



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Accredian, S. de R.L. de C.V.
Calle 24 No. 600, Col. Residencial Las Puentes 3er Sector
San Nicolas de los Garza, Nuevo León, México. C.P 66460

(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, Mass, Force and Weighing Devices, Mechanical, Thermodynamic, Time and Frequency, Electrical, Optical, Chemical and Acoustic 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:

Initial Accreditation Date:

February 06, 2020

Issue Date:

March 10, 2024

Expiration Date:

May 31, 2026

Accreditation No.:

107088

Certificate No.:

L24-205

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.pjllabs.com



Certificate of Accreditation: Supplement

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Calle 24 No. 600, Col. Residencial Las Puentes 3er Sector
 San Nicolas de los Garza, Nuevo León, México. C.P 66460
 Contact Name: José Verdeja Phone: 81-3186-4994

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

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Micrometer Head ^F	Up to 50 mm	$(1.7 + 8 \times 10^{-4}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000 Gauge Block Set Grade 1	NMX-CH-093
Outside Micrometer ^F	Up to 2 000 mm	$(1.8 + 4 \times 10^{-4}L) \mu\text{m}$		
Inside Micrometer ^F	Up to 1 200 mm	$(1.8 + 4 \times 10^{-4}L) \mu\text{m}$		
Depth Micrometers ^F	Up to 300 mm	$(1.8 + 4 \times 10^{-4}L) \mu\text{m}$		
Calipers, Vernier Dial and Digital ^F	Up to 2 000 mm	$(5.8 + 1 \times 10^{-4}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000 Gauge Blocks Set Grade 1	NMX-CH-002
Dial and Digital Indicators ^F	Up to 100 mm	$(1.7 + 2 \times 10^{-3}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000	NMX-CH-463 NMX-CH-149
Dial Test Indicator ^F	Up to 2 mm	1.8 μm		
Dial and Digital Bore Gage ^F	0.95 to 50 mm	$(1.8 + 6 \times 10^{-4}L) \mu\text{m}$		
Height Gages Vernier, Dial and Digital ^F	Up to 1 200 mm	$(1.8 + 6 \times 10^{-3}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000	NMX-CH-141
Pin Gages ^F	0.05 mm to 534 mm	$(1.7 + 5 \times 10^{-3}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000	Euramet cg-6
Standard Wire Gage ^F	0.018 mm to 5 mm	$(1.7 + 1 \times 10^{-16}L) \mu\text{m}$		
Setting Micrometer Standard ^F	25 mm to 1 200 mm	$(1.5 + 6 \times 10^{-3}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000	JIS B 7545
Steel Thickness Gages ^F	0.04 mm to 1 mm	$(1.7 + 7 \times 10^{-17}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000	JIS B 7524
Thread Plug Gages and Spline Gages Pitch Diameter ^F	0.6 mm to 500 mm	$(1.8 + 5 \times 10^{-3}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000	ANSI B92.1 / DIN 5480 ANSI/ASME B1.2
Plastic Standard Coating Thickness Gages ^F	0.023 mm to 5.2 mm	1.7 μm	Precision Gage Calibration System, MicTrac 4000	ASTM-D-1005
Threaded Ring Gages ^F	1.2 mm to 300 mm	$(1.7 + 4 \times 10^{-3}L) \mu\text{m}$	Precision Gage Calibration System, MicTrac 4000	ANSI/ASME B1.2
Cylindrical Ring Gages ^F	5 mm to 300 mm	$(1.7 + 4 \times 10^{-3}L) \mu\text{m}$		



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Coating Thickness Gages ^F	0.023 mm to 1.5 mm	0.6 μm	Foil Thickness Standard	DEFLESKO CSS ASTM D7091
	0.377 mm to 5.2 mm	$(1.7 + 1 \times 10^{-16}L) \mu\text{m}$		
Steel Blocks Gages Grade 1 and 2 ^F	1 mm to 10 mm	1.7 μm	Blocks Standard Grade 0 Nano Digital Indicator	NMX-CH-3650
	10 mm to 25 mm	$(1.7 + 7 \times 10^{-4}L) \mu\text{m}$		
	25 mm to 50 mm	$(1.7 + 8 \times 10^{-4}L) \mu\text{m}$		
	50 mm to 75 mm	$(1.7 + 1 \times 10^{-3}L) \mu\text{m}$		
	75 mm to 100 mm	$(1.6 + 1 \times 10^{-3}L) \mu\text{m}$		
Ceramic Blocks Gages Grade 1 and 2 ^F	1 mm to 10 mm	1.7 μm		
	10 mm to 25 mm	$(1.7 + 7 \times 10^{-4}L) \mu\text{m}$		
	25 mm to 50 mm	$(1.7 + 8 \times 10^{-4}L) \mu\text{m}$		
	50 mm to 75 mm	$(1.7 + 8 \times 10^{-4}L) \mu\text{m}$		
	75 mm to 100 mm	$(1.6 + 2 \times 10^{-3}L) \mu\text{m}$		
MeasureTape ^F	Up to 50 m	$(0.87 + 2 \times 10^{-5}L) \text{mm}$	Rule Standard and Reticule	JIS B 7512
Surface Roughness Gage (Ra) ^F	0.4 μm	0.03 μm	Precision Roughness Specimen	NMX-CH-12179
	2.93 μm	0.03 μm		
	2.97 μm	0.076 μm		
Protractor ^F	0.25° to 90°	0.058°	Angle Blocks Standard	NMX-CH-151
Profile Projectors X Axis error Y Axis error ^O	Up to 300 mm	$(0.0014 + 5 \times 10^{-5}L) \text{mm}$	Standard Glass Scales Angle Blocks Set	JIS B 7184
	Profile Projector - Magnification ^O	120 mm to 170 mm		
Radius Gages ^F	0.5 mm to 26 mm	$(1.4 + 0.02L) \mu\text{m}$	Profile Projector QM-DATA	NMX-CH-2768-1, ISO 2768-1
Pitch Gages ^F	0.25 mm to 7 mm	$(1.4 + 0.01L) \mu\text{m}$	Profile Projector QM-DATA	ASME B1.2
Squares ^F	90°	0.006 1°		CEM DI-009
Profile Projector Angle error ^O	0.25° to 90°	$(0.0043 + 1 \times 10^{-5}L)^\circ$	Standard Glass Scales Angle Blocks Set	JIS B 7184
Vision System & Microscope ^F X Axis Linearity Y Axis Linearity	0.01 mm to 300 mm	$(1.4 \times 10^{-3} + 5 \times 10^{-5}L) \text{mm}$	Standard Glass Scales	JIS B 7184



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Surface Plates: Local Area Flatness ^O	250 x 250 mm to 2 500 x 1 600 mm	0.7 μ m	Repeat Reading Gage	JIS B 7513
Internal Micrometers with Three Point (Holtest) ^F	8 mm to 100.5 mm	(3.6 + 0.04L) μ m	Steel Setting Rings	JIS B 7513
Angle Gages ^F	1° to 45°	(4.3 x 10 ⁻³ + 1 x 10 ⁻⁵ L)°	Profile Projector QM-DATA	NMX-CH-2768-1, ISO 2768-1
Reticles ^F	Up to 20 mm	(0.0059 + 6 x 10 ⁻⁶ L) mm		CENAM Technical Guide
Standards for Screw Thread Micrometers ^F	25 mm to 275 mm	(0.9 + 0.03 L) μ m		ASME B89.1. CENAM Technical Guide
Weld Fillet Gauge ^F	Up to 50 mm	(1.4 + 0.02 L) μ m		NMX-CH-2768-1, ISO 2768-1
Angle Blocks ^F	Up to 90°	(4.3 x 10 ⁻³ + 2 x 10 ⁻⁵ L)°		
Taper Gages ^F	Up to 200 mm	(0.058 + 2 x 10 ⁻⁶ L) mm		
Diameter Tape ^F	Up to 8 m	(0.87 + 5 x 10 ⁻⁶ L) mm	Profile Projector QM-DATA and Master Tape	JIS 7512
Scantling Gages ^F	Up to 1 000 mm	(1.7 + 6 x 10 ⁻³ L) μ m	Precision Gage Calibration System, MicTrac 4000	NMX-CH-2768-1, ISO 2768-1
Sieve ^F (Opening Length)	0.02 mm to 127 mm	(1.4 + 0.03L) μ m	Profile Projector QM-DATA	ASTM E11
Laser Distance Meter ^F	Up to 1 200 mm	0.5 mm	Precision Gage Calibration System, MicTrac 4000	ISO 16331-1
Telescope Gages ^F (Only max and min values)	Up to 150 mm	(1.7 + 2 x 10 ⁻³ L) μ m		
Tubular Inside Micrometer Micrometer Head ^F	Up to 25 mm	(1.8 + 4 x 10 ⁻⁴ L) μ m	Precision Gage Calibration System, Mic Trac 4000	JIS B 7508
Tubular Inside Micrometer Extensions Rods ^F	25 mm to 400 mm	(1.7 + 4 x 10 ⁻³ L) μ m		
Height Master ^F	5 mm to 1 010 mm	(1.8 + 6 x 10 ⁻³ L) μ m	Precision Gage Calibration System, Mic Trac 4000	NMX-CH-7863



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Caliper Checker ^F	Up to 600 mm	$(1.7 + 5 \times 10^{-3}L) \mu\text{m}$	Precision Gage Calibration System, Mic Trac 4000	CENAM Technical Guide
Rules ^F	Up to 1 000 mm	$(0.289 + 3 \times 10^{-6}L) \text{mm}$	Profile Projector QM-DATA	NMX-CH-148
Linear Scales (Digital Rulers) ^{FO}	Up to 1 200 mm	$(5.8 + 1 \times 10^{-4}L) \mu\text{m}$	Gauge Blocks Set	NMX-CH-093
Ultrasonic Thickness Gage ^F	Up to 12.5 mm	0.011 mm	Step Block	ASTM E797
Levels ^F	Up to 300 mm Sensitivity 0.02 mm/m	0.012 mm	Reference flat surface	DIN 877
Dial Gage Testers ^F	Up to 25 mm	$(1.8 + 4 \times 10^{-4}L) \mu\text{m}$	Precision Gage Calibration System, Mic Trac 4000	JIS B 7502

Mass, Force and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Scales and Balances ^O	Up to 50 g (Res.= 0.05 mg)	0.064 mg	Weight Set OIML E2	NOM-010-SCFI
	Up to 100 g (Res.= 0.05 mg)	0.089 mg		
	Up to 200 g (Res.= 0.1 mg)	0.17 mg		
	Up to 500 g (Res.= 0.2 mg)	0.39 mg		
	Up to 1 kg (Res.= 2 mg)	3 mg	Weight Set OIML M1	NOM-010-SCFI
	Up to 2 kg (Res.= 5 mg)	6.4 mg		
	Up to 5 kg (Res.= 10 mg)	15 mg		
	Up to 10 kg (Res.= 2 g)	1.6 g		
	Up to 20 kg (Res.= 5 g)	4 g		
	Up to 50 kg (Res.= 10 g)	8.1 g		



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Scales and Balances ^o	Up to 100 kg (Res.= 20 g)	16 g	Weight Set OIML M1	NOM-010-SCFI
	Up to 200 kg (Res.= 50 g)	40 g		
	Up to 500 kg (Res.= 100 g)	80 g		
	Up to 1 000 kg (Res.= 500 g)	0.4 kg		
Floor, Hopper & Scales ^o	Up to 2 000 kg (Res.= 100 g)	0.18 kg	Weight Set OIML M1 and Material Substitution	CENAM Technical Guide
	Up to 6 000 kg (Res.= 1 kg)	0.82 kg		
	Up to 10 000 kg (Res.= 1 kg)	1 kg		
Weight ^F OIML Class F1, M1, M2 and M3 ASTM Class 5, 6 and 7	1 mg	0.067 mg	Weight Set OIML E2 Double Substitution	
	2 mg	0.067 mg		
	5 mg	0.067 mg		
	10 mg	0.083 mg		
	20 mg	0.1 mg		
	50 mg	0.13 mg		
	100 mg	0.17 mg		
	1 g	0.33 mg		
	2 g	0.4 mg	Weight Set OIML E2 and F1 Double Substitution	
	5 g	0.82 mg		
	10 g	0.83 mg		
	20 g	0.83 mg		
	50 g	0.84 mg		
	100 g	0.88 mg		
Weight ^F OIML Class M1, M2 and M3 ASTM Class 5, 6 and 7	200 g	0.99 mg		
	500 g	1.6 mg		
	1 kg	2.9 mg		
	2 kg	9.8 mg		
	5 kg	83 mg		



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Weight ^F OIML Class M1, M2 and M3 ASTM Class 5, 6 and 7	10 kg	86 mg	Weight Set OIML E2 and F1 Double Substitution	CENAM Technical Guide
	20 kg	98 mg		
Weight ^F OIML Class F1 and F2 ASTM Class 3 and 4	1 mg	0.007 mg	Weight Set OIML E2 Double Substitution	
	2 mg	0.007 mg		
	5 mg	0.007 mg		
	10 mg	0.008 mg		
	20 mg	0.01 mg		
	50 mg	0.013 mg		
	100 mg	0.017 mg		
	1 g	0.033 mg		
	2 g	0.04 mg		
	5 g	0.05 mg		
	10 g	0.067 mg		
	20 g	0.083 mg		
	50 g	0.1 mg		
	100 g	0.17 mg		
Force Machines, Gages and Instruments Tension ^{FO}	0.5 kN to 5 kN	0.13 % of reading	Load Cells	ISO-7500-1 NMX-CH-7500-1-IMNC
	5 kN to 50 kN	0.18 % of reading		
	30 kN to 300 kN	0.17 % of reading		
Force Machines, Gages and Instruments Compression ^{FO}	0.5 kN to 5 kN	0.13 % of reading		
	5 kN to 50 kN	0.14 % of reading		
	30 kN to 300 kN	0.23 % of reading		
	100 kN to 1 000 kN	0.22 % of reading		

Mechanical

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Pressure / Vacuum Gages Air Medium ^{FO}	-1 psi to 1 psi	0.000 34 psi	Pressure Gauge Fluke 700G02	CENAM Technical Guide



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Pressure / Vacuum Gages Air Medium ^{FO}	-12 psi to 0 psi	0.14 psi	Automatic Pressure Calibrator, Fluke 729	CENAM Technical Guide
	Up to 300 psi	0.15 psi		
Pressure Gages Air and Water Medium ^{FO}	Up to 1 000 psi	1.2 psi	Automatic Pressure Calibrator, Fluke 729 w/ Pressure Module	
Pressure Gages Oil Medium ^{FO}	3 000 psi to 30 000 psi	$(1.7 + 5 \times 10^{-5}P)$ psi	Electronic Dead Weight Tester, Fluke 6532-200M	
Torque Tools ^F	0.028 2 N·m to 0.282 N·m	0.27 % of reading	Torque Analyzer PTT 2000	NMX-CH-6789 ISO 6789
	0.28 N·m to 2.82 N·m	0.13 % of reading		
	2.82 N·m to 28.25 N·m	0.14 % of reading		
	13.56 N·m to 135.58 N·m	$(0.15 + 2 \times 10^{-4}Tr)$ % of reading		
	135.6 N·m to 1 355.82 N·m	$(0.11 + 7 \times 10^{-4}Tr)$ % of reading		
Dynamic Viscosity Meters ^{FO}	98.23 cP	0.82 cP	Cannon Standard Oil @ 25°C	ASTM D7042
	472.9 cP	3.6 cP		
	6 021 cP	62 cP		
	16 680 cP	2 100 cP		
Kinematic Viscosity Cups: Zahn, Ford, ISO, ASTM, DIN, Gradco, Shell, Frikmar Saybolt ^{FO}	113.9 cSt	0.84 cSt	Cannon Standard Oil	ASTM D1200 ASTM D4212
	563.7 cSt	3.7 cSt		
	6 972 cSt	63 cSt		
	18 920 cSt	2 100 cSt		
Rockwell Hardness Tester HRB ^{FO}	20 HRB to 50 HRB	0.4 HRB	Test Block	ISO 6508-2 ASTM E18
	50 HRB to 80 HRB	0.26 HRB		
	80 HRB to 100 HRB	0.39 HRB		
Rockwell Hardness Tester HRC ^{FO}	20 HRC to 30 HRC	0.39 HRC		
	30 HRC to 55 HRC	0.34 HRC		
	55 HRC to 70 HRC	0.33 HRC		
Indirect Verification of Leeb Hardness Tester LDF	365 HLD	2.1 HLD	Test Block	ASTM A956



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Anemometer (Air Flow) ^F	5 m/s to 9 m/s	0.15 m/s	Anemometer Comparison	ASTM D 5096
Direct Verification of Durometer Shore Tester Types A, B, E & O ^F	0.55 N to 8.05 N	0.058 N	Load Cell	ASTM D2240 ISO 21509
Indenter Shore Diameter (Not all Parameters Apply to all of Durometer Types)	0.088 mm to 13 mm	0.03 mm	Profile Projector (Res.= 0.1 µm)	ASTM D2240 ISO 21509
Durometer Indentor Radius	Up to 90°	$(4.6 \times 10^{-3} + 2 \times 10^{-5}L)^{\circ}$		
Durometer Indentor Angle				
Durometer Force Spring ^F Type M	4.445 N to 44.45 N	0.058 N	Load Cell	
Durometer Force Spring ^F Type OO, OOO	0.324 N to 0.765 N	0.058 N		
Durometer Force Spring ^F Type OOO-S	0.203 N to 1.111 N	0.058 N		
Durometer Force Spring ^F Type C, D & DO	0.167 N to 1.932 N	0.058 N		
Pipettes ^F	10 mL to 200 mL	0.001 9 mL	Gravimetric Method Balances OHAUS Explorer EX1103 and Scout STX2202	CENAM Technical Guide
Burettes ^F	10 mL to 100 mL	0.001 9 mL		
Cylinders and Cubic Cups ^F	10 mL to 2 000 mL	0.001 9 mL		
Volumetric Flasks ^F	10 mL to 100 mL	0.001 9 mL		
	100 mL to 1 000 mL	0.018 mL		
Flasks ^F	1 000 mL to 2 000 mL	0.18 mL		
Beakers ^F	50 mL to 2 000 mL	0.09 mL		
Pycnometers ^F	10 mL to 250 mL	0.001 9 mL		
Containers ^F	5 000 mL to 20 000 mL	0.91 mL		
Micropipettes and Pipettes ^F	1 µL	0.025 µL	Gravimetric Method Micro Analytical Balance and AD-4212B-PT Analytical Balance Ohaus Explorer EX1103	CENAM Technical Guide
	2 µL	0.025 µL		
	5 µL	0.05 µL		
	10 µL	0.05 µL		
	20 µL	0.04 µL		
	50 µL	0.02 µL		
	100 µL	0.02 µL		



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Micropipettes and Pipettes ^F	200 μ L	0.06 μ L	Gravimetric Method Micro Analytical Balance and AD-4212B-PT Analytical Balance Ohaus Explorer EX1103	CENAM Technical Guide
	500 μ L	0.3 μ L		
	1 000 μ L	0.3 μ L		
	2 000 μ L	0.3 μ L		
Density Measuring Device - Liquid Immersion Densimeter ^F	0.6 g/cm ³ to 1.6 g/cm ³	0.3 kg/m ³	Analytical Balance	

Thermodynamic

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Infrared Guns and Cameras ^F	35 °C to 500 °C	$(0.18 + 2 \times 10^{-3}T)$ °C	Precision Infrared Calibrator Fluke 4181-156	CENAM Technical Guide
Bi-Metallic Thermometers ^{FO}	0 °C (Fusion Point Ice)	0.58 °C	Dry-Well Field Calibrator Fluke 9144 w/PRT Fluke 5609-12-A	Euramet cg-20
	8 °C to 50 °C	0.63 °C	Vaisala MI70 & HMP75B	Euramet cg-20
	50 °C to 660 °C	$(0.65 + 5 \times 10^{-4}T)$ °C	Dry-Well Field Calibrator Fluke 9144	
RTDs, Rods and Probes with Thermocouple J, K, T, E, R, S, B, L U and N ^{FO}	0 °C (Fusion Point Ice)	0.081 °C	Dry-Well Field Calibrator Fluke 9144 w/PRT Fluke 5609-12-A	Euramet cg-8
	50 °C to 660 °C	$(0.33 + 8 \times 10^{-4}T)$ °C	Dry-Well Field Calibrator Fluke 9144	
	8 °C to 50 °C	0.26 °C	Vaisala MI70 & HMP75B	
	50 °C to 200 °C	0.12 °C	Liquid Bath Calibrator Fluke 6102	
	25 °C to 1 350 °C	$(1.3 + 7 \times 10^{-4}T)$ °C	Process Calibrator Fluke 725 w/ Probe Type R	



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 Contact Name: José Verdeja Phone: 81-3186-4994

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

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Liquid in Glass Thermometers ^{FO}	0 °C (Fusion Point Ice)	0.06 °C	Dry-Well Field Calibrator Fluke 9144 w/PRT Fluke 5609-12-A	OIML R 133
	35 °C to 200 °C	$(0.12 + 6 \times 10^{-5}T)$ °C	Liquid Bath Calibrator Fluke 6102-156	
Climatic Chambers: Ovens, Furnaces, Mufflers, Incubators, Refrigerators, Freezers, Cold Rooms ^{FO} Error of Indication	25 °C to 1 350 °C	$(1.3 + 7 \times 10^{-4}L)$ °C	Process Calibrator Fluke 725 w/ Probe Type R	Euramet_cg-20
Climatic Chambers: Ovens, Furnaces, Mufflers, Incubators, Refrigerators, Freezers, Cold Rooms ^{FO} Error of Indication	-20 °C to 60 °C	0.58 °C	Vaisala MI70 & HMP75B	
	-40 °C to 816 °C	$(1.1 + 2 \times 10^{-3}T)$ °C	Process Calibrator Fluke 725 w/Type K Thermocouple Probe	
	-80 °C to 600 °C	0.58 °C	Dry-Well Field Calibrator Fluke 9144 w/PRT Fluke 5609-12-A	
Thermo Hygrometer (Humidity) ^F	35 % RH to 95 % RH	$(1.3 + 8.3 \times 10^{-3}RH)$ % RH	Vaisala MI70 & HMP75B	Humidity Chamber
Climatic Chambers (Humidity) Sensors and Recorders ^O	Up to 97.5 % HR	$(1.3 + 5.1 \times 10^{-3}RH)$ % RH		
Thermo Hygrometer (Temperature) ^F	8 °C to 50 °C	0.26 °C	Vaisala MI70 and HMP75B Temperature Chamber	
Heating Plates ^{FO}	0 °C to 260 °C	1 °C	Process Calibrator Fluke 725 w/Type K Thermocouple Surface Probe	Euramet_cg-20
Dry Block ^{FO}	-80 °C to 660 °C	0.58 °C	Dry-Well Field Calibrator Fluke 9144 w/PRT Fluke 5609-12-A	Euramet_cg-13
Baths Circulators ^{FO}	-40 °C to 1 090 °C	$(1.1 + 2 \times 10^{-3}T)$ °C	Process Calibrator Fluke 725 w/Type K Thermocouple Immersion Probe	Euramet_cg-20
	-80 °C to 660 °C	0.58 °C	Dry-Well Field Calibrator Fluke 9144 w/PRT Fluke 609-12-A	



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

Time and Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Equipment to Output Frequency ^{FO}	112.5 rpm to 28 801 rpm	(0.54 + 0.000 3Fr) rpm	LUTRON DT-2259 Digital Tachometer / Stroboscope AS432B	CENAM Technical Guide
Equipment to Output Time ^{FO}	1 s to 86 400 s	(0.49 + 2 x 10 ⁻⁶ t) s	Traceable Stopwatch ITTC-7.6-02-07	

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Equipment to Output DC Voltage ^{FO}	10 mV to 100 mV	0.009 8 mV	Fluke 8845A Precision Multimeter	CENAM Technical Guide
	0.1 V to 1 V	0.000 055 V		
	1 V to 10 V	0.0004 7 V	Fluke 8845A Precision Multimeter CENAM Technical Guide	
	10 V to 100 V	0.005 9 V		
	100 V to 1000 V	0.064 V		
Equipment to Output AC Voltage ^{FO} At the listed frequencies				
10 Hz to 20 kHz	10 mV to 100 mV	0.12 mV		
10 Hz to 20 kHz	0.1 V to 1 V	0.001 V		
10 Hz to 20 kHz	1 V to 10 V	0.01 V		
10 Hz to 20 kHz	10 V to 100 V	0.1 V		
10 Hz to 20kHz	1 V to 750 V	0.78 V		
Equipment to Output DC Current ^{FO}	10 μ A to 100 μ A	0.087 μ A		
	0.1 mA to 1 mA	0.005 8 mA		
	1 mA to 10 mA	0.009 9 mA		
	10 mA to 100 mA	0.064 mA		
	40 mA to 400 mA	0.25 mA		
	0.1 A to 1 A	0.001 A		
	0.3 A to 3 A	0.004 2 A		
	1 A to 10 A	0.019 A		



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Electrical

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Equipment to Output AC Current At the listed frequencies ^{FO}			Fluke 8845A Precision Multimeter	CENAM Technical Guide
10 Hz to 5 kHz	1 μ A to 10 μ A	0.024 μ A		
10 Hz to 5 kHz	10 mA to 100 mA	0.16 mA		
10 Hz to 5 kHz	40 mA to 400 mA	0.92 mA		
10 Hz to 5 kHz	0.1 mA to 1 mA	0.001 7 mA		
10 Hz to 5 kHz	0.3 mA to 3 mA	0.007 3 mA		
10 Hz to 5 kHz	1 A to 10 A	0.024 A		
Equipment to Output Frequency ^{FO}			Fluke 8845A Precision Multimeter	CENAM Technical Guide
	3 Hz to 5 Hz	0.012 Hz		
	5 Hz to 10 Hz	0.01 Hz		
	10 Hz to 40 Hz	0.024 Hz		
	40 kHz to 300 kHz	0.06 kHz		
Equipment to Output Resistance ^{FO}			Fluke 8845A Precision Multimeter	CENAM Technical Guide
	10 Ω to 100 Ω	0.017 Ω		
	0.1 k Ω to 1 k Ω	0.000 14 k Ω		
	1 k Ω to 10 k Ω	0.001 4 k Ω		
	10 k Ω to 100 k Ω	0.014 k Ω		
	0.1 M Ω to 1 M Ω	0.000 14 M Ω		
	1 M Ω to 10 M Ω	0.004 8 M Ω		
	10 M Ω to 100 M Ω	0.94 M Ω		
Equipment to Measure DC Voltage ^{FO}			Fluke 5502A Euramet-cg-15	CENAM Technical Guide
	33 mV to 330 mV	0.018 mV		
	0.33 V to 3.3 V	0.13 mV		
	3.3 V to 33 V	0.0013 V		
	33 V to 330 V	0.014 V		
	100 V to 1 000 V	0.045 V		
Equipment to Measure AC Voltage ^{FO} At the listed frequencies			Fluke 5502A Euramet-cg-15	CENAM Technical Guide
45 Hz to 10 kHz	1 mV to 33 mV	0.041 mV		
45 Hz to 10 kHz	33 mV to 330 mV	0.092 mV		
45 Hz to 10 kHz	0.33 V to 3.3 V	0.82 mV		
45 Hz to 10 kHz	3.3 V to 33 V	0.008 2 V		
45 Hz to 1 kHz	33 V to 330 V	0.13 V		
45 Hz to 1 kHz	330 V to 1 000 V	0.41 V		



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Equipment to Output High Voltage DC ^{FO}	1 kV to 25 kV	0.3 kV	Fluke 80K-40	CENAM Technical Guide
	25 kV to 35 kV	0.91 kV		
Equipment to Output High Voltage AC (60 Hz) ^{FO}	1 kV to 25 kV	0.3 kV	Fluke 80K-40	
DC Clamp Meters DC Current ^{FO}	11 A to 550 A	2.9 A	Fluke 5502A with Current Coil	Euramet-cg-15 CENAM Technical Guide
	550 A to 1 025 A	17 A		
Equipment to Measure DC Current ^{FO}	33 μ A to 330 μ A	0.038 mA	Fluke 5502A	
	0.33 mA to 3.3 mA	0.000 3 mA		
	3.3 mA to 33 mA	0.002 8 mA		
	33 mA to 330 mA	0.028 A		
Equipment to Measure DC Current ^{FO}	0.11 A to 1.1 A	0.000 36 A		
	1.1 A to 3 A	0.000 92 A		
	0.11 A to 11 A	0.005 5 A		
	11 A to 20.5 A	0.016 A		
Equipment to Measure AC Current ^{FO} At the listed frequencies				
45 Hz to 1 kHz	0.03 mA to 0.33 mA	0.000 4 mA		
45 Hz to 1 kHz	0.33 mA to 3.3 mA	0.002 7 mA		
45 Hz to 1 kHz	3.3 mA to 33 mA	0.013 mA		
45 Hz to 1 kHz	33 mA to 330 mA	0.12 mA		
45 Hz to 1 kHz	0.33 A to 1.1 A	0.000 77 A		
45 Hz to 1 kHz	1.1 A to 3 A	0.006 A		
45 Hz to 100 kHz	3 A to 11 A	0.012 A		
100 Hz to 1 kHz	11 A to 20.5 A	0.008 5 A		
AC Clamp Meters AC Current ^{FO} At the listed frequencies			Fluke 5502A with Current Coil	
45 Hz to 65 Hz	11 A to 550 A	3.3 A		
30 Hz to 60 Hz	550 A to 1025 A	11 A		



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Equipment to Measure DC Power ^{FO}	1.089 mW to 108.9 mW	0.066 mW	Fluke 5502A with Current Coil	Euramet-cg-15 CENAM Technical Guide
	0.0363 W to 3.63 W	0.000 76 W		
	3.63 W to 99 W	0.003 2 W		
	3.3 W to 3 630 W	0.031 W		
	1.1 kW to 20.91 kW	0.095 kW		
Equipment to Measure Resistance ^{FO}	2 Ω to 11 Ω	0.001 2 Ω		
	11 Ω to 33 Ω	0.003 1 Ω		
	33 Ω to 110 Ω	0.007 7 Ω		
	110 Ω to 330 Ω	0.023 Ω		
	0.33 k Ω to 1.1 k Ω	0.000 077 k Ω		
	1.1 k Ω to 3.3 k Ω	0.000 23 k Ω		
	3.3 k Ω to 11 k Ω	0.000 77 k Ω		
	11 k Ω to 33 k Ω	0.002 3 k Ω		
	33 k Ω to 110 k Ω	0.009 4 k Ω		
	110 k Ω to 330 k Ω	0.031 k Ω		
	0.33 M Ω to 1.1 M Ω	0.000 13 M Ω		
	1.1 M Ω to 3.3 M Ω	0.000 38 M Ω		
	3.3 M Ω to 11 M Ω	0.005 1 M Ω		
	11 M Ω to 33 M Ω	0.026 M Ω		
33 M Ω to 110 M Ω	0.43 M Ω			
110 M Ω to 330 M Ω	1.3 M Ω			
330 M Ω to 1100 M Ω	13 M Ω			
Equipment to Measure Capacitance ^{FO}	220 pF to 400 pF	1.6 pF		
	0.4 nF to 1.1 nF	0.004 3 nF		
	1.1 nF to 3.3 nF	0.013 nF		
	3.3 nF to 11 nF	0.021 nF		
	11 nF to 33 nF	0.064 nF		
	33 nF to 110 nF	0.21 nF		
	110 nF to 330 nF	0.64 nF		
	0.33 μ F to 1.1 μ F	0.002 1 μ F		



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Electrical

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Equipment to Measure Capacitance ^{FO}	1.1 μ F to 3.3 μ F	0.006 4 μ F	Fluke 5502A	Euramet-cg-15 CENAM Technical Guide
	3.3 μ F to 11 μ F	0.021 μ F		
	11 μ F to 33 μ F	0.1 μ F		
	33 μ F to 110 μ F	0.38 μ F		
	110 μ F to 330 μ F	1.2 μ F		
	0.33 mF to 1.1 mF	0.003 8 mF		
	1.1 mF to 3.3 mF	0.012 mF		
	3.3 mF to 11 mF	0.038 mF		
	11 mF to 33 mF	0.19 mF		
33 mF to 110 mF	0.94 mF			
Equipment to Measure AC Power ^{FO} At the listed frequencies				
45 Hz to 1 kHz	1.089 mW to 108.9 mW	0.3 mW		
45 Hz to 1 kHz	0.1089 W to 3.63 W	0.002 2 W		
45 Hz to 1 kHz	3.63 W to 99 W	0.02 W		
45 Hz to 100 Hz	99 W to 3 630 W	0.26 W		
100 Hz to 1 kHz	3.63 kW to 20.91 kW	0.82 kW		
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type B ^{FO}	600 °C to 1 820 °C	0.25 °C	Fluke 5502A Electrical Simulation of Thermocouple Output	Euramet_g-11
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type C ^{FO}	0 °C to 2 316 °C	0.22 °C		
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type E ^{FO}	-250 °C to 1 000 °C	0.15 °C		
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J ^{FO}	-210 °C to 1 200 °C	0.15 °C		



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Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K ^{FO}	-200 °C to 1 372 °C	0.16 °C	Fluke 5502A Electrical Simulation of Thermocouple Output	Euramet_g-11
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type L ^{FO}	-200 °C to 900 °C	0.16 °C		
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type N ^{FO}	-200 °C to 1 300 °C	0.17 °C		
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type R ^{FO}	0 °C to 1 767 °C	0.27 °C		
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type S ^{FO}	0 °C to 1 767 °C	0.3 °C		
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T ^{FO}	-250 °C to 400 °C	0.15 °C		
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type U ^{FO}	-200 °C to 600 °C	0.23 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 100 Ω ^{FO}	-200 °C to 800 °C	0.1 °C	Fluke 5502A Electrical Simulation of RTD Output	Euramet cg-11
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 3 926, 100 Ω ^{FO}	-200 °C to 630 °C	0.1 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 3 916, 100 Ω ^{FO}	-200 °C to 630 °C	0.1 °C		



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Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 200 Ω^{FO}	-200 °C to 630 °C	0.1 °C	Fluke 5502A Electrical Simulation of RTD Output	Euramet cg-11
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 500 Ω^{FO}	-200 °C to 630 °C	0.1 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 1 000 Ω^{FO}	-200 °C to 630 °C	0.1 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Pt Ni 385, 120 Ω (Ni 120) FO	-80 °C to 260 °C	0.11 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Cu 427, 10 Ω^{FO}	-100 °C to 260 °C	0.25 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 100 Ω^{FO}	-200 °C to 800 °C	0.27 °C	Fluke 725 Electrical Simulation of RTD Output	
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 3 926, 100 Ω^{FO}	-200 °C to 630 °C	0.25 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 3 916, 100 Ω^{FO}	-200 °C to 630 °C	0.25 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 200 Ω^{FO}	-200 °C to 630 °C	0.18 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 500 Ω^{FO}	-200 °C to 630 °C	0.25 °C		



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Electrical

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Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 1 000 Ω ^{FO}	-200 °C to 630 °C	0.18 °C	Fluke 725 Electrical Simulation of RTD Output	Euramet cg-11
Temperature Calibration, Indication, and Control Equipment used with RTD Pt Ni 385, 120 Ω (Ni 120) ^{FO}	-80 °C to 260 °C	0.18 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Cu 427, 10 Ω ^{FO}	-100 °C to 260 °C	0.25 °C		

Optical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Gloss/Specular Reflectance Angle of Incline ^{FO}	20° / 92.4° 60° / 97.6° 85° / 99.8°	0.5 Gloss Units 0.5 Gloss Units 0.5 Gloss Units	Ceram Research Gloss Standard	ASTM D-523-14
Spectrophotometers Transmittance ^{FO}	τ : 1 % to 95 % λ : 230 nm to 700 nm	0.27 % of reading 0.5 nm	Neutral density Filters, Holmium Oxide Glass	CENAM Technical Guide
ρ (λ) Spectral Reflectance ^{FO} a*: CIE L: CIE b*: CIE	0 to 100 Units -28 to 36 Units -26 to 63 Units	0.7 Units 0.4 Units 0.7 Units	Ceramic Research Tiles	CENAM Technical Guide ASTM E-1164
Ev Light Meters ^{FO}	120 lux to 3 000 lux	2 % of reading	Luxometer Accupro XP2000	CENAM Technical Guide
Ev Illuminance ^{FO}	120 lux to 3 000 lux	1 % of reading		
Refractive Index ^{FO}	1 °Brix to 80 °Brix	0.5 % of reading	Sucrose Standards	OIML R-108

Acoustic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Sonometer (Acoustic Level) (F=1 kHz)	94 dB 114 dB	0.14 dB 0.14 dB	Acoustic Calibrator Sountek ST-120	NMX-AA-059



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Chemical

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pH Meter ^{FO}	4 pH	0.059 pH	Buffer Solutions	NMX-CH-166 CEM QU-003
	7 pH	0.059 pH		
	10 pH	0.059 pH		
Conductivity Meter ^{FO}	99.2 μ S/cm	2.1 μ S/cm	Buffer Solutions	OIML R 68
	1 408 μ S/cm	4.6 μ S/cm		
	100 005 μ S/cm	360 μ S/cm		
Karl Fisher Titration Equipment ^{FO}	0.998 mg/g	0.17 mg/g	Standard Solutions	ASTM E 203
	10.03 mg/g	0.18 mg/g		

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.



Certificate of Accreditation: Supplement

Accredian, S. de R.L. de C.V.

Calle 24 No. 600, Col. Residencial Las Puentes 3er Sector
San Nicolas de los Garza, Nuevo León, México. C.P 66460
Contact Name: José Verdeja Phone: 81-3186-4994

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

8. The term P represents pressure in units appropriate to the uncertainty statement.
9. The term T represents temperature in °C or °F as appropriate to the uncertainty statement.
10. The term Fr represents frequency in rpm as appropriate to the uncertainty statement.
11. The term t represents time in second (s) or minute (min) as appropriate to the uncertainty statement.
12. The term Tr 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.

