



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Metrología Especializada y Calibración S.A. de C.V.

***Ignacio Aldama #32, Col. Los Reyes Ixtacala
Tlalnepantla, Estado de México, México. C.P. 54090***

*(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, Mechanical, 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:

August 08, 2016

Issue Date:

November 04, 2020

Expiration Date:

November 04, 2022

Accreditation No.:

77849

Certificate No.:

L20-670

*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.pjilabs.com*



Certificate of Accreditation: Supplement

Metrología Especializada y Calibración S.A. de C.V.

Ignacio Aldama #32, Col. Los Reyes Ixtacala
 Tlalnepantla, Estado de México, México. C.P. 54090
 Contact Name: Geraldine Vidal Mendoza Phone: 555-384-5018

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 (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Caliper ^{FO}	0.127 mm to 609.6 mm	$(9.5 + 6 \times 10^{-3}L) \mu\text{m}$	Gage Blocks NMX-CH-002-IMNC NMX-CH-099-IMNC NMX-CH-093-IMNC JIS B 7544 NMX-CH-141-IMNC
Depth Gage ^{FO}	0.127 mm to 609.6 mm	$(8 + 6 \times 10^{-3}L) \mu\text{m}$	
Micrometer ^{FO}	0.127 mm to 508 mm	$(2 + 1.1 \times 10^{-2}L) \mu\text{m}$	
Inside Micrometer ^{FO}	0.127 mm to 609.6 mm	$(1.5 + 1.2 \times 10^{-2}L) \mu\text{m}$	
Depth Micrometer ^{FO}	0.127 mm to 304.8 mm	$(3.2 + 7 \times 10^{-3}L) \mu\text{m}$	
Height Gage ^{FO}	0.127 mm to 609.6 mm	$(15 + 7 \times 10^{-3}L) \mu\text{m}$	
Thickness Gage ^{FO}	0.127 mm to 25.4 mm	2.5 μm	
Micrometer Standards ^{FO}	25 mm to 482.6 mm	$(1.1 + 1.2 \times 10^{-2}L) \mu\text{m}$	Gage Blocks, High Accuracy Indicator Mitutoyo 524-521 NMX-CH-099-IMNC
Dial Indicator ^F	0.01 mm to 25.4 mm	7 μm	Dial Gage Tester Mitutoyo 170-102 M-2 NMX-CH-036 NMX-CH-149-IMNC
Dial Test Indicator ^F	0.01 mm to 1.6 mm	6 μm	
Tape Measure ^F	Up to 50 m	$(0.3 + 0.11L) \text{mm}$	Standard Rule, Reticle Mitutoyo 183-181 NOM-046-SCFI
Steel Rule ^F	1 mm to 2 000 mm	$(80 + 6 \times 10^{-3}L) \mu\text{m}$	Standard Rule, Shop Microscope Cole Parmer 03890-40 NMX-CH-148-IMNC

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J ^{FO}	-200 °C to 0 °C	0.48 °C	Electrical Simulation of Thermocouple Output Omega PCL1 200 CENAM Technical Guide
	0 °C to 1 200 °C	0.37 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K ^{FO}	-200 °C to 0 °C	0.71 °C	
	0 °C to 1 370 °C	0.6 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T ^{FO}	-200 °C to 0 °C	0.71 °C	
	0 °C to 400 °C	0.27 °C	



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Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385 100 Ω ^{FO}	-200 °C to 50 °C	0.4 °C	Electrical Simulation of RTD Output Omega PCL1200 CENAM Technical Guide
	50 °C to 500 °C	0.56 °C	
	500 °C to 800 °C	0.66 °C	

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Pressure Gauge ^{FO}	3 psig to 100 psig	0.031 psig	Druck DPI-150 NOM-013-SCFI
	100 psig to 300 psig	0.051 psig	Druck DPI-150 300 psig NOM-013-SCFI
	100 psig to 5 000 psig	2.3 psig	Druck DPI-104 5 000 psig NOM-013-SCFI
	40 psig to 2 000 psig	1.2 psig	Crystal XP2I NOM-013-SCFI
	200 psig to 10 000 psig	7 psig	
Vacuum Gauge ^{FO}	-10 psig to -1 psig	0.02 psig	Druck DPI-104 NOM-013-SCFI
Differential Pressure Gauge ^{FO}	0.02 in H ₂ O to 0.5 in H ₂ O	0.002 7 in H ₂ O	Differential Pressure Gauge OMEGA PX653-0.5D5V NOM-013-SCFI
	0.5 in H ₂ O to 5 in H ₂ O	0.015 in H ₂ O	Differential Pressure Gauge OMEGA PX653-05D5V NOM-013-SCFI

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 (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Balances ^O	1 mg to 50 g (Res.= 0.000 1 mg)	0.059 mg	Class OIML E2 Weights CENAM Technical Guide
	1 mg to 2 k g (Res.= 0.001 mg)	1.8 mg	
	1 g to 5 kg (Res.= 0.01 g)	0.018 g	Class OIML F1 Weights CENAM Technical Guide
	1 g to 10 kg (Res.= 0.05 g)	0.074 g	Class OIML F1, F2 Weights CENAM Technical Guide



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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 (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Scales ^O	1 g to 20 kg (Res.= 0.5 g)	0.78 g	Class OIML M1 Weights CENAM Technical Guide
	1 g to 50 kg (Res.= 1 g)	1.8 g	
	2 g to 100 kg (Res.= 2 g)	3.6 g	
	5 g to 200 kg (Res.= 5 g)	7.8 g	
	10 g to 500 kg (Res.= 10 g)	18 g	
	20 g to 1 000 kg (Res.= 20 g)	36 g	

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Chart Recorder, Thermohygrometer, Humidity Meters, Humidity Sensor ^F	10 % RH to 90 % RH	2 % RH	Hygrometer Vaisala MI70 / HMP76 CENAM Technical Guide
Glass Liquid Thermometers ^F	-35 °C to 150 °C	0.076 °C	Thermometer Fluke 1524 / 5616 NOM-011-SCFI
	151 °C to 200 °C	0.16 °C	
	201 °C to 300 °C	0.28 °C	
	301 °C to 400 °C	0.31 °C	
Bimetallic Thermometer ^{FO}	-35 °C to 150 °C	0.19 °C	Thermometer Fluke 1524 / 5616 NMX-CH-070-SCFI
	151 °C to 400 °C	0.22 °C	
Industrial Thermometer – Indicator and Sensor type RTD, Thermistor, Thermocouple ^{FO}	-35 °C to 150 °C	0.086 °C	
	151 °C to 200 °C	0.14 °C	
Industrial Thermometer – Indicator and Sensor type RTD, Thermistor, Thermocouple ^{FO}	201 °C to 300 °C	0.14 °C	
	301 °C to 400 °C	0.14 °C	



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

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.