PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:

RC Calibración, S.A. de C.V.

***HQ:* Manuel M Ponce # 444, Lomas del Roble**
San Nicolas de los Garza, Nuevo León, México C.P. 66450
***Laboratory:* Manuel Doblado # 335, Col. Constituyentes de Querétaro Sector 5to**
San Nicolás de los Garza, Nuevo León, México. C.P.66490

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2017

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system
(as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

Mechanical, Mass, Force and Weighing Devices, Dimensional, Time and Frequency and Thermodynamic Calibration

(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President

Perry Johnson Laboratory Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
May 08, 2013	September 01, 2023	October 31, 2025
Revision Date:	*Accreditation No.:*	*Certificate No.:*
August 07, 2024	75019	L23-680-R1

The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: www.pjlabs.com

Certificate of Accreditation: Supplement

RC Calibración S.A. de C.V.
Manuel Doblado #335, Col. Constituyentes de Querétaro Sector 5to
San Nicolás de los Garza, Nuevo León, México. CP. 66490
Contact: Aldo Cárdenas Pérez Phone: 814-774-5485

Accreditation is granted to the facility to perform the following calibrations:

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Indirect Verification of Brinell Hardness Tester HBW 10/3000[FO]	95 HBW to 653 HBW	1.1 HBW	Test Block	ISO 6506-2 ASTM E10 ASTM E110
Indirect Verification of Brinell Hardness Tester HBW 10/1500 [FO]	47.7 HBW to 327 HBW	1.6 HBW		
Indirect Verification of Brinell Hardness Tester HBW 10/1000 [FO]	31.8 HBW to 218 HBW	1 HBW		
Indirect Verification of Brinell Hardness Tester HBW 5/750 [FO]	95.5 HBW to 592 HBW	2.2 HBW		
Indirect Verification of Brinell Hardness Tester HBW 10/500 [FO]	60 HBW to 160 HBW	0.8 HBW		
Indirect Verification of Brinell Hardness Tester HBW 5/250[FO]	31.8 HBW to 218 HBW	0.5 HBW		
Indirect Verification of Brinell Hardness Tester HBW 2.5/187.5[FO]	90 HBW to 650 HBW	2.5 HBW		
Indirect Verification of Brinell Hardness Tester HBW 2.5/62.5[FO]	31.8 HBW to 220 HBW	0.85 HBW		
Indirect Verification of Rockwell Hardness Tester HRA[FO]	20 HRA to 40 HRA	0.24 HRA	Test Block	ISO 6508-2 ASTM E18 ASTM E110
	45 HRA to 75 HRA	0.23 HRA		
	80 HRA to 95 HRA	0.21 HRA		
Indirect Verification of Rockwell Hardness Tester HRB[FO]	10 HRB to 50 HRBW	0.37 HRBW		
	60 HRB to 80 HRBW	0.27 HRBW		
	85 HRB to 100 HRBW	0.39 HRBW		
Indirect Verification of Rockwell Hardness Tester HRC[FO]	10 HRC to 30 HRC	0.2 HRC		
	35 HRC to 55 HRC	0.18 HRC		
	60 HRC to 70 HRC	0.16 HRC		
Indirect Verification of Rockwell Hardness Tester HRE[FO]	70 HRE to 77 HREW	0.27 HREW		
	84 HRE to 90 HREW	0.17 HREW		
	93 HRE to 100 HREW	0.5 HREW		

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Indirect Verification of Rockwell Hardness Tester HR15N[FO]	70 HR15N to 77 HR15N	0.42 HR15N	Test Block	ISO 6508-2 ASTM E18 ASTM E110
	78 HR15N to 88 HR15N	0.42 HR15N		
	89 HR15N to 94 HR15N	0.52 HR15N		
Indirect Verification of Rockwell Hardness Tester HR30N[FO]	42 HR30N to 54 HR30N	0.2 HR30N		
	55 HR30N to 73 HR30N	0.19 HR30N		
	74 HR30N to 86 HR30N	0.23 HR30N		
Indirect Verification of Rockwell Hardness Tester HR45N[FO]	20 HR45N to 31 HR45N	0.23 HR45N		
	32 HR45N to 61 HR45N	0.13 HR45N		
	63 HR45N to 77 HR45N	0.13 HR45N		
Indirect Verification of Rockwell Hardness Tester HR15T[FO]	67 HR15T to 80 HR15TW	0.17 HR15TW		
	81 HR15T to 87 HR15TW	0.23 HR15TW		
	88 HR15T to 93 HR15TW	0.06 HR15TW		
Indirect Verification of Rockwell Hardness Tester HR30T[FO]	29 HR30T to 56 HR30TW	0.25 HR30TW		
	57 HR30T to 69 HR30TW	0.25 HR30TW		
	70 HR30T to 82 HR30TW	0.23 HR30TW		
Indirect Verification of Rockwell Hardness Tester HR45T[FO]	10 HR45T to 33 HR45TW	0.21 HR45TW		
	34 HR45T to 54 HR45TW	0.32 HR45TW		
	55 HR45T to 72 HR45TW	0.12 HR45TW		
Indirect Verification of Vickers Hardness Tester HV 0.05 kg[O]	100 HV to 800 HV	5.8 HV	Test Block	ISO 6507-2 ASTM E384 ASTM E92
Indirect Verification of Vickers Hardness Tester HV 0.1 kg[O]	100 HV to 800 HV	4.2 HV		
Indirect Verification of Vickers Hardness Tester HV 0.2 kg[O]	100 HV to 800 HV	3 HV		
Indirect Verification of Vickers Hardness Tester HV 0.3 kg[O]	100 HV to 800 HV	5.1 HV		
Indirect Verification of Vickers Hardness Tester HV 0.5 kg[O]	100 HV to 800 HV	5.9 HV		

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Indirect Verification of Vickers Hardness Tester HV 1 kg[O]	100 HV to 800 HV	4.5 HV	Test Block	ISO 6507-2 ASTM E384 ASTM E92
Indirect Verification of Vickers Hardness Tester HV 5 kg[O]	100 HV to 800 HV	4.5 HV		
Indirect Verification of Vickers Hardness Tester HV 10 kg[O]	100 HV to 800 HV	3.6 HV		
Indirect Verification of Vickers Hardness Tester HV 30 kg[O]	100 HV to 800 HV	3 HV		
Indirect Verification of Knoop Hardness Tester HK 0.05 kg[O]	100 HK to 800 HK	7.1 HK	Test Block	ISO 4545-2 ASTM E384 ASTM E92
Indirect Verification of Knoop Hardness Tester HK 0.1 kg[O]	100 HK to 800 HK	5.9 HK		
Indirect Verification of Knoop Hardness Tester HK 0.2 kg[O]	100 HK to 800 HK	4.4 HK		
Indirect Verification of Knoop Hardness Tester HK 0.3 kg[O]	100 HK to 800 HK	8.2 HK		
Indirect Verification of Knoop Hardness Tester HK 0.5 kg[O]	100 HK to 800 HK	7.2 HK		
Indirect Verification of Leeb Hardness Tester LD[FO]	500 LD to 800 LD	16 HLD	Test Block	ASTM A956
Charpy Machine Tester Impact- Low Energy[O]	13 J to 20 J	0.15 J	Specimens NIST or ERM	ASTM E23 ISO 148-2
Charpy Machine Tester Impact- High Energy[O]	88 J to 150 J	0.29 J		
Charpy Machine Tester Impact- Super High Energy[O]	176 J to 244 J	0.89 J		

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Direct Verification of Shore Hardness Tester Types A, B, C, D, DO, E, M, O, OO, OOO & OOO-S (Extension at Zero readings)[F]	1.23 mm to 5.04 mm	1.6 µm		ASTM D2240 ISO 21509
Indenter Shore Diameter, Radius & Angle (Not all Parameters Apply to all of Durometer types)	0.088 mm to 13 mm 29.5° to 35.25°	1.6 µm 0.11°	Auto Vision Measuring Machine (Res.= 0.1 µm)	
Verification of the Shore Durometer Spring Force Type A, B, E & O Type C, D & DO Type M Type OO, OOO Type OOO-S	 0.55 N to 8.05 N 4.445 N to 44.45 N 0.324 N to 0.765 N 0.203 N to 1.111 N 0.167 N to 1.932 N	 0.33 N 0.47 N 0.25 N 0.34 N 0.48 N	 Load Cells	
Direct Verification for Impact Tests Machines for Plastic Materials Pendulum Length Effective Weight[O]	100 g to 1 000 g	0.5 g	Load Cells	ASTM D256 ASTM D6110 ISO 179 ISO 180
	1 kg to 10 kg	2 g		
	10 kg to 50 kg	18 g		
Verification of Flow Index Machines Force / Weight[O]	100 g to 1 000 g	1.5 g		ASTM D1238 ISO 1133-1
	1 kg to 10 kg	3 g		
	2.5 kg to 50 kg	18 g		

Mass Force & Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Force Machines -Traction and Force Gages - Traction[O]	0.049 N to 588 N	0.12 % of reading	Class F2 & M1 Weight	ISO-7500-1 NMX-CH-7500-1-IMNC ASTM E4
	0.0978 N to 0.978 N	0.26 % of reading	Load Cells: Interface 930572A	
	0.978 N to 9.78 N	0.18 % of reading		
	4.9 N to 100 N	0.044 % of reading	Load Cells: AEP 341849, Interface 929321A	

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Mass Force & Weighing Devices

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Force Machines - Traction and Force Gages -Traction[O]	24.52 N to 500 N	0.16 % of reading	Load Cells: AEP 823268	ISO-7500-1 NMX-CH-7500-1-IMNC ASTM E4
	49.03 N to 1 000 N	0.057 % of reading	Load Cells: Strainsense 060123A, AEP 341850	
	245.2 N to 5 000 N	0.11 % of reading	Load Cell: AEP 437420	
	294.2 N to 5 884 N	0.20 % of reading	Load Cells: Strainsense 060123 B and 170629	
	490.3 N to 9 807 N	0.10 % of reading	Load Cells: Strainsense 161018, AEP 927835	
	1 kN to 25 kN	0.075 % of reading	Load Cells: AEP 343633 AEP 437270	
	2.45 kN to 49.03 kN	0.21 % of reading	Load Cells: Strainsense 161019	
	4.9 kN to 100 kN	0.11 % of reading	Load Cells: Strainsense 060123 C, AEP 931501	
	15 kN to 300 kN	0.069 % reading	Load Cells: AEP 342126, AEP 438558	
	24.52 kN to 490.3 kN	0.11 % of reading	Load Cells: Strainsense 130314 D	
	37.5 kN to 750 kN	0.072 % of reading	Load Cell: AEP 343129	
	100 kN to 2 000 kN	0.12 % of reading	Load Cell: AEP 343485	
Force Machines - Compression and Force Gages -Compression[FO]	0.049 N to 588 N	0.12 % of reading	Class F2 & M1 Weight	
	0.0978 N to 0.978 N	0.25 % of reading	Load Cells: Interface 930572A	
	0.978 N to 9.78 N	0.2 % of reading		
	4.9 N to 100 N	0.041 % of reading	Load Cells: AEP 341849, Interface 929321A	
	24.52 N to 500 N	0.33 % of reading	Load Cells: AEP 823268	

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Force Machines - Compression and Force Gages - Compression[FO]	49.03 N to 1 000 N	0.074 % of reading	Load Cells: Strainsense 060123 A, AEP 341850	ISO-7500-1 NMX-CH-7500-1-IMNC ASTM E4
	245.2 N to 5 000 N	0.075 % of reading	Load Cells: AEP 437420 and PT 2372027	
	294.2 N to 5 884 N	0.16 % of reading	Load Cells: Strainsense 060123 B and 170629	
	490.3 N to 9 807 N	0.082 % of reading	Load Cells: Strainsense 161018, AEP 927835	
	1 kN to 25 kN	0.069 % of reading	Load Cells: AEP 343633, AEP 437270	
	2.45 kN to 49.03 kN	0.26 % of reading	Load Cells: Strainsense 161019	
	4.9 kN to 100 kN	0.1 % of reading	Load Cells: Strainsense 060123 C, AEP 931501	
	15 kN to 300 kN	0.055 % of reading	Load Cells: AEP 342126, AEP 438558 and Strainsense 060123 D	
	24.52 kN to 490.3 kN	0.27 % of reading	Load Cell: Strainsense 130314 D	
	37.5 kN to 750 kN	0.075 % of reading	Load Cell: AEP 343129	
	49.03 kN to 980.6 kN	0.21 % of reading	Load Cell: Strainsense 060123 E	
	98 kN to 1 960 kN	0.31 % of reading	Load Cell: Strainsense 130508	
	100 kN to 2 000 kN	0.1 % of reading	Load Cell: AEP 343485	
Force Measurement - Instruments Traction[FO]	0.049 N to 588 N	0.12 % of reading	Class F2 y M1 Weight	ISO-376 NMX-CH-376-IMNC
	0.0978 N to 0.978 N	0.26 % of reading	Load Cells: Interface 930572A	
	0.978 N to 9.78 N	0.18 % of reading		
	4.9 N to 100 N	0.044 % of reading	Load Cells: AEP 341849, Interface 929321A	
	24.52 N to 500 N	0.16 % of reading	Load Cells: AEP 823268	
	49.03 N to 1 000 N	0.057 % of reading	Load Cells: AEP 341850, Strainsense 060123 A	
	245.2 N to 5 000 N	0.11 % of reading	Load Cell: AEP 437420	
	294.2 N to 5 884 N	0.2 % of reading	Load Cells: Strainsense 060123 B and 170629	

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Mass Force & Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Force Measurement - Instruments Traction[FO]	490.3 N to 9 807 N	0.1 % of reading	Load Cells: Strainsense 161018, AEP 927835	ISO-376 NMX-CH-376-IMNC
	1 kN to 25 kN	0.075 % of reading	Load Cells: AEP 343633, AEP 437270	
	2.45 kN to 49.03 kN	0.21 % of reading	Load Cells: Strainsense 161019	
	4.9 kN to 100 kN	0.11 % of reading	Load Cells: Strainsense 060123 C, AEP 931501	
	15 kN to 300 kN	0.069 % reading	Load Cells: AEP 342126, AEP 438558	
	24.52 kN to 490.3 kN	0.11 % of reading	Load Cell Strainsense 130314 D	
	37.5 kN to 750 kN	0.072 % of reading	Load Cell: AEP 343129	
	100 kN to 2 000 kN	0.12 % of reading	Load Cell: AEP 343485	
Force Measurement Instruments - Compression[FO]	0.049 N to 588 N	0.12 % of reading	Class F2 & M1 Weight	ISO-376 NMX-CH-376-IMNC
	0.0978 N to 0.978 N	0.25 % of reading	Load Cells: Interface 930572A	
	0.978 N to 9.78 N	0.2 % of reading	Load Cells: AEP 341849, Interface 929321A	
	4.9 N to 100 N	0.041 % of reading		
	24.52 N to 500 N	0.33 % of reading	Load Cells: AEP 823268 and Interface 130314 A	
	49.03 N to 1 000 N	0.074 % of reading	Load Cells: AEP 341850, Strainsense 060123 A	
	245.2 N to 5 000 N	0.075 % of reading	Load Cells: AEP 437420 and PT 2372027	
	294.2 N to 5 884 N	0.16 % of reading	Load Cells: Strainsense 060123 B and 170629	
	490.3 N to 9 807 N	0.082 % of reading	Load Cells: Strainsense 161018, AEP 927835	
	1 kN to 25 kN	0.069 % of reading	Load Cells: AEP 343633, AEP 437270	

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Force Measurement Instruments - Compression[FO]	2.45 kN to 49.03 kN	0.26 % of reading	Load Cells: Strainsense 161019	ISO-376 NMX-CH-376-IMNC
	4.9 kN to 100 kN	0.1 % of reading	Load Cells: Strainsense 060123 C, AEP 931501	
	15 kN to 300 kN	0.055 % of reading	Load Cells: AEP 342126, AEP 438558 and Strainsense 060123 D	
	24.52 kN to 490.3 kN	0.27 % of reading	Load Cell: Strainsense 130314 D	
	37.5 kN to 750 kN	0.075 % of reading	Load Cell: AEP 343129,	
	49.03 kN to 980.6 kN	0.21 % of reading	Load Cell: Strainsense 060123 E	
	98 kN to 1 960 kN	0.31 % of reading	Load Cell: Strainsense 130508	
	100 kN to 2 000 kN	0.1 % of reading	Load Cell: AEP 343485	

Dimensional

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Extensometers[O]	0.01 mm to 50 mm	0.18 µm	Extensometer Calibrator (3590 / 3590 VHR), Digital Indicator HO560E	ASTM E83 ISO 9513
	2 mm to 1 000 mm	0.031 mm	Linear Encoder	
Brinell Microscope, Metallographic and Stereo Microscopes[FO]	0.001 mm to 20 mm	1.8 µm	Graduate Grid	ISO 6506–2 ASTM E10 JIS B 7153
Wire Cloth and Sieves for Testing Purposes[F]	0.02 mm to 125 mm	1.3 µm	Auto Vision Measuring Machine (Res.= 0.1 µm)	ASTM E11 NMX-CH-012-1
Crosshead Travel[O]	0.01 mm to 50 mm	1.3 µm	Digital Indicator H0560E	ISO 9513 ASTM E2309
	2 mm to 1 000 mm	$(2 \times 10^{-2} + 1 \times 10^{-5}L)$ mm	Linear Encoder	ISO 9513 ASTM E2309

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Verification of Flow Index Machines – Travel Verification[O]	0.1 mm to 50 mm	0.18 µm	Digital Length Gauge, Extensometer Calibrator (3590 VHR)	ASTM D1238 ISO 1133-1
Verification of Flow Index Machines – Bore Diameter[O]	9.550 4 mm (0.007 6 mm)	0.48 µm	Go no Go Gage Digital Inside Micrometer	
	9.55 mm (0.007 mm)	0.48 µm		
Verification of Flow Index Machines – Die Orifice[O]	2.095 mm (0.005 mm)	0.38 µm		
	1.048 mm (0.005 mm)	0.37 µm		
Verification of Flow Index Machines – Die Height[O]	8 mm (0.025 mm)	1.2×10^{-3} mm	Digital Micrometer	
	4 mm (0.025 mm)	1.2×10^{-3} mm		
Verification of Flow Index Machines – Piston Foot Diameter[O]	9.474 2 mm (0.007 6 mm)	1.2×10^{-3} mm		
	9.474 mm (0.007 mm)	1.2×10^{-3} mm		
Verification of Flow Index Machines – Piston Foot Length[O]	6.35 (0.1 mm)	2×10^{-2} mm	Digital Caliper	
Verification of Flow Index Machines – Cylinder Length[O]	40 mm to 200 mm	2×10^{-2} mm	Digital Caliper	
Direct Verification for Impact Tests Machines for Plastic Materials Angle[O]	1° to 150°	0.058°	Digital Angle Gauge	ASTM D256 ASTM D6110 ISO 179-1 ISO 180
Direct Verification for Impact Tests Machines for Plastic Materials Distance[O]	50 mm to 1 000 mm	0.82 mm	Measuring Tape	
Direct Verification for Impact Tests Machines for Plastic Materials Distance[O]	0.1 mm to 150 mm	0.02 mm	Digital Caliper	

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Time and Frequency

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Direct Verification for Impact Tests Machines for Plastic Materials Oscillation Time^{O}	0.25 s to 60 s	0.07 s	Stopwatch	ASTM D256 ASTM D6110 ISO 179-1 ISO 180
Verification of Flow Index Machines – Cut Time^{O}	0.25 s to 360 s	0.07 s	Stopwatch	ASTM D1238 ISO 1133-1
Crosshead Travel Speed^{O}	0.05 mm/min to 100 mm/min	4.88 x 10^{-5} mm/min	Digital Indicator H0560E, Stopwatch	ASTM E2658
	10 mm/min to 2 000 mm/min	1.73 x 10^{-2} mm/min	Linear Encoder, Stopwatch	

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Verification of Flow Index Machines Temperature^{FO}	50 °C to 400 °C	(0.021 + 8.3 x 10^{-5}T) °C	RTD Sensor	ASTM D1238 ISO 1133-1

1. The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of accreditation represents the smallest measurement uncertainty attainable by the laboratory when performing a more or less routine calibration of a nearly ideal device under nearly ideal conditions. It is typically expressed at a confidence level of 95 % using a coverage factor *k* (usually equal to 2). The actual measurement uncertainty associated with a specific calibration performed by the laboratory will typically be larger than the CMC for the same calibration since capability and performance of the device being calibrated and the conditions related to the calibration may reasonably be expected to deviate from ideal to some degree.

2. The laboratories range of calibration capability for all disciplines for which they are accredited is the interval from the smallest calibrated standard to the largest calibrated standard used in performing the calibration. The low end of this range must be an attainable value for which the laboratory has or has access to the standard referenced. Verification of an indicated value of zero in the absence of a standard is common practice in the procedure for many calibrations but by its definition it does not constitute calibration of zero capacity.

3. The presence of a superscript F means that the laboratory performs calibration of the indicated parameter at its fixed location.

4. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations.

RC Calibración S.A. de C.V.
Manuel Doblado # 335, Col. Constituyentes de Querétaro Sector 5to
San Nicolás de los Garza, Nuevo León, México. CP. 66490
Contact: Aldo Cárdenas Pérez Phone: 814-774-5485

Accreditation is granted to the facility to perform the following calibrations:

5. Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratories fixed location for similar calibrations. This is due to the effects of transportation of the standards and equipment and upon environmental conditions at the customer site which are typically not controlled as closely as at the laboratories fixed location.

6. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.

7. The term T represents temperature in ºC or ºF as appropriate to the uncertainty statement.