

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

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CALIBRATION

Valid To: December 31, 2007

Certificate Number: 1845.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1</sup>:

I. Mechanical

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments
Indirect Verification of Microindentation Hardness Testers <sup>3</sup> –  Knoop 100 gf 500 gf  Vickers 100 gf 500 gf	(50 to 1800) HK  (50 to 1800) HV	0.5 µm 1.1 µm  0.3 µm 0.4 µm	ASTM E384
Indirect Verification of Vickers Hardness Testers <sup>3</sup>	HV: Low Medium High	3.3 µm 2.4 µm 1.9 µm	ASTM E92
Indirect Verification of Rockwell Hardness and Rockwell Superficial Hardness Testers <sup>3</sup>	HRBW: Low Medium High	0.7 HRBW 0.7 HRBW 0.7 HRBW	ASTM E18

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments
Indirect Verification of Rockwell Hardness and Rockwell Superficial Hardness Testers <sup>3</sup> (cont)	HRC: Low Medium High  HREW: Low Medium High  HR30N: Low Medium High  HR30TW: Low Medium High	0.4 HRC 0.3 HRC 0.4 HRC  0.5 HREW 0.6 HREW 0.5 HREW  0.6 HR30N 0.7 HR30N 0.8 HR30N  0.8 HR30TW 0.5 HR30TW 0.5 HR30TW	ASTM E18
Metallographic Linear Reticles <sup>3</sup>	(40 to 600) divisions	0.012 µm/division	ASTM E1951
Total Photomicrographic/ Video Print Magnification <sup>3</sup>	Up to 2000x	0.65 % of magnification	ASTM E1951
Pixel Calibration of Image Analysis/Video Measurement Systems <sup>3</sup> –			ASTM E1951 and LECO AMH43
Low Magnification	≤ 200x	0.4 µm/pixel	
High Magnification	> 200x	0.7 nm/pixel	
Calibration of Microscopic Stage Micrometers	(0 to 155) mm (0 to 2) mm	0.04 mm 0.07 µm	ASTM E1951, LECO AMH43, and image analysis application with NIST specimen

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<sup>1</sup> This laboratory offers commercial calibration service and on-site calibration service, where noted.

<sup>2</sup> “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.

<sup>3</sup> On-Site calibration service is available for this parameter. The uncertainties achievable on a customer's site can 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.