Rules[3,4]	(0 to 96) in	(0.6*R* + 10*T*) µin	Gage blocks
Squares[4] – Cylindrical & Solid	(0 to 12) in	100 µin	Square master

Parameter/Equipment	Range	CMC[2,6] (±)	Comments
Thread Plugs[4] –			Bench mic with
Pitch Diameter	(0 to 4) in	84 μin	Thread wires
Major Diameter	(0 to 4) in	40 μin	Gage blocks
Thread Rings[4] –			
Pitch Diameter	To 2 in dependant on available plugs	300 μin	Thread set plugs
Minor Diameter	To 2 in	300 μin	Plain plugs
Thread Wires	To 0.3 in	10 μin	Helios LMM
V-Blocks, Box Parallel, Right Angle	(0 to 12) in	100 μin	Square master
Linear Measuring Machines	(0 to 144) in	$(0.6R + 25L)$ μin	Gage blocks
Linear Measuring Machines[3]	(0 to 144) in	$(10T + 0.6R + 25L)$ μin	Gage blocks
Tape Measure	(0 to 96) in	$0.6R$	Gage blocks
Tape Measure[3]	(0 to 96) in	$(0.6R + 10T)$ μin	Gage blocks

II. Mechanical

Parameter/Equipment	Range	CMC[2,6] (±)	Comments
Direct Verification of Durometers –			Direct verification method per ASTM D2240
Verification of indentor shape and extension:			Verification of these dimensional features is by optical projection.
Extension at zero reading		500 µin	
35 degree circular conical frustum	Diameter of the base of the frustum	500 µin	Verification of the spring force is by dead weights. The best uncertainty applies to all durometer types.
	Diameter of the top of the frustum	500 µin	
30 degree cone	Cone angle	0.15°	
Verification of indenter shape and extension:	Diameter of the base of the cone	500 µin	
1.2 mm radius	Tip radius Indenter thickness Indenter radius	500 µin 500 µin 500 µin	
Verification of the durometer spring		0.6 grams	
Indirect Verification of Rockwell & Rockwell Superficial Hardness Testers[5]	HRBW: Low Middle High	 0.6 HRBW 0.6 HRBW 1.0 HRBW	Indirect verification per ASTM E18.
	HRC: Low Middle High	 0.6 HRC 0.6 HRC 0.5 HRC	
	HR15N: Low Middle High	 0.6 HR15N 0.6 HR15N 0.6 HR15N	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Indirect Verification of Rockwell & Rockwell Superficial Hardness Testers[5] – (cont)	HR30N: Low Middle High HR15TW: Low Middle High HR30TW: Low Middle High HR45N: Low Middle High HR45TW: Low Middle High HRA Low Middle High HRFW Low Middle High	 0.8 HR30N 0.8 HR30N 1.0 HR30N 1.0 HR15TW 0.8 HR15TW 0.8 HR15TW 1.0 HR30TW 0.8 HR30TW 0.8 HR30TW 1.0 HR45N 0.8 HR45N 0.8 HR45N 1.0 HR45TW 0.8 HR45TW 0.8 HR45TW 0.6 HRA 0.6 HRA 0.6 HRA 0.6 HRFW 0.7 HRFW 0.6 HRFW	Indirect verification per ASTM E18.
Scales[5]	(0.5 to 1000) lb	2.0 % of full scale	Dead weights
Torque Wrenches	(10 to 1000) in·lb (20 to 250) ft·lb (60 to 600) ft·lb	2 % of full scale 2 % of full scale 2 % of full scale	Torque transducer

Parameter/Equipment	Range	CMC[2] (±)	Comments
Force Gages	(0.5 to 500) ft·lb	2 % of full scale	Class F dead weights
Dead Weights Up to class F	Up to 50 lb	1 % of reading	Digital balance and dead weights
Torque Transducers	(10 to 1000) in·lb (20 to 600) ft·lb	1 % of full scale	Dead weights

[1] This laboratory offers commercial calibration service and field calibration service.

[2] Calibration and Measurement Capability (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. Calibration and Measurement Capabilities 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 and this laboratory meets A2LA *R104 – General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. 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 equivalent devices are available for this parameter.

[5] The CMC stated for calibrations performed in the laboratory is applicable for calibrations performed on-site.

[6] In the statement of CMC, L is the numerical value of the nominal length of the device measured in inches; T is the temperature of correction for deviations from 20 °C; R is the numerical value of the resolution of the device in microinches.

The American Association for Laboratory Accreditation

World Class Accreditation

Accredited Laboratory

A2LA has accredited

INSPECTION MEASUREMENT COMPANY

Wyoming, MI

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration. 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 8 January 2009*).

Presented this 1st day of July 2010.

President & CEO
For the Accreditation Council
Certificate Number 1030.01
Valid to July 31, 2012

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