



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

CAPSTONE CALIBRATION
7016 Baker Blvd
Richland Hills, TX 76118
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CALIBRATION

Valid To: January 31, 2020

Certificate Number: 1593.01

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

I. Dimensional

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Granite Surface Plates ³ – Flatness	5 in to 30 ft	(10 + 0.74DL) μin	Autocollimator
Repeat Reading	5 in to 30 ft	23 μin	Repeat-o-meter (only valid in connection with flatness calibration)
Angle Plates – Squareness	Up to 24 in	(20 + 1.9L) μin	Comparison to master square
Parallelism – V-Block	Up to 36 in Up to 12 in	(10 + 1.5L) μin 41 μin	Electronic indicator and surface plates, plug gage

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Optical Flat – Flatness Parallelism	Up to 3 in Up to 3 in	4.5 μin 4.5 μin	Master optical flat and monochromatic light
Straightness ³	Up to 72 in	(20 + 0.75L) μin	Autocollimator
Autocollimator	(0 to 10) arc-min	0.66 arc-sec	Gage blocks and sine bar
Caliper ³	Up to 36 in	(180 + 0.6R) μin	Gage blocks
Micrometer ³	Up to 24 in	(200 + 0.6R) μin	Gage blocks
Digital and Dial Indicator Up to 6” ³	0.000 020 in resolution 0.000 050 in resolution 0.000 100 in resolution 0.000 500 in resolution 0.001 000 in resolution	(26 + 0.6R) μin (45 + 0.6R) μin (84 + 0.6R) μin (410 + 0.6R) μin (820 + 0.6R) μin	Gage blocks
Height Gage – High Resolution ³	Up to 48 in	(310 + 0.6R) μin (130 + 0.6R) μin	Gage blocks
Length Standard	Up to 36 in	(20 + 3.7L) μin	Gage blocks, electronic indicator & amplifier

II. Mechanical

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Hardness Tester ³	HRBW (40 to 59) HRBW (60 to 79) HRBW (80 to 100) HRBW	1.8 HRBW 1.8 HRBW 1.8 HRBW	Test blocks, Indirect verification per ASTM E18

Parameter/Equipment	Range	CMC ^{2, 4} (\pm)	Comments
Hardness Tester ³	HRC		Test blocks, Indirect verification per ASTM E18
	(20 to 30) HRC	1.7 HRC	
	(35 to 55) HRC	1.7 HRC	
	(59 to 65) HRC	1.7 HRC	
	HR15N		
	(70 to 77) HR15N	1.7 HR15N	
	(78 to 88) HR15N	1.8 HR15N	
	(90 to 92) HR15N	1.7 HR15N	
	HR30N		
	(42 to 50) HR30N	1.8 HR30N	
	(55 to 73) HR30N	1.8 HR30N	
	(77 to 82) HR30N	1.8 HR30N	
	HR45N		
	(20 to 31) HR45N	1.9 HR45N	
	(37 to 61) HR45N	1.7 HR45N	
	(66 to 72) HR45N	1.8 HR45N	
	HR15TW		
	(74 to 80) HR15TW	1.8 HR15TW	
	(81 to 86) HR15TW	1.7 HR15TW	
	(87 to 93) HR15TW	1.7 HR15TW	
	HR30TW		
(43 to 56) HR30TW	1.8 HR30TW		
(57 to 69) HR30TW	1.8 HR30TW		
(70 to 83) HR30TW	1.7 HR30TW		
HR45TW			
(13 to 32) HR45TW	1.8 HR45TW		
(33 to 52) HR45TW	1.8 HR45TW		
(53 to 73) HR45TW	1.9 HR45TW		

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

² Calibration and Measurement Capability Uncertainties (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 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 In the statement of best measurement uncertainty, DL is the numerical value of the nominal length in inches of the diagonal, L is the numerical value of the nominal length, and R is the numerical value of the resolution of the device in microinches.



Accredited Laboratory

A2LA has accredited

CAPSTONE CALIBRATION

Richland Hills, TX

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 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 8 January 2009).



Presented this 15th day of November 2017.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 1593.01
Valid to January 31, 2020

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