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:

Tracy Szerszen
President

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

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
April 10, 2010	January 04, 2025	January 31, 2027

Accreditation No.:	*Certificate No.:*
66293	L25-4 -1

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.pjlabs.com

Certificate of Accreditation: Supplement

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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

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Micrometer [FO] (Inside, Outside, Depth)	0.05 in to 42 in (1.27 mm to 1 066.8 mm)	(385 + 10L) µin ($9.78 + 10 \times 10^{-3}L$) mm	Gage Blocks	ASME B89.1.13
Dial Indicator [FO]	0.05 in to 1 in (1.27 mm to 25.4 mm	(112 + 9L) µin ($2.84 + 9 \times 10^{-3}L$) mm		ASME B89.1.10M
Digital Indicator [FO]	0.05 in to 1 in (1.27 mm to 2.54 mm)	380 µin (9.7 µm)		
Caliper [FO]	0.05 in to 42 in (1.27 mm to 1 066.8 mm)	(483 + 14L) µin ($12.27 + 14 \times 10^{-3}L$) mm		ISO 6906 ISO 3599 JIS B 7507
Surface Plate [O] (Flatness Only)	8.5 in to 24 in Diagonal (215.9 mm to 609.6 mm)	120 µin (3.048 µm)	CMM and Planikator	ASME B89.7.3
Surface Plate [O] (Repeat Measurement Only)	0.002 in (0.050 8 mm)	40 µin (1.01 µm)	Repeat o Meter	GGG-P-453c
Thread Plug Gage [FO] (Pitch Diameter)	0 - 80 to 4 -12	150 µin (3.81 µm)	Measuring Wire Set	FED-STD-H28
Adjustable Thread Ring Gage [F] (Pitch Diameter)	0-80 to 4-12	210 µin (4.2 µm)	Super Micrometer Trimos-Sylvac 80	ANSI / ASME B1.16M ANSI/ASME B1.2
Adjustable Thread Ring Gage [F] (Minor Diameter)	4 in Maximum (100 mm Maximum)	64 µin (1.6 µm)		
Height Gage [FO]	0.05 in to 42 in (1.27 mm to 1 066.8 mm)	(245 + 21L) µin ($6.22 + 21 \times 10^{-3}L$) mm	Gage Blocks	JIS B 7517
Coating Thickness Gage [F] (Ferrous)	52.47 µm to 179.13 µm	1.2 µm	Coating Thickness Films	Internal Procedure: STC-PC-DIM-016
Coating Thickness Gage [F] (Non-Ferrous)	52.44 µm to 175.66 µm	1.1 µm		
CMM–Verification Volumetric [O]	Up to 30 in	77 µin	Renishaw MCG	ASME 89.4.10360.2 ASME B89.4.1
	0.5 in to 20 in	(30.34 + 1.34L) µin	Gage Block Gages	Internal Procedure: STC-PC-DIM-021
Gage Blocks [F]	0.05 in to 4 in (0.5 mm to 101.6 mm)	(2.6 + 1L) µin ($0.08 + 1 \times 10^{-3}L$) µm	Gage Block Comparison	ASME B89.1.9
Protractor [FO]	0° to 90°	0.01°	Angle Blocks	Internal Procedure: STC-PC-DIM-018
Video Measuring Machine [O]	0.04 in to 12 in (1.01 mm to 304.8 mm)	220 µin (5.51 µm)	Glass Standard	Internal Procedure: STC-PC-DIM-031
Angle Block [F]	0° to 180°	0.03°	CMM	Internal Procedure: STC-PC-DIM-017

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Measure Tape [F]	1 in to 300 in (25.4 mm to 7 620 mm)	0.007 1 in 1.8 mm	Video Measuring Machine	Internal Procedure STC-PC-DIM-024
Rules [F]	0.02 in to 48 in (0.5 mm to 1 220 mm)	11 µin (0.28 mm)	Standard Rule & Video Measuring Machine	Internal Procedure STC-PC-DIM-026
Roughness Tester Ra (Fixed points) [FO]	117 µin	0.76 µin	Roughness Standard	EAL-G20 ASME B46.1
Level [F]	2 in to 8 in	320 µin	Precision Lever	Internal Procedure: STC-PC-DIM-023
Optical Comparator [O] (X/Y axis Linearity)	12 in Maximum (304.8 mm) Maximum	(116.89 + 2.92L) µin	Glass Standard	Internal Procedure: STC-PC-DIM-007
Optical Comparator [O] (Angularity)	0° to 180°	0.02°		
Optical Comparator [O] (Magnification)	10X	0.03 %		
	20X	0.07 %		
	50X	0.08 %		
Cylindrical Diameter Inside [FO] (Plain Ring Gage)	4 in Maximum (100 mm Maximum)	30 µin (0.77 µm)	Super Micrometer Trimos-Sylvac 80	ASME B89.1.6 ASME B89.1.5
Cylindrical Diameter Outside [FO] (Pin Gages, Plain Plug Gage, Cylindrical Gages)	4 in Maximum (100 mm Maximum)	37 µin (0.94 µm)		

Electrical

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Equipment to Output DC Voltage [FO]	Up to 330 mV	0.006 % of reading + 3 µV	Fluke 5500A	Internal Procedure STC-PC-ELE-006
Equipment to Output DC Voltage [FO]	Up to 3.3 V	0.005 % of reading + 5 µV		
	3.3 V to 33 V	0.005 % of reading + 50 µV		
	33 V to 330 V	0.005 5 % of reading + 500 µV		
	330 V to 1 000 V	0.005 5 % of reading + 1 500 µV		

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Equipment to Output DC Voltage [FO]	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	
Equipment to Measure DC Voltage [FO]	Up to 100 mV	0.000 9 % of reading + 0.3 µV	HP 3458A	Internal Procedure STC-PC-ELE-006
	100 mV to 1V	0.000 8 % of reading + 0.3 µV		
	1 V to 10 V	0.000 8 % of reading + 0.5 µV		
	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	
Equipment to Output DC Current [FO]	Up to 3.3 mA	0.013 % of reading + 0.05 µA	Fluke 5500A	
	3.3 mA to 33 mA	0.01 % of reading + 0.25 µA		
	33 mA to 330 mA	0.01 % of reading + 3.3 µA		
	330 mA to 2.2 A	0.03 % of reading + 44 µA		
	2.2 A 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 DC Current [FO]	Up to 1 µA	0.002 % of reading	HP 3458A	Internal Procedure STC-PC-ELE-006
	1 µA to 10 µA	0.002 % of reading		
	10 µA to 100 µA	0.002 % of reading		
	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)	
Equipment to Output AC Voltage (At the listed frequencies) [FO]			Fluke 5500A	
10 Hz to 45 Hz	1 mV to 32.999 mV	0.35 % of reading + 20 µV		
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 µV		
50 kHz to 100 kHz	1 mV to 32.999 mV	0.35 % of reading + 33 µV		
100 kHz to 500 kHz	1 mV to 32.999 mV	1 % of reading + 60 µV		

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Equipment to Output AC Voltage (At the listed frequencies) FO			Fluke 5500A	Internal Procedure STC-PC-ELE-006
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 µV		
10 kHz to 20 kHz	3.3 V to 32.999 V	0.08 % of reading + 2 600 µV		
20 kHz to 50 kHz	3.3 V to 32.999 V	0.19 % of reading + 5 000 µV		
50 kHz to 100 kHz	3.3 V to 32.999 V	0.24 % of reading + 17 000 µV		
Equipment to Output AC Voltage (At the listed frequencies) FO				
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		

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Equipment to Output AC Voltage (At the listed frequencies) FO			Fluke 5500A	Internal Procedure STC-PC-ELE-006
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 frequencies) FO			Hipot 3565D	Internal Procedure: STC-PC-ELE-004
60 Hz	Up to 5 kV	2 % of reading		
60 Hz	2 kV to 20 kV	2.5 % of reading	HiPot HD125	
Equipment to Measure AC Voltage (At the listed frequencies) FO			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 frequencies) FO				
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		
Equipment to Measure AC Voltage (At the listed frequencies) FO				
45 Hz to 100 kHz	100 mV to 10 V	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		
4 MHz to 8 MHz	100 mV to 10 V	4 % of reading + 0.08 V		

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Equipment to Measure AC Voltage (At the listed frequencies) FO			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) FO				
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) FO				
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 Measure AC Voltage (At the listed frequencies) FO				
8 MHz to 10 MHz	100 mV to 10 V	15 % of reading + 0.1 V		

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Equipment to Measure AC Voltage (At the listed frequencies)[FO]			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	0.3 % of reading + 1 V		
Equipment to Measure AC Voltage (At the listed frequencies)[FO]			Vitrek 4620B	Internal Procedure STC-PC-ELE-004
20 Hz to 100 Hz	Up to 2 kV	0.07 % of reading + 2 V		
100 Hz to 400 Hz	Up to 2 kV	0.4 % of reading + 4 V		
20 Hz to 100 Hz	2 kV to 20 kV	0.2 % of reading + 20 V		
Equipment to Output AC Current (At the listed frequencies)[FO]			Fluke 5500A	Intercal Procedure: STC-PC-ELE-006
10 Hz to 20 Hz	0.029 mA to 0.32 999 mA	0.25 % of reading + 0.15 µA		
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 µA		
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)[FO]				
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 µA		
45 Hz to 1 kHz	0.33 mA to 3.2 999 mA	0.1 % of reading + 0.3 µA		
1 kHz to 5 kHz	0.33 mA to 3.2 999 mA	0.2 % of reading + 0.3 µA		
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]				
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		

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Equipment to Output AC Current (At the listed frequencies)[FO]			Fluke 5500A	Internal Procedure STC-PC-ELE-006
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 µA		
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 µA		
Equipment to Output AC Current (At the listed frequencies)[FO]				
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 frequencies)[FO]				
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 µA		
Equipment to Output AC Current (At the listed frequencies)[FO]			Fluke 5500A/ 50 Turn Coil	Internal Procedure: STC-PC-ELE-009
65 Hz to 440 Hz	11 A to 100 A	0.5 % of Output + 0.5 A		
45 Hz to 65 Hz	100 A to 500 A	0.5 % of Output + 0.5 A		
Equipment to Measure AC Current (At the listed frequencies)[FO]			HP 3458A	Internal Procedure STC-PC-ELE-006
10 Hz to 20 Hz	Up to 100 µA	0.4 % of reading + 0.3 µA		
20 Hz to 45 Hz	Up to 100 µA	0.15 % of reading + 0.3 µA		
45 Hz to 100 Hz	Up to 100 µA	0.06 % of reading + 0.3 µA		
100 Hz to 5 kHz	Up to 100 µA	0.06 % of reading + 0.3 µA		
Equipment to Measure AC Current (At the listed frequencies)[FO]				
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		

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Equipment to Measure AC Current (At the listed frequencies)[FO]			HP 3458A	Internal Procedure STC-PC-ELE-006
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) [FO]				
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 Resistance[FO]	33 kΩ to 110 kΩ	0.011 % of reading + 6 Ω		
	110 kΩ to 330 kΩ	0.012 % of reading + 6 Ω		
	11 Ω to 33 Ω	0.012 % of reading + 15 mΩ		
	33 Ω to 110 Ω	0.009 % of reading + 15 mΩ		
	110 Ω to 330 Ω	0.009 % of reading + 15 mΩ		
	330 Ω to 1.1 kΩ	0.009 % of reading + 60 mΩ		
	1.1 kΩ to 3.3 kΩ	0.009 % of reading + 60 mΩ		
	3.3 kΩ to 11 kΩ	0.009 % of reading + 0.6 Ω		
Equipment to Measure Resistance[FO]	Up to 10 Ω	0.001 5 % of reading + 50 µΩ		
	10 Ω to 100 Ω	0.001 2 % of reading + 500 µΩ		
	100 Ω to 1 kΩ	0.001 % of reading + 500 µΩ		
	1 kΩ to 10 kΩ	0.001 % of reading + 5 mΩ		
	10 kΩ to 100 kΩ	0.001 % of reading + 50 mΩ		

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

Electrical

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Equipment to Measure Resistance[FO]	100 kΩ to 1 MΩ	0.001 5 % of reading + 2 Ω	HP 3458A	Internal Procedure STC-PC-ELE-006
	1 MΩ to 10 MΩ	0.005 % of reading + 100 Ω		
	10 MΩ to 100 MΩ	0.05 % of reading + 1 kΩ		
	100 MΩ to 1 GΩ	0.5 % of reading + 10 kΩ		
Equipment to Output Resistance[FO]	11 kΩ to 33 kΩ	0.009 % of reading + 0.6 Ω	Fluke 5500A	
	1.1 MΩ to 3.3 MΩ	0.015 % of reading + 55 Ω		
	3.3 MΩ to 11 MΩ	0.05 % of reading + 550 Ω		
	11 MΩ to 33 MΩ	0.1 % of reading + 550 Ω		
	33 MΩ to 110 MΩ	0.5 % of reading + 5.5 kΩ		
	110 MΩ to 330 MΩ	0.5 % of reading + 16.5 kΩ		
	330 kΩ to 1.1 MΩ	0.015 % of reading + 55 Ω		
Equipment to Output Capacitance (At the listed frequencies)[FO]				
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		
Equipment to Output Capacitance (At the listed frequencies)[FO]				
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		
Equipment to Output Capacitance (At the listed frequencies)[FO]				
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		
Equipment to Output Capacitance (At the listed frequencies)[FO]			Capacitance Decade CS-301	Internal Procedure STC-PC-ELE-003
120 Hz	0.2 ηF to 200 µF	1 % of reading + 3 pF		

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Equipment to Output Capacitance (At the listed frequencies)[FO]			Capacitance Decade CS-301	Internal Procedure 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)[FO]			GenRad 1658	
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)[FO]			Inductance Decade LS-400	
300 Hz to 200 kHz	0.1 H to 0.999 H	2 % of reading + 0.5 µH		
Equipment to Measure Inductance (At the listed frequencies)[FO]			GenRad 1658	
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, Indication and Control Equipment used with Thermocouple Type B[FO]	600 °C to 800 °C	0.44 °C	Fluke 5500A Electrical Simulation of Thermocouple Output	Internal Procedure: STC-PC-TER-002
	800 °C to 1 000 °C	0.34 °C		
	1 000 °C to 1 500 °C	0.3 °C		
	1 500 °C to 1 820 °C	0.33 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type C[FO]	0 °C to 150 °C	0.3 °C		
	150 °C to 650 °C	0.26 °C		
	650 °C to 1 000 °C	0.31 °C		
	1 000 °C to 1 800 °C	0.5 °C		
	1 800 °C to 2 316 °C	0.84 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type E[FO]	-250 °C to -100 °C	0.5 °C		
	-25 °C to 350 °C	0.14 °C		
	350 °C to 650 °C	0.16 °C		
	650 °C to 1 000 °C	0.21 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J[FO]	-100 °C to -25 °C	0.16 °C		
	-210 °C to -100 °C	0.27 °C		

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Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J^{FO}	-100 °C to -30 °C	0.16 °C	Fluke 5500A Electrical Simulation of Thermocouple Output	Internal Procedure STC-PC-TER-002
	-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^{FO}	-200 °C to -100 °C	0.33 °C		
	-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		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type L^{FO}	-200 °C to -100 °C	0.37 °C		
	-100 °C to 800 °C	0.26 °C		
	800 °C to 900 °C	0.17 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type N^{FO}	-200 °C to -100 °C	0.4 °C		
	-100 °C to -25 °C	0.22 °C		
	-25 °C to 120 °C	0.19 °C		
	120 °C to 410 °C	0.18 °C		
	410 °C to 1 300 °C	0.27 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type R^{FO}	0 °C to 250 °C	0.57 °C		
	250 °C to 400 °C	0.35 °C		
	400 °C to 1 000 °C	0.33 °C		
	1 000 °C to 1 767 °C	0.4 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type S^{FO}	0 °C to 250 °C	0.47 °C		
	250 °C to 1 000 °C	0.36 °C		
	1 000 °C to 1 400 °C	0.37 °C		
	1 400 °C to 1 767 °C	0.46 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T^{FO}	-250 °C to -150 °C	0.63 °C		
	-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, Indication and Control Equipment used with Thermocouple Type U^{FO}	-200 °C to 0 °C	0.56 °C		
	0 °C to 600 °C	0.27 °C		

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ISO/IEC 17025:2005

South Texas Calibration Labs

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Electrical

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Temperature Calibration, Indication and Control Equipment used with RTD Pt 385, 100 Ω^{FO}	200 °C to -80 °C	0.05 °C	Fluke 5500A Electrical Simulation of RTD Output	Internal Procedure STC-PC-TER-002
	-80 °C to 0 °C	0.05 °C		
	0 °C to 100 °C	0.07 °C		
	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, Indication and Control Equipment used with RTD Pt 385, 200 Ω^{FO}	-200 °C to -80 °C	0.04 °C		
	-80 °C to 0 °C	0.04 °C		
	0 °C to 100 °C	0.04 °C		
	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, Indication and Control Equipment used with RTD Pt 385, 500 Ω^{FO}	-200 °C to -80 °C	0.04 °C		
	-80 °C to 0 °C	0.05 °C		
	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		
Temperature Calibration, Indication and Control Equipment used with RTD Pt 385, 1 000 Ω^{FO}	-200 °C to -80 °C	0.03 °C		
	-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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Temperature Controllers[FO]	-20 °C to 150 °C	0.8 °C	Fluke 5500A	Internal Procedure STC-PC-TER-002

Thermodynamic

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

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	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
pH Meter[FO]	4.01 pH	0.027 pH	Omega PHH-60BMS Comparison	Internal Procedure: STC-PC-QUI-001 STC-PC-QUI-002
	7.01 pH	0.027 pH		
	10.01 pH	0.027 pH		
Conductivity Meter[FO]	45 µS/cm	0.61 µS/cm		
	450 µS/cm	5.7 µS/cm		
	1 500 µS/cm	8.7 µS/cm		
	4 500 µS/cm	26 µS/cm		

Mechanical

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Pressure Gage[FO]	3 psi to 30 psi	0.1 % of reading	Ametek CPC030CINDG	ASME B40.100

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Mechanical

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Pressure Gage[FO]	0.01 psi to 100 psi	0.2 % of reading	Ashcroft 25D1005PS02L100	ASME B40.100
	0.1 psi to 1 000 psi	0.25 % of reading		
	1 psi to 10 000 psi	0.5 % of reading	Druck DPI104-2-10000PSI-SG	
Vacuum Gage[FO]	-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[F] (Analyzer, Wrench, Transducer, Screwdriver)	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
	100 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)
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	Video Measuring Machine	ASTMD-2240
Indentor Shape (Not all parameters apply to all Durometer Types)				
Identor Diameter		4.5 µm		
Indentor Tip Diameter		4.5 µm		
Indentor Tip Radius		4.5 µm		
Indentor Tip Angle[F]		0.1°		
Verification of Durometer Spring Type A, B, E & O[F]	0.55 N to 8.05 N	1.2 N	Analytical Balance	
Verification of Durometer Spring Type C, D & DO[F]	4.445 N to 44.45 N	0.8 N		
Indirect Verification of Rockwell Hardness Testers HRB[O]	40 HRB to 59 HRB	0.36 HRB	Test Block	ASTM E18-08b
	60 HRB to 89 HRB	0.34 HRB		
	90 HRB to 100 HRB	0.26 HRB		
Indirect Verification of Rockwell Hardness Testers HRC[O]	20 HRC to 39 HRC	0.21 HRC		
	40 HRC to 59 HRC	0.21 HRC		
	60 HRC to 70 HRC	0.21 HRC		

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Leak Tester[FO]	Up to 20 sccm	0.12 sccm	Intertech CM-15	Internal Procedure: STC-PC-MEC-009
Relief Valves[FO]	Up to 10 000 psi	3.6 psi	Dead Weight Tester	NOM-093-SCFI

Mass, Force and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Balance and Scale[O]	1 g to 500 g (Res.= 0.01 mg)	$(1 \times 10^{-4} + 2.7 \times 10^{-6} Wt)$ g	Weights Class 1	SIM MWG7/cg-01 Internal Procedure: STC-PC-MAS-002
	500 g to 5 kg (Res.= 0.1 g)	$(1.2 \times 10^{-1} + 7.8 \times 10^{-7} Wt)$ g	Weights Class 2	
	5 kg to 100 kg (Res.= 1 g)	$(1.1 + 1.5 \times 10^{-5} Wt)$ g	Weights Class 4	
	1 lb to 60 lb (Res.= 0.000 1 lb)	$(2 \times 10^{-4} + 1.5 \times 10^{-5} Wt)$ lb		
	60 lb to 5 000 lb (Res.= 1 lb)	$(1.2 + 1 \times 10^{-7} Wt)$ lb	Weights Class F	
Weights Class 3[F]	1 g	0.03 mg	Master Weights Class 2	ABBA Method
	2 g	0.04 mg		
	5 g	0.046 mg		
	10 g	0.048 mg		
	20 g	0.08 mg		
	50 g	0.14 mg		
	100 g	0.29 mg		
	200 g	0.57 mg		
	500 g	1.4 mg		
Weights Class 4[F]	1 kg	5.8 mg		
	2 kg	12 mg		
Weights Class 6[F]	5 kg	140 mg	Master Weights Class 4	
	10 kg	280 mg		
	20 kg	590 mg		
Weights Class F[F]	1 lb	42 µlb		
	2 lb	59 µlb		
	5 lb	150 µlb		
	10 lb	320 µlb		

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Mass, Force and Weighing Devices

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Weights Class F[F]	20 lb	610 µlb	Master Weights ABBA Method	ABBA Method x
	50 lb	1 500 µlb		
Force-Compression and Tension[FO]	Up to 10 000 lbf	0.6 % of reading	Load Cell and Weights Comparison	LC101-10K Internal Procedure ASTM 4-16

Acoustic

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

Time and Frequency

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Equipment to Output Frequency[O]	0.01 Hz to 11.999 kHz	0.002 5 % of reading + 1 MHz	Fluke 5500A	Internal Procedure STC-PC-TYF-002
	2 kHz to 2 MHz	0.002 5 % of reading + 15 MHz		
Equipment to Measure Frequency[FO]	1 Hz to 40 Hz	0.05 % of reading	Agilent 53132A	Internal Procedure STC-PC-TYF-005
	40 Hz to 10 MHz	0.01 % of reading		
Stopwatch / Timer[FO]	2 s to 86 400 s	35 ms	960-12 Totalize Method	Internal Procedure: STC-PC-TYF-001
Tachometer[FO]	1 Rad/s to 3 141 Rad/s	0.2 Rad/s	Monarch Nova-Strobe	Internal Procedure STC-PC-ELE-008
Radio Frequency				
Equipment to Output Frequency[FO]	250 kHz to 4 GHz	7.6×10^{-2} kHz	Agilent E4433B	Internal Procedure STC-PC-TYF-002
Equipment to Measure Frequency[FO]	10 Hz to 5 GHz	0.008 2 Hz	Agilent 53132A	Internal Procedure STC-PC-TYF-005
Equipment to Output Power[FO]	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	
Equipment to Measure Power[FO]	30 dB to -120 dB	0.019 dB	HP 8902A / 11722A	Internal Procedure STC-PC-TYF-005
Audio Frequency[FO]	1 Hz to 250 kHz	5.8×10^{-2} Hz		

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Time and Frequency

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Audio Distortion Measure^{FO}	Up to 99 dB	0.014 % of reading	HP 8903A	Internal Procedure STC-PC-TYF-005
Audio RMS Measure^{FO}	100 mVrms to 7 Vrms	5.8 x 10^{-5} Vrms	Agilent 34401A	
VPP^{FO}	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.
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.
5. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations.
6. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.
7. The term Wt. represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.
8. This is the primary site for all quality management system activities.