



THE AMERICAN ASSOCIATION FOR
LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

BOBIER TOOL SUPPLY
Flint, 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 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 23rd day of October 2006.

A handwritten signature in black ink, appearing to read "Peter Mlynek". The signature is written in a cursive style and is positioned above a horizontal line.

President
For the Accreditation Council
Certificate Number 1526.01
Valid to June 30, 2008



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

BOBIER TOOL SUPPLY
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CALIBRATION

Valid To: June 30, 2008

Certificate Number: 1526.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Dimensional

Parameter/Equipment	Range	Best Uncertainty ^{2,3,4} (±)	Comments
Optical Comparator –			
Magnification Fixed Point	5× to 100× 100×	4 μm (4 + 0.8L) μm	Reticle and S-T magnification
Scale Deviation (Visual) Fixed Point	(0 to 76) mm (76 to 152) mm 152 mm	5.3 μm 5.4 μm (5.4 + 0.8L) μm	Reticle
Scale Deviation (with Edge Detector) Fixed Point	(0 to 76) mm (76 to 152) mm 152 mm	7.4 μm 7.6 μm (7.6 + 2.4L) μm	
CMM –			
Linear Displacement Accuracy	(0 to 250) mm (250 to 500) mm (500 to 750) mm (750 to 1000) mm 1000 mm	0.091 μm 0.13 μm 0.22 μm 0.25 μm (0.25 + 0.05L) μm	Renishaw laser
Fixed Point	(0 to 152) mm (152 to 305) mm (305 to 457) mm (457 to 610) mm	3.1 μm 9.5 μm 9.7 μm 11 μm	24” step gage

Parameter/Equipment	Range	Best Uncertainty ^{2,3,4} (±)	Comments
CMM – (cont)			
Linear Displacement Accuracy	(0 to 254) mm (254 to 762) mm (762 to 1016) mm	9.6 µm 9.8 µm 11 µm	40” step gage
Fixed Point	1016 mm	(10 + 6.4L) µm	
Volumetric Performance (Manual)	(254 to 508) mm (508 to 915) mm	2.8 µm 3.0 µm	Ball bar
Volumetric Performance (DCC)	(254 to 508) mm (508 to 915) mm	1.6 µm 1.8 µm	
Squareness Fixed Point	(0 to 152) mm 152 mm	5.9 µm (5.9 + 1.2L) µm	9” granite square
	(0 to 152) mm (152 to 305) mm (305 to 457) mm (457 to 610) mm	3.1 µm 5.7 µm 6.2 µm 6.3 µm	24” granite square
Video/Vision Measuring Machines – Scale Deviation	(0 to 76) mm (76 to 152) mm	5.3 µm 5.4 µm	Reticle
Fixed Point	152 mm	(5.4 + 0.8L) µm	
Machine Tools –			Renishaw laser
Linear Displacement Accuracy	(0 to 250) mm (250 to 500) mm (500 to 750) mm (750 to 1000) mm	0.091 µm 0.13 µm 0.22 µm 0.25 µm	
Fixed Point	100 mm	(0.25 + 0.05L) µm	

II. Dimensional Testing

Parameter/Equipment	Range	Best Uncertainty ² (±)	Comments
Linear Accuracy	(0 to 25.4) mm (25.4 to 152.4) mm (152.4 to 304.8) mm (304.8 to 609.6) mm (609.6 to 1524.0) mm	0.61 µm 0.78 µm 0.83 µm 2.4 µm 4.7 µm	CMM/OGP

Parameter/Equipment	Range	Best Uncertainty ² (±)	Comments
Position	(25.4 × 25.4 × 25.4) mm (304.8 × 304.8 × 304.58) mm (508 × 508 × 508) mm (2000 × 1200 × 1000) mm	1.5 μm 2.3 μm 4.5 μm 6.2 μm	CMM/OGP

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 and to influences from the circumstances of the specific calibration.

³ On-site calibration service is available for this calibration. 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 In the statement of best uncertainty, L is the numerical value of the distance measured in inches or micrometers, and M is the magnification and R is the numerical value of the resolution of the device in inches or micrometers.