



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Mess Servicios Metrológicos S. de R.L. de C.V.
*Acceso III No.16 A, Nave 10, Parque Industrial Benito Juárez
 Querétaro, Querétaro, México CP.76120*

*(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, Mechanical, Thermodynamic, Electrical, Mass, Force and
 Weighing Devices 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/Operations Manager

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

Initial Accreditation Date:

July 29, 2015

Issue Date:

August 12, 2019

Expiration Date:

October 31, 2021

Accreditation No.:

56695

Certificate No.:

L19-403

*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.pjlab.com*



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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
Coordinate Measuring Machines (CMM) Verification- EL - Length Error of Indication ^o	10 mm to 2 000 mm	(0.5 + 1.1L) μ m	Laser Interferometer Step Gage, Gage Blocks Master sphere ASME B89.4.10360-2 ISO 10360-2
Surface Finish Measuring Machines (Profilometers) Ra ^{FO}	0.3 μ m to 3.2 μ m	0.048 μ m	Roughness Standards Master Sphere Optical Flat ISO 12179
Surface Finish Measuring Machines (Profilometers) Rz ^{FO}	1.5 μ m to 10 μ m	0.08 μ m	
Surface Finish Measuring Machines (Profilometers) Pt ^{FO}	0.36 μ m to 2.6 mm	0.08 μ m	
Surface Finish Measuring Machines Rsm ^{FO}	15 μ m to 100 μ m	0.08 μ m	
Surface Geometric Analyzers (Contours Instruments) X Axis ^o	1.3 μ m to 1 mm	1.3 μ m	
Surface Geometric Analyzers (Contours Instruments) X Axis ^o	1 mm to 10 mm	1.6 μ m	
Surface Geometric Analyzers (Contour Instruments) X axis ^o	10 mm to 200 mm	(1.7 + 4.5L) μ m	
Surface Geometric Analyzers (Contour Instruments) Z axis ^o	1 mm to 50 mm	(0.12 + 5L) μ m	
Surface Geometric Analyzers (Contour Instruments) Radius ^o	2.5 mm to 6.5 mm	(1.7 + 4.5L) μ m	
Surface Geometric Analyzers (Contour Instruments) Angle ^o	90°	1.5°	



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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
Roundness Measuring Machine Sensitivity (Displacement Error) Radial Error Axial Error ^o	0.4 μm to 10 μm 160 μm to 500 μm Sphere Radius: 6 mm to 25 mm Optical Flat Radius: 15 mm to 70 mm	65 μm + 46 nm/ μm 0.09 μm 0.05 μm 0.04 μm	Slope Table Standard Gage Blocks; Optical Flat; Roundness Standard ISO 4291
Optical Comparators – Vision Systems & Measuring Microscopes ^o X and Y Axis –Error of Indication X and Y Axis –Error of Indication Z Axis– Error of Indication Angle	 0.01 mm to 300 mm 300 mm to 500 mm 0.16 mm to 300 mm 1° to 180°	 (1.1 + 3.5L) μm (3 + 4.5L) μm (2.4 + 3.2L) μm 1.3°	 Glass Scale, Gage Blocks Angular Reticule JIS B 7184
Articulated Arm Coordinate Measuring Machines (AACMM) Verification ³ – Volumetric Performance Effective Diameter Performance ^{FO}	 Radius: Up to 1 500 mm Sphere Diameter: 30 mm (Nominal)	 (4.5 + 7L) μm 2 μm	 Gage Blocks; Step Gage, Calibrated Cone Master Sphere ASME B89.4.22
Universal Length Machine ^o	0.5 mm to 100 mm 100 mm to 2 000 mm	(0.25 + 2L) μm (0.25 + 1.6L) μm	Gage Blocks Laser Interferometer ISO-230-1 / ISO-230-2 NC 90-01-54
Surface Plates Flatness Only ^o	160 mm x 100 mm to 4 000 mm x 1 600 mm, Grade 0, 1, 2 and 3	(1.7 + 0.001 6L) μm	Autocollimator Photoelectric (Res.= 0.1 second) NMX-CH-8512-2: IMNC Level



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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
Height Gages ^{FO}	0.01 mm to 1 000 mm (Res.= 0.01 mm)	(11 + 0.001 9L) μ m	Gage Block Sets NMX-CH-141
Vertical Measurement System ^O	Up to 1 000 mm (Res.= 0.5 μ m)	(0.7 + 0.003 8L) μ m	Gage Block Sets NMX-CH-141
Outside Micrometers ^F	0.5 mm to 1 000 mm (Res.= 0.001 mm)	(0.85 + 16L) μ m	Gage Blocks NMX-CH-099-IMNC
Calipers ^F	0.5 mm to 1 000 mm Resolution: 0.01 mm	(9.0 + 20L) μ m	Gage Blocks NMX-CH-002-IMNC
Dial Indicators ^F	0.001 mm to 101.6 mm (Res.= 0.001 mm)	(1.1 + 0.002L) μ m	Universal Length Machine (Res.= 0.1 μ m) ASME B89.1.10M
Plain Rings Standard ^F	3 mm to 150 mm Class "Z, ZZ"	1.4 μ m	Standard Ring Class "Y" ANSI/ASME B89.1.6-2002 Universal Length Machine (Res.= 0.1 μ m)
Discs and Plug Gage ^F	0.1 μ m to 100 mm	(0.53 + 0.004L) μ m	Universal length Machine (Res.= 0.1 μ m) ASME B89.1.5
Feeler Gauges Steel Material ^F	0.01 mm to 3 mm	1.7 μ m	Universal Length Machine (Res.= 0.1 μ m) JIS B 7524
Feeler Gauges Plastic Material ^F	0.01 mm to 3 mm	1.7 μ m	
Thickness Standard ^F	0.01 mm to 3 mm	1.6 μ m	
Sphere ^F	0.1 mm to 100 mm	(0.53 + 0.004L) μ m	Universal Length machine (Res.= 0.1 μ m) ISO 3290-1, ISO 3290-2 Class G 10 to G 200
Micrometer Heads ^F	0.1 μ m to 50.8 mm (Res.= 0.001 mm)	(0.71 + 0.008 3L) μ m	Universal Length Machine (Res.= 0.1 μ m) NC 90-01-34, JIS B7502
Bore Gage ^F	6 mm to 100 mm (Effective Range Measuring 50.8 mm) (Res.= 0.001 mm)	(0.89 + 0.007L) μ m	Universal Length Machine (Res.= 0.1 μ m) JIS B 7515
Stylus Test Indicator ^F	0.1 μ m to 2 032 mm (Res.= 0.001 mm)	(0.64 + 0.063L) μ m	Universal Length Machine (Res.= 0.1 μ m) ASME B89.1.1M
Length Bars ^F	10 mm to 550 mm	(0.81 + 0.001L) μ m	Steel Standard Blocks Grade "0 and 1" Under NMX-CH-3650:2004, BS 5317 Universal Length Machine (Res.= 0.1 μ m)



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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
Pin Gages ^F	0.5 mm to 20 mm	0.86 μ m	Universal Length Machine (Res.= 0.1 μ m) Bolt Master Class "0" Roundness DIN 2269
Wire Cloth and Sieves for Testing Purposes ^F	0.075 mm to 40 mm	(2 + 0.22L) μ m	Vision System (Res.= 0.1 μ m) Accuracy (2.5 + 6L/1 000) μ m JIS B 7541
Standard Radius ^F	0.1 μ m to 25.4 mm	1.6 μ m	
Standard Scales ^F	0.01 mm to 300 mm	(1.3 + 0.004 8L) μ m	

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
Sensor Type RTD ^{FO}	-45 °C to 140 °C	0.1 °C	Fluke 9170 Fluke 9173 OIML-R-84
	50 °C to 700 °C	0.25 °C	
Sensor Type Thermistor ^{FO}	-45 °C to 140 °C	0.1 °C	ASTM-E-230 "Calibration of Thermocouples"
	50 °C to 700 °C	0.25 °C	
Thermocouple ^{FO}	-45 °C to 140 °C	0.1 °C	EURAMET/cg-08/v.01
	50 °C to 700 °C	0.25 °C	
Bimetallic Thermometer ^{FO}	-45 °C to 140 °C	0.1 °C	Fluke 9170 and Fluke 9173 NMX-CH-70-SCFI
	50 °C to 700 °C	0.25 °C	
Infrared Temperature Measuring Instrument ^F	35 °C TO 500 °C	0.35 °C	Fluke 4181 ASTM E2847
Temperature Chamber ^O	-50 °C to 300 °C	0.65 °C	Fluke 1586A AMS 2750 E
Humidity Meter ^F	10 % RH to 90 % RH	1 % RH	Fluke 1620A Fluke 2626-H ASTM E104-84 Mettler GMBH Humidity Chamber

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
Force Measuring Devices – Tension and Compression ^{FO}	0.2 N to 1 600 N	0.033 % of reading	Mass M1, M2 ISO 7500-1, ISO 376 Load Cells and Digital Indicators
	1.6 kN to 10 kN	0.02 % of reading	
	10 kN to 100 kN	0.022 % of reading	
	100 kN to 890 kN	0.22 % of reading	



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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

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
Equipment to Measure DC Voltage ^{FO}	Up to 202 mV	0.005 3 mV	Transmille 4010 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2--SCFI
	0.2 V to 2.202 V	0.000 022 V	
	2 V to 20.2 V	0.000 19 V	
	20 V to 202 V	0.002 7 V	
	200 V to 1 025 V	0.015 V	
Equipment to Output DC Voltage ^{FO}	10 mV to 100 mV	0.057 mV	Transmille 8081 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	0.1 V to 1 V	0.000 001 1 V	
	1 V to 10 V	0.000 005 2 V	
	10 V to 100 V	0.000 068 V	
	100 V to 1 000 V	0.000 67 V	
Equipment to Measure DC Current ^{FO}	Up to 202 μ A	0.031 μ A	Transmille 4010 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	0.2 to 2.02 mA	0.14 μ A	
	2 to 20.2 mA	1.21 μ A	
	20 to 202 mA	0.006 1 mA	
	0.2 to 2.02 A	0.29 mA	
	2 to 20.2 A	0.006 4 A	
	20.2 to 30 A	0.016 A	
Clamp-On Meters ^{FO}	11 A to 1 500 A	1.2 A	Transmille 4010 and 50 Turn Coil (Type Thyroid) NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
Equipment to Output DC Current ^{FO}	1 mA to 10 mA	0.011 mA	Fluke 8845A NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	10 mA to 100 mA	0.016 mA	
	0.1 A to 1 A	1.2 mA	
	1 A to 3 A	2.4 mA	
	3 A to 10 A	0.07 A	
Equipment to Output DC Current ^{FO}	1 μ A to 10 μ A	92 μ A	Transmille 8081 NMX-CH-131/1-1993-SCFI NMX-CH-110/1-1993-SCFI NMX-CH-131/2-1994-SCFI
	10 μ A to 100 μ A	39 μ A	
	0.1 μ A to 1 μ A	20 μ A	
	1 μ A to 10 μ A	12 μ A	
	10 μ A to 100 μ A	5 μ A	
	0.1 mA to 1 mA	0.004 6 mA	
	1 mA to 10 mA	0.004 6 mA	



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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

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
Equipment to Output DC Current ^{FO}	10 mA to 100 mA	0.007 3 mA	Transmille 8081 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	0.1 A to 1 A	0.000 032 A	
	1 A to 10 A	0.000 46 A	
Equipment to Measure Resistance ^{FO}	0.099 9 Ω to 1 Ω	0.005 1 Ω	Transmille 4010 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	0.999 99 Ω to 10 Ω	0.005 2 Ω	
	9.999 Ω to 100 Ω	0.006 8 Ω	
	0.999 99 k Ω to 1 k Ω	0.023 Ω	
	1.1 k Ω to 10 k Ω	0.13 Ω	
	11 k Ω to 100 k Ω	2.3 Ω	
	0.101 M Ω to 1 M Ω	0.03 k Ω	
	1.1 M Ω to 10 M Ω	0.99 k Ω	
	11 M Ω to 100 M Ω	0.18 M Ω	
Equipment to Measure AC Voltage At the listed frequencies 45 Hz to 1 kHz ^{FO}	0.2 V to 2.02 V	0.47 mV	
	2 V to 20.2 V	0.004 2 V	
	20 V to 202 V	0.042 V	
	200 V to 1 020 V	0.26 V	
Equipment to Measure AC Voltage At the listed frequencies 1 Hz to 20 kHz ^{FO}	0.001 mV to 202 mV	0.068 mV	
	0.2 V to 2.02 V	0.64 mV	
	2 V to 20.2 V	0.005 8 V	
Equipment to Measure AC Voltage At the listed frequencies 1 Hz to 10 kHz ^{FO}	20 V to 202 V	0.056 V	Transmille 4010 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	200 V to 1 020 V	0.37 V	
	10 mV to 100 mV	0.053 mV	Fluke 8845A NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	0.1 V to 1 V	0.4 mV	
	1 V to 10 V	4.2 mV	
	10 V to 100 V	0.041 V	
	1 V to 750 V	0.32 V	
Equipment to Output AC Current At the listed frequencies 10 Hz to 5 kHz ^{FO}	0.1 A to 1 A	0.59 mA	Fluke 8845A NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	1 A to 3 A	4 mA	



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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

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
Equipment to Output AC Current At the listed frequencies 40 Hz to 1 kHz ^{FO}	3 A to 10 A	0.087 A	Fluke 8845A NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
Equipment to Output Resistance ^{FO}	1 Ω to 10 Ω	0.012 Ω	
	10 Ω to 100 Ω	0.012 Ω	
	0.1 k Ω to 1 k Ω	0.12 Ω	
	1 k Ω to 10 k Ω	1.2 Ω	
	10 k Ω to 100 k Ω	11 Ω	
	0.1 M Ω to 1 M Ω	120 k Ω	
	1 M Ω to 10 M Ω	1.3 k Ω	
Equipment to Output DC Voltage ^{FO}	10 mV to 100 mV	0.004 8 mV	
	0.1 V to 1 V	0.017 mV	
	1 V to 10 V	0.15 mV	
	10 V to 100 V	1.7 mV	
	100 V to 1 000 V	0.02 V	
	0.1 kV to 6 kV	0.012 kV	Fluke 80K-6 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
Equipment to Output AC Voltage At the listed frequencies 10 Hz to 20 kHz ^{FO}	10 mV to 100 mV	0.014 mV	
	0.1 V to 1 V	0.000 14 V	
	1 V to 10 V	0.001 4 V	
	10 V to 100 V	0.015 V	
	1 V to 1 000 V	0.15 V	
Equipment to Output AC Voltage At the listed frequencies 45 Hz to 500 Hz ^{FO}	0.1 kV to 6 kV	0.012 kV	Fluke 80K-6 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
Equipment to Measure AC Current At the listed frequencies 45 Hz to 1 kHz ^{FO}	20 μ A to 201.999 μ A	0.29 μ A	Transmille 4010 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	0.2 mA to 2.019 99 mA	1.4 μ A	
	2 mA to 20.199 9 mA	0.01 mA	
	20 mA to 201.999 mA	0.1 mA	
	0.2 A to 2.019 99 A	1.5 mA	



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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

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
Equipment to Measure AC Current At the listed frequencies 45 Hz to 100 Hz ^{FO}	2 A to 29.999 9 A	0.026 A	Transmille 4010 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
Equipment to Measure AC Current At the listed frequencies 100 Hz to 1 kHz ^{FO}	2 A to 29.999 9 A	0.093 A	
Equipment to Measure AC Current Clamp-On Meters At the listed Frequencies 45 Hz a 65 Hz (Type Thyroid) ^{FO}	11 A to 1 500 A	1.5 A	Transmille 4010 and 50 Turn Coil NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
Equipment to Output Resistance ^{FO}	0.1 Ω to 1 Ω	0.012 Ω	Transmille 808 NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI
	1 Ω to 10 Ω	0.012 Ω	
	10 Ω to 100 Ω	0.012 Ω	
	0.1 k Ω to 1 k Ω	0.012 k Ω	
	1 k Ω to 10 k Ω	0.012 k Ω	
	10 k Ω to 100 k Ω	0.012 k Ω	
	0.1 M Ω to 1 M Ω	0.012 M Ω	
1 M Ω to 10 M Ω	0.012 M Ω		
Temperature Calibration Indication and Control Equipment used with RTD Type Pt 385, 100 Ω ^{FO}	-100 °C to 800 °C	0.079 °C	Transmille 4010 Electrical Simulation of RTD Output NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI OIML-R-84 ASTM-E-230 "Calibration of Thermocouples" EURAMET/cg-08/v.01
Temperature Calibration Indication and Control Equipment used with RTD Type Pt 25 ^{FO}	-200 °C to 800 °C	0.6 °C	
Temperature Calibration Indication and Control Equipment used with RTD Type Pt 100 ^{FO}	-200 °C to 800 °C	0.55 °C	
Temperature Calibration Indication and Control Equipment used with RTD Type Pt 250 ^{FO}	-200 °C to 800 °C	0.3 °C	



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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

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 500 ^{FO}	-200 °C to 500 °C	0.9 °C	Transmille 4010 Electrical Simulation of RTD Output NMX-CH-131/1-SCFI
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 1 000 ^{FO}	-200 °C to 800 °C	0.45 °C	NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI OIML-R-84 ASTM-E-230 "Calibration of Thermocouples" EURAMET/cg-08/v.01
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 500 Ω ^{FO}	-200°C to 630 °C	0.18 °C	Fluke 754 Electrical Simulation of RTD Output NMX-CH-131/1-SCFI
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 1 000 Ω ^{FO}	-200 °C to 630 °C	0.18 °C	NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI OIML-R-84 ASTM-E-230
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt Ni 385, 120 Ω (Ni 120 Ω) ^{FO}	-80 °C to 260 °C	0.1 °C	"Calibration of Thermocouples" EURAMET/cg-08/v.01
Temperature Calibration, Indication and Control Equipment used with RTD Type Cu 42 710 Ω ^{FO}	-100 °C to 260 °C	0.2 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type B ^{FO}	600 °C to 1 820 °C	0.45 °C	Fluke 754 Electrical Simulation of Thermocouple Output Transmille 4010 + EA001A
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type C ^{FO}	0 °C to 2 316 °C	0.35 °C	NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI OIML-R-84
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type E ^{FO}	-250 °C to 1 000 °C	0.3 °C	ASTM-E-230 "Calibration of Thermocouples" EURAMET/cg-08/v.01
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J ^{FO}	-210 °C to 1 200 °C	0.2 °C	



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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

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 K ^{FO}	-200 °C to 1 372 °C	0.2 °C	Fluke 754 Electrical Simulation of Thermocouple Input / Output Transmille 4010+EA001A/
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type N ^{FO}	-200 °C to 1 300 °C	0.3 °C	NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI OIML-R-84 ASTM-E-230 "Calibration of Thermocouples" EURAMET/cg-08/v.01
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type R ^{FO}	0 °C to 1 767 °C	0.55 °C	Fluke 754 Electrical Simulation of Thermocouple Input / Output Transmille 4010+EA001A/
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type S ^{FO}	0 °C to 1 767 °C	0.55 °C	NMX-CH-131/1-SCFI NMX-CH-110/1-SCFI NMX-CH-131/2-SCFI OIML-R-84
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T ^{FO}	-250 °C to 400 °C	0.4 °C	ASTM-E-230 "Calibration of Thermocouples" EURAMET/cg-08/v.01

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
Torque ^{FO}	0.2 N·m to 1 N·m	0.13 % of reading	Torque Transducers and Digital Indicators ISO 6789
	1 N·m to 10 N·m	0.12 % of reading	
	10 N·m to 25 N·m	0.13 % of reading	
	25 N·m to 400 N·m	0.27 % of reading	
	400 N·m to 1 500 N·m	0.32 % of reading	
Pressure ^{FO}	Up to 100 psi	0.025 psi	2700G-BG200K 2700G-BG700K NMX-CH-3-SCFI



Certificate of Accreditation: Supplement

Mess Servicios Metrológicos S. de R.L. de C.V.

Acceso III No. 16 A, Nave 10, Parque Industrial Benito Juarez

Querétaro, Querétaro, México C.P. 76120

Contact Name: Oscar Morales Garcia Phone: 442-476-0646

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 (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Pressure ^{FO}	100 psi to 1 000 psi	0.25 psi	2700G-BG2M 2700G-BG3.5M 2700G-BG7M NMX-CH-3-SCFI
	1 000 psi to 5 000 psi	1.3 psi	2700G-G20M 2700G-G35M NMX-CH-3-SCFI
	5 000 psi to 10 000 psi	2.5 psi	2700G-G70M NMX-CH-3-SCFI

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 meters or millimeters as appropriate to the uncertainty statement.