PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Laboratorios Industriales de México/ Jorge Arturo Gonzalez Huizar

Rancho Santa Clara No. 2919, Fracc. Pradera Dorada
Ciudad. Juárez, Chihuahua, México. CP. 32610

(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):

Electrical, Mechanical, Chemical, Dimensional, Mass, Force and Weighing Devices 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 20, 2008	August 15, 2022	September 30, 2024

Accreditation No.:	*Certificate No.:*
48598	L22-534

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

Laboratorios Industriales de México/ Jorge Arturo Gonzalez Huizar
Rancho Santa Clara No. 2919, Fracc. Pradera Dorada
Ciudad Juárez, Chihuahua, México. C.P. 32610
Contact Name: Jorge González Phone: 656-289-3732

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

Electrical

MEASURED QUANTITY, INSTRUMENT OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type B^{FO}	600 °C to 800 °C	1 °C	Fluke 743B Electrical Simulation of Thermocouples Output EM-CG-08.02 EM-CG-11.02
	800 °C to 1 000 °C	0.85 °C	
	1 000 °C to 1 550 °C	0.82 °C	
	1 550 °C to 1 820 °C	0.84 °C	
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type C^{FO}	0 °C to 150 °C	0.8 °C	
	150 °C to 650 °C	0.75 °C	
	650 °C to 1 000 °C	0.8 °C	
	1 000 °C to 1 800 °C	1.1 °C	
	1 800 °C to 2 316 °C	1.5 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type E^{FO}	-250 °C to -100 °C	1.1 °C	
	-100 °C to -25 °C	0.63 °C	
	-25 °C to 350 °C	0.41 °C	
	350 °C to 650 °C	0.65 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J^{FO}	-210 °C to -100 °C	0.75 °C	
	-100 °C to -30 °C	0.7 °C	
	-30 °C to 150 °C	0.6 °C	
	150 °C to 760 °C	0.75 °C	
	760 °C to 1 200 °C	0.57 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K^{FO}	-200 °C to -100 °C	0.82 °C	
	-100 °C to -25 °C	0.65 °C	
	-25 °C to 120 °C	0.63 °C	
	120 °C to 1 000 °C	0.75 °C	
	1 000 °C to 1 372 °C	0.92 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type N^{FO}	-200 °C to -100 °C	0.9 °C	
	-100 °C to -25 °C	0.7 °C	
	-25 °C to 120 °C	0.64 °C	
	120 °C to 410 °C	0.65 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type R^{FO}	0 °C to 250 °C	1.1 °C	
	250 °C to 400 °C	0.85 °C	
	400 °C to 1 000 °C	0.83 °C	
	1 000 °C to 1 767 °C	0.91 °C	

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Temperature Calibration, Indication and Control Equipment used with Thermocouple Type S[FO]	0 °C to 250 °C	0.98 °C	Fluke 743B Electrical Simulation of Thermocouples Output EM-CG-08.02 EM-CG-11.02
	250 °C to 1 000 °C	0.86 °C	
	1 000 °C to 1 400 °C	0.88 °C	
	1 400 °C to 1 767 °C	0.97 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T[FO]	-250 °C to -150 °C	1.2 °C	
	-150 °C to 0 °C	0.72 °C	
	0 °C to 120 °C	0.63 °C	
	120 °C to 400 °C	0.61 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type U[FO]	-200 °C to 0 °C	1.1 °C	
	0 °C to 600 °C	0.77 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 100 Ω[FO]	-200 °C to -80 °C	0.63 °C	Fluke 743B Electrical Simulation of RTD Output EM-CG-08.02 EM-CG-11.02
	-80 °C to 0 °C	0.61 °C	
	0 °C to 100 °C	0.85 °C	
	100 °C to 300 °C	0.62 °C	
	300 °C to 400 °C	0.64 °C	
	400 °C to 630 °C	0.64 °C	
Equipment to Measure AC Voltage Hi-Pot[FO]	1 Kv to 28 kV rms @ 60 Hz	5 % of reading	Fluke 80k-40 Euramet-cg-15
Equipment to Measure DC Voltage[FO] Hi-Pot	1 kV to 20 kV	5 % of reading	
	35 kV to 40 kV		
	20 kV to 35 kV		
Equipment to Measure DC Voltage[F]	110 mV	0.04 % of reading	Fluke 743B Fluke 5500A Euramet-cg-15 CENAM Technical Guide
	1.1 V	0.03 % of reading	
	11 V	0.03 % of reading	
	110 V	0.055 % of reading	
	300 V	0.055 % of reading	
Equipment to Measure AC Voltage At the listed frequencies[FO]			
20 Hz to 40 Hz	1.1 V	2 % of reading	
40 Hz to 500 Hz	11 V	0.5 % of reading	

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Equipment to Measure AC Voltage At the listed frequencies[FO]			Fluke 743B Fluke 5500A Euramet-cg-15 CENAM Technical Guide
500 Hz to 1 kHz	110 V	2 % of reading	
1 kHz to 5 kHz	300 V	10 % of reading	
Equipment to Measure DC Current[FO]	30 mA	0.025 % of reading	
	110 mA	0.025 % of reading	
Equipment to Measure Resistance[FO]	11 Ω	0.05 % of reading + 50 mΩ	Fluke 743B Fluke 5500A Euramet-cg-15 CENAM Technical Guide
	110 Ω	0.05 % of reading + 50 mΩ	
	1.1 kΩ	0.05 % of reading + 500 mΩ	
	11 kΩ	0.1 % of reading + 10 Ω	
Equipment to Measure Frequency[FO]	1 Hz to 109.99 Hz	0.05 Hz	
	110 Hz to 1 099.9 Hz	0.5 Hz	
	1.1 Hz to 10.999 kHz	5 Hz	
	11 kHz to 50 kHz	50 Hz	
Equipment to Measure DC Voltage[FO]	330 V to 1 000 V	20 µV/V +1 500 µV	Fluke 5500 Euramet-cg-15
Equipment to Output DC Voltage[FO]	0.01 mV to 329.999 9 mV	0.006 % of Output + 3 µV	Fluke 5500A Euramet-cg-15 CENAM Technical Guide
	0.01 V to 3.299 999 V	0.005 % of Output + 5 µV	
	0.01 V to 32.999 99 V	0.005 % of Output + 50 µV	
	30 V to 329.999 9 V	0.005 5 % of Output + 500 µV	
	100 V to 1 020 V	0.005 5 % of Output + 1 500 µV	
Equipment to Measure DC Power (33 mV to 1 020 V) At the listed Ampere[FO]			
3.3 mA to 8.999 mA	0.000 11 W to 9 W	0.04 % of Output	
9 mA to 32.999 mA	0.00 3 W to 33 W	0.03 % of Output	
33 mA to 89.99 mA	0.011 W to 90 W	0.04 % of Output	
90 mA to 329.99 mA	0.03 W to 330 W	0.03 % of Output	
0.33 A to 0.899 99A	0.11 W to 900 W	0.08 % of Output	
0.9 A to 2.199 99 A	0.3 W to 3 000 W	0.06 % of Output	
4.5 A to 11 A	0.99 W to 11 000 W	0.09 % of Output	
2.2 A to 4.499 9 A	0.33 W to 6 000 W	0.12 % of Output	

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Equipment to Measure DC Current[FO]	0.01 mA to 3.299 99 mA	0.013 % of Output + 0.05 µA	Fluke 5500A Euramet-cg-15 CENAM Technical Guide
	0.01 mA to 32.999 9 mA	0.01 % of Output + 0.25 µA	
	0.01 mA to 329.999 mA	0.01 % of Output + 3.3 µA	
	11 A to 550 A	0.6 mA/A	Fluke 5500, Turn Coil Euramet-cg-15
Equipment to Measure Ohms/ Resistance LCR Meter[FO]	1 Ω to 10.99 Ω	0.012 % of Output + 0.008 Ω	Fluke 5500A Euramet-cg-15 CENAM Technical Guide
	11 Ω to 32.999 Ω	0.012 % of Output + 0.015 Ω	
	33 Ω to 109.999 Ω	0.009 % of Output + 0.015 Ω	
	110 Ω to 329.999 Ω	0.009 % of Output + 0.015 Ω	
	330 Ω to 1.099 99 kΩ	0.009 % of Output + 0.06 Ω	
	1.1 Ω to 3.299 99 kΩ	0.009 % of Output + 0.06 Ω	
	3.3 kΩ to 10.999 9 kΩ	0.009 % of Output + 0.6 Ω	
	11 kΩ to 32.999 9 kΩ	0.009 % of Output + 0.6 Ω	
	33 kΩ to 109.999 kΩ	0.011 % of Output + 6 Ω	
	110 kΩ to 329.999 kΩ	0.012 % of Output + 6 Ω	
	330 kΩ to 1.0999 9 MΩ	0.015 % of Output + 55 Ω	
	1.1 MΩ to 3.299 99 MΩ	0.015 % of Output + 55 Ω	
	3.3 MΩ to 10.999 9 MΩ	0.06 % of Output + 550 Ω	
Equipment to Measure AC Voltage – Sinewave At the listed frequencies[FO]			
10 Hz to 45 Hz	1 mV to 32.999 mV	0.35 % of Output + 20 µV	
45 Hz to 10 kHz	1 mV to 32.999 mV	0.15 % of Output + 20 µV	
10 kHz to 20 kHz	1 mV to 32.999 mV	0.2 % of Output + 20 µV	
20 kHz to 50 kHz	1 mV to 32.999 mV	0.25 % of Output + 20 µV	
50 kHz to 100 kHz	1 mV to 32.999 mV	0.35 % of Output + 33 µV	
100 kHz to 500 kHz	1 mV to 32.999 mV	1 % of Output + 60 µV	
Equipment to Measure AC Voltage – Sinewave At the listed frequencies[FO]			
10 Hz to 45 Hz	33 mV to 329.999 mV	0.25 % of Output + 50 µV	
45 Hz to 10 kHz	33 mV to 329.999 mV	0.05 % of Output + 20 µV	
10 kHz to 20 kHz	33 mV to 329.999 mV	0.1 % of Output + 20 µV	
20 kHz to 50 kHz	33 mV to 329.999 mV	0.16 % of Output + 40 µV	

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Equipment to Measure AC Voltage – Sinewave At the listed frequencies[FO]			Fluke 5500A Euramet-cg-15 CENAM Technical Guide
50 kHz to 100 kHz	33 mV to 329.999 mV	0.24 % of Output + 170 µV	
100 kHz to 500 kHz	33 mV to 329.999 mV	0.7 % of Output + 330 µV	
Equipment to Measure AC Voltage – Sinewave At the listed frequencies[FO]			
10 Hz to 45 Hz	0.33 V to 3.299 99 V	0.15 % of Output + 250 µV	
45 Hz to 10 kHz	0.33 V to 3.299 99 V	0.03 % of Output + 60 µV	
10 kHz to 20 kHz	0.33 V to 3.299 99 V	0.08 % of Output + 60 µV	
20 kHz to 50 kHz	0.33 V to 3.299 99 V	0.14 % of Output + 300 µV	
50 kHz to 100 kHz	0.33 V to 3.299 99 V	0.24 % of Output + 1 700 µV	
100 kHz to 500 kHz	0.33 V to 3.299 99 V	0.5 % of Output + 3 300 µV	
Equipment to Measure AC Voltage – Sinewave At the listed frequencies[FO]			
10 Hz to 45 Hz	3.3 V to 32.999 9 V	0.15 % of Output + 2 500 µV	
45 Hz to 10 kHz	3.3 V to 32.999 9 V	0.04 % of Output + 600 µV	
10 kHz to 20 kHz	3.3 V to 32.999 9 V	0.08 % of Output + 2 600 µV	
20 kHz to 50 kHz	3.3 V to 32.999 9 V	0.19 % of Output + 5 000 µV	
50 kHz to 100 kHz	3.3 V to 32.999 9 V	0.24 % of Output + 17 000 µV	
100 kHz to 500 Hz	3.3 V to 32.999 9 V	0.15 % of Output + 2 500 µV	
Equipment to Measure AC Voltage – Sinewave At the listed frequencies[FO]			
10 Hz to 45 Hz	33 V to 329.999 V	0.05 % of Output + 6.6 mV	
45 Hz to 10 kHz	33 V to 329.999 V	0.08 % of Output + 15 mV	
10 kHz to 20 kHz	33 V to 329.999 V	0.09 % of Output + 33 mV	
Equipment to Measure AC Voltage – Sinewave At the listed frequencies[FO]			
45 Hz to 1 kHz	33 V to 1 020 V	0.05 % of Output + 80 mV	
1 kHz to 5 kHz	33 V to 1 020 V	0.2 % of Output + 100 mV	
5 kHz to 10 kHz	33 V to 1 020 V	0.2 % of Output + 500 mV	

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Equipment to Measure AC Current – Sinewave At the listed frequencies[FO]			Fluke 5500A Euramet-cg-15 CENAM Technical Guide
10 Hz to 20 Hz	0.029 mA to 0.329 99 mA	0.25 % of Output + 0.15 µA	
20 Hz to 45 Hz	0.029 mA to 0.329 99 mA	0.13 % of Output + 0.15 µA	
45 Hz to 1 kHz	0.029 mA to 0.329 99 mA	0.13 % of Output + 0.25 µA	
1 kHz to 5 kHz	0.029 mA to 0.329 99 mA	0.4 % of Output + 0.15 µA	
5 kHz to 10 kHz	0.029 mA to 0.329 99 mA	1.3 % of Output + 0.15 µA	
Equipment to Measure AC Current – Sinewave At the listed frequencies[FO]			
10 Hz to 20 Hz	0.33 mA to 3.299 9 mA	0.2 % of Output + 0.3 µA	
20 Hz to 45 Hz	0.33 mA to 3.299 9 mA	0.1 % of Output + 0.3 µA	
45 Hz to 1 kHz	0.33 mA to 3.299 9 mA	0.1 % of Output + 0.3 µA	
1 kHz to 5 kHz	0.33 mA to 3.299 9 mA	0.2 % of Output + 0.3 µA	
5 kHz to 10 kHz	0.33 mA to 3.299 9 mA	0.6 % of Output + 0.3 µA	
Equipment to Measure AC Current – Sinewave At the listed frequencies[FO]			
10 Hz to 20 Hz	3.3 mA to 33 mA	0.6 % of Output + 3 µA	
20 Hz to 45 Hz	3.3 mA to 33 mA	0.9 % of Output + 3 µA	
45 Hz to 1 kHz	3.3 mA to 33 mA	0.6 % of Output + 3 µA	
1 kHz to 5 kHz	3.3 mA to 33 mA	0.4 % of Output + 3 µA	
5 kHz to 10 kHz	3.3 mA to 33 mA	0.9 % of Output + 3 µA	
10 kHz to 20 kHz	3.3 mA to 33 mA	0.9 % of Output + 3 µA	
Equipment to Measure AC Current – Sinewave At the listed frequencies[FO]			
10 Hz to 20 Hz	33 mA to 329.99 mA	0.6 % of Output + 30 µA	
20 Hz to 45 Hz	33 mA to 329.99 mA	0.9 % of Output + 30 µA	
45 Hz to 1 kHz	33 mA to 329.99 mA	0.6 % of Output + 30 µA	
1 kHz to 5 kHz	33 mA to 329.99 mA	0.4 % of Output + 30 µA	
5 kHz to 10 kHz	33 mA to 329.99 mA	0.9 % of Output + 30 µA	
10 kHz to 20 kHz	33 mA to 329.99 mA	0.9 % of Output + 30 µA	

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Equipment to Measure AC Current – Sinewave At the listed frequencies[FO]			Fluke 5500A Euramet-cg-15 CENAM Technical Guide
10 Hz to 45 Hz	0.33 A to 2.199 99 A	0.2 % of Output + 300 µA	
45 Hz to 1 kHz	0.33 A to 2.199 99 A	0.1 % of Output + 300 µA	
1 kHz to 5 kHz	0.33 A to 2.199 99 A	0.75 % of Output + 300 µA	
Equipment to Measure AC Current – Sinewave At the listed frequencies[FO]			
45 Hz to 65 Hz	2.2 A to 11 A	0.06 % of Output + 2 000 µA	
65 Hz to 500 Hz	2.2 A to 11 A	0.1 % of Output + 2 000 µA	
500 Hz to 1 kHz	2.2 A to 11 A	0.33 % of Output + 2 000 µA	
Equipment to Measure Capacitance LCR Meter[FO]	0.33 µF to 0.499 9 µF	0.5 % of Output + 0.01 µF	
	0.5 µF to 1.099 9 µF	0.5 % of Output + 0.01 µF	
	1.1 µF to 3.299 9 µF	0.5 % of Output + 0.01 µF	
	3.3 µF to 10.999 µF	0.5 % of Output + 0.01 µF	
	11 µF to 32.999 µF	0.25 % of Output + 0.1 µF	
	33 µF to 109.99 µF	0.25 % of Output + 0.1 µF	
	110 µF to 329.99 µF	0.25 % of Output + 0.3 µF	
	0.33 µF to 1.099 9 µF	0.25 % of Output + 1 µF	
	1.1 µF to 3.299 9 µF	0.35 % of Output + 3 µF	
	3.3 µF to 10.999 µF	0.35 % of Output + 10 µF	
	11 µF to 32.999 µF	0.4 % of Output + 30 µF	
	33 µF to 109.99 µF	0.5 % of Output + 100 µF	
	110 µF to 329.99 µF	0.7 % of Output + 300 µF	
	330 µF to 1.1 mF	1 % of Output + 300 µF	
Equipment to Measure AC Frequency Generators[FO]	45 Hz to 1 kHz	0.05 % of Output	Fluke PM6680B Euramet-cg-15
	1 kHz to 10 kHz	0.2 % of Output	
	10 kHz to 20 kHz	0.25 % of Output	
	20 kHz to 50 kHz	0.25 % of Output	
Equipment to Measure AC Oscilloscopes[FO]	10 kHz to 50 kHz	0.2 % of Output	Fluke 5500A Euramet-cg-15

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Mechanical

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Pressure Gages[FO]	68.95 Pa to 68 947.57 kPa	0.5 % of reading	ANSI/ASME B40.100 Druck DPI 104, PV411
Torque Analyzer[F]	0.044 N·m to 11.298 N·m	2 % of reading	Wheel Mass Class F Euramet-cg-14
Torque Transducer[F]	0.044 N·m to 11.298 N·m	2 % of reading	
Torque Wrenches[F]	0.044 N·m to 11.298 N·m	2 % of reading	
	0.44 N·m to 500 N·m (0.098 lbf to 112 lbf)	0.2 % of reading	Digital Torque Wrench Tester ANJ-500 Euramet-cg-14
Direct Verification of Durometer Hardness Tester Types A, B, C, D, O Durometer Indentor Spring Types A, B, E & O[F]	0.55 N to 8.05 N	0.7 N	Gage Block ASTM D2240 Euramet-cg-16 Load Cell
Indirect Verification of Rockwell Hardness Testers HRB[O]	20 HRB to 59 HRB	1.1 HRB	Standardized Test Blocks ASTM E 18 CENAM Technical Guide
	60 HRB to 84 HRB	0.72 HRB	
	85 HRB to 100HRB	0.55 HRB	
Indirect Verification of Rockwell Hardness Testers HRC[O]	20 HRC to 34 HRC	0.5 HRC	
	35 HRC to 59 HRC	0.4 HRC	
	60 HRC to 70 HRC	0.35 HRC	
Indirect Verification of Rockwell Hardness Testers HR30N[O]	42 HR30N to 54 HR30N	0.55 HR30N	
	55 HR30N to 76 HR30N	0.4 HR30N	
	77 HR30N to 82 HR30N	0.35 HR30N	

Chemical

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pH Meters[FO]	4 pH to 10 pH	0.07 pH	pH Standard Solution NMX-CH-068
Conductivity Meters[FO]	3 µS/cm to 12 880 µS/cm	$(8.65 \times 10^{-1} + 1.16 \times 10^{-2}S)$ µS/cm	Conductivity Solution NMX-AA-093-SCFI United States Environmental Protection Agency EPA 120.1 Method
Humidity Hygrometers[F]	33 % RH to 75 % RH	3 % RH	Aqueous Solutions ASTM E104-02 NMX-CH-068

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Dimensional

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Vernier Dial and Digital Calipers[F]	0.05 in to 20 in (1.27 mm to 508 mm)	(547 + 9L) µin [(14 + 0.009L) µm]	Set Block Gage NMX-CH-92 NMX-CH-002-IMNC JIS B 7544 JIS B 7502 JIS B 7508 JIS B 7530 CENAM Technical Guide
Micrometers[F]	0.05 in to 20 in (1.27 mm to 508 mm)	(286 + 17.1L) µin [(7.3 + 0.017 1L) µm]	
Vernier Dial and Digital Height Gages[F]	0.05 in to 20 in (0 mm to 508 mm)	(547 + 9L) µin [(14 + 0.009L) µm]	
Metal Rules[F]	0.039 in to 20 in maximum	0.013 in	Rule Master Stage Micrometer /Comparator and Reticle JIS B7516
Surface Plates[O]	10 in to 72 in Diagonal	(57.87 + 2.57L) µin	Autocollimator Repeat Reading Fixture ASME B89.3.7
Dial Indicators[F]	0.05 in to 20 in (1.27 mm to 508 mm)	130 µin (3.3 µm)	Set Block Gage NMX-CH-141-IMNC
Plain Limit Gages[F]	0.01 in to 2 in (0.25 mm to 50.8 mm)	25 µin (0.64 µm)	Laser Micrometer Zygo ASME B89.1.6
Thread Plug Gages[F] (Straight Thread Pitch)	M 0.6-0.9 mm to M 1 - 1.75 mm	0.05 mm	Screw Micrometer Pitch Master Combo ANSI and International Thread Designation Basic Thread Designations
Thread Ring Gages (Straight Thread Pitch)	M 0.6- 0.9 mm to M 1 - 1.75 mm	0.05 mm	
Measuring Projectors[O]	0.01 in to 10 in (0.025 mm to 25.4 mm)	2 200 µin (56 µm)	Glass Scale JIS B 7184
Measuring Microscopes[O]	0.01 in to 4 in (0.25 mm to 101.6 mm)	580 µin (15 µm)	
Gages Block Grade 0, 1, 2[F]	0.05 in to 4 in	(5.92 + 1.78 L) µin	Starrett 715 Amplifier JIS B 7506
Precision Level[F]	180°	1°	Master Level JIS B 7510
Optical Comparators[O] X Axis Linearity Y Axis Linearity	0.05 in to 12 in	(143 + 17.5L) µin	Stage Micrometer/ Comparator & Reticle/ Gage Block Set JIS B 7184
Optical Comparators Magnification[O]	10X	0.03 %	
	20X	0.03 %	
	31.25X	0.03 %	
Optical Comparators Squarness[O]	90°	0.1°	
Optical Comparators Angularity[O]	0° to 360°	0.1°	Angle Plate Set/ Reticle JIS B 7184

Certificate of Accreditation: Supplement

Laboratorios Industriales de México/ Jorge Arturo Gonzalez Huizar
Rancho Santa Clara No. 2919, Fracc. Pradera Dorada
Ciudad Juárez, Chihuahua, México. CP. 32610
Contact Name: Jorge González Phone: 656-289-3732

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

Dimensional

MEASURED QUANTITY, INSTRUMENT OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Video Measurement System[O] X Axis Linearity	0.05 in to12 in maximum	(143 + 17.5L) µin	Stage Micrometer/ Comparator & Reticle/ Gage Block Set JIS B 7184
Y Axis Linearity	0.05 in to12 in maximum	(143 + 17.5L) µin	
Video Measurement System Angularity[O]	0° to 360°	0.1°	Angle Plate Set/ Reticle JIS B 7184
Video Measurement System Magnification[O]	10X	0.03 %	Stage Micrometer/ Comparator & Reticle/Gage Block Set JIS B 7184
	20X	0.03 %	
	31.25X	0.03 %	
Video Measurement System Squareness[O]	90°	0.1°	
Protactors[O]	1° to 180°	0.3°	Angle Plate Set/ Reticle HNBK-150-2F
Trumeter-Odometers[O]	1 mm to 100 mm	0.5 % of reading	Direct Measure-Totalizer Counter, Internal Procedure L2-LIM-23L

Mass, Force, and Weighing Devices

MEASURED QUANTITY, INSTRUMENT OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Balances Class I & II[O]	1 mg to 500 mg (Res.= 0.1 mg)	0.16 mg	Class 1 Weights NIST Handbook 44
Scales Class III[O]	0.1 kg to 1 kg (Res.= 0.002 gr)	0.026 g	Class 6 Weights NIST Handbook 44
	0.1 kg to 1 kg (Res.= 0.001 gr)	0.026 g	Class 1 Weights NIST Handbook 44
Scales and Platforms Class III[O]	1 kg to 150 kg (Res.= 0.02 kg)	0.12 kg	Class F NIST Handbook 44
	151 kg to 1 500 kg (Res.= 0.2 kg)	$(2.25 \times 10^{-1} + 4.3 \times 10^{-5}\text{Wt})$ kg	
Verification of Testing Machines in Tension and Compression[O]	1 N to 889 N (1 lbf to 200 lbf	0.1 % of reading	Class F Weights NIST Handbook 44
	88.9 N to 4.41 kN (20 lbf to 1 000 lbf)	0.5 N (0.11 lbf)	Calibration Load Cell NIST Handbook 44
	889.6 N to 44.13 kN (200 lbf to 10 000 lbf)	3.8 N (0.85 lbf)	

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

Thermodynamic

MEASURED QUANTITY, INSTRUMENT OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Infrared Temperature Measuring Devices[FO]	20 °C to 50 °C	0.5 °C	Black Body Wahl HSICBB-P CENAM Technical Guide

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. Example: Outside Micrometer[F] would mean that the laboratory performs this calibration 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. Example: Outside Micrometer[O] would mean that the laboratory performs this calibration onsite at the customer's location.
5. The presence of a superscript FO means that the laboratory performs calibration of the indicated parameter both at its fixed location and onsite at customer locations. Example: Outside Micrometer[FO] would mean that the laboratory performs this calibration at its fixed location and onsite at customer locations.
6. 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.
7. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.
8. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.
9. The term S represents conductivity in µS/cm or S/m as appropriate to the uncertainty statement.