CERTIFICATE OF ACCREDITATION

This is to attest

Q CALIBRATION SERVICES LLC

2102 BUSINESS CENTER DRIVE SUITE 130
IRVINE, CALIFORNIA 92612 U.S.A.

Calibration Laboratory CL-285

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Expiration Date July 1, 2026
Effective Date August 1, 2025

International Accreditation Service
Issued under the authority of IAS management

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 101, Brea, California 92821, U.S.A. | www.iasonline.org

Q CALIBRATION SERVICES LLC

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Accredited to ISO/IEC 17025:2017 *Effective Date August 1, 2025*

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Calibration of Optical Comparators[5]			IP-720-013
Angularity	90°	0.0018°	Square
X-Y Linearity	0.1 in to 4 in	0.00031 in	Gauge Blocks
Magnification	10X (0.0625 in, 0.250 in, 0.625 in, 1.000 in) 20X (0.0625 in, 0.250 in, 0.1875 in, 0.625 in) 31.25X (0.0625 in, 0.1875 in, 0.250 in) 50X (0.0625 in, 0.1875 in, 0.250 in) 62.5X (0.0625 in, 0.1875 in)	0.00047 in 0.00047 in 0.00047 in 0.00047 in 0.00047 in	Glass Master
Mechanical			
Force[5] – Calibration of Testing Machines – Tension / Compression	0.5 lbf to 100 lbf	0.031 lbf	ASTM E4, IP-720-003 Dead Weights
Force[5] – Calibration of Testing Machines – Tension	10 lbf to 1000 lbf >1000 lbf to 10000 lbf >10000 lbf to 30000 lbf >30000 lbf to 60000 lbf	0.23 lbf 4.8 lbf 14 lbf 35 lbf	ASTM E4, ISO 7500-1 IP-720-003 Load Cells

** If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	>60000 lbf to 120000 lbf	210 lbf	
Force[5] – Calibration of Testing Machines – Compression	10 lbf to 1000 lbf >1000 lbf to 10000 lbf >10000 lbf to 30000 lbf >30000 lbf to 60000 lbf >60000 lbf to 500000 lbf	0.23 lbf 4.7 lbf 14 lbf 35 lbf 120 lbf	ASTM E4, ISO 7500-1 IP-720-003 Load Cells
Calibration of Extensometer[5]	0 in to 2 in >2 in to 20 in	0.00013 in 0.0023 in	ASTM E83, ISO 9513, IP-720-004, -005, -006 Linear calibrator / Height gage
Calibration of Extensometer[5]	Up to 0.2 in > 0.2 in to 0.6 in > 0.6 in to 2 in >2 in to 20 in	0.000047 in 0.00014 in 0.00023 in 0.0024 in	ASTM E83, ISO 9513 IP-720-004, -005, -006 Linear calibrator, Height Gage
Calibration of Crosshead Displacement[5]	0 in to 2 in >2 in to 20 in	0.00014 in 0.0023 in	ASTM E2309, IP-720-008 Digital Indicator / Height gage
On-site calibration of Crosshead Speed[5]	0.05 in/min to 2 in/min >2 in/min to 10 in/min	0.12 % 0.12 %	ASTM E2658, IP-720-009 Digital Indicator / Stopwatch
Calibration of Load rate[5]	50 lbf/min to 30000 lbf/min	0.18 %	ASTM E2309, E2658, IP-720-011 Load Cells / Stopwatch
Calibration of Strain rate[5]	0.002 in/in/min to 0.01 in/in/min	0.17 %	ASTM E2309, E2658, IP-720-010 Extensometers / Stopwatch
Calibration of Testing Machine - Static Alignment[5]	1.0 % to 100 % (Bending)	2.4 % (Bending)	ASTM E1012, IP-720-015 Using DMM
Calibration of Indirect verification of Rockwell Hardness Scales[5] High Medium Low High Medium Low High Medium Low	 HRA (80 to 84) HRA (70 to 78) HRA (20 to 65) HRA HRBW (80 to 100) HRBW (60 to 79) HRBW (40 to 59) HRBW HRC (60 to 65) HRC (35 to 55) HRC (20 to 30) HRC	 0.16 HRA 0.31 HRA 0.41 HRA 0.39 HRBW 0.36 HRBW 0.32 HRBW 0.32 HRC 0.33 HRC 0.47 HRC	ASTM E18, IP-720-012 Hardness blocks

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	HRHW		
High	(96 to 105) HRHW	0.44 HRHW	
Medium	(60 to 94) HRHW	0.46 HRHW	
	HR15N		
High	(90 to 92) HR15N	0.53 HR15N	
Medium	(78 to 88) HR15N	0.22 HR15N	
Low	(70 to 77) HR15N	0.45 HR15N	
	HR30N		
High	(77 to 82) HR30N	0.32 HR30N	
Medium	(55 to 73) HR30N	0.33 HR30N	
Low	(42 to 50) HR30N	0.24 HR30N	
	HR45N		
High	(50 to 72) HR45N	0.23 HR45N	
Medium	(30 to 49) HR45N	0.53 HR45N	
Low	(20 to 29) HR45N	0.52 HR45N	
	HR15TW		
High	(87 to 93) HR15TW	0.30 HR15TW	
Medium	(81 to 86) HR15TW	0.29 HR15TW	
Low	(74 to 80) HR15TW	0.42 HR15TW	
	HR30TW		
High	(70 to 83) HR30TW	0.30 HR30TW	
Medium	(57 to 69) HR30TW	0.32 HR30TW	
Low	(43 to 56) HR30TW	0.67 HR30TW	
	HR45TW		
High	(53 to 73) HR45TW	0.40 HR45TW	
Low	(13 to 32) HR45TW	0.69 HR45TW	
	HRFW		
High	(90 to 100) HRFW	0.49 HRFW	
Medium	(80 to 90) HRFW	0.47 HRFW	
Low	(60 to 80) HRFW	0.47 HRFW	
Thermal			
Calibration of Furnaces, Ovens, Presses	-100 °F to 900 °F	2.9 °F	ASTM E145, IP-720-007 Using DMM
Electrical – DC/LF			
Calibration of DC Voltage[5] – Measure[4] DC Voltage ratio	0.1 mV/V to 2 mV/V	0.028 %	IP-720-002 Comparison to transducer simulator / DMM

[1]The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

[2]When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

[3]Capability is suitable for the calibration of measuring devices in the stated ranges.

[4]Capability is suitable for the calibration of devices intended to generate the indicated quantity in the stated ranges.

[5]On-site, field calibration services.