



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Bluemetric, S.A. de C.V.

***Blvd. Antonio L. Rodriguez # 3000 Ofic. 1101, Torre Albia, Col. Santa María
Monterrey, Nuevo Leon, México. C.P. 64650***

*and hereby declares that the Organization is accredited in accordance with
the recognized International Standard:*

ISO/IEC 17025:2017

Whereby, technical competence has been confirmed for the associated scope supplement, in the fields of:

***Dimensional, Thermodynamic, Mass, Force and Weighing Devices, Mechanical,
Time and Frequency, Optical, Acoustic, Chemical and Electrical Calibration
(As detailed in the supplement)***

Accreditation claims for conformity assessment activities shall only be made from the addresses referenced within this certificate and shall apply solely to those activities identified in the related scope. This Accreditation is granted subject to the Accreditation Body rules governing the Accreditation referred to above, and the Organization hereby commits to observing and complying with those rules in their entirety.

For PJLA:

Initial Accreditation Date:

Issue Date:

Expiration Date:

Julio 15, 2022

August 11, 2026

October 31, 2028

Accreditation No.:

Certificate No.:

108620

L26-798

Tracy Szerszen
President

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

*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

Bluemic, S.A. de C.V.

Bldv. Antonio L. Rodriguez # 3000 Ofic. 1101, Torre Albia, Col. Santa María
Monterrey, Nuevo Leon, México. C.P. 64650
Contact Name: Gerado Mendoza. Phone: 812-009-1999

Accreditation is granted to the facility to perform the following conformity assessment activities:

FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	EXPANDED MEASUREMENT UNCERTAINTY ($\pm$) ¹	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	FLEX CODE	LOCATION OF ACTIVITY
Dimensional	Outside Micrometer	2.5 mm to 203.2 mm	$(4 \times 10^{-4} + 1 \times 10^{-4}L)$ mm	Gauge Blocks Grade 1	JIS B 7502	F1, F2	F
Dimensional	Caliper	2.5 mm to 457.2 mm	$(0.0058 + 2.41 \times 10^{-5}L)$ mm	Gauge Blocks Grade 1	JIS B 7507	F1, F2	F
Dimensional	Coating Thickness Gauge Ferrous Base/ Gauge Non-Ferrous Base	22.8 μ m to 1 465 μ m	$(1.58 + 1.3 \times 10^{-3}L)$ μ m	Certified Standards Shims	ASTM E 376	F1, F2	F
Dimensional	Ultrasonic Thickness Gauge	2.5 mm to 12 mm (Res.= 0.001 mm)	$(1.4 \times 10^{-3} + 1 \times 10^{-5}L)$ mm	Block Set Grado 1, 5- Step Thickness Reference Blocks	ASTM E 797	F1, F2	F
Dimensional	Ultrasonic Thickness Gauge	2.5 mm to 100 mm (Res.= 0.1 mm)	$(0.079 + 2 \times 10^{-4}L)$ mm	Block Set Grado 1, 5- Step Thickness Reference Blocks	ASTM E 797	F1, F2	F
Thermodynamic	Infrared Thermometer	50 °C to 500 °C	$(0.42 + 2.9 \times 10^{-3}T)$ °C	Black Body Fluke IR 566	CENAM Technical Guide	F1, F2	F
Thermodynamic	Bimetallic Thermometer	50 °C to 250 °C	0.36 °C	Dry Well Calibrator Fluke 724	TH-001 CEM	F1, F2	F
Thermodynamic	Equipment to Measure Humidity	30 % RH to 80 % RH	1.3 % RH	Thermo-Hygrometer CEM, Novus Humidity Chamber	TH-007 CEM	F1, F2	F
Thermodynamic	Equipment to Measure Temperature	20 °C to 40 °C	0.6 °C	Thermo-Hygrometer CEM, Novus Temperature Chamber	TH-007 CEM	F1, F2	F
Mass, Force, and Weighing Devices	Analytical Balance	10 g to 300 g (Res. = 0.001 g)	$(1.2 \times 10^{-3} + 3 \times 10^{-6}Wt)$ g	Class F1 Weights	Euramet cg.18	F1, F2	F, O



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Mass, Force, and Weighing Devices	Analytical Balance	300 g to 500 g (Res. = 0.01 g)	$(7.5 \times 10^{-3} + 3 \times 10^{-6} \text{Wt}) \text{ g}$	Class F1 Weights	Euramet cg.18	F1, F2	F, O
Mass, Force, and Weighing Devices	Balances and Scale	500 g to 2 000 g (Res.= 0.01 g)	$(9.3 \times 10^{-3} + 3 \times 10^{-6} \text{Wt}) \text{ g}$	Class F1 Weights	Euramet cg.18	F1, F2	F, O
Mass, Force, and Weighing Devices	Balances and Scale	2 000 g to 5 000 g (Res. = 0.1 g)	$(7 \times 10^{-2} + 7 \times 10^{-6} \text{Wt}) \text{ g}$	Class F1 Weights	Euramet cg.18	F1, F2	F, O
Mass, Force, and Weighing Devices	Balances and Scale	5 000 g to 20 000 g (Res. = 1 g)	$(6.8 \times 10^{-1} + 1 \times 10^{-5} \text{Wt}) \text{ g}$	Class F1 Weights	Euramet cg.18	F1, F2	F, O
Mass, Force, and Weighing Devices	Balances and Scale	20 000 g to 60 000 g (Res.= 5 g)	$(2.9 + 3 \times 10^{-7} \text{Wt}) \text{ g}$	Class F1 Weights	Euramet cg.18	F1, F2	F, O
Mass, Force, and Weighing Devices	Force Meter-Tension (Dynamometer)	9.81 N to 98.1 N	0.19 % of reading	Load Cell CHCONTECH	ISO 7500-1	F1, F2	F
Mass, Force, and Weighing Devices	Force Meter-Tension (Dynamometer)	98.11 N to 490.33 N	0.28 % of reading	Load Cell CHCONTECH	ISO 7500-1	F1, F2	F
Mass, Force, and Weighing Devices	Force Meter-Tension (Dynamometer)	490.34 N to 980.7 N	0.22 % of reading	Load Cell CHCONTECH	ISO 7500-1	F1, F2	F



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Mass, Force, and Weighing Devices	Force Meter-Tension (Dynamometer)	980.71 N to 9 806.7 N	0.18 % of reading	Load Cell CHCONTECH	ISO 7500-1	F1, F2	F
Mass, Force, and Weighing Devices	Force Meter-Tension (Dynamometer)	9.81 kN to 98.07 kN	0.2 % of reading	Machine HST T/C	ISO 7500-1	F1, F2	F
Mass, Force, and Weighing Devices	Force Meter-Compression (Dynamometer)	9.81 N to 98.1 N	0.18 % of reading	Load Cell CHCONTECH	ISO 7500-1	F1, F2	F
Mass, Force, and Weighing Devices	Force Meter-Compression (Dynamometer)	98.11 N to 490.33 N	0.27 % of reading	Load Cell CHCONTECH	ISO 7500-1	F1, F2	F
Mass, Force, and Weighing Devices	Force Meter-Compression (Dynamometer)	490.34 N to 980.7 N	0.22 % of reading	Load Cell CHCONTECH	ISO 7500-1	F1, F2	F
Mass, Force, and Weighing Devices	Force Meter-Compression (Dynamometer)	980.71 N to 9 806.7 N	0.17 % of reading	Load Cell CHCONTECH	ISO 7500-1	F1, F2	F
Mass, Force, and Weighing Devices	Force Gages and Instruments (Compression and Tension)	980.67 N to 9.81 kN	0.11 % of reading	Load Cell	ISO-7500-1	F1, F2	F, O
Mass, Force, and Weighing Devices	Force Load Cell (Compression and Tension)	4.90 kN to 49.03 kN	0.25 % of reading	Load Cell XG Sensor	ISO-7500-1	F1, F2	F, O



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Mechanical	Vacuum Gages (Air Medium)	-12 psi to 0 psi	0.14 psi	Crystal xp2i CE Pressure Pump	Euramet cg-17 CENAM Technical Guide	F1, F2	F, O
Mechanical	Torque Tool	6 N•m to 30 N•m	(0.28 + 0.002 1T) N•m	Torque Transducer Daysensor DYJN-113	Euramet_cg-14 CENAM Technical Guide	F1, F2	F
Mechanical	Torque Tool	100 N•m to 500 N•m	(0.26 + 0.000 3T) N•m	Torque Transducer Daysensor DYJN-113	Euramet_cg-14 CENAM Technical Guide	F1, F2	F
Mechanical	Torque Tool	500 N•m to 1 500 N•m	(0.71 + 0.002 5T) N•m	Torque Transducer Daysensor DYJN-113	Euramet_cg-14 CENAM Technical Guide	F1, F2	F
Mechanical	Pressure Gages (Air Medium)	0 psi to 100 psi	0.32 psi	Crystal xp2i CE Pressure Pump	Euramet cg-17 CENAM Technical Guide	F1, F2	F, O
Mechanical	Pressure Gages (Air and Water Medium)	100 psi to 1 000 psi	0.34 psi	Crystal xp2i CE Pressure Pump	Euramet cg-17 CENAM Technical Guide	F1, F2	F, O
Mechanical	Pressure Gages (Air and Water Medium)	1 000 psi to 10 000 psi	5 psi	Fluke Manometer 700RG31 CE 0.01 % FS Pressure Pump	Euramet cg-17 CENAM Technical Guide	F1, F2	F, O
Mechanical	Dynamic Viscosity Meters (@ 25 °C)	500 cP	2.1 cP	Cannon Standard Oil	ASTM D7042	F1, F2	F, O



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Mechanical	Dynamic Viscosity Meters (@ 25 °C)	5 000 cP	25 cP	Cannon Standard Oil	ASTM D7042	F1, F2	F, O
Mechanical	Dynamic Viscosity Meters (@ 25 °C)	12 500 cP	66 cP	Cannon Standard Oil	ASTM D7042	F1, F2	F, O
Mechanical	Kinematic Viscosity Cups: Zahn, Ford, ISO, ASTM, DIN, Gradco, Shell, Frikmar Saybolt (@ 25 °C)	35 cSt	0.38 cSt	Cannon Standard Oil	ASTM D1200 ASTM D4212	F1, F2	F, O
Mechanical	Kinematic Viscosity Cups: Zahn, Ford, ISO, ASTM, DIN, Gradco, Shell, Frikmar Saybolt (@ 25 °C)	120 cSt	1.6 cSt	Cannon Standard Oil	ASTM D1200 ASTM D4212	F1, F2	F, O
Mechanical	Kinematic Viscosity Cups: Zahn, Ford, ISO, ASTM, DIN, Gradco, Shell, Frikmar Saybolt (@ 25 °C)	228 cSt	2.6 cSt	Cannon Standard Oil	ASTM D1200 ASTM D4212	F1, F2	F, O
Mechanical	Indirect Verification of Rockwell Hardness Tester HRBW	20 HRBW to 50 HRBW	0.41 HRBW	Test Block	ISO 6508-2 ASTM E18	F1, F2	O
Mechanical	Indirect Verification of Rockwell Hardness Tester HRBW	60 HRBW to 80 HRBW	0.36 HRBW	Test Block	ISO 6508-2 ASTM E18	F1, F2	O



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Mechanical	Indirect Verification of Rockwell Hardness Tester HRBW	85 HRBW to 100 HRBW	0.41 HRBW	Test Block	ISO 6508-2 ASTM E18	F1, F2	O
Mechanical	Indirect Verification of Rockwell Hardness Tester HRC	20 HRC to 30 HRC	0.42 HRC	Test Block	ISO 6508-2 ASTM E18	F1, F2	O
Mechanical	Indirect Verification of Rockwell Hardness Tester HRC	35 HRC to 55 HRC	0.36 HRC	Test Block	ISO 6508-2 ASTM E18	F1, F2	O
Mechanical	Indirect Verification of Rockwell Hardness Tester HRC	60 HRC to 65 HRC	0.35 HRC	Test Block	ISO 6508-2 ASTM E18	F1, F2	O
Mechanical	Anemometer	Up to 9 m/s	$(0.59 + 0.004 \text{ 6V}) \text{ m/s}$	Anemometer Comparison	IEC 61400-12-1 ASTM D5096	F1, F2	F
Time and Frequency	Equipment to Measure Time	1 s to 36 000 s	0.006 5 % of reading	Stopwatch Laopao	NIST Special Publication 960-12	F1, F2	F, O
Optical	Ev Illuminance	4 lux to 7 000 lux	$(0.13 + 0.009 \text{Ev}) \text{ lux}$	Konica Minolta CL-200A	ASTM E1164	F1, F2	F, O
Optical	Refractive Index	0.1 °Brix to 20 °Brix	0.096 °Brix	Standards Solutions	OIML R 124	F1, F2	F
Optical	Specular Reflectance Meter (Gloss) (@ 20°)	93.9 Gloss Units	0.6 Gloss Unit	Gloss Standard	ASTM D523	F1, F2	F, O
Optical	Specular Reflectance Meter (Gloss) (@ 60°)	96.5 Gloss Units	0.6 Gloss Unit	Gloss Standard	ASTM D523	F1, F2	F, O



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Optical	Specular Reflectance Meter (Gloss) (@ 85°)	99.7 Gloss Units	0.7 Gloss Unit	Gloss Standard	ASTM D523	F1, F2	F, O
Acoustic	Sound Level Meter (@ 1 kHz)	94 dB	0.22 dB	Acoustic Calibrator	IEC 61672-1 NMX-CH-389-1-IMNC	F1, F2	F, O
Acoustic	Sound Level Meter (@ 1 kHz)	114 dB	0.22 dB	Acoustic Calibrator	IEC 61672-1 NMX-CH-389-1-IMNC	F1, F2	F, O
Chemical	Potentiometers (pH Meters) (Fixed Points)	4 pH	0.014 pH	Buffer Solutions	CENAM Technical Guide ASTM E70	F1, F2	F, O
Chemical	Potentiometers (pH Meters) (Fixed Points)	7 pH	0.014 pH	Buffer Solutions	CENAM Technical Guide ASTM E70	F1, F2	F, O
Chemical	Potentiometers (pH Meters) (Fixed Points)	10 pH	0.014pH	Buffer Solutions	CENAM Technical Guide ASTM E70	F1, F2	F, O
Chemical	Conductivity Meter (Fixed Points)	99.3 μ S/cm	2.1 μ S/cm	Conductivity Solutions	CENAM Technical Guide ASTM D1125	F1, F2	F, O
Chemical	Conductivity Meter (Fixed Points)	1 413 μ S/cm	4.7 μ S/cm	Conductivity Solutions	CENAM Technical Guide ASTM D1125	F1, F2	F, O



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Chemical	Conductivity Meter (Fixed Points)	10 000 μ S/cm	40 μ S/cm	Conductivity Solutions	CENAM Technical Guide ASTM D1125	F1, F2	F, O
Chemical	Gas Analyzer and Detector (CH ₄)	Up to 100 μ mol/mol (CH ₄)	3 % of reading	Multi- Gases Calibration Check	CEM QU-012	F1, F3	F, O
Chemical	Gas Analyzer and Detector (O ₂)	Up to 100 μ mol/mol (O ₂)	3 % of reading	Multi- Gases Calibration Check	CEM QU-012	F1, F3	F, O
Chemical	Gas Analyzer and Detector (CO)	Up to 100 μ mol/mol (CO)	3 % of reading	Multi- Gases Calibration Check	CEM QU-012	F1, F3	F, O
Chemical	Gas Analyzer and Detector (H ₂ S)	Up to 100 μ mol/mol (H ₂ S)	3 % of reading	Multi- Gases Calibration Check	CEM QU-012	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	10 mV to 100 mV	0.012 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	0.1 V to 1 V	0.006 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	1 V to 10 V	0.000 82 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	10 V to 100 V	0.000 78 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	100 V to 1 000 V	0.000 7 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 20 kHz)	10 mV to 100 mV	0.049 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O



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Electrical	Equipment to Output AC Voltage (@ 10 Hz to 20 kHz)	0.1 V to 1 V	0.017 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 20 kHz)	1 V to 10 V	0.005 4 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 20 kHz)	10 V to 100 V	0.005 2 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 20 kHz)	1 V to 750 V	0.006 5 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output DC Current	1 mA to 10 mA	0.004 2 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output DC Current	10 mA to 100 mA	0.004 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output DC Current	0.1 A to 1 A	0.005 7 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output DC Current	1 A to 3 A	0.009 3 % of reading	Agilent 34401A Precision Multimeter Clamp Coil 10A 50 Turns	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output Resistance	10 Ω to 100 Ω	0.006 5 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output Resistance	0.1 k Ω to 1 k Ω	0.005 9 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O



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Electrical	Equipment to Output Resistance	1 k Ω to 10 k Ω	0.001 1 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output Resistance	10 k Ω to 100 k Ω	0.001 1 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output Resistance	0.1 M Ω to 1 M Ω	0.005 9 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output Resistance	1 M Ω to 10 M Ω	0.002 3 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Output Resistance	10 M Ω to 100 M Ω	0.004 6 % of reading	Agilent 34401A Precision Multimeter	CENAM Technical Guide	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type B (Electrical Simulation)	600 °C to 1 800 °C	0.93 °C	Fluke 724 Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type E (Electrical Simulation)	-200 °C to 950 °C	0.24 °C	Fluke 724 Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J (Electrical Simulation)	-200 °C to 1 200 °C	0.24 °C	Fluke 724 Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O



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Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K (Electrical Simulation)	-200 °C to 1 370 °C	0.35 °C	Fluke 724 Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type N (Electrical Simulation)	-200 °C to 1 300 °C	0.35 °C	Fluke 724 Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type R (Electrical Simulation)	-20 °C to 1 750 °C	0.93 °C	Fluke 724 Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type S (Electrical Simulation)	-20 °C to 1 750 °C	1 °C	Fluke 724 Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T (Electrical Simulation)	-200 °C to 400 °C	0.35 °C	Fluke 724 Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O



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Contact Name: Gerado Mendoza. Phone: 812-009-1999

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Electrical	Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 100 Ω (Electrical Simulation)	-200 °C to 800 °C	0.35 °C	Fluke 724 Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 3 926, 100 Ω (Electrical Simulation)	-200 °C to 630 °C	0.32 °C	Fluke 724 Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 3 916, 100 Ω (Electrical Simulation)	-200 °C to 630 °C	0.32 °C	Fluke 724 Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 200 Ω (Electrical Simulation)	-200 °C to 630 °C	0.32 °C	Fluke 724 Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O



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Electrical	Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 500 Ω (Electrical Simulation)	-200 °C to 630 °C	0.32 °C	Fluke 724 Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 1 000 Ω (Electrical Simulation)	-200 °C to 630 °C	0.32 °C	Fluke 724 Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 100 Ω Ni 120 Ω (Electrical Simulation)	-80 °C to 260 °C	0.32 °C	Fluke 724 Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	0.1 mV to 19.999 9 mV	0.25 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	20 mV to 199.999 mV	0.017 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	0.2 V to 1.999 99 V	0.02 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O



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Electrical	Equipment to Measure DC Voltage	2 V to 19.999 9 V	0.017 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	20 V to 199.999 V	0.017 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	200 V to 1 100 V	0.012 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 Hz to 1 kHz)	0.1 mV to 19.999 9 mV	1.3 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 Hz to 1 kHz)	20 mV to 199.999 mV	0.1 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 Hz to 1 kHz)	0.2 V to 1.999 99 V	0.13 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage 50 Hz to 1 kHz)	2 V to 19.999 V	0.11 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage 50 Hz to 1 kHz)	20 V to 199.999 V	0.1 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O



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Electrical	Equipment to Measure AC Voltage (@ 50 Hz to 1 kHz)	200 V to 1 100 V	0.075 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Current	10 μ A to 199.999 μ A	0.064 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Current	0.2 mA to 1.999 99 mA	0.055 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Current	2 mA to 19.999 9 mA	0.042 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Current	20 mA to 199.999 mA	0.041 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Current	0.2 A to 1.999 99 A	0.055 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Current	2 A to 10 A	9.0 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure DC Current	20 A to 550 A	1.3 % of reading	Multifunction Calibrator Transmille 1000 and Clamp Coil 10A (50 Turns)	CENAM Technical Guide	F1, F2	F, O



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Electrical	Equipment to Measure AC Current (@ 50 Hz to 1 kHz)	10 μ A to 199.999 μ A	0.18 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 50 Hz to 1 kHz)	0.2 mA to 1.999 99 mA	0.13 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 50 Hz to 1 kHz)	2 mA to 19.999 9 mA	0.12 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 50 Hz to 1 kHz)	20 mA to 199.999 mA	0.12 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 50 Hz to 1 kHz)	0.2 A to 1.999 99 A	0.13 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 50 Hz to 1 kHz)	2 A to 10 A	0.9 % of reading	Multifunction Calibrator Transmille 1000	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 50 Hz to 1 kHz)	20 A to 550 A	1.3 % of reading	Multifunction Calibrator Transmille 1000 and Clamp Coil 10A 50 Turns	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure Resistance	10 Ω to 100 Ω	0.12 % of reading	Resistance Box Yokogawa 2786	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure Resistance	0.1 k Ω to 1 k Ω	0.082 % of reading	Resistance Box Yokogawa 2786	CENAM Technical Guide	F1, F2	F, O



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Electrical	Equipment to Measure Resistance	1 k Ω to 10 k Ω	0.058 % of reading	Resistance Box Yokogawa 2786	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure Resistance	10 k Ω to 100 k Ω	0.12 % of reading	Resistance Box Yokogawa 2786	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure Resistance	0.1 M Ω to 1 M Ω	0.063 % of reading	Decade Resistance Box P40102	CENAM Technical Guide	F1, F2	F, O
Electrical	Equipment to Measure Resistance	1 M Ω to 4 M Ω	0.024 % of reading	Decade Resistance Box P40102	CENAM Technical Guide	F1, F2	F, O

- The CMC (Calibration and Measurement Capability) is expressed in terms of measurement instrument/aspect being calibrated, range, expanded measurement uncertainty, equipment, and method/procedure. The expanded measurement uncertainty 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 measurement uncertainty included on this scope 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.
- The laboratory's range of calibration capability for all disciplines for which it is 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.

- Location of activity:

**Location
Code**

Location

F

Conformity assessment activity is performed at the CAB's fixed facility

O

Conformity assessment activity is performed onsite at the CAB's customer location



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4. Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratory's 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 laboratory's fixed location.
5. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.
6. 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.
7. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.
8. The term V represents Velocity in m/s as appropriate to the uncertainty statement.
9. The term Ev represents Illuminance in lux (lm/m²) (including SI multiple and submultiple units) as appropriate to the uncertainty statement.
10. Flex Codes
 - F0: When no flexibility is identified. There are no changes to items calibrated, characteristics identified or versions of methods except for updating to the most recent version of a standard method after verification.
 - F1: The laboratory has the capability to introduce a new instrument, quantity, or gauge for an accredited calibration method.
 - F2: The laboratory has the capability to introduce the newest revision of an accredited authoritative standard method (with no modifications) identified on the scope
 - F3: The laboratory has the capability to introduce a new revision of an accredited non-standard method using the same technology or technique identified on the scope
 - F4: The laboratory has the capability to introduce a validated method that is equivalent to an accredited method (using the same Calibration Equipment or Reference Standards identified on the scope for the same parameter, component, or analyte identified on the line item of the scope.