

## PERRY JOHNSON LABORATORY ACCREDITATION, INC.

# Certificate of Accreditation

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

### MetryCo / Martha Rocio Rosas Montes

Calle Campos de Oriente No. 3525, Fracc. Urbivilla del Campo Ciudad Juárez, Chihuahua, México. C.P. 32575

(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):

### Chemical, Mechanical, Mass, Force and Weighing Devices, Electrical, Thermodynamic, Time and Frequency and Dimensional 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:

April 19, 2018

Issue Date: April 22, 2022 *Expiration Date:* June 30, 2024

Accreditation No.: 93827 Certificate No.: L22-304

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: <u>www.pjlabs.com</u>



### MetryCo / Martha Rocio Rosas Montes

Calle Campos de Oriente No. 3525, Fracc. Urbivilla del Campo Ciudad Juárez, Chihuahua, México. C.P. 32575 Contact Name: Martha Rocio Rosas Montes. Phone: 656 751 4004

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

#### Chemical

Chemieur			
MEASURED INSTRUMENT,	RANGE OR NOMINAL	CALIBRATION AND	CALIBRATION
QUANTITY OR GAUGE	DEVICE SIZE AS	MEASUREMENT	EQUIPMENT
	APPROPRIATE	CAPABILITY EXPRESSED	AND REFERENCE
		AS AN UNCERTAINTY (±)	STANDARDS USED
pH Meter <sup>FO</sup>	4 pH	0.06 pH	pH Buffer Solutions
	7 pH	0.06 pH	CENAM Technical Guide
	10 pH	0.06 pH	ASTMLE/0

#### Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Pressure Manometer <sup>FO</sup>	-12 psi to 300 psi	0.025 % of reading	Druck DPI 610CENAM Technical Guide
	100 psi to 10 000 psi	0.04 % of reading	700G Precision Pressure Test Gauge CENAM Technical Guide
Torque Drives & Wrenches <sup>FO</sup>	0.5 N·m to 56.5 N·m (5 lbf·in to 500 lbf·in)	0.5 % of reading	Torque Transducers Dead Weight Torque Station ISO 6789
Indirect Verification Hardness Tester Machine <sup>FO</sup>	40 HRB to 59 HRB 60 HRB to 79 HRB 80 HRB to 100 HRB 25 HRC to 39 HRC 40 HRC to 59 HRC 60 HRC to 70 HRC	0.9 HRB 0.7 HRB 0.5 HRB 0.6 HRC 1 HRC 0.5 HRC	Hardness Standard Blocks ASTM E18
Safety and Relief Valve <sup>F</sup>	0.1 mPa to 68.95 mPa	6.9 kPa	Pressure Gauge Pattern: Fluke 2700 G-70M CENAM Technical Guide

#### Mass, Force and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Scales and Balances Class III <sup>FO</sup>	1 lb to 10 lb (Res = $0.000.5$ lb)	$(1 \text{ x } 10^{-4} + 1.8 \text{ x } 10^{-4} \text{Wt}) \text{ lb}$	Test Weight Set Class F OML R 76-1
	$\begin{array}{c} 1 \text{ lb to } 20 \text{ lb} \\ (\text{Res.} = 0.000 \text{ 1 lb}) \end{array}$	$(1 \text{ x } 10^{-4} + 2.34 \text{ x } 10^{-4} \text{Wt}) \text{ lb}$	



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Calle Campos de Oriente No. 3525, Fracc. Urbivilla del Campo Ciudad Juárez, Chihuahua, México. C.P. 32575 Contact Name: Martha Rocio Rosas Montes. Phone: 656-751-4004

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

#### Mass, Force and Weighing Devices MEASURED INSTRUMENT. RANGE OR NOMINAL CALIBRATION AND CALIBRATION **OUANTITY OR GAUGE** DEVICE SIZE AS MEASUREMENT EQUIPMENT APPROPRIATE CAPABILITY EXPRESSED AND REFERENCE AS AN UNCERTAINTY (±) STANDARDS USED Scales and Balances 1 lb to 50 lb (2 x 10<sup>-4</sup> + 1.12 x 10<sup>-4</sup>Wt) lb Test Weight Set Class F Class III<sup>FO</sup> $(\text{Res.}= 0.000\ 2\ \text{lb})$ OML R 76-1 1 lb to 100 lb $(1.1 \text{ x } 10^{-3} + 1.08 \text{ x } 10^{-4} \text{Wt}) \text{ lb}$ (Res.= 0.001 lb)50 lb to 500 lb $(5.54 \text{ x } 10^{-2} + 5.25 \text{ x } 10^{-5} \text{Wt}) \text{ lb}$ (Res.= 0.05 lb) 500 lb to 5 000 lb $(1.14 + 3 \times 10^{-5} \text{Wt}) \text{ lb}$ (Res.=1 lb)1.1 N to 5 000 N Test Weight Set Class F Force - Compression and 0.2 % of reading Tension- Source and **ASTM E 617** Measure<sup>FO</sup> **ISO 376** ISO7500-1 Mass Weight F1, F2, M1, 22 µg **Double Substitution** 1 g M2, M3<sup>FO</sup> with Class E2 Weights, 2 g 25 µg Balances & Mass 5 g 40 µg **Comparators OIML** 10 g 43 µg R111 20 g 68 µg 50 g 80 µg 100 g 100 µg 200 g 200 µg 500 g 0.5 mg 1 kg 1.1 mg 2 kg 1.9 mg 5 kg 5 mg 10 kg 10 mg 20 kg 21 mg 1 mg 5 µg 2 mg 5 µg 5 mg 5 µg 10 mg 5 µg 20 mg 6 µg 50 mg 10 µg 100 mg 10 µg 200 mg 12 µg 500 mg 15 µg

This supplement is in conjunction with certificate #L22-304



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

#### Mass, Force and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Analytical Balances <sup>0</sup>	1 mg to 20 g	$(1.35 \text{ x } 10^{-2} + 3.98 \text{ x } 10^{-6} \text{Wt}) \text{ mg}$	Class E2 Weights
	(Res.=0.01  mg)		OIML R 76-1
	20 g to 500 g	$(1.15 \text{ x } 10^{-1} + 1.63 \text{ x } 10^{-6} \text{ Wt}) \text{ mg}$	
	(Res.=0.1  mg)		
	500 g to 2 kg	$(2.82 \text{ x } 10^{-1} + 1.62 \text{ x } 10^{-6} \text{Wt}) \text{ mg}$	
	(Res.=0.5  mg)		
	2 kg to 30 kg	$(1.17 \text{ x } 10^{-1} + 1.77 \text{ x} 10^{-6} \text{Wt}) \text{ mg}$	
	(Res.=1  mg)		

#### Time and Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NO DEVICE SIZ APPROPRL	DMINAL JE AS ATE	CALIBRATION AND M CAPABILITY EXE AS AN UNCERTA	EASUREMENT PRESSED INTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Stopwatch and Time	86 400 s		0.3 s	$\sim$	Digital Chronometer
Counters Fixed Points <sup>FO</sup>					Traceable - Casio
					NIST Recommended
					Practice Guide Special
					Publication 960-12

#### Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
IR Thermometers <sup>FO</sup>	10 °C to 400 °C	1.4 °C	Omega Infrared
	(50 °F to 752 °F)	(34.52 °F)	Calibrator
			JIS C1612
Temperature	-25 °C to 150 °C	0.45 °C	Fluke Model 9142
Measurement			Field Metrology Well
Instrument <sup>FO</sup>			CENAM Technical
			Guide
Relative Humidity –	14 % RH	2 % RH	Hygrometer and Salt
Measuring Equipment <sup>FO</sup>	32 % RH	2 % RH	Solutions
	72 % RH	2 % RH	CENAM Technical Guide

#### Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Vernier Dial and Digital Calipers <sup>FO</sup>	1 mm to 500 mm	$(14 + 9 \times 10^{-3} \text{L}) \mu\text{m}$	Gage Blocks JIS B 7507

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Dimensional			
MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Vernier Dial and Digital Calipers <sup>FO</sup>	500.01 mm to 1 200 mm	(7.15 + 7.86 X 10 <sup>-3</sup> L) μm	Gage Blocks JIS B 7507
Vernier Dial and Digital	1 mm to 500 mm	$(14 + 9 \times 10^{-3} L) \mu m$	Gage Blocks
Height Gages <sup>FO</sup>	500.01 mm to 1 200 mm	(7.15 + 7.86 x 10 <sup>-3</sup> L) μm	JIS B7517
Micrometers <sup>FO</sup>	1 mm to 500 mm	(1.66 + 3.3 x 10 <sup>-3</sup> L) μm	Gage Blocks JIS B 7502
Metal Rules <sup>FO</sup>	1 mm to 500 mm	(45.8 + 0.3L) μm	Gage Blocks JIS B 7516
	1 mm to 2 400 mm	(58.85 + 1.58 x 10 <sup>-3</sup> L) μm	Vision System with Mitutoyo Digital Proscale JIS B 7516
Dial and Digital Indicators <sup>FO</sup>	5 mm to 60 mm	(1.56 + 0.001 8L) μm	Gage Blocks ASME B89.1.10M
Test Indicators <sup>FO</sup>	1 mm to 5 mm	(0.734 + 0.089L) μm	Gage Blocks ASME B89.1.10M
Microscope X and Y Axis Linearity <sup>FO</sup>	0.25 mm to 200 mm	5 μm	Master Glass Reticle JIS B 7184
Microscope Magnification <sup>FO</sup>	10 X   50 X   100 X	0.05 % of magnification0.05 % of magnification0.05 % of magnification	Master Glass Reticle JIS B 7184
Thread Ring Pitch Diameter <sup>FO</sup>	4 - 40 to 4 - 14	(119.75 + 2.6L) μin	Master Plug Gage ASME B1.2 ASME B1.20.2M
Thread Ring Minor Diameter <sup>FO</sup>	4 - 40 to 4 -14	(90.56 + 4.95L) μin	Master Plug Gage ASME B1.2 ASME B1.20.2M
Cylindrical Diameter Outside and Limit Gages <sup>FO</sup>	0.1 mm to 25 mm	0.25 μm	Laser Scan Micrometer ASME 89.1.5 CENAM Technical Guide
Thread Plug Major Diameter <sup>FO</sup>	4 - 40 to 4 -14	(35.3 + 17.45L) µin	Tree Wire Method ASME B1.2
Thread Plug Pitch Diameter <sup>FO</sup>	4 - 40 to 4 -14	(121 + 8.54L) µin	ASME B1.20.2M
Surface Plate Flatness <sup>FO</sup>	4 in to 60 in	25 µin	Electronics Level ASTM B89.3.7
Surface Plate Repeat Reading <sup>FO</sup>	0.002 in to 0.5 in	40 µin	Digital Indicator ASTM B89.3.7



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Dimensional			
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Optical Comparator <sup>FO</sup>			Gage Blocks
X axis linearity	1 mm to 200 mm	5 μm	JIS B 7184
Y axis linearity <sup>FO</sup>	1 mm to 200 mm	5 μm	
Optical Comparator Axis	90°	0.1°	Angle Blocks
Squareness <sup>O</sup>			JIS B 7184
Optical Comparators	0° to 180°	0.03°	Angle Blocks
Angulatory <sup>0</sup>			JIS B 7184
Optical Comparators	10X	0.05 % of reading	Master Glass Scale
Magnification	20X	0.05 % of reading	JIS B 7184
	31.25X	0.05 % of reading	
Optical Comparators	30°, 45°, 60°, 90	0.1°	981-103 Angle Plate
Angularity <sup>O</sup>			JIS B 7184
Protractors <sup>FO</sup>	1° to 180°	0.3°	Gage Blocks/Sine Bar
			PC-MDA01
CMM Performance <sup>O</sup>	25 mm to 1 500 mm	(0.001 + 0.005L) mm	Gage Block Grade K
			ISO 10360
Gage Block	1.005 mm to 100 mm	(0.12 + 0.35L)  mm	Gage Block Grade 0
Set 1, 2 Grade <sup>F</sup>			ASME B89

#### Electrical

Licetiteui			
MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure			Fluke 5520A
AC Voltage			PC 0900
at the listed frequencies <sup>FO</sup>			
10 Hz to 45 Hz	33 V to 329.99 V	1.5 mV/V + 6 600 μV	
1 kHz to 10 kHz	33 V to 329.99 V	0.8 mV/V + 15 mV	
10 kHz to 20 kHz	33 V to 329.99 V	0.9 mV/V + 33 mV	
Equipment to Measure			
AC Voltage			
at the listed frequencies <sup>FO</sup>			
10 Hz to 45 Hz	330 V to 1 020 V	0.5 mV/V + 80 000 μV	
45 Hz to 10 kHz	330 V to 1 020 V	2  mV/V + 0.1  mV	
10 kHz to 20 kHz	330 V to 1 020 V	2  mV/V + 0.5  mV	



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MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure AC Current At the listed frequencies <sup>FO</sup>			Fluke 5520A PC 0900
10 Hz to 20 Hz	0.029 mA to 0.33 mA	2.5 mA/A + 0.15 μA	-
20 Hz to 45 Hz	0.029 mA to 0.33 mA	1.3 mA/A + 0.13 μA	
45 Hz to 1 kHz	0.029 mA to 0.33 mA	1.3 mA/A + 0.13 μA	
1 kHz to 5 kHz	0.029 mA to 0.33 mA	4 mA/A + 0.15 μA	
5 kHz to 10 kHz	0.029 mA to 0.33 mA	13 mA/A + 0.15 μA	-
Equipment to Measure AC Current At the listed frequencies <sup>FO</sup>			
10 Hz to 20 Hz	0.33 mA to 3.29 mA	2 mA/A + 0.3 μA	
20 Hz to 45 Hz	0.33 mA to 3.29 mA	1 mA/A + 0.3 μA	
45 Hz to 1 kHz	0.33 mA to 3.29 mA	1 mA/A + 0.3 μA	
1 kHz to 5 kHz	0.33 mA to 3.29 mA	2 mA/A + 0.3 µA	
5 kHz to 10 kHz	0.33 mA to 3.29 mA	6 mA/A + 0.3 μA	-
Equipment to Measure AC Current At the listed frequencies <sup>FO</sup>		550	
10 Hz to 20 Hz	3.3 mA to 32.99 mA	2 mA/A + 3 μA	
20 Hz to 45 Hz	3.3 mA to 32.99 mA	1 mA/A + 3 μA	
45 Hz to 1 kHz	3.3 mA to 32.99 mA	0.9 mA/A + 3 μA	
1 kHz to 5 kHz	3.3 mA to 32.99 mA	2 mA/A + 3 μA	-
5 kHz to 10 kHz	3.3 mA to 32.99 mA	6 mA/A + 3 μA	
Equipment to Measure AC Current At the listed frequencies <sup>FO</sup>			
10 Hz to 20 Hz	33 mA to 329.99 mA	2 mA/A + 30 µA	
20 Hz to 45 Hz	33 mA to 329.99 mA	1 mA/A + 30 μA	1
45 Hz to 1 kHz	33 mA to 329.99 mA	0.9 mA/A + 30 μA	1
1 kHz to 5 kHz	33 mA to 329.99 mA	2 mA/A + 30 µA	1
5 kHz to 10 kHz	33 mA to 329.99 mA	6 mA/A + 30 μA	1



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MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure AC Current			Fluke 5520A PC 0900
At the listed frequencies <sup>FO</sup>			
10 Hz to 45 Hz	0.33 A to 2.19 A	2 mA/A + 300 µA	
45 Hz to 1 kHz	0.33 A to 2.19 A	1 mA/A + 300 μA	
1 kHz to 5 kHz	0.33 A to 2.19 A	14 mA/A + 0.5 mA	
Equipment to Measure AC Current At the listed frequencies <sup>FO</sup>			
10 Hz to 45 Hz	2.2 A to 11 A	0.6 mA/A + 2 000 μA	
45 Hz to 1 kHz	2.2 A to 11 A	1 mA/A + 2 000 μA	
1 kHz to 5 kHz	2.2 A to 11 A	3.3 mA/A + 2 000 μA	
Equipment to Measure	3.299 mV to 329.999 9 mV	$60 \mu V/V + 3 \mu V$	
DC Voltage <sup>FO</sup>	0.032 9 V to 3.299 999 V	50 μ V/V + 5 μV	
	0.329 V to 32.999 99 V	50 μ V/V + 50 μV	
	100 V to 1 020 V	55 μ V/V + 500 μV	
	100 V to 1 000 V	55 μ V/V + 1 500 μV	
Equipment to Measure	0.032 9 mA to 3.299 99 mA	130 μ A/A + 0.05 μA	
DC Current <sup>FO</sup>	0.329 9 mA to 32.999 9 mA	100 μ A/A + 0.25 μA	
	3.29 mA to 329.999 mA	100 μ A/A + 3.3 μA	
	0.021 9 A to 2.199 99 A	300 μ A/A + 44 μA	
	0.11 A to 11 A	600 μ A/A + 330 μA	
Equipment to Measure	0.009 121 Ω to 10.99 Ω	110 $\mu$ Ω/Ω + 0.008 Ω	Fluke 5520A
Resistance <sup>FO</sup>	11 Ω to 32.99 Ω	120 μ $\Omega$ / $\Omega$ + 0.015 $\Omega$	PC 1005
	33 Ω to 109.99 Ω	90 μΩ/Ω + 0.015 Ω	
	110 Ω to 329.99 Ω	90 μΩ/Ω + 0.015 Ω	
	$330 \Omega$ to $1.09 \text{ k}\Omega$	90 μΩ/Ω + 0.006 Ω	
	1.1 kΩ to 3.29 kΩ	90 μΩ/Ω + 0.006 Ω	
	3.3 kΩ to 10.99 kΩ	90 μΩ/Ω + 0.006 Ω	]
	11 kΩ to 32.99 kΩ	90 μΩ/Ω + 0.006 Ω	]
	33 k $\Omega$ to 109.99 k $\Omega$	110 μΩ/Ω + 6 Ω	]
	110 kΩ to 329.99 kΩ	120 μ $\Omega$ / $\Omega$ + 6 $\Omega$	1
	330 kΩ to 1.099 MΩ	150 μΩ/Ω + 55 Ω	1



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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 (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure	1.1 MΩ to 3.29 MΩ	150 μΩ/Ω + $55$ Ω	Fluke 5520A
Resistance <sup>FO</sup>	3.3 MΩ to 10.99 MΩ	600 μΩ/Ω + 550 Ω	PC 1005
	11 MΩ to 32.99 MΩ	1 ΜΩ/Ω + 550 Ω	
	33 MΩ to 109.99 MΩ	$5 M\Omega/\Omega + 5.5 k\Omega$	
	110 MΩ to 330 MΩ	5 MΩ/Ω + 16.5 kΩ	-
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J <sup>FO</sup>	-210 °C to -100 °C	0.27 °C	Fluke 5520A Electrical Simulation of Thermocouple Output PC TTC 01
	-100 °C to -30 °C	0.16 °C	
	-30 °C to 150 °C	0.14 °C	
	150 °C to 760 °C	0.17 °C	
	760 °C to 1 200 °C	0.23 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K <sup>FO</sup>	-200 °C to -100 °C	0.33 °C	Fluke 5520A Electrical Simulation of Thermocouple Output PC TTC 01
	-100 °C to -25 °C	0.18 °C	
	-25 °C to 120 °C	0.16 °C	
	120 °C to 1 000 °C	0.26 °C	
	1 000 °C to 1 372 °C	0.4 °C	
Equipment to Output Capacitance At the listed frequencies <sup>FO</sup>		55-0	Fluke 5520A PC 0101 PC 1000
50 Hz to 1 kHz	1.1 nF to 3.299 9 nF	5 pF/nF + 0.01 nF	
50 Hz to 1 kHz	3.3 nF to 10.999 nF	5 pF/nF + 0.01 nF	
50 Hz to 1 kHz	11 nF to 32.999 nF	2.5 pF/nF + 0.1 nF	
50 Hz to 1 kHz	33 nF to 109.99 nF	2.5 pF/nF + 0.1 nF	
50 Hz to 1 kHz	110 nF to 329.99 nF	2.5 pF/nF + 0.3 nF	
50 Hz to 1 kHz	0.33 μF to 1.099 9 μF	2.5 nF/µ F + 1 nF	-
50 Hz to 1 kHz	1.1 μF to 3.299 9 μF	3.5 nF/μ F + 3 nF	
Equipment to Output Capacitance At the listed frequencies <sup>FO</sup>	Fluke 5520A PC 0101 PC 1000		
50 Hz to 400 Hz	3.3 µF to 10.999 µF	3.5 nF/μ F + 10 nF	1
50 Hz to 400 Hz	11 μF to 32.999 μF	4 nF/µ F + 30 nF	
Equipment to Output Capacitance At the listed frequencies <sup>FO</sup> 50 Hz to 200 Hz	33 µF to 109.99 µF	5 nF/uF + 100 nF	Fluke 5520A PC 0101 PC 1000
50 III to 200 III	55 pr (0 10).)) pr	5 m / μ 1 100 m	1



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Electrical			
MEASURED INSTRUMENT,	RANGE OR NOMINAL	CALIBRATION AND	CALIBRATION
QUANTITY OR GAUGE	DEVICE SIZE AS	MEASUREMENT	EQUIPMENT
	APPROPRIATE	CAPABILITY EXPRESSED	AND REFERENCE
		AS AN UNCERTAINTY (±)	STANDARDS USED
Equipment to Output			Fluke 5520A
Capacitance			PC 0101, PC 1000
At the listed frequencies <sup>FO</sup>			
50 Hz to 100 Hz	110 μF to 329.99 μ F	7 nF/µF + 300 nF	
50 Hz to 100 Hz	330 µF to 1.1 mF	10 μF/mF + 300 nF	
Equipment to Measure	0 kV to 6 kV	70 V	Fluke 289 / Fluke 80K-6
AC/DC High Voltage			PC 0900, PC 0700
Up to 60 Hz <sup>FO</sup>			,

- 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<sup>F</sup> 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<sup>O</sup> 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<sup>FO</sup> 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.
- 8. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.