THE AMERICAN ASSOCIATION FOR LABORATORY 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 18 June 2005*).

Presented this 10th day of June 2008.

President
For the Accreditation Council
Certificate Number 1030.01
Valid to July 31, 2010

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

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

INSPECTION MEASUREMENT COMPANY
2291 Byron Center Ave. S.W.
Wyoming, MI 49519-1651
Lester P. Kragt Phone: 616 531 3303

CALIBRATION

Valid To: July 31, 2010 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	Best Uncertainty[2, 6] (±)		Comments
		Laboratory	On-Site[3]	
Angle Blocks	(0 to 90) °	0.30 °	On-Site calibration service is not available for this parameter.	Optical comparator, angle blocks
Bore Gages	(0 to 4.001) in	0.6*R*	(0.6*R* + 10*T*) µin	Plain ring gage
Calipers [4]	(0 to 80) in	0.6*R*	(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	On-Site calibration service is not available for this parameter.	Helios LMM; ring masters
Depth Micrometers[4]	(0 to 12) in	0.6*R*	(0.6*R* + 10*T*) µin	Gage blocks
Dial Test Indicators[4]	To 0.1 in	0.6*R*	(0.6*R* + 10*T*) µin	Indicator checker

Parameter/Equipment	Range	Best Uncertainty[2, 4, 6] (±)		Comments
		Laboratory	On-Site[3]	
Travel Indicators	To 4.0 in	0. 0.6*R*	(0.6*R* + 10*T*) μin	Indicator checker
Feeler Gages	(0 to 0.05) in	200 μin	On-Site calibration service is not available for this parameter.	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	On-Site calibration service is not available for this parameter.	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	On-Site calibration service is not available for this parameter.	 Laser micrometer Helios LMM
Spheres	(0 to 5) in	(10 + 9.6*D*) μin	On-Site calibration service is not available for this parameter.	Helios LMM
Granite Surface Plates	To 32 ft^2	(100 + 2.1*L*) μin	See Footnote 5	Granite straight edge
Snap Gages	(0.30 to 10) in	(10 + 9.6*L*) μin	On-Site calibration service is not available for this parameter.	Helios LMM, gage blocks
Height Gages	(0 to 60) in	(200 + 25*L*) μin	(10*T* + 25*L* + 2000) μin	Gage blocks
Inside Micrometers	(0.5 to 20) in	0.6*R*	On-Site calibration service is not available for this parameter.	Helios LMM

Parameter/Equipment	Range	Best Uncertainty[2, 6] (±)		Comments
		Laboratory	On-Site[3]	
Micrometer Standards[4]	(1 to 20) in (21 to 60) in	(10 + 9.6*L*) μin (15 + 1.2*L*) μin	On-Site calibration service is not available for this parameter.	Helios LMM SHC
Optical Comparators[4] & Vision Systems				
Magnification	5X, 10X, 25X, 31.25X, 50X. 62.5X, 100X	(200 + 10*T*) μin	See Footnote 5	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*)		
Outside Micrometers[4]	(0 to 20) in	0.6*R*	(0.6*R* + 10*T*) μin	Gage blocks, gage ball
Protractors	(0 to 90) °	0.6*R*	On-Site calibration service is not available for this parameter.	Optical comparator and angle blocks
Radius Gages[4]	($^1/_{16}$ to 1.0) in	500 μin	On-Site calibration service is not available for this parameter.	Optical comparator
Rules[4]	(0 to 96) in	0.6*R*	On-Site calibration service is not available for this parameter.	Gage blocks
Squares[4] – Cylindrical & Solid	(0 to 12) in	100 μin	On-Site calibration service is not available for this parameter.	Square master

Parameter/Equipment	Range	Best Uncertainty[2, 6] (±)		Comments
		Laboratory	On-Site[3]	
Thread Plugs[4] – Pitch Diameter Major Diameter	(0 to 4) in	84 μin 40 μin	On-Site calibration service is not available for this parameter.	Bench mic with Thread wires Gage blocks
Thread Rings[4] – Pitch Diameter Minor Diameter	To 2 in dependant on available plugs To 2 in	300 μin 300 μin	On-Site calibration service is not available for this parameter.	Thread set plugs Plain plugs
Thread Wires	To 0.3 in	10 μin	On-Site calibration service is not available for this parameter.	Helios LMM
V-Blocks, Box Parallel, Right Angle	(0 to 12) in	100 μin	On-Site calibration service is not available for this parameter.	Square master
Linear Digital Scales	(0 to 144) in	$(0.6R + 25L)$ μin	$(10T + 0.6R + 25L)$ μin	Gage blocks
Tape Measure	(0 to 96) in	$0.6R$	$(0.6R + 10T)$ μin	Gage blocks

II. Mechanical

Parameter/Equipment	Range	Best Uncertainty[2] (±)		Comments
		Laboratory	On-Site[3]	
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	On-Site calibration service is not available for this parameter.	
35 degree circular conical frustum	Diameter of the base of the frustum	500 μin		
	Diameter of the top of the frustum	500 μin		Verification of the spring force is by dead weights. The best uncertainty applies to all durometer types.
30 degree cone	Cone angle	0.15º		
Verification of indenter shape and extension:	Diameter of the base of the cone	500 μin		
1.2 mm radius	Tip radius	500 μin		
	Indenter thickness	500 μin		
	Indenter radius	500 μin		
Verification of the durometer spring		0.6 grams		
Indirect Verification of Rockwell & Rockwell Superficial Hardness Testers	HRB (W):		See Footnote 5	Indirect verification per ASTM E18.
	Low	0.6 HRB (W)		
	Middle	0.6 HRB (W)		
	High	1.0 HRB (W)		
	HRC:			
	Low	0.6 HRC		
	Middle	0.6 HRC		
	High	0.5 HRC		
	HR15N:			
	Low	0.6 HR15N		
	Middle	0.6 HR15N		
	High	0.6 HR15N		

Parameter/Equipment	Range	Best Uncertainty[2] (±)		Comments
		Laboratory	On-Site[3]	
Indirect Verification of Rockwell & Rockwell Superficial Hardness Testers – (cont)	HR30N: Low Middle High HR15T: Low Middle High HR30T: Low Middle High HR45N: Low Middle High HR45TW: Low Middle High HRA Low Middle High HRF (W) Low Middle High	 0.8 HR30N 0.8 HR30N 1.0 HR30N 1.0 HR15T 0.8 HR15T 0.8 HR15T 1.0 HR30T 0.8 HR30T 0.8 HR30T 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 HRF (W) 0.7 HRF (W) 0.6 HRF (W)	See Footnote 5	Indirect verification per ASTM E18.
Scales	(0.5 to 1000) lb	0.2 % of full scale	See Footnote 5	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	On-Site calibration service is not available for this parameter.	Torque transducer

Parameter/Equipment	Range	Best Uncertainty[2] (±)		Comments
		Laboratory	On-Site[3]	
Force Gages	(0.5 to 500) ft·lb	2 % of full scale	On-Site calibration service is not available for this parameter.	Class F dead weights
Dead Weights	Up to 50 lb	1 % of reading	On-Site calibration service is not available for this parameter.	Digital balance and dead weights
Torque Transducers	(10 to 1000) in·lb (20 to 600) ft·lb	1 % of full scale	On-Site calibration service is not available for this parameter.	Dead weights

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[1] This laboratory offers commercial and on-site calibration service.

[2] "Best Uncertainty" 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 of nearly ideal measuring equipment. Best uncertainties represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The best uncertainty of a specific calibration performed by the laboratory may be greater than the best uncertainty due to the behavior of the customer's device, to the environment (if the calibration is performed in the field) and to influences from the circumstances of the specific calibration.

[3] On-site calibration service is available for this calibration, where noted. The uncertainties achievable on a customer's site can normally be expected to be larger than the Best Measurement Capabilities (BMC) that the accredited laboratory has been assigned as Best Uncertainty 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 uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the calibration uncertainty being larger than the BMC.

[4] Metric equalivent devices are available for this parameter.

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

[6] In the statement of best uncertainty, 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.