PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Ingeniería y Metrología Certificada para Calibración de Equipos de Control y Pruebas, S.A. de C.V.

Privada de la Secundaria Federal 2, No. 4, Col. Magisterial Vista Hermosa
Tlaxcala, Tlaxcala, México. C.P. 90014

(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):

Dimensional, Electrical, Thermodynamic, Mechanical, Mass, Force and Weighing Devices, Chemical, Time and Frequency, Acoustic and Optical 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:*
July 18, 2006	July 03, 2023	July 31, 2025

Accreditation No.:	*Certificate No.:*
54194	L23-522

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

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Tlaxcala, Tlaxcala, México. C.P. 90014
Contact: Javier Ruiz Cabello Phone: 246- 494-8308

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

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Caliper Gauge[FO]	0.7 mm to 1 500 mm	(6.88 + 0.020 7L) µm	Gage Blocks Mitutoyo 516-943, 611682-031 611684-031, 611685-031 CENAM Technical Guide
Micrometers[FO]	0.7 mm to 1 000 mm	(0.69 + 0.011 3L) µm	Gage Blocks Mitutoyo 516-107 611682-031, 611684-031 CENAM Technical Guide
Monitoring Indicators and Level Type[FO]	0.005 mm to 50 mm	(1.35 + 0.005L) µm	Mitutoyo 164-162 NMX-CH-149-IMNC
Metallic and Glass Scales Error of Indication[F]	0.005 mm to 2 000 mm	(40.61 + 2 x 10^{-5}L) µm	Longitude Scale Mitutoyo 172-171
Flexible Tapes Measure and Flexo Meter[F] Error of Indication++	50 000 mm	(0.105 + 9.88 x 10^{-6}L) mm	Mitutoyo 182-309 PC-DI-12-02
Height Gage[F]	12 mm to 1 000 mm	(12.58 + 0.047 4L) µm	Mitutoyo 515-359 NMX-CH-141-IMNC
Sieve[O]	0.01 mm to 50 mm	3.2 µm	Mitutoyo PV500 Optical Comparator PC-DI-12-10
Reticle Radius[F]	0.01 mm to 50 mm	3.2 µm	
Reticle for Length[F]	0.01 mm to 50 mm	3.2 µm	
Digital Protractor[F]	0° to 360°	0.039°	
Optical Comparators[O] X axis Linearity Y axis Linearity	500 mm	8.6 µm	Mitutoyo 172-116 Mitutoyo 183-110 PC-DI-12-07
Optical Comparator Angularity[O]	0° to 360°	0.039°	
Axial Orientation[O]	1° at 4 in Y axis travel	0.075°	
Magnification[O]	5X	0.5 %	
	10X	0.5 %	
	20X	0.5 %	
	31.25X	0.5 %	
	50X	0.5 %	
	62.5X	0.5 %	
	100X	0.5 %	
Microscopes Scale[FO] (X, Y)	200 mm	2.3 µm	Mitutoyo 172-116 PC-DI-12-07
Microscopes Scale Magnification[FO]	5X	0.5 %	
	10X	0.5 %	
	15X	0.5 %	

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Microscopes Scale Magnification[FO]	20X	0.5 %	Mitutoyo 172-116 PC-DI-12
	50X	0.5 %	
Thickness Gages[FO]	25 mm to 100 mm	$(1.5 + 7.6 \times 10^{-2}L)$ µm	Gage Blocks Mitutoyo 516-943 USBR 1007 NMX-CH-149-IMNC
Coating Thickness Gauge[FO]	25 µm to 2 000 µm	$(0.558 + 9.5 \times 10^{-2}L)$ µm	Film Standards Mitutoyo D 7091-12 ASTM D7091
Surface Roughness Tester Ra[FO]	0.42 µm to 2.94 µm	0.074 µm	Mitutoyo 178-604 Roughness Specimen JIS B 0601
Surface Roughness Tester Ry[FO]	1.7 µm to 11.4 µm	0.13 µm	
Ultrasonic Thickness Gauge[FO]	2.5 mm a 112.5 mm (Res.= 0.001 mm)	0.024 mm	Test Blocks Delfesko Nodet ASTM E797-15
Length Meter[F]	0.4 m to 20 m (Res.= 0.001 m)	1 mm	Laser Distance Measure Leica Model: Disto D510 ISO-16331-1
Length Counter – Odometer[FO]	0.5 m to 5 000 m (Res.= 0.01 m)	$(0.128\ 3 + 7 \times 10^{-6}L)$ m	Tachometer and Generator Cylinder PC-DI-12-15
Feeler Gauges[F]	0.1 mm to 3 mm	$(1.4 \times 10^{-3} + 1.6 \times 10^{-3})$ mm	Micrometer JIS B7524

Electrical

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Equipment to Measure DC Voltage[FO]	0.001 mV to 200 mV	20 µV	Multifunction calibrator Fluke 5522A Manual Spec + UUT Resolution CENAM Technical Guide
	0.2 V to 2 V	150 µV	
	2 V to 20 V	1.5 mV	
	20 V to 200 V	15 mV	
	200 V to 1 100 V	78 mV	
Equipment to Measure DC Current[FO]	0.1 µA to 200 µA	0.076 µA	
	0.2 mA to 2 mA	0.65 µA	
	2 mA to 20 mA	6.5 µA	
	20 mA to 200 mA	65 µA	
	0.1 A to 2 A	640 µA	

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Equipment to Output DC Voltage[FO]	10 mV to 100 mV	25 µV	Multimeter, Agilent 34410A Manual Spec + UUT Stability CENAM Technical Guide
	0.1 V to 1 V	150 µV	
	1 V to 10 V	1.2 mV	
	10 V to 100 V	17 mV	
	100 V to 1 000 V	260 mV	
Equipment to Measure AC Voltage At the listed frequencies[FO]			Multifunction Calibrator Fluke 5522A Manual Spec + UUT Resolution CENAM Technical Guide
2 mV to 200 mV	50 Hz to 1 kHz	190 µV	
0.2 V to 2 V	50 Hz to 1 kHz	1.4 mV	
2 V to 20 V	50 Hz to 1 kHz	13 mV	
20 V to 200 V	50 Hz to 1 kHz	130 mV	
200 V to 1 100 V	50 Hz to 1 kHz	650 mV	
Equipment to Measure DC Current[FO]	10 µA to 200 µA	76 nA	
	0.2 mA to 2 mA	660 nA	
	2 mA to 20 mA	6.5 µA	
	20 mA to 200 mA	65 µA	
	0.2 A to 2 A	650 µA	
Equipment to Measure AC Current At the listed frequencies[FO]			
50 Hz to 1 kHz	10 µA to 200 µA	2.5 µA	
50 Hz to 1 kHz	0.2 mA to 2 mA	4.3 µA	
50 Hz to 1 kHz	2 mA to 20 mA	22 µA	
50 Hz to 1 kHz	20 mA to 200 mA	190 µA	
50 Hz to 1 kHz	0.2 A to 2 A	1.9 mA	
Equipment to Output AC Voltage At the listed frequencies[FO]			Multimeter, Agilent 34410A Manual Spec + UUT Resolution CENAM Technical Guide
40 Hz to 20 kHz	0.1 V to 1 V	2.4 mV	
40 Hz to 20 kHz	1 V to 10 V	24 mV	
40 Hz to 20 kHz	10 V to 100 V	240 mV	
40 Hz to 20 kHz	100 V to 650 V	1.6 V	

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Equipment to Measure AC & DC Current (Transconductance Amplifier)[FO]	2 A to 20 A	0.035 % of reading	Multimeter, Agilent 34410A Manual Spec + UUT Resolution CENAM Technical Guide
Equipment to Measure AC & DC Current At the listed frequencies[O]			Multifunction Calibrator Fluke 5522A Manual Specs + UUT Resolution CENAM Technical Guide
30 Hz to 1 kHz	2 A to 20 A	0.064 % of reading	
Equipment to Measure AC & DC Current (Current Transformers with Ratio Transformation)[FO]	20 A to 30 A	0.25 % of reading	Multifunction Calibrator Fluke 5522A and 50 Turns Coil Fluke 5500A/Coil Manual Spec + UUT Resolution CENAM Technical Guide
	30 A to 60 A	0.28 % of reading	
	60 A to 120 A	0.34 % of reading	
	120 A to 300 A	0.5 % of reading	
Equipment to Measure AC & DC Current At the listed frequencies[FO]			Multifunction Calibrator Fluke 5522A and 50 Turns Coil Fluke 5500A/Coil Manual Spec + UUT Resolution CENAM Technical Guide
45 Hz to 65 Hz	20 A to 30 A	0.48 % of reading	
45 Hz to 65 Hz	30 A to 60 A	0.51 % of reading	
45 Hz to 65 Hz	60 A to 120 A	0.59 % of reading	
45 Hz to 65 Hz	120 A to 300 A	0.63 % of reading	
Equipment to Output DC Voltage[FO]	1 mV to 110 mV	20 µV	Calibrator Fluke 754 Manual Spec + UUT Resolution CENAM Technical Guide
	0.11 V to 1.1 V	200 µV	
	1.1 V to 15 V	2.7 mV	
Equipment to Measure AC & DC Current[FO]	0.2 mA to 1 mA Genrad 1434G 1 000 Ω, 0.1 %	0.11 % of reading	Multimeter, Agilent 34410A and Reference Shunt Manual Spec + UUT Resolution CENAM Technical Guide
	1 mA to 10 mA Genrad 1434G 100 Ω, 0.1 %	0.11 % of reading	
	10 mA to 100 mA Genrad 1434G 10 Ω, 0.1 %	0.11 % of reading	
	0.7 A to 1.99 A Shunt 1 Ω, 0.1 %	0.11 % of reading	
	2 A to 10 A Shunt 0.1 Ω, 1 %	1 % of reading	

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Equipment to Measure AC & DC Current At the listed frequencies[FO]			Eisco, 10 MΩ CENAM Technical Guide
40 Hz to 20 kHz	0.2 mA to 1 mA	0.14 % of reading	
40 Hz to 20 kHz	1 mA to 10 mA	0.14 % of reading	
Equipment to Measure AC & DC Current At the listed frequencies[FO]			Eisco, 10 MΩ CENAM Technical Guide
40 Hz to 20 kHz	10 mA to 100 mA	0.14 % of reading	
40 Hz to 20 kHz	0.1 A to 1 A	0.14 % of reading	Shunt 1 Ω, 0.1 % CENAM Technical Guide
40 Hz to 20 kHz	1 A to 10 A	1.01 % of reading	Shunt 0.1 Ω, 1 % CENAM Technical Guide
Equipment to Output Electrical Resistance[FO]	0.1 Ω to 1 Ω	35 mΩ	Multifunction Calibrator Fluke 5522A Manual Spec + UUT Resolution RTD´s 100 Ω to 1 000 Ω α=386, 3916, 3926 CENAM Technical Guide
	1 Ω to 10 Ω	40 mΩ	
	10 Ω to 100 Ω	85 mΩ	
	100 Ω to 1 000 Ω	505 mΩ	
	1 kΩ to 10 kΩ	5 Ω	
	10 kΩ to 100 kΩ	50 Ω	
	100 kΩ to 1 MΩ	500 Ω	
Equipment to Measure Electrical Resistance[FO]	1 Ω to 10 Ω	3.3 mΩ	Multimeter, Agilent 34410A Manual Spec + UUT Stability CENAM Technical Guide
	10 Ω to 100 Ω	25 mΩ	
	100 Ω to 1 kΩ	250 mΩ	
	1 kΩ to 10 kΩ	2.5 Ω	
	10 kΩ to 100 kΩ	26 Ω	
	100 kΩ to 1 MΩ	305 Ω	
	1 MΩ to 10 MΩ	7.5 kΩ	
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385 and Pt 3926, 25Ω to 100Ω[FO]	-200 °C to 962 °C	0.065 °C	Multifunction Calibrator Fluke 5522A Electrical Simulation of RTD Output Manual Spec + UUT Resolution CENAM Technical Guide
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 3916, 25Ω to 100 Ω[FO]	-200 °C to 962 °C	0.065 °C	

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Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 3926, 25 Ω to 100 Ω^{FO}	-200 °C to 962 °C	0.065 °C	Multifunction Calibrator Fluke 5522A Electrical Simulation of RTD Output Manual Spec + UUT Resolution CENAM Technical Guide
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J^{FO}	-210 °C to -100 °C	0.24 °C	Multifunction Calibrator Fluke 5522A Electrical Simulation of Thermocouple Output CENAM Technical Guide
	-100 °C to 800 °C	0.29 °C	
	800 ° to 1 200 °C	0.31 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple K^{FO}	-200 °C to -100 °C	0.24 °C	
	-100 °C to 400 °C	0.26 °C	
	400 °C to 1 200 °C	0.31 °C	
	1 200 °C to 1 372 °C	0.32 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple T^{FO}	-250 °C to -200 °C	0.25 °C	
	-200 °C to 0 °C	0.24 °C	
	0 °C to 400 °C	0.26 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple E^{FO}	-250 °C to -200 °C	0.25 °C	
	-200 °C to -100 °C	0.24 °C	
	-100 °C to 600 °C	0.27 °C	
	600 °C to 1 000 °C	0.3 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple R^{FO}	-20 °C to 0 °C	0.24 °C	
	0 °C to 100 °C	0.25 °C	
	100 °C to 1 767 °C	0.34 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple S^{FO}	-20 °C to 0 °C	0.24 °C	
	0 °C to 200 °C	0.25 °C	
	200 °C to 1 400 °C	0.32 °C	
	1 400 °C to 1 767 °C	0.34 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple N^{FO}	-200 °C to -100 °C	0.24 °C	
	-100 °C to 900 °C	0.29 °C	
	900 °C to 1 300 °C	0.32 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple B^{FO}	600 °C to 800 °C	0.29 °C	
	800 °C to 1 000 °C	0.3 °C	
	1 000 °C to 1 820 °C	0.35 °C	

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Temperature Calibration, Indication and Control Equipment used with Thermocouple C^{FO}	0 °C to 800 °C	0.29 °C	Multifunction Calibrator Fluke 5522A Electrical Simulation of Thermocouple Output CENAM Technical Guide
	800 °C to 1 200 °C	0.31 °C	
	1 200 °C to 1 800 °C	0.35 °C	
	1 800 °C to 2 316 °C	0.37 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple J^{FO}	-210 °C to -100 °C	0.36 °C	Fluke 754 Electrical Simulation of Thermocouple Output CENAM Technical Guide
	-100 °C to 800 °C	0.24 °C	
	800 ° to 1 200 °C	0.24 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple K^{FO}	-200 °C to -100 °C	0.47 °C	
	-100 °C to 400 °C	0.36 °C	
	400 °C to 1 200 °C	0.36 °C	
	1 200 °C to 1 372 °C	0.36 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple T^{FO}	-250 °C to -200 °C	1.1 °C	
	-200 °C to 0 °C	0.47 °C	
	0 °C to 400 °C	0.36 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple E^{FO}	-250 °C to -200 °C	0.7 °C	
	-200 °C to -100 °C	0.36 °C	
	-100 °C to 600 °C	0.36 °C	
	600 °C to 1 000 °C	0.24 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple R^{FO}	-20 °C to 0 °C	1.4 °C	
	0 °C to 100 °C	1.3 °C	
	100 °C to 1 767 °C	1.1 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple S^{FO}	-20 °C to 0 °C	1.4 °C	
	0 °C to 200 °C	1.3 °C	
	200 °C to 1 400 °C	1.1 °C	
	1 400 °C to 1 767 °C	1.2 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple N^{FO}	-200 °C to -100 °C	1.1 °C	
	-100 °C to 900 °C	0.94 °C	
	900 °C to 1 300 °C	0.47 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple B^{FO}	600 °C to 800 °C	1.2 °C	
	800 °C to 1 000 °C	0.94 °C	
	1 000 °C to 1 820 °C	0.94 °C	

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Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, Pt 3916 and Pt 3926, 25 Ω to 100 Ω	-195 °C to 800 °C	0.066 °C	Fluke 754 Electrical Simulation of RTD Output CENAM Technical Guide
Equipment to Output pH Simulation[FO]	0.01 pH to 14 pH	0.006 pH	Multifunction Fluke 5100A @ 25°C CENAM Technical Guide
Equipment to Measure pH Simulation[FO]	0.01 pH to 14 pH	0.006 pH	Multimeter, Agilent 34410A A @ 25°C CENAM Technical Guide
Equipment to Output Conductivity Simulation[FO]	0.1 µS/cm to 20 mS/cm	0.06 % of reading	Resistance Decade Eisco CENAM Technical Guide
Equipment to Measure Conductivity Simulation[FO]	0.1 µS/cm to 20 mS/cm	0.06 % of reading	Multimeter Agilent 34410A CENAM Technical Guide
Humidity Meters “Moisture Content” (Wood or Concrete)[F] Electrical Simulation	10 % RH to 90 % RH (1 KΩ to 100 GΩ)	$(0.188\,4 + 2.47 \times 10^{-2}H)$ % RH	Resistance Decade OIML R 92

Chemical

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pH Meters[FO]	4 pH	0.02 pH	pH buffer Solutions CENAM Technical Guide
	7 pH	0.02 pH	
	10 pH	0.02 pH	
Conductivity Meter[FO]	1 µS/cm	0.3 µS/cm	Conductivity Solutions CENAM Technical Guide
	5 µS/cm	0.3 µS/cm	
	10 µS/cm	0.62 µS/cm	
	20 µS/cm	0.80 µS/cm	
	84 µS/cm	1.5 µS/cm	
	1 413 µS/cm	5.8 µS/cm	
	12 850 µS/cm	57 µS/cm	

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Refractometers[FO]	1.332 99 nD	0.000 2 nD	Reference Materials IME Procedure PC-OP-6-02
	1.347 84 nD	0.000 2 nD	
	1.38114 nD	0.000 2 nD	
	1.420 08 nD	0.000 2 nD	
	1.441 92 nD	0.000 2 nD	
	1.465 44 nD	0.000 2 nD	
	1.546 35 nD	0.000 2 nD	
	1.465 nD	0.0003 nD	Reference Materials CNM-MR-520-110 DMR-98b CENAM CNM-IM-730-021 PC-OP-6-02
	1.517 2 nD	0.0003 nD	
	1.603 4 nD	0.0003 nD	
	1.698 8 nD	0.0003 nD	
Density Immersion[FO]	0.5 g/cm^3 to 1.6 g/cm^3 (Res.= 0.000 2 g/cm^3)	0.000 12 g/cm^3	Balance Ohaus Model Explorer CENAM Technical Guide
Alcohol Meter[F]	0.000 019 BAC to 0.16 BAC	(9.9 x 10^{-3} + 9 x 10^{-4}BAC) BAC	SRM CENAM CMR-6300593 / CMR-6300593a / CMR-6300597a / CMR-6300591a Alcohol Reference Solution (ARS)
Photometer Chlorine Free and Total[FO]	0.001 mg/L to 1 mg/L	(0.022 9 + 0.010 9X) mg/L	SRM Hanna IME Procedure PC-OP-6-04
Turbidimeter[FO]	0.1 NTU to 4 000 NTU	(0.049 7 + 0.012T) NTU	Standards Hach and Hanna IME Procedure PC-OP-06-05

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Industrial Thermometer – Indicator and Sensor RTD Pt 385 100 Ω[FO]	-80 °C to 0 °C (Res.= 0.01)	0.028 °C	Thermometer Hart Scientific 1502 A No. B71291, Sensor RTD Pt-100 Ω AccuMac AM1760 ASTM-E 1137
Industrial Thermometer – Indicator and Sensor RTD Pt 3916 100 Ω[FO]	-80 °C to 0 °C (Res.= 0.01)	0.028 °C	
Industrial Thermometer – Indicator and Sensor RTD Pt 3926 100 Ω[FO]	-80 °C to 0 °C (Res.= 0.01)	0.028 °C	

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Contact: Saul Morales Phone: 246- 494-8308

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Thermodynamic

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Industrial Thermometer Indicator and Sensor RTD Pt 385, 100 Ω^{FO}	0 °C to 600 °C (Res.= 0.01)	0.027 °C	Thermometer Hart Scientific 1502 A No. B71291, Sensor RTD Pt-100 Ω, 0.003 92 °C-¹ AccuMac AM1760 ASTM-E 1137
Industrial Thermometer Indicator and Sensor RTD Pt 3916 100 Ω^{FO}	0 °C to 600 °C (Res.= 0.01)	0.027 °C	
Industrial Thermometer – Indicator and Sensor RTD Pt 3926 100 Ω^{FO}	0 °C to 600 °C (Res.= 0.01)	0.027 °C	
Industrial Thermometer Indicator and Sensor RTD Pt 385 100 Ω^{FO}	-80 °C to 700 °C	0.26 °C	Fluke 754 -Sensor RTD's Measure ASTM-E 1137
Industrial Thermometer Indicator and Sensor RTD Pt 3916 100 Ω^{FO}	-80 °C to 650 °C	0.26 °C	
Industrial Thermometer Indicator and Sensor RTD Pt 3926 100 Ω^{FO}	-80 °C to 650 °C	0.26 °C	
Industrial Thermometer Indicator and Thermocouple Type E^{FO}	-80 °C to 600 °C	0.063 °C	Thermometer Hart Scientific 1502 A Nº B71291, Sensor RTD Pt-100 Ω AccuMac AM1760 ASTM E220
Industrial Thermometer Indicator and Thermocouple Type J^{FO}	-80 °C to 600 °C	0.063 °C	
Industrial Thermometer Indicator and Thermocouple Type K^{FO}	-80 °C to 600 °C	0.063 °C	
Industrial Thermometer Indicator and Thermocouple Type T^{FO}	-80 °C to 600 °C	0.063 °C	
Industrial Thermometer Indicator and Thermocouple Type R^{FO}	-80 °C to 600 °C	0.063 °C	
Industrial Thermometer Indicator and Thermocouple Type E^{FO}	-80 °C to 1 000 °C	0.31 °C	Fluke 754 Thermocouple Measure ASTM E220
Industrial Thermometer Indicator and Thermocouple Type K^{FO}	-196 °C to 1 372 °C	0.31 °C	

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Industrial Thermometer Indicator and Thermocouple Type R[FO]	-50 °C to 1 768 °C	0.31 °C	Fluke 754 Termocouple Measure ASTM E220
Industrial Thermometer Indicator and Thermocouple Type S[FO]	-50 °C to 1 200 °C	0.31 °C	
Industrial Thermometer Indicator and Thermocouple Type T[FO]	-196 °C to 400 °C	0.31 °C	
Liquids in Glass Thermometers[F]	-20 °C to 0 °C	0.25 °C	Thermometer Hart Scientific 1502 A CENAM Technical Guide
Liquids in Glass Thermometers[FO]	0 °C to 420 °C	0.3 °C	
	420 °C to 600 °C	0.35 °C	Fluke 754 Measurement CENAM Technical Guide
Sterilizer and Climatic Chambers, Ovens, Incubators[FO]	-80 °C to 340 °C	0.5 °C	Hydra Fluke 2625 CENAM Technical Guide
Water Baths. Temperature Control and Bain–Marie[FO]	-100 °C to 340 °C	0.09 °C	Thermometer Hart Scientific 1502 A CENAM Technical Guide
Furnaces Sensor[FO]	50 °C to 900 °C	0.25 °C	Fluke 754 Measurement PC-T-03-3 NMX-CH-70-SCFI CENAM Technical Guide
Bi-Metal Thermometers[FO]	0 °C to 600 °C	0.5 °C	
Thermostats[FO]	0 °C to 600 °C	0.7 °C	
Infrared / No contact Thermometers[F]	25 °C to 350 °C	0.7 °C	Thermometer Hart Scientific 1502 A and Blackbody CENAM Technical Guide PC-T-3-07
Humidity Meters[F]	10 % RH to 90 % RH	0.6 % RH	Vaisala PTU301 Measurement with Humidity Chamber CENAM Technical Guide
	11.3 % RH	0.9 % RH	Vaisala Standard Salts Cal CENAM Technical Guide
	32.9 % RH	0.6 % RH	
	75.5 % RH	0.7 % RH	
	97.5 % RH	1.7 % RH	

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

Time & Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Tachometers[FO]	0.1 rad/sec to 10 471.9 rad/sec (Res.= 0.001 rad/sec)	0.000 61 rad/sec	Frequency Calibration Hewlett Packard Model:3325A IME Procedure PC-FT-18
	0.1 rad/sec to 10 471.9 rad/sec (Res.= 0.01 rad/sec)	0.006 rad/sec	
	0.1 rad/sec to 10 471.9 rad/sec (Res.= 0.1 rad/sec)	0.06 rad/sec	
Contact Tachometer[F]	5 rpm to 11 000 rpm (Res.= 0.01 rpm)	0.011 rpm	Tachometer IME Procedure PC-FT-18
Equipment to Measure Frequency with Mechanical Signals[F]	1 Hz to 1 000 Hz	$(0.058 + 1 \times 10^{-5}F)$ Hz	Software Test Tone Generation V4.6 PC-FT-18-04
Equipment Generate Frequency Electrical Signal[FO]	3 Hz to 300 kHz	0.024 Hz	Multímeter Digital Agilent Model: 34410A CENAM Technical Guide
Timer and Chronometers[F]	10 s to 86 400 s	0.1 s	Universal Counter Hp Model:5334A/B Functions Generation Model: 3325A Totalizer Method NIST 960-12
Oximeters[F]	60 BPM to 120 BPM	0.58 BPM	Software Test Tone Generation V4.6 PC-FT-18-05
Equipment to Measurement Frequency Electrical Signal @ 50Hz Senoidal Weave[F]	0.000 001 Hz to 20 MHz	2.8×10^{-4} Hz	HP 3325A CENAM Technical Guide
Strobes Lamp[FO]	6 FPM to 1 000 FPM (Res.= 0.1 FPM)	0.058 FPM	Waves Generators IME Procedure PC-FT-18-10
	1 000 FPM to 80 000 FPM (Res.= 1 FPM)	0.58 FPM	
Radar Gun[F]	20 k/min to 225 k/min (Res.= 1 km/h)	(0.524 2 + 0.003 1V) Km/h	Wave Generators IME Procedure PC-FT-19-09

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

Mass, Force and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Mass M1-M2-M3[F]	5 kg	14 mg	Substitution Class F2 Mass Ohaus DV215 CD CENAM Technical Guide
	10 kg	20 mg	
	20 kg	54 mg	
Mass Class, F1, F2, M1, M2, M3	0.1 g	0.017 mg	Mass Class E2 OIML R 111 Substitution Method
	0.2 g	0.02 mg	
	0.5 g	0.027 mg	
	1 g	0.033 mg	
	2 g	0.04 mg	
	5 g	0.04 mg	
	10 g	0.067 mg	
	20 g	0.083 mg	
	50 g	0.1 mg	
	100 g	0.17 mg	
	200 g	0.33 mg	
No- Automatic Weighing Devices[FO]	1 mg to 100 g (Res.= 0.01 mg)	$(1 \times 10^{-4} + 5.09 \times 10^{-7} Wt)$ g	Class E2 Weights CENAM Technical Guide
	1 mg to 220 g (Res.= 0.01 mg)	$(1 \times 10^{-4} + 5.32 \times 10^{-7} Wt)$ g	
	0.01 g to 500 g (Res.= 0.1 mg)	$(2 \times 10^{-4} + 4.27 \times 10^{-7} Wt)$ g	
	1 g to 2 000 g (Res.= 0.1 mg)	$(2 \times 10^{-4} + 5.23 \times 10^{-7} Wt)$ g	
	2 g to 5 000 g (Res.= 0.001 g)	$(1.2 \times 10^{-3} + 4.27 \times 10^{-7} Wt)$ g	
	5 g to 10 000 g (Res.= 0.01 g)	$(1.16 \times 10^{-2} + 1.54 \times 10^{-7} Wt)$ g	
	1 g to 5 000 g (Res.= 0.001 g)	$(1.2 \times 10^{-3} + 1.71 \times 10^{-6} Wt)$ g	Class F1 Weights CENAM Technical Guide
	20 g to 15 000 g (Res.=0.01 g)	$(1.16 \times 10^{-2} + 1.3 \times 10^{-6} Wt)$ g	
	50 g to 24 000 g (Res.=0.1 g)	$(1.16 \times 10^{-1} + 3.71 \times 10^{-7} Wt)$ g	
	5 kg to 50 kg (Res.= 0.001 kg)	1.2 g	Class F2 Weights CENAM Technical Guide
	20 kg to 1 155 kg (Res.= 0.01 kg)	70 g	Class M1 Weights CENAM Technical Guide
	20 kg to 7 000 kg (Res.= 0.1 kg)	0.12 kg	

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Mass, Force and Weighing Devices

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Force Gauges– Compression and Tension - Measure[FO]	4.9 N to 490 N	0.3 % of reading	Class F1 and F2 Mass NMX-CH-376-IMNC
	490 N to 9 807 N	0.2 % of reading	ABB/Altech 20210 Load Cell NMX-CH-376-IMNC
	98 N to 980 N	0.3 % of reading	Class M1 and M2 NMX-CH-376-IMNC
Force Gauges –Band Tension Measure[F]	0.06 N to 300 N (Res.= 0.01 N)	0.005 8 N	Software Test Tone Generation V4.6 IME Procedure PC-FT-18-03
	300 N to 43 200 N (Res.= 0.1 N)	0.058 N	

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Pressure Manometers[F]	100 kPa to 10 050 kPa	0.15 % of reading	Ametek TDQ-100000-1 Dead Weight Tester CENAM Technical Guide
	10 050 kPa to 100 500 kPa	0.16 % of reading	
Pressure Transducers[FO]	100 kPa to 10 050 kPa	0.17 % of reading	Ametek DQ-100000-1 DMM Fluke 8520A + Shunt - Dead Weight Tester CENAM Technical Guide
	10 050 kPa to 100 500 kPa	0.18 % of reading	
Pressures Gages – Direct Comparison[FO]	0.69 kPa to 34.47 kPa	0.014 kPa	Pressure Modul Heisen AM2-2 Nº. HM2-A3594 CENAM Technical Guide
	6.894 757 kPa to 68.947 58 kPa	0.059 kPa	Pressure Modul Heisen AM2-2 Nº. HM2-A4297 CENAM Technical Guide
	68.947 57 kPa to 689.475 7 kPa	0.068 kPa	
	206.8 kPa to 2 068.427 kPa	1.1 kPa	Dwyer DCGII-106 No. 211H143D0047 CENAM Technical Guide
	4.1 MPa to 41 MPa	31 kPa	Foxboro 41MPa Part # D0175 WC Reference Model IGP10-22 F CENAM Technical Guide
	10.342 14 kPa to 103 421.4 kPa	30 kPa	Pressure Foxboro IGP10-D24G1 E-1L1 Nº 10280177 CENAM Technical Guide

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Pressure Transducers (mA and or V) – Direct Comparison[FO]	206.8 kPa to 2 068.427 kPa	1.1 kPa	Dwyer DCGII-106 Nº. 211H143D0047 DMM Fluke 8520A + Shunt CENAM Technical Guide
	4.1 MPa to 41 MPa	31 kPa	Foxboro 41MPa. Part # D0175 WC Reference Model IGP10-22 F sensor 316 L DMM Fluke 8520A + Shunt CENAM Technical Guide
Vacuum Meters (Manovacuum meters) – Direct Comparasion[FO]	-7 kPa to 0.1 kPa	0.029 kPa	Love Controls Nº. 1033045 CENAM Technical Guide
	0.1 kPa to 7 kPa	0.029 kPa	
	-67.708 kPa to -0.1 kPa	0.2 kPa	Foxboro IAP10-D22DIC-M1L1 No.97121443 CENAM Technical Guide
Vacuum Meters[FO]	-78 kPa to -1 kPa	0.24 kPa	Fluke Nº. 98158401 700 PV4 Fluke 741B No. 8366015 CENAM Technical Guide
Mercury Column Gauge Meters Direct Comparison[F]	-78 kPa to -1 kPa	0.24 kPa	
Vacuum Transducer Direct Comparison[FO]	-78 kPa to -1 kPa	0.25 kPa	Fluke Nº. 98158401 700 PV4 Fluke 741B No. 8366015 DMM Fluke 8520A CENAM Technical Guide
Absolute Pressure Gages Direct Comparison[FO]	77.985 kPa to 2 067.533 kPa	1.9 kPa	Foxboro IAP10-22D1F - M1L1 Nº. 02391565 CENAM Technical Guide
Pressure Gages Direct Comparison[FO]	200 kPa to 2 067.533 kPa	1.9 kPa	Foxboro IAP10-D22D1F-M1L1 CENAM Technical Guide
Absolute Pressure Transducers (mA / V) Direct Comparison[FO]	77.985 kPa to 2 067.533 kPa	1.9 kPa	Foxboro IAP10-22D1F-M1L1 Nº. 02391565 DMM Fluke 8520A CENAM Technical Guide
Pressure Transducers (mA / V) – Direct Comparison[FO]	200 kPa to 2 068.427 kPa	1.9 kPa	Foxboro IAP10-D22D1F-M1L1 DMM Fluke 8520A CENAM Technical Guide
Pressures Gages – Direct Comparison[FO]	34.47 kPa to 6 894.76 kPa	0.4 kPa	Ametek XP2i CENAM Technical Guide

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Pressure Gages – Direct Comparison[FO]	2 060 kPa to 20 684.3 kPa	8.2 kPa	Foxboro IGP10-D22E1F-M1L1 Nº. 00212419 CENAM Technical Guide
Pressure Transducers (mA / V) – Direct Comparison[FO]	2 060 kPa to 20 684.3 kPa	8.2 kPa	Foxboro IGP10-D22E1F-M1L1 Nº. 00212419 DMM Fluke 8520A CENAM Technical Guide
Pressure Gages- Direct Comparison[FO]	0.69 kPa to 6.9 kPa	0.011 kPa	Fluke 700 P02 Nº. 83850208 CENAM Technical Guide
Pressure Transducers (mA / V) – Direct Comparison [FO]	0.69 kPa to 6.9 kPa	0.011 kPa	Fluke 700 P02 Nº. 83850208 DMM Fluke 8520A CENAM Technical Guide
Pressure Gages– Direct Comparison[FO]	0.025 4 kPa to 0.25 kPa	0.007 kPa	Fluke 700 P00 Nº. 83051011 DMM Fluke 8520A CENAM Technical Guide
Pressure Transducers (mA / V) – Direct Comparison[FO]	0.025 4 kPa to 0.25 kPa	0.007 kPa	Fluke 700 P00 Nº. 83051011 DMM Fluke 8520A CENAM Technical Guide
Air Velocity Anemometers[F]	0.1 m/s to 30 m/s	(0.091 7 + 0.012 3Va) m/s	Omega HHF141 Nº. 1017581 ASTM D 3796
Door Closing Meter - Velocity[F]	0.3 m/s to 10 m/s (Res.= 0.01 m/s)	0.012 m/s	Tachometer Shimpo Model: DT-207L PC-FT-18-02
Equipment to Measure Superficial Tension Test[O]	0.008 N·m to 0.065 N·m (8 dyne/cm to 65 dyne/cm)	0.000 6 N·m (0.6 dyne/cm)	Class E2 Mass ASTM D-971
Safety and Light Valves[F]	0.6 MPa to 41 MPa	30 kPa	Foxboro 41MPa Part # D0175 WC Model IGP10-22 F Sensor 316 L No. 212426 PC-P-2-05
Torsional Par Wrenches[FO]	0.1 N·m to 250 N·m	0.62 N·m	Torsional par Tranducer: Buster Model: Trascal 7280 ISO 6789
	250 N·m to 440 N·m	1.2 N·m	
	440 N·m to 1 000 N·m	2.7 N·m	

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Torsional Par Transducers[F]	0.1 N·m to 500 N·m	$(6.4 \times 10^{-3} + 1 \times 10^{-4}T)$ N·m	Arm and Class F1 CENAM Technical Guide
Indirect Verification of Rockwell Hardness Testers HRC[O]	25 HRC to 45 HRC	0.32 HRC	ASTM E 18-08a Calibrated Rockwell Hardness Test Blocks
	46 HRC to 65 HRC	0.32 HRC	
	66 HRC to 70 HRC	0.32 HRC	
Direct Verification of Durometer Hardness[F] Tester Types A, B, C, D, DO, E, M, O, OO, OOO, OOO-S. Extension at zero reading			ASTM D 2240 -05
Indentor Shape (Not all parameters apply to all of Durometer Types)	2.46 mm to 2.554 mm	5.2 µm	Optical Comparators PV 500 ASTM D 2240 -05
Indentor Diameter	1.25 to 50 mm	5.2 µm	
Indentor Tip Diameter	1.27 to 12 mm	5.2 µm	Optical Comparators PV 500 ASTM D 2240 -05
Indentor Tip Radius	0.1 to 11 mm	5.2 µm	
Indentor Tip Angle	30° to 35°	0.03°	
Durometer Indentor Spring Types A, B, C, D, DO, E, M, O, OO, OOO, OOO-S.	0.55 N to 8.05 N 4.5 N to 45 N	0.7 N 1 N	Ohaus Explorer Pro 32 000 uc ASTM D 2240 -05
Micropipettes[F]	1 µL to 500 µL	$(1.6 \times 10^{-2} + 3 \times 10^{-3}V)$ µL	Mettler PM-480 Ohaus Discovery Ohaus Explorer CENAM Technical Guide
Pipettes[F]	1 mL to 100 mL	$(2.2 \times 10^{-3} + 7.9 \times 10^{-5}V)$ mL	
Burettes[F]	1 mL to 100 mL	$(8.1 \times 10^{-4} + 1.9 \times 10^{-4}V)$ mL	
Probes[F]	100 mL to 1 000 mL	$(7 \times 10^{-1} + 3.2 \times 10^{-3}V)$ mL	
Volumetric Flask[F]	1 mL to 250 mL	$(1.3 \times 10^{-3} + 3.3 \times 10^{-4}V)$ mL	
	250 mL to 2 000 mL	$(7 \times 10^{-2} + 3.2 \times 10^{-5}V)$ mL	
	2 000 mL to 20 000 mL	$(8.8 + 1.1 \times 10^{-3}V)$ mL	
Density Digital Density Meters[FO]	0.000 1 g/cm³ to 1 g/cm³	5.8×10^{-5} g/cm³	Reference Materials CNM-IM-730-021 CENAM Technical Guide
Oxygen Meters[FO]	5 mg/L to 14 mg/L	0.03 mg/L	Reference Materials CNM-IM-730-021 ASTM D888-92 CENAM Technical Guide

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Vibrometers[F]	2 mm/s to 80 mm/s	$(6.4 \times 10^{-3} + 5 \times 10^{-3} VL)$ mm/s	Software Test Tone Generation V4.6 Displacement Micro-epsilon Model: NCDT 1420 ISO-16063-21
Bauman Meters[FO]	0.1mmHg to 300 mmHg (0.1 kPa to 40 kPa)	0.19 mmHg [(24 kPa)]	Manometer Ashcrof Model: 238A624-01 PC-P-02-07
Flow Meters (Water)[FO]	1 L/min to 500 L/min (Res.= 0.01 L/min)	0.005 8 L/min	Balance Tecnocor Model: IPEN (Static Havey) ME-008 CENAM Technical Guide
	1 L/min to 160 L/min (Res.= 0.01)	$(6.6 \times 10^{-3} + 1.1 \times 10^{-3} Q)$ L/min	Micromotion Model: DS100S128 (Direct Comparison) ISO 10790
	1 L/min to 1 000 L/min (Res.= 0.01)	$(8.1 \times 10^{-3} + 9 \times 10^{-4} Q)$ L/min	Euromag Model: MC 608A (Direct Comparison) ISO 10790
	1 L/min to 4 500 L/min (Res.= 0.01)	$(8.9 \times 10^{-3} + 2 \times 10^{-4} Q)$ L/min	Badger Meter Model: Primo (Direct Comparison) ISO 10790
	1 L/min to 8 000 L/min (Res.= 0.01)	$(8.2 \times 10^{-3} + 8 \times 10^{-4} Q)$ L/min	Ultrasonic Flow Meter Model: TDS-100 H (Direct Comparison) ISO 10790
Flow Meters (Gas)[FO]	0.1 L/min to 250 L/min	(0.659 1 + 0.001 1Q) L/min	Flow Meter Alicate Scientific Model: MCR-250SLPM-FT-IPC/5M (Direct Comparison)
Flow Meter[O]	0.001 L/s to 45 L/s (Res.= 0.01 L/s)	(0.076 7 + 0.038 5Q) L/s	Rule Standard Mitutoyo ASTM D 5242-2001 Parshall Method
Centrifuge Mixer[F]	100 L/min to 400 L/min (Res.= 1 L/min)	0.6 L/min	Aneno Meter Chronometer IME Procedure PC-FL-17-03
	100 L to 1 000 L (Res.= 1 L)	0.6 L/min	

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Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Barometer[F]	7.5 kPa to 105 kPa	0.077 kPa	Absolute Manometer CENAM Technical Guide
Mass Flow Meter (Water)[FO]	1 kg/min to 500 kg/min (Res. 0.01 kg/min)	0.005 8 kg/min	Balance Tecnocor Model: I PEN (Static Havey) IME Procedure ME-008
	1 kg/min to 160 kg/min (Res.= 0.01 kg/min)	$(6.6 \times 10^{-3} + 1.1 \times 10^{-3} Wt)$ kg/min	Micromotion Model: DS100S128 (Direct Comparison) ISO 10790 Measurement of Fluid Flow in Close Conduits
	1 kg/min to 1 000 kg/min (Res.= 0.01 kg/min)	$(8.1 \times 10^{-3} + 9 \times 10^{-4} Wt)$ kg/min	Euromag, Model: MC 608A (Direct Comparison) Measurement of Fluid Flow in Close Conduits ISO 10790
	1 kg/min to 4 500 kg/min (Res.= 0.01 kg/min)	$(8.9 \times 10^{-3} + 2 \times 10^{-4} Wt)$ kg/min	Badger Meter Model: Primo (Direct Comparison) ISO 10790
	1 kg/min to 8 000 kg/min (Res.= 0.01 kg/min)	$(8.2 \times 10^{-3} + 8 \times 10^{-4} Wt)$ kg/min	Ultrasonic Flow Meter Model: TDS-100 H (Direct Comparison) ISO 10790
Viscosity Dynamic Meter[FO]	Up to 6.7 mPa·s	0.015 mPa·s	Reference Materials Brookfield 071408 CNM-CC-710-335 CNM-CC-710-336 CNM-CC-710-33 CNM-CC-710-338 CNM-CC-710-339 NMX-U-038-SCFI
	6.7 mPa·s to 48.4 mPa·s	0.12 mPa·s	
	48.4 mPa·s to 303 mPa·s	0.11 mPa·s	
	303 mPa·s to 950 mPa·s	0.3 mPa·s	
	950 mPa·s to 2 213 mPa·s	0.4 mPa·s	
	2 213 mPa·s to 12 500 mPa·s	3.9 mPa·s	
	12 500 mPa·s to 22 532 mPa·s	8.8 mPa·s	
Kinematic Viscosity Ubbelhoden[O]	5.55 mm²/s @ 40 °C	0.01 mm²/s	CNM-CC-710-335 ASTM D446 - 12
	8.84 mm²/s @ 25 °C	0.017 mm²/s	
	31.17 mm²/s @ 40 °C	0.095 mm²/s	
	58.82 mm²/s @ 25 °C	0.14 mm²/s	
	23.15 mm²/s @ 100 °C	0.53 mm²/s	

Certificate of Accreditation: Supplement

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Privada de la Secundaria Federal 2, No. 4, Col. Magisterial Vista Hermosa
Tlaxcala, Tlaxcala, México. C.P. 90014
Contact: Saul Morales Phone: 246- 494-8308

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

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Kinematic Viscosity Ubbelhoden[O]	171.25 mm²/s @ 40 °C	0.93 mm²/s	CNM-CC-710-336 ASTM D446 - 12
	364.94 mm²/s @ 25 °C	1.1 mm²/s	
Kinematic Viscosity Ford Cups No. 1, 2, 3, 4, 5, 6[F]	10 mm²/s to 1 200 mm²/s	0.23 mm²/s	Cannon Standard Oil ASTM D1200
Kinematic Viscosity Zahn Cups No. 1, 2, 3, 4, 5[F]	5 mm²/s to 1 800 mm²/s	0.23 mm²/s	Cannon Standard Oil ASTM D4212
Kinematic Viscosity DIN Cups No. 3, 4, 5, 6[F]	10 mm²/s to 700 mm²/s	0.23 mm²/s	Cannon Standard Oil DIN-53211
Kinematic Viscosity ISO Cups No. 3, 4, 5, 6[F]	10 mm²/s to 700 mm²/s	0.23 mm²/s	Cannon Standard Oil ISO-2431
Kinematic Viscosity Shell Cups No. 1, 2, 3, 4, 5, 6[F]	2 mm²/s to 1 300 mm²/s	0.22 mm²/s	Cannon Standard Oil ASTM-D4212
Dynamic and static Coefficient of Friction[F] Tribometers	0.1 to 1.2 Dimensionless (Res.= 0.01)	0.11	Dynamometer Accud DF-100 Test Method for Measuring the Wet DCOF of Hard Surface Walkways ANSI A326.3 American National Standard Test Method for Measuring Dynamic Coefficient of Friction of Hard Surface Materials

Acoustic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Sonometers Low Level[F]	50 dB to 74 dB	0.42 dB	Sonometer Type 1 Bruel & Kjaer Nº. 3029456 Acustic Calibrator Bruel & Kjaer, Model :4231 And Multi ToneGenerator CEI IEC 61672-1 CEI IEC 61672-2
Sonometers High Level[F]	74 dB to 114 dB	0.42 dB	

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Optical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Light Meters Luxmeters[F]	1 lux to 5 000 lux	2.2 % of reading	Lutron Lux-1108 CIE 69
Spectrophotometers[FO] UV–Visible (Absorbance) at listed wavelengths (325 nm to 900 nm)	0.04 Abs to 0.45 Abs	0.004 5 Abs	Reference Materials Cobalt Chloride Hexahydrate 1905132 Product Number 2208 PC-OP-6-01
Spectrophotometers UV–Visible[o] Wavelength	279.1 n·m to 637.65 n·m	0.09 n·m	Holmio Crystal Agilent UV/Vis CENAM Technical Guide
Spectrophotometers UV–Visible (Absorbance)[FO]	λ=235 nm (α= 0.748)	0.0029 Abs	Potassium Dichromate Merck KGaA CENAM Technical Guide UV/Vis
	λ=257 nm (α= 0.868)	0.0029 Abs	
	λ=313 nm (α= 0.292)	0.0029 Abs	
	λ=350 nm (α= 0.644)	0.0029 Abs	
Spectrophotometers IR Wavelength[O]	539.41 cm^{-1} to 3 082.26 cm^{-1}	0.045 cm^{-1}	Test Film NIST 1921b ASTM E932
MultiPhotometers[FO] (Absorbance)	λ=420 nm (α= 0.4)	0.14 Abs	SRM Hanna IME Procedure PC-OP-6-04
	λ=466 nm (α= 0.4)	0.14 Abs	
	λ=560 nm (α= 0.5)	0.14 Abs	
	λ=610 nm (α= 0.5)	0.14 Abs	

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.

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

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 D represents diameter in inches or millimeters as appropriate to the uncertainty statement.
8. The term F represents Frequency in Hz or millihertz as appropriate to the uncertainty statement.
9. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.
10. The term T represents torque in N•m (including SI multiple and submultiple units) for the international system of units (the SI) or ozf•in, lbf•in and lbf•ft for the USC system of units.
11. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.
12. The term V represents Volume in liters or milliliters (including SI multiple and submultiple units) as appropriate to the uncertainty statement.
13. The term Va represents the air velocity in meters/second or feet/second (including SI multiple and submultiple units) appropriate to the uncertainty statement
14. The term VL represents the Lineal Velocity in mm/s (including SI multiple and submultiple units) as appropriate to the uncertainty statement.
15. The term Q represents Flow Rate in L/min including SI multiple and submultiple units) as appropriate to the uncertainty statement.
16. The term H represents Humidity
17. The term X represents Chlorine
18. The term BAC represents Blood Alcohol Concentration.
19. The term nD represents Index of Refraction.
20. The term W represents power in Watts.
21. The term V represents Vehicle's velocity in km/h.