

## PERRY JOHNSON LABORATORY ACCREDITATION, INC.

### Certificate of Accreditation

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

#### South Texas Calibration Labs / Fernando Damián Casiano Flores

Morelos #130, Colonia Centro Ciudad Gustavo Díaz Ordaz, Tamaulipas, México. C.P. 88400

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

#### ISO/IEC 17025:2017

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

Dimensional, Electrical, Thermodynamic, Chemical, Mechanical, Mass, Force & Weighing Device, Time & Frequency, 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:

Issue Date:

Expiration Date:

April 10, 2010

December 18, 2022

January 31, 2025

Accreditation No.:

Certificate No.:

66293

L22-871-1

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: <a href="www.pjlabs.com">www.pjlabs.com</a>

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Morelos #130, Colonia Centro Ciudad Gustavo Díaz Ordaz, Tamaulipas, México. C.P. 88400 Contact: Fernando Casiano Flores Phone: 891-938-3738

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

#### Dimensional

Dimensional	1	T	
MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE	CALIBRATION AND MEASUREMENT	CALIBRATION EQUIPMENT
	APPROPRIATE)	CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	AND REFERENCE STANDARDS USED
Micrometer	0.05 in to 42 in	$(385 + 10L) \mu in$	Gage Blocks
(Inside, Outside, Depth) <sup>FO</sup> Dial Indicator <sup>FO</sup>	(1.27 mm to 1 066.8 mm)	$[(9.78 + 10 \times 10^{-3} L) \text{ mm}]$	ASME B89.1.13
Dial Indicator <sup>FO</sup>	0.05 in to 1 in	(112 + 9L) μin	Gage Blocks
	(1.27 mm to 25.4 mm	$(2.84 + 9 \times 10^{-3} L) \text{ mm}$	ASME B89.1.10M
Digital Indicator <sup>FO</sup>	0.05 in to 1 in	380 µin	Gage Blocks
_	(1.27 mm to 2.54 mm)	(9.7 µm)	ASME 89.1.10M
Caliper FO	0.05 in to 42 in	$(483 + 14L) \mu in$	Gage Blocks
•	(1.27 mm to 1 066.8 mm)	$(12.27 + 14 \times 10^{-3} L) \text{ mm}$	ISO 6906
			ISO 3599
			JIS B 7507
Surface Plate	8.5 in to 24 in Diagonal	120 μin	CMM and Planikator
Flatness Only <sup>O</sup>	(215.9 mm to 609.6 mm)	(3.048 µm)	ASME B89.7.3
Surface Plate	0.002 in	40 μin	Repeat o Meter
Repeat Measurement Only <sup>O</sup>	(0.050 8 mm)	$(1.01 \ \mu m)$	GGG-P-453c
Thread Plug Gage	0 - 80 to 4 -12	150 µin	Measuring Wire Set
(Pitch Diameter) <sup>FO</sup>		(3.81 µm)	FED-STD-H28
Adjustable Thread Ring	0-80 to 4-12	210 µin	Super Micrometer
Gage (Pitch Diameter) <sup>F</sup>		(4.2 µm)	Trimos-Sylvac 80
			ANSI/ASME B1.16M
		X	ANSI/ASME B1.2
Adjustable Thread Ring	4 in Maximum	64 μin	Super Micrometer
Gage (Minor Diameter) <sup>F</sup>	(100 mm Maximum)	(1.6 µm)	Trimos-Sylvac 80
,			ANSI/ASME B1.16M
			ANSI/ASME B1.2
Height Gage <sup>FO</sup>	0.05 in to 42 in	$(245 + 21L) \mu in$	Gage Blocks
	(1.27 mm to 1 066.8 mm)	$(6.22 + 21 \times 10^{-3} L) \text{ mm}$	JIS B 7517
Coating Thickness Gage	52.47 μm to 179.13 μm	1.2 μm	Coating Thickness
Ferrous <sup>F</sup>			Films
Coating Thickness Gage	52.44 μm to 175.66 μm	1.1 μm	Internal Procedure:
Non-Ferrous <sup>F</sup>		·	STC-PC-DIM-016
CMM –Verification	Up to 30 in	77 μin	Renishaw MCG
Volumetric		·	ASME B89.4.10360.2
			ASME B89.4.1
CMM –Verification	0.5 to 20 in	(30.34 + 1.34L) µin	Gage Block Gages
Volumetric			ASME B89.4.10360.2
			ASME B89.4.1
Gage Blocks <sup>F</sup>	0.05 in to 4 in	(2.6 + 1L) μin	Gage Block Comparison
_	(0.5 mm to 101.6 mm)	$[(0.08 + 1 \times 10^{-3} \text{L})  \mu\text{m}]$	ASME B89.1.9
Protractor FO	0° to 90°	0.01°	Angle Blocks
			Internal Procedure:
			STC-PC-DIM-018



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#### Dimensional

MEASURED INSTRUMENT,	RANGE	CALIBRATION AND	CALIBRATION
QUANTITY OR GAUGE	(AND SPECIFICATION WHERE APPROPRIATE)	MEASUREMENT CAPABILITY EXPRESSED	EQUIPMENT AND REFERENCE
	WHERE HIT ROTRIFIE)	AS AN UNCERTAINTY (±)	STANDARDS USED
Video Measuring	0.04 in to 12 in	220 µin	Glass Standard
Machine <sup>O</sup>	(1.01 mm to 304.8 mm)	(5.51 μm)	Internal Procedure:
			STC-PC-DIM-031
Angle Block <sup>F</sup>	0° to 180°	0.03°	CMM
			Internal Procedure:
			STC-PC-DIM-017
Measure Tape <sup>F</sup>	1 in to 300 in	0.007 1 in	Video Measuring Machine
1	(25.4 mm to 7 620 mm)	1.8 mm	Internal Procedure
			STC-PC-DIM-024
Rules <sup>F</sup>	0.02 in to 48 in	11 μin	Standard Rule & Video
	(0.5 mm to 1 220 mm)	(0.28 mm)	Measuring Machine
	`		Internal Procedure
			STC-PC-DIM-026
Roughness Tester	117 μin	0.76 μin	Roughness Standard
Ra (Fixed point) <sup>FO</sup>			EAL-G20 ASME B46.1
Level <sup>F</sup>	2 in to 8 in	320 µin	Precision Lever
			Internal Procedure:
			STC-PC-DIM-023
Optical Comparator <sup>O</sup>			Glass Standard
X axis Linearity	12 in Maximum	$(116.89 + 2.92L) \mu in$	Internal Procedure:
•	(304.8 mm) Maximum		STC-PC-DIM-007
Y axis Linearity	12 in Maximum	$(2.95 + 2.92 \times 10^{-3} L) \mu m$	
ž	(304.8 mm) Maximum		
Optical Comparator	0° to 180°	0.02°	
Angularity <sup>O</sup>			
Optical Comparator	10X	0.03 %	
Magnification <sup>O</sup>	20X	0.07 %	
	50X	0.08 %	
Cylindrical Diameter	4 in Maximum	30 μin	Super Micrometer
Inside (Plain Ring Gage)FO	(100 mm Maximum)	(0.77 μm)	Trimos-Sylvac 80
Cylindrical Diameter	4 in Maximum	37 µin	ASME B89.1.6
Outside (Pin Gages, Plain	(100 mm Maximum)	(0.94 µm)	ASME B89.1.5
Plug Gage, Cylindrical			_
Gages)FO			

#### Electrical

Licenicai			
MEASURED INSTRUMENT,	RANGE	CALIBRATION AND	CALIBRATION
QUANTITY OR GAUGE	(AND SPECIFICATION	MEASUREMENT	EQUIPMENT
	WHERE APPROPRIATE)	CAPABILITY EXPRESSED	AND REFERENCE
		AS AN UNCERTAINTY (±)	STANDARDS USED
Equipment to Output	Up to 330 mV	$0.006$ % of reading + 3 $\mu$ V	Fluke 5500A
DC Voltage <sup>FO</sup>			Internal Procedure
			STC-PC-ELE-006

Issue: 12/2022 This supplement is in conjunction with certificate #L22-871-1



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Equipment to Output	Up to 3.3 V	0.005 % of reading + 5 μV	Fluke 5500A
DC Voltage <sup>FO</sup>	Up to 33 V	$0.005$ % of reading + 50 $\mu$ V	Internal Procedure STC-PC-ELE-006
	30 V to 330 V	$0.005~5~\%$ of reading $+~500~\mu\text{V}$	STC-TC-LLE-000
	100 V to 1 000 V	0.005 5 % of reading + 1 500 μV	
	1 000 V to 5 000 V	2 % of reading	Hipot 3565D
			Internal Procedure STC-PC-ELE-004
	5 000 V to 25 000 V	2.5 % of reading	Hipot HD 125
	3 000 1 10 23 000 1	210 70 of reading	Internal Procedure STC-PC-ELE-004
Equipment to Measure	Up to 100 mV	0.000 9 % of reading + 0.3 μV	HP 3458A
DC Voltage <sup>FO</sup>	100 mV to 1V	0.000 8 % of reading + 0.3 μV	Internal Procedure
	1 V to 10 V	0.000 8 % of reading + 0.5 μV	STC-PC-ELE-006
	10 V to 100 V	0.001 % of reading + 30 μV	
	100 V to 1 000 V	0.001 % of reading + 0.1 mV	
	Up to 20 kV	0.04 % of reading + 4 V	Vitrek 4600
		X	Internal Procedure
Equipment to Output	Up to 3.3 mA	0.013 % of reading + 0.05 μA	STC-PC-ELE-006 Fluke 5500A
Equipment to Output DC Current <sup>FO</sup>	Up to 33 mA	$0.01\%$ of reading $+ 0.25 \mu A$	Internal Procedure
	Up to 330 mA	0.01 % of reading + 3.3 μA	STC-PC-ELE-006
	Up to 2.2 mA	0.03 % of reading + 44 μA	
	Up to 11 A	0.06 % of reading + 330 μA	
	11 A to 500 A	0.5 % of output + 0.5 A	Fluke 5500A / 50 Turn Coil
		•	Internal Procedure STC-PC-ELE-009
Equipment to Measure	Up to 1 μA	0.002 % of reading	HP 3458A
DC Current <sup>FO</sup>	1 μA to 10 μA	0.002 % of reading	Internal Procedure STC-PC-ELE-006
	10 μA to 100 μA	0.002 % of reading	SIC-FC-ELE-000
	100 μA to 1 mA	0.002 % of reading	
	1 mA to 10 mA	0.002 % of reading	
	10 mA to 100 mA	0.003 5 % of reading	
	100 mA to 1 A	0.011 % of reading	
	1 A to 500A	0.06 % of reading	HP 34401A & Shunt (100 A/ 100 mV) Internal Procedure STC-PC-ELE-006



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Equipment to Output			Fluke 5500A
AC Voltage	FO		Internal Procedure
At the listed frequencies 10 Hz to 45 Hz	1 mV to 32.999 mV	0.35 % of reading + 20 μV	STC-PC-ELE-006
45 Hz to 10 kHz	1 mV to 32.999 mV	0.15 % of reading + 20 μV	
10 kHz to 20 kHz	1 mV to 32.999 mV	0.2 % of reading + 20 μV	
20 kHz to 50 kHz	1 mV to 32.999 mV	$0.25$ % of reading $+20 \mu V$	
50 kHz to 100 kHz	1 mV to 32.999 mV	$0.35$ % of reading + 33 $\mu$ V	
100 kHz to 500 kHz	1 mV to 32.999 mV	1 % of reading + 60 μV	
Equipment to Output AC Voltage At the listed frequencies	FO		
10 Hz to 45 Hz	33 mV to 329.999 mV	0.25 % of reading + 50 μV	
45 Hz to 10 kHz	33 mV to 329.999 mV	0.05 % of reading + 20 μV	
10 kHz to 20 kHz	33 mV to 329.999 mV	0.1 % of reading + 20 μV	
20 kHz to 50 kHz	33 mV to 329.999 mV	0.16 % of reading + 40 μV	
50 kHz to 100 kHz	33 mV to 329.999 mV	0.24 % of reading + 170 μV	
100 kHz to 500 kHz	33 mV to 329.999 mV	0.7 % of reading + 330 μV	
Equipment to Output AC Voltage At the listed frequencies	FO		
10 Hz to 45 Hz	0.33 V to 3.29 999 V	0.15 % of reading + 250 μV	
45 Hz to 10 kHz	0.33 V to 3.29 999 V	0.03 % of reading + 60 μV	
10 kHz to 20 kHz	0.33 V to 3.29 999 V	0.08 % of reading + 60 μV	
20 kHz to 50 kHz	0.33 V to 3.29 999 V	0.14 % of reading + 300 μV	
50 kHz to 100 kHz	0.33 V to 3.29 999 V	0.24 % of reading + 1 700 μV	
Equipment to Output AC Voltage At the listed frequencies	FO		
10 Hz to 45 Hz	3.3 V to 32.999 V	0.15 % of reading + 2 500 μV	
45 Hz to 10 kHz	3.3 V to 32.999 V	$0.04$ % of reading + 600 $\mu V$	
10 kHz to 20 kHz	3.3 V to 32.999 V	$0.08$ % of reading + 2 600 $\mu V$	
20 kHz to 50 kHz	3.3 V to 32.999 V	$0.19$ % of reading + 5 000 $\mu V$	
50 kHz to 100 kHz	3.3 V to 32.999 V	$0.24$ % of reading + 17 000 $\mu V$	



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Equipment to Output AC Voltage At the listed frequence	ies <sup>FO</sup>		Fluke 5500A Internal Procedure STC-PC-ELE-006
45 Hz to 1 kHz	33 V to 329.999 V	0.05 % of reading + 6.6 mV	
1 kHz to 10 kHz	33 V to 329.999 V	0.08 % of reading + 15 μV	
10 kHz to 20 kHz	33 V to 329.999 V	0.09 % of reading + 33 μV	
Equipment to Output AC Voltage At the listed frequence	ies <sup>FO</sup>		
45 Hz to 1 kHz	330 V to 1 020 V	0.05 % of reading + 80 mV	
1 kHz to 5 kHz	330 V to 1 020 V	0.2 % of reading + 100 μV	
5 kHz to 10 kHz	330 V to 1 020 V	0.2 % of reading + 500 μV	
Equipment to Output AC Voltage At the listed frequence	ies <sup>FO</sup> Up to 5 kV	20/ (5/1)	Hipot 3565D Internal Procedure: STC-PC-ELE-004
	1	2 % of reading	His Albac
60 Hz	2 kV to 20 kV	2.5 % of reading	HiPot HD125 Internal Procedure: STC-PC-ELE-004
Equipment to Measure AC Voltage At the listed frequence ACBAND ≤ 2MHz <sup>FO</sup>			HP 3458A Internal Procedure: STC-PC-ELE-006
1 Hz to 40 Hz	Up to 10 mV	0.03 % of reading + 0.03 mV	
40 Hz to I kHz	Up to 10 mV	0.02 % of reading + 0.011 mV	
45 Hz to 100 kHz	Up to 10 mV	0.09 % of reading + 0.06 mV	
100 kHz to 1 MHz	Up to 10 mV	1.2 % of reading + 0.05 mV	
1 MHz to 4 MHz	Up to 10 mV	7 % of reading + 0.07 mV	
4 MHz to 8 MHz	Up to 10 mV	20 % of reading + 0.08 mV	
Equipment to Measure AC Voltage At the listed frequence ACBAND \(\leq 2MHz^{FO}\) 45 Hz to 100 kHz		0.09 % of reading + 0.06 V	
100 kHz to 1 MHz	100 mV to 10 V	2 % of reading + 0.05 V	
1 MHz to 4 MHz	100 mV to 10 V	4 % of reading + 0.07 V	
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MEASURED INSTRUMENT, QUANTITY OR GAUGE  Equipment to Measure AC Voltage At the listed frequencies ACBAND ≤ 2MHz <sup>FO</sup> 8 MHz to 10 MHz	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)  15 % of reading + 0.1 V	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED HP 3458A Internal Procedure: STC-PC-ELE-006
45 Hz to 100 kHz	10 V to 100 V	0.12 % of reading + 0.02 V	
45 Hz to 100 kHz	100 V to 1 000 V	0.12 % of reading + 0.02 v	
Equipment to Measure AC Voltage At the listed frequencies 20 Hz to 100 Hz 100 Hz to 400 Hz 20 Hz to 100 Hz	Up to 2 kV Up to 2 kV 2 kV to 20 kV	0.07 % of reading + 2 V 0.4 % of reading + 4 V 0.2 % of reading + 20 V	Vitrek 4620B Internal Procedure STC-PC-ELE-004
Equipment to Output AC Current At the listed frequencies F 10 Hz to 20 Hz	0.029 mA to 0.32 999 mA	$0.25\%$ of reading + $0.15 \mu A$	Fluke 5500A Intercal Procedure: STC-PC-ELE-006
20 Hz to 45 Hz	0.029 mA to 0.32 999 mA	0.13 % of reading + 0.15 μA	
45 Hz to 1 kHz	0.029 mA to 0.32 999 mA	$0.13\%$ of reading $+ 0.25 \mu A$	
1 kHz to 5 kHz	0.029 mA to 0.32 999 mA	0.4 % of reading + 0.15 μA	
5 kHz to 10 kHz	0.029 mA to 0.32 999 mA	1.3 % of reading + 0.15 μA	
Equipment to Output AC Current At the listed frequencies			
10 Hz to 20 Hz	0.33 mA to 3.2 999 mA	0.2 % of reading + 0.3 μA	
20 Hz to 45 Hz	0.33 mA to 3.2 999 mA	$0.1\%$ of reading $+0.3 \mu A$	
Equipment to Measure AC Voltage At the listed frequencies ACBAND ≤ 2MHz <sup>FO</sup>			HP 3458A Intercal Procedure: STC-PC-ELE-006
1 kHz to 20 kHz	Up to 10 mV	0.03 % of reading + 0.011 mV	
20 kHz to 50 kHz	Up to 10 mV	0.1 % of reading + 0.011 mV	
50 kHz to 100 kHz	Up to 10 mV	0.5 % of reading + 0.011 mV	
100 kHz to 300 kHz	Up to 10 mV	4 % of reading + 0.02 mV	



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Equipment to Measure AC Voltage At the listed frequencies ACBAND ≤ 2MHz <sup>FO</sup>			HP 3458A Internal Procedure STC-PC-ELE-006
40 Hz to I kHz	100 mV to 10 V	0.007 % of reading + 0.002 V	
1 kHz to 20 kHz	100 mV to 10 V	0.014 % of reading + 0.002 V	
20 kHz to 50 kHz	100 mV to 10 V	0.03 % of reading + 0.002 V	
50 kHz to 100 kHz	100 mV to 10 V	0.08 % of reading + 0.002 V	
100 kHz to 300 kHz	100 mV to 10 V	0.3 % of reading + 0.01 V	
300 kHz to 1 MHz	100 mV to 10 V	1 % of reading + 0.01 V	
1 MHz to 2 MHz	100 mV to 10 V	1.5 % of reading + 0.01 V	
1 Hz to 40 Hz	100 mV to 10 V	0.007 % of reading + 0.004 V	
Equipment to Measure AC Voltage At the listed frequencies ACBAND ≤ 2MHz <sup>FO</sup>			
1 Hz to 40 Hz	10 V to 100 V	0.02 % of reading + 0.04 V	
40 Hz to I kHz	10 V to 100 V	0.02 % of reading + 0.02 V	
1 kHz to 20 kHz	10 V to 100 V	0.02 % of reading + 0.02 V	
20 kHz to 50 kHz	10 V to 100 V	0.035 % of reading + 0.02 V	
50 kHz to 100 kHz	10 V to 100 V	0.12 % of reading + 0.02 V	
100 kHz to 300 kHz	10 V to 100 V	0.4 % of reading + 0.1 V	
300 kHz to 1 MHz	10 V to 100 V	1.5 % of reading + 0.1 V	
Equipment to Measure AC Voltage At the listed frequencies ACBAND ≤ 2MHz <sup>FO</sup>			
1 Hz to 40 Hz	100 V to 1 000 V	0.04 % of reading + 0.4 V	
40 Hz to I kHz	100 V to 1 000 V	0.04 % of reading + 0.2 V	
1 kHz to 20 kHz	100 V to 1 000 V	0.06 % of reading + 0.2 V	
20 kHz to 50 kHz	100 V to 1 000 V	0.12 % of reading + 0.2 V	
50 kHz to 100 kHz	100 V to 1 000 V	0.3 % of reading + 0.2 V	
Equipment to Output AC Current At the listed frequencies F	О		Fluke 5500A Internal Procedure STC-PC-ELE-006
45 Hz to 1 kHz	0.33 mA to 3.2 999 mA	0.1 % of reading + 0.3 μA	



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Equipment to Output AC Current At the listed frequencie	ss <sup>FO</sup>		Fluke 5500A Internal Procedure STC-PC-ELE-006
1 kHz to 5 kHz	0.33 mA to 3.2 999 mA	$0.2$ % of reading $+$ $0.3$ $\mu$ A	
5 kHz to 10 kHz	0.33 mA to 3.2 999 mA	0.6 % of reading + 0.3 μA	
Equipment to Output AC Current At the listed frequencies FO	22 44 22 000 4		
10 Hz to 20 Hz	3.3 mA to 32. 999 mA	0.2 % of reading + 3 μA	
20 Hz to 45 Hz	3.3 mA to 32. 999 mA	0.1 % of reading + 3 μA	_
45 Hz to 1 kHz	3.3 mA to 32. 999 mA	0.09 % of reading + 3 μA	
1 kHz to 5 kHz	3.3 mA to 32. 999 mA	0.2 % of reading + 3 μA	
5 kHz to 10 kHz	3.3 mA to 32. 999 mA	0.6 % of reading + 3 μA	
Equipment to Output AC Current At the listed frequencie		- 6	
10 Hz to 20 Hz	33 mA to 329. 99 mA	0.2 % of reading + 30 μA	
20 Hz to 45 Hz	33 mA to 329. 99 mA	0.1 % of reading + 30 μA	
45 Hz to 1 kHz	33 mA to 329. 99 mA	$0.09$ % of reading $+30 \mu A$	
1 kHz to 5 kHz	33 mA to 329. 99 mA	0.2 % of reading + 30 μA	
5 kHz to 10 kHz	33 mA to 329. 99 mA	$0.6\%$ of reading $+30 \mu A$	
Equipment to Output AC Current At the listed frequenci	es <sup>FO</sup>		
10 Hz to 45 Hz	0.33 A to 2.19 999 A	0.2 % of reading + 300 μA	
45 Hz to 1 kHz	0.33 A to 2.19 999 A	0.1 % of reading + 300 μA	
1 kHz to 5 kHz	0.33 A to 2.19 999 A	0.75 % of reading + 300 μA	
Equipment to Output AC Current At the listed frequencie	es <sup>FO</sup>		
65 Hz to 500 Hz	2.2 A to 11 A	0.1 % of reading + 2 000 μA	
500 Hz to 1 kHz	2.2 A to 11 A	$0.33$ % of reading + 2 000 $\mu$ A	
Equipment to Output AC Current At the listed frequencie			Fluke 5500A/ 50 Turn Coil Internal Procedure:
65 Hz to 440 Hz	11 A to 100 A	0.5 % of Output + 0.5 A	STC-PC-ELE-009
45 Hz to 65 Hz	100 A to 500 A	0.5 % of Output + 0.5 A	



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Equipment to Measure			HP 3458A
AC Current	FO		Internal Procedure
At the listed frequencies 10 Hz to 20 Hz	Up to 100 μA	0.4 % of reading + 0.3 μA	STC-PC-ELE-006
20 Hz to 45 Hz	Up to 100 μA	$0.15\%$ of reading $+0.3 \mu A$	
45 Hz to 100 Hz	Up to 100 μA	_ ,	
100 Hz to 5 kHz	Up to 100 μA	0.06 % of reading + 0.3 μA	
	Up to 100 μA	0.06 % of reading + 0.3 μA	
Equipment to Measure AC Current At the listed frequencies	ГО		
10 Hz to 20 Hz	1 mA to 100 mA	0.4 % of reading + 0.2 mA	
20 Hz to 45 Hz	1 mA to 100 mA	0.15 % of reading + 0.2 mA	
45 Hz to 100 Hz	1 mA to 100 mA	0.06 % of reading + 0.2 mA	
100 Hz to 5 kHz	1 mA to 100 mA	0.03 % of reading + 0.2 mA	
5 kHz to 20 kHz	1 mA to 100 mA	0.06 % of reading + 0.2 mA	
Equipment to Measure AC Current At the listed frequencies			
20 kHz to 50 kHz	1 mA to 100 mA	0.4 % of reading + 0.4 mA	
50 kHz to 100 kHz	1 mA to 100 mA	0.55 % of reading + 1.5 mA	
Equipment to Measure AC Current At the listed frequencies	FO		
10 Hz to 20 Hz	100 mA to 1 A	0.4 % of reading + 0.2 mA	
20 Hz to 45 Hz	100 mA to 1 A	0.16 % of reading + 0.2 mA	
45 Hz to 100 Hz	100 mA to 1 A	0.08 % of reading + 0.2 mA	
100 Hz to 5 kHz	100 mA to 1 A	0.1 % of reading + 0.2 mA	
5 kHz to 20 kHz	100 mA to 1 A	0.3 % of reading + 0.2 mA	
20 kHz to 50 kHz	100 mA to 1 A	1 % of reading + 0.4 mA	
Equipment to Output	$33 \text{ k}\Omega$ to $110 \text{ k}\Omega$	$0.011$ % of reading + 6 $\Omega$	
Resistance <sup>FO</sup>	$110 \text{ k}\Omega$ to $330 \text{ k}\Omega$	$0.012$ % of reading + 6 $\Omega$	
	11 Ω to 33 Ω	$0.012$ % of reading + 15 m $\Omega$	
	33 Ω to 110 Ω	$0.009$ % of reading + 15 m $\Omega$	
	110 Ω to 330 Ω	$0.009$ % of reading + 15 m $\Omega$	
	330 Ω to 1.1 kΩ	$0.009$ % of reading + $60 \text{ m}\Omega$	
	$1.1~\mathrm{k}\Omega$ to $3.3~\mathrm{k}\Omega$	$0.009$ % of reading + $60 \text{ m}\Omega$	



Morelos #130, Colonia Centro Ciudad Gustavo Díaz Ordaz, Tamaulipas, México. C.P. 88400 Contact: Fernando Casiano Flores Phone: 891-938-3738

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MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Output Resistance <sup>FO</sup>	$3.3~\mathrm{k}\Omega$ to $11~\mathrm{k}\Omega$	$0.009$ % of reading $+$ $0.6 \Omega$	HP 3458A Internal Procedure STC-PC-ELE-006
Equipment to Output	11 kΩ to 33 kΩ	$0.009$ % of reading + $0.6 \Omega$	Fluke 5500A
Resistance <sup>FO</sup>	1.1 MΩ to 3.3 MΩ	$0.015$ % of reading + $55 \Omega$	Internal Procedure:
	$3.3~\mathrm{M}\Omega$ to $11~\mathrm{M}\Omega$	$0.05$ % of reading + $550 \Omega$	STC-PC-ELE-006
	11 MΩ to 33 MΩ	$0.1$ % of reading + $550 \Omega$	
	33 MΩ to 110 MΩ	$0.5\%$ of reading $+5.5$ k $\Omega$	
	110 MΩ to 330 MΩ	$0.5\%$ of reading + $16.5 \text{ k}\Omega$	
	330 kΩ to 1.1 MΩ	$0.015$ % of reading + 55 $\Omega$	
Equipment to Measure	Up to 10 Ω	$0.001~5~\%$ of reading $+~50~\mu\Omega$	HP 3458A
Resistance <sup>FO</sup>	Up to 100 Ω	$0.001~2$ % of reading $\pm$ 500 μΩ	Internal Procedure
	Up to 1 kΩ	$0.001$ % of reading + $500 \mu\Omega$	STC-PC-ELE-006
	Up to 10 kΩ	$0.001$ % of reading + 5 m $\Omega$	
	Up to 100 kΩ	$0.001$ % of reading + $50 \text{ m}\Omega$	
	Up to 1 MΩ	$0.001$ 5 % of reading + 2 $\Omega$	
	Up to 10 MΩ	$0.005$ % of reading + $100 \Omega$	
	Up to 100 MΩ	$0.05\%$ of reading + 1 k $\Omega$	
	Up to 1 GΩ	$0.5\%$ of reading $+10 \text{ k}\Omega$	
Equipment to Output Capacitance At the listed frequencies <sup>FO</sup>			Fluke 5500A Internal Procedure: STC-PC-ELE-006
50 Hz to 1 000 Hz	0.33 ηF to 10.999 ηF	0.5 % of reading + 0.01 ηF	
50 Hz to 1 000 Hz	11 ηF to 109 ηF	0.25 % of reading + 0.1 ηF	
50 Hz to 1 000 Hz	110 ηF to 329.99 ηF	0.25 % of reading + 0.3 ηF	
50 Hz to 1 000 Hz	0.33 μF to 1.099 9 μF	0.25 % of reading + 1 ηF	
50 Hz to 1 000 Hz	1.1 μF to 3.299 9 μF	0.35 % of reading + 3 ηF	
50 Hz to 400 Hz	3.3 μF to 10.999 μF	0.35 % of reading + 10 ηF	
50 Hz to 400 Hz	11 μF to 32.999 μF	0.4 % of reading + 30 ηF	
50 Hz to 200 Hz	33 μF to 109.99 μF	0.5 % of reading + 10 ηF	
50 Hz to 100 Hz	11 μF to 329.99 μF	0.7 % of reading + 300 ηF	
50 Hz to 100 Hz	0.33 mF to 1.1 mF	1 % of reading + 300 ηF	



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MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Output Capacitance At the listed frequencies <sup>FO</sup>			Capacitance Decade CS-301 Internal Procedure
120 Hz	0.2 ηF to 200 μF	1 % of reading + 3 pF	STC-PC-ELE-003
1 kHz	2 ηF to 2 000 μF	1 % of reading + 3 pF	
Equipment to Measure Capacitance At the listed frequencies <sup>FO</sup>			GenRad 1658 Internal Procedure STC-PC-ELE-003
1 kHz	0.2 ηF to 200 μF	0.1 % of reading	
120 Hz	2 ηF to 2 000 μF	0.1 % of reading	
Equipment to Output Inductance At the listed frequencies <sup>FO</sup>			Inductance Decade LS-400 Internal Procedure
300 Hz to 200 kHz	0.1 H to 0.999 H	2 % of reading + 0.5 μH	STC-PC-ELE-003
Equipment to Measure Inductance At the listed frequencies <sup>FO</sup>			GenRad 1658 Intercal Procedure: STC-PC-ELE-003
1 kHz	0.2 mH to 200 H	0.1 % of reading	
120 kHz	2 mH to 2 000 H	0.1 % of reading	
Temperature Calibration,	600 °C to 800 °C	0.44 °C	Fluke 5500A
Indication and Control Equipment used with	800 °C to 1 000 °C	0.34 °C	Electrical Simulation of Thermocouple Output
Thermocouple Type B <sup>FO</sup>	1 000 °C to 1 500 °C	0.3 °C	Internal Procedure:
1 71	1 500 °C to 1 820 °C	0.33 °C	STC-PC-TER-002
Temperature Calibration,	0 °C to 150 °C	0.3 °C	
Indication and Control Equipment used with	150 °C to 650 °C	0.26 °C	
Thermocouple Type C <sup>FO</sup>	650 °C to 1 000 °C	0.31 °C	
Thermoscopic Type c	1 000 °C to 1 800 °C	0.5 °C	
	1 800 °C to 2 316 °C	0.84 °C	
Temperature Calibration,	-250 °C to -100 °C	0.5 °C	
Indication and Control	-25 °C to 350 °C	0.14 °C	
Equipment used with Thermocouple Type E <sup>FO</sup>	350 °C to 650 °C	0.16 °C	
The incompleting the Line	650 °C to 1 000 °C	0.21 °C	
Temperature Calibration,	-100 °C to -25 °C	0.16 °C	
Indication and Control Equipment used with Thermocouple Type J	-210 °C to -100 °C	0.27 °C	



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MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Temperature Calibration,	-100 °C to -30 °C	0.16 °C	Fluke 5500A Electrical Simulation of Thermocouple Output Internal Procedure
Indication and Control Equipment used with	-30 °C to 150 °C	0.14 °C	
Thermocouple Type J <sup>FO</sup>	150 °C to 760 °C	0.17 °C	
	760 °C to 1 200 °C	0.23 °C	STC-PC-TER-002
Temperature Calibration,	-200 °C to -100 °C	0.33 °C	
Indication and Control Equipment used with	-100 °C to -25 °C	0.18 °C	
Thermocouple Type K <sup>FO</sup>	-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	
Temperature Calibration,	-200 °C to -100 °C	0.37 °C	
Indication and Control	-100 °C to 800 °C	0.26 °C	
Equipment used with Thermocouple Type L <sup>FO</sup>	800 °C to 900 °C	0.17 °C	
Temperature Calibration,	-200 °C to -100 °C	0.4 °C	
Indication and Control Equipment used with	-100 °C to -25 °C	0.22 °C	
Thermocouple Type N <sup>FO</sup>	-25 °C to 120 °C	0.19 °C	
Thermose up to Type TV	120 °C to 410 °C	0.18 °C	)
	410 °C to 1 300 °C	0.27 °C	
Temperature Calibration,	0 °C to 250 °C	0.57 °C	Fluke 5500A
Indication and Control	250 °C to 400 °C	0.35 °C	Electrical Simulation of
Equipment used with Thermocouple Type R <sup>FO</sup>	400 °C to 1 000 °C	0.33 °C	Thermocouple Output Internal Procedure
Thermocoupie Type It	1 000 °C to 1 767 °C	0.4 °C	STC-PC-TER-002
Temperature Calibration,	0 °C to 250 °C	0.47 °C	
Indication and Control	250 °C to 1 000 °C	0.36 °C	
Equipment used with Thermocouple Type S <sup>FO</sup>	1 000 °C to 1 400 °C	0.37 °C	
Thermocoupie Type S	1 400 °C to 1 767 °C	0.46 °C	
Temperature Calibration,	-250 °C to -150 °C	0.63 °C	
Indication and Control Equipment used with Thermocouple Type T <sup>FO</sup>	-150 °C to 0 °C	0.24 °C	
	0 °C to 120 °C	0.16 °C	
	120 °C to 400 °C	0.14 °C	
Temperature Calibration,	-200 °C to 0 °C	0.56 °C	
Indication and Control Equipment used with Thermocouple Type U <sup>FO</sup>	0 °C to 600 °C	0.27 °C	



### Certificate of Accreditation: Supplement ISO/IEC 17025:2005

### **South Texas Calibration Labs**

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

#### Electrical

Issue: 12/2022

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Temperature Calibration,	200 °C to -80 °C	0.05 °C	Fluke 5500A
Indication and Control	-80 °C to 0 °C	0.05 °C	Electrical Simulation of
Equipment used with RTD Pt 385, $100 \Omega^{FO}$	0 °C to 100 °C	0.07 °C	RTD Output Internal Procedure STC-PC-TER-002
1112 11 202, 100 22	100 °C to 300 °C	0.09 °C	
	300 °C to 400 °C	0.1 °C	
	400 °C to 630 °C	0.12 °C	
	630 °C to 800 °C	0.23 °C	
Temperature Calibration,	-200 °C to -80 °C	0.04 °C	
Indication and Control	-80 °C to 0 °C	0.04 °C	
Equipment used with RTD Pt 385, 200 $\Omega^{FO}$	0 °C to 100 °C	0.04 °C	
1112 112 00, 200 11	100 °C to 260 °C	0.05 °C	
	260 °C to 300 °C	0.12 °C	
	300 °C to 400 °C	0.13 °C	
	400 °C to 600 °C	0.14 °C	
	600 °C to 630 °C	0.16 °C	
Temperature Calibration,	-200 °C to -80 °C	0.04 °C	
Indication and Control Equipment used with	-80 °C to 0 °C	0.05 °C	
RTD Pt 385, 500 $\Omega^{FO}$	0 °C to 100 °C	0.05 °C	
,	100 °C to 260 °C	0.06 °C	
	260 °C to 300 °C	0.08 °C	
	300 °C to 400 °C	0.08 °C	
	400 °C to 600 °C	0.09 °C	
	600 °C to 630 °C	0.11 °C	
	-200 °C to -80 °C	0.03 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Pt 385, 1 000 $\Omega^{FO}$	-80 °C to 0 °C	0.03 °C	
	0 °C to 100 °C	0.04 °C	
	100 °C to 260 °C	0.05 °C	
	260 °C to 300 °C	0.06 °C	
	300 °C to 400 °C	0.07 °C	
	400 °C to 600 °C	0.07 °C	
	600 °C to 630 °C	0.23 °C	



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

#### Electrical

MEASURED INSTRUMENT,	RANGE	CALIBRATION AND	CALIBRATION
QUANTITY OR GAUGE	(AND SPECIFICATION	MEASUREMENT	EQUIPMENT
	WHERE APPROPRIATE)	CAPABILITY EXPRESSED	AND REFERENCE
		AS AN UNCERTAINTY (±)	STANDARDS USED
Temperature	-20 °C to 150 °C	0.8 °C	Fluke 5500A
Controllers <sup>FO</sup>			Internal Procedure
			STC-PC-TER-002

Thermodynamic

Thermodynamic			
MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION	CALIBRATION AND MEASUREMENT	CALIBRATION EQUIPMENT
	WHERE APPROPRIATE)	CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	AND REFERENCE STANDARDS USED
Chambers Recorders	-10 °C to 65 °C	0.19 °C	Omega OM-DVTH
Thermometers <sup>F</sup>			Comparison
			Internal Procedure:
			STC-PC-TER-003
Soldering Station <sup>O</sup>	0 °C to 700 °C	0.45 °C	Hakko FG-101
			Comparison
			Internal Procedure:
			STC-PC-TER-003
Hygrometers, Recorders	10 % RH to 95 % RH	1.2 % of reading	Omega OM-DVTH
and Chambers <sup>F</sup>			Comparison
			Internal Procedure:
			STC-PC-TER-003
Laser Thermometers	50 °C	0.18 °C	Fluke 9135
(IR) <sup>FO</sup>	100 °C	0.18 °C	Internal Procedure:
Fixed Point	150 °C	0.18 °C	STC-PC-TER-003

#### Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
pH Meter <sup>FO</sup>	4.01 pH	0.027 pH	Omega PHH-60BMS
	7.01 pH	0.027 pH	Comparison
	10.01 pH	0.027 pH	Internal Procedure: STC-PC-QUI-001
Conductivity MeterFO	45 μS/cm	0.61 μS/cm	STC-PC-QUI-002
	450 μS/cm	5.7 μS/cm	
	1 500 μS/cm	8.7 μS/cm	
	4 500 μS/cm	26 μS/cm	



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

#### Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Pressure Gage <sup>FO</sup>	3 psi to 30 psi	0.1 % of reading	Ametek CPC030CINDG ASME B40.100
	0.01 psi to 100 psi	0.2 % of reading	Ashcroft
	0.1 psi to 1 000 psi	0.25 % of reading	25D1005PS02L100 ASME B40.100
	1 psi to 10 000 psi	0.5 % of reading	Druck DPI104-2- 10000PSI-SG ASME B40.100
Vacuum Gage <sup>FO</sup>	-10.7 psi to 0 psi (-101.35 kPa to 0 kPa)	0.05 % of reading	Ametek CPC030CINDG ASME B40 BS EN 837-1
Torque (Analyzer, Wrench, Transducer,	5 lbf·in to 100 lbf·in (0.011 N·m to 11.29 N·m)	0.63 lbf·in (2.802 38 N·m)	Torque Analyzer ISO 6789
Screwdriver) <sup>F</sup>	1 lbf·in to 7 200 lbf·in (0.11 N·m to 813.4 N·m)	0.5 % of reading	Weight Set Class F NIST (105-1)
	1 lbf·ft to 600 lbf·ft (1.35 N·m to 813.4 N·m)	0.55 % of reading	
Direct Verification of Durometer Hardness Tester Types: A, B, C, D, E, DO, O, M Extension at Zero reading	2.46 mm to 2.54 mm	4.5 μm	ASTMD-2240 Video Measuring Machine
Indentor Shape (Not all parameters apply to all Durometer Types)			
Identor Diameter Indentor Tip Diameter Indentor Tip Radius Indentor Tip Angle <sup>F</sup> Verification of		4.5 μm 4.5 μm 4.5 μm 0.1°	
Durometer Spring Type A, B, E & O <sup>F</sup> Verification of Durometer Spring Type	0.55 N to 8.05 N	1.2 N	ASTMD-2240 Analytical Balance
C, D & DO <sup>F</sup>	4.445 N to 44.45 N	0.8 N	



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

#### Mechanical

Issue: 12/2022

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MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Indirect Verification of	40 HRB to 59 HRB	0.36 HRB	Test Block
Rockwell Hardness Testers HRB <sup>o</sup>	60 HRB to 89 HRB	0.34 HRB	ASTM E18-08b
Testers HRB	90 HRB to 100 HRB	0.26 HRB	
Indirect Verification of	20 HRC to 39 HRC	0.21 HRC	
Rockwell Hardness	40 HRC to 59 HRC	0.21 HRC	
Testers HRC <sup>o</sup>	60 HRC to 70 HRC	0.21 HRC	
Leak Tester <sup>FO</sup>	Up to 20 sccm	0.12 sccm	Intertech CM-15 Internal Procedure: STC-PC-MEC-009
Relief Valves <sup>FO</sup>	Up to 10 000 psi	3.6 psi	Dead Weight Tester NOM-093-SCFI

Mass, Force and Weighing Devices

MEASURED INSTRUMENT,	RANGE	BEST MEASUREMENT	CALIBRATION
QUANTITY OR GAUGE	(AND SPECIFICATION WHERE	CAPABILITY EXPRESSED	EQUIPMENT
	APPROPRIATE)	AS AN UNCERTAINTY (±)	AND REFERENCE
			STANDARDS USE
	1 g to 500 g	$(1 \times 10^{-4} + 2.7 \times 10^{-6} \text{Wt}) \text{ g}$	Weights Class 1
Balance and Scale <sup>O</sup>	(Res.=0.01 mg)		SIM MWG7/cg-01
			Internal Procedure:
			STC-PC-MAS-002
	500 g to 5 kg	$(1.2 \times 10^{-1} + 7.8 \times 10^{-7} \text{Wt}) \text{ g}$	Weights Class 2
_	(Res.= 0.1 g)		SIM MWG7/cg-01
			Internal Procedure:
			STC-PC-MAS-002
	5 kg to 100 kg	$(1.1 + 1.5 \times 10^{-5} \text{Wt}) \text{ g}$	Weights Class 4
	(Res.= 1 g)		SIM MWG7/cg-01
	1 lb to 60 lb	$(2 \times 10^{-4} + 1.5 \times 10^{-5} \text{Wt}) \text{ lb}$	Internal Procedure:
	(Res.= 0.000 1 lb)		STC-PC-MAS-002
	60 lb to 5 000 lb	$(1.2 + 1 \times 10^{-7} \text{Wt}) \text{ lb}$	Weights Class F
	(Res.= 1 lb)		SIM MWG7/cg-01
			Internal Procedure:
			STC-PC-MAS-002
Weights Class 3 <sup>F</sup>	1 g	0.03 mg	Master Weights
	2 g	0.04 mg	ABBA Method Class 2
	5 g	0.046 mg	
Weights Class 3 <sup>F</sup>	10 g	0.048 mg	
	20 g	0.08 mg	



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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 (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USE
Weights Class 3 <sup>F</sup>	50 g	0.14 mg	Master Weights
	100 g	0.29 mg	ABBA Method Class 2
	200 g	0.57 mg	
	500 g	1.4 mg	
Weights Class 4 <sup>F</sup>	1 kg	5.8 mg	
	2 kg	12 mg	
Weights Class 6 <sup>F</sup>	5 kg	140 mg	Master Weights ABBA Method Class 4
	10 kg	280 mg	
	20 kg	590 mg	
Weights Class F <sup>F</sup>	1 lb	42 µlb	
	2 lb	59 μlb	
	5 lb	150 μlb	
	10 lb	320 µlb	
	20 lb	610 μlb	
	50 lb	1 500 μlb	
Force-Compression and	Up to 10 000 lbf	0.6 % of reading	Load Cell and Weights
Tension <sup>FO</sup>			Comparison LC101-10K ASTM 4-16

#### Acoustic

MEASURED INSTRUMENT,	RANGE	CALIBRATION AND	CALIBRATION
QUANTITY OR GAUGE	(AND SPECIFICATION	MEASUREMENT	EQUIPMENT
	WHERE APPROPRIATE)	CAPABILITY EXPRESSED	AND REFERENCE
		AS AN UNCERTAINTY (±)	STANDARDS USED
Sound Level MeterFO	94 dB to 114 dB	0.28 dB	Sound Level Calibrator
			OIML R102

Time and Frequency

Time and Trequency			
MEASURED INSTRUMENT,	RANGE OR NOMINAL DEVICE	CALIBRATION AND	CALIBRATION
QUANTITY OR GAUGE	SIZE AS APPROPRIATE	MEASUREMENT	EQUIPMENT
		CAPABILITY EXPRESSED	AND REFERENCE
		AS AN UNCERTAINTY (±)	STANDARDS USED
Frequency – Source <sup>FO</sup>	0.01 Hz to 11.999 kHz	0.002 5 % of reading + 1	Fluke 5500A
		MHz	Internal Procedure
	2 kHz to 2 MHz	0.002 5 % of reading + 15	STC-PC-TYF-002
		MHz	
Frequency – Measure <sup>FO</sup>	1 Hz to 40 Hz	0.05 % of reading	Agilent 53132A
	40 Hz to 10 MHz	0.01 % of reading	Internal Procedure STC-PC-TYF-005
			510-10-111-005

Issue: 12/2022 This supplement is in conjunction with certificate #L22-871-1



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

Time and Frequency

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
StopWatch / TimerFO	2 s to 86 400 s	35 ms	960-12 Totalize Method Internal Procedure: STC-PC-TYF-001
Tachometer <sup>FO</sup>	1 Rad/s to 3 141 Rad/s	0.2 Rad/s	Monarch Nova-Strobe Internal Procedure STC-PC-ELE-008
Radio Frequency			Agilent E4433B
Equipment to Output Frequency <sup>FO</sup>	250 kHz to 4 GHz	7.6 x 10 <sup>-2</sup> kHz	Internal Procedure STC-PC-TYF-002
Equipment to Measure Frequency <sup>FO</sup>	10 Hz to 5 GHz	0.008 2 Hz	Agilent 53132A Internal Procedure STC-PC-TYF-005
Equipment to Output Power <sup>FO</sup>	3 μW to 100 mW	0.007 6 μW	HP 11683A Internal Procedure STC-PC-TYF-004
	20 dB to -136 dB	0.062 dB	Agilent E4433B Internal Procedure STC-PC-TYF-004
Equipment to Measure Power <sup>FO</sup>	30 dB to -120 dB	0.019 dB	HP 8902A / 11722A Internal Procedure
Audio Frequency <sup>FO</sup>	1 Hz to 250 kHz	$5.8 \times 10^{-2} \mathrm{Hz}$	STC-PC-TYF-005
Audio Distortion Measure <sup>FO</sup>	Up to 99 dB	0.014 % of reading	HP 8903A Internal Procedure STC-PC-TYF-005
Audio RMS Measure <sup>FO</sup>	100 mVrms to 7 Vrms	5.8 x 10 <sup>-5</sup> Vrms	Agilent 34401A Internal Procedure STC-PC-TYF-005
VPPFO	0.2 mVpp to 100 Vpp	1.4 mVpp	PG506 Internal Procedure STC-PC-TYF-003

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.





### Certificate of Accreditation: Supplement

### South Texas Calibration Labs / Fernando Damian Casiano Flores

Morelos #130, Colonia Centro Ciudad Gustavo Díaz Ordaz, Tamaulipas, México. C.P. 88400 Contact: Fernando Casiano Flores Phone: 891-938-3738

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

- 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. 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
- 4. 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.
- 5. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations. Example: Outside Micrometer outside would mean that the laboratory performs this calibration onsite at the customer's location.
- 6. 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.
- 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.
- 9. This is the primary site for all quality management system activities.