



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Alpha & Omega Calibration Services, LLC
2400 W 80th St Unit #6, Hialeah, FL 33016

*(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, Mechanical, Mass Force & Weighing and
Thermodynamic 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

Initial Accreditation Date:

February 25, 2013

Issue Date:

February 26, 2021

Expiration Date:

February 28, 2023

Accreditation No:

74069

Certificate No:

L21-148

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

*The validity of this certificate is maintained through ongoing assessments based on
a continuous accreditation cycle. The validity of this certificate should be
confirmed through the PJLA website: www.pjllabs.com*



Certificate of Accreditation: Supplement

Alpha & Omega Calibration Services, LLC

2400 W. 80 St. Unit 6 Hialeah, FL 33016

Contact Name: Liz Lago Phone: 305-556-3155

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

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Steel Rule ^{FO}	4 in to 39 in	(86 + 25L) μ in	Standard Steel Rule/ AOP-SST-100
Micrometers ^{FO}	Up to 24 in	(97 + 25L) μ in	Gage Blocks
Calipers ^{FO}	Up to 24 in	(860 + 25L) μ in	AOP-MIC-100
Indicators ^{FO}	Up to 12 in	(84 + 25L) μ in	AOP-CAL-100 AOP-DIA-100

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Output DC Voltage ^{FO}	Up to 100 mV	50 μ V/V + 35 μ V/V	HP34401A Fluke METCAL
	100 mV to 1 V	40 μ V/V + 7 μ V/V	
	1 V to 10 V	35 μ V/V + 5 μ V/V	
	10 V to 100 V	45 μ V/V + 6 μ V/V	
	100 V to 1 000 V	45 μ V/V + 10 μ V/V	
Equipment to Output DC Current Clamp Meters ^{FO}			Fluke 5522A, Fluke 9100-200 Fluke METCAL
10 Turn Coil	3.2 A to 32 A	0.6 mA/A + 1.18 mA	
	32 A to 105 A	0.55 mA/A + 9.4 mA	
	105 A to 200 A	0.55 mA/A + 45 mA	
50 Turn Coil	16 A to 160 A	0.60 mA/A + 5.9 mA	
	160 A to 525 A	0.055 mA/A + 47 mA	
	525 mA to 1 000 A	0.055 mA/A + 225 mA	
Equipment to Measure DC Voltage ^{FO}	Up to 30 mV	20 μ V/V + 1 μ V	Fluke 5522A Fluke METCAL
	330 mV to 3.3 V	11 μ V/V + 2 μ V	
	3.3 mV to 33 V	12 μ V/V + 20 μ V	
	33 V to 330 V	18 μ V/V + 150 μ V	
	330 V to 1 000 V	18 μ V/V + 1 500 μ V	
Equipment to Measure DC Current ^{FO}	Up to 330 μ A	150 μ A/A + 0.02 μ A	
	330 μ A to 3.3 mA	100 μ A/A + 0.05 μ A	
	3.3 mA to 33 mA	100 μ A/A + 0.25 μ A	
	33 mA to 330 mA	100 μ A/A + 2.5 μ A	
	330 mA to 1.1 A	200 μ A/A + 40 μ A	
	1.1 A to 3 A	380 μ A/A + 40 μ A	
	Up to 11 A (20 A Range)	500 μ A/A + 500 μ A	
	11 A to 20.5 A	1 000 μ A/A + 750 μ A	



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Equipment to Measure Resistance ^{FO}	Up to 11 Ω	40 $\mu\Omega/\Omega$ + 670 $\mu\Omega$	Fluke 5522A Fluke METCAL
	11 Ω to 33 Ω	30 $\mu\Omega/\Omega$ + 1 m Ω	
	33 Ω to 110 Ω	28 $\mu\Omega/\Omega$ + 1 m Ω	
	110 Ω to 330 Ω	28 $\mu\Omega/\Omega$ + 1.3 m Ω	
	330 Ω to 1.1 k Ω	28 $\mu\Omega/\Omega$ + 1.3 m Ω	
	1.1 k Ω to 3.3 k Ω	28 $\mu\Omega/\Omega$ + 13 m Ω	
	3.3 k Ω to 11 k Ω	28 $\mu\Omega/\Omega$ + 13 m Ω	
	11 k Ω to 33 k Ω	28 $\mu\Omega/\Omega$ + 130 m Ω	
	33 k Ω to 110 k Ω	28 $\mu\Omega/\Omega$ + 130 m Ω	
	110 k Ω to 330 k Ω	32 $\mu\Omega/\Omega$ + 1.3 Ω	
	330 k Ω to 1.1 M Ω	32 $\mu\Omega/\Omega$ + 1.3 Ω	
	1.1 M Ω to 3.3 M Ω	60 $\mu\Omega/\Omega$ + 20 Ω	
	3.3 M Ω to 11 M Ω	87 $\mu\Omega/\Omega$ + 33 Ω	
	11 M Ω to 33 M Ω	170 $\mu\Omega/\Omega$ + 1.7 k Ω	
	33 M Ω to 110 M Ω	330 $\mu\Omega/\Omega$ + 2 k Ω	
	110 M Ω to 330 M Ω	3.8 m Ω/Ω + 67 k Ω	
	330 M Ω to 1 100 M Ω	10 m Ω/Ω + 330 k Ω	
Equipment to Measure Capacitance ^{FO}	220 pF to 400 pF	5 mF/F + 10 pF	
	0.4 nF to 1.1 nF	5 mF/F + 0.01 nF	
	1.1 nF to 3.3 nF	5 mF/F + 0.01 nF	
	3.3 nF to 11 nF	2.5 mF/F + 0.01 nF	
	11 nF to 33 nF	2.5 mF/F + 0.01 nF	
	33 nF to 110 nF	2.5 mF/F + 0.01 nF	
	110 nF to 330 nF	2.5 mF/F + 0.03 nF	
	0.33 μ F to 1.1 μ F	2.5 mF/F + 1 nF	
	1.1 μ F to 3.3 μ F	2.5 mF/F + 3 nF	
	3.3 μ F to 11 μ F	2.5 mF/F + 10 nF	
	11 μ F to 33 μ F	4 mF/F + 30 nF	
	33 μ F to 110 μ F	4.5 mF/F + 100 nF	
	110 μ F to 330 μ F	4.5 mF/F + 300 nF	
	0.33 mF to 1.1 mF	4.5 mF/F + 1 μ F	
	1.1 mF to 3.3 mF	4.5 mF/F + 3 μ F	
	3.3 mF to 11 mF	4.5 mF/F + 10 μ F	
	11 mF to 33 mF	7.5 mF/F + 30 μ F	
	33 mF to 110 mF	11 mF/F + 100 μ F	



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Equipment to Measure AC Voltage ^{FO} (at the listed frequencies)			Fluke 5522A Fluke METCAL
10 Hz to 45 Hz	1 mV to 33 mV	800 µV/V + 6 µV	
45 Hz to 10 kHz	1 mV to 33 mV	150 µV/V + 6 µV	
10 kHz to 20 kHz	1 mV to 33 mV	200 µV/V + 6 µV	
20 kHz to 50 kHz	1 mV to 33 mV	1 000 µV/V + 6 µV	
50 kHz to 100 kHz	1 mV to 33 mV	3 500 µV/V + 12 µV	
100 kHz to 500 kHz	1 mV to 33 mV	8 000 µV/V + 50 µV	
Equipment to Measure AC Voltage ^{FO} (at the listed frequencies)			
10 Hz to 45 Hz	33 mV to 330 mV	300 µV/V + 8 µV	
45 Hz to 10 kHz	33 mV to 330 mV	145 µV/V + 8 µV	
10 kHz to 20 kHz	33 mV to 330 mV	160 µV/V + 8 µV	
20 kHz to 50 kHz	33 mV to 330 mV	350 µV/V + 8 µV	
50 kHz to 100 kHz	33 mV to 330 mV	800 µV/V + 32 µV	
100 kHz to 500 kHz	33 mV to 330 mV	2 000 µV/V + 70 µV	
Equipment to Measure AC Voltage ^{FO} (at the listed frequencies)			
10 Hz to 45 Hz	0.33 V to 3.3 V	300 µV/V + 50 µV	
45 Hz to 10 kHz	0.33 V to 3.3 V	150 µV/V + 60 µV	
10 kHz to 20 kHz	0.33 V to 3.3 V	190 µV/V + 60 µV	
20 kHz to 50 kHz	0.33 V to 3.3 V	300 µV/V + 50 µV	
50 kHz to 100 kHz	0.33 V to 3.3 V	700 µV/V + 125 µV	
100 kHz to 500 kHz	0.33 V to 3.3 V	2400 µV/V + 600 µV	
Equipment to Measure AC Voltage ^{FO} (at the listed frequencies)			
10 Hz to 45 Hz	3.3 V to 33 V	300 µV/V + 650 µV	
45 Hz to 10 kHz	3.3 V to 33 V	150 µV/V + 600 µV	
10 kHz to 20 kHz	3.3 V to 33 V	240 µV/V + 600 µV	
20 kHz to 50 kHz	3.3 V to 33 V	350 µV/V + 600 µV	
50 kHz to 100 kHz	3.3 V to 33 V	900 µV/V + 1 600 µV	



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Equipment to Measure AC Voltage ^{FO} (at the listed frequencies)			Fluke 5522A Fluke METCAL
45 Hz to 1 kHz	33 V to 330 V	190 μV/V + 2 000 μV	
1 kHz to 10 kHz	33 V to 330 V	200 μV/V + 6 000 μV	
10 kHz to 20 kHz	33 V to 330 V	250 μV/V + 6 000 μV	
20 kHz to 50 kHz	33 V to 330 V	300 μV/V + 6 000 μV	
50 kHz to 100 kHz	33 V to 330 V	2 000 μV/V + 50 000 μV	
Equipment to Measure AC Voltage ^{FO} (at the listed frequencies)			
45 Hz to 1 kHz	330 V to 1 020 V	190 μV/V + 2 000 μV	
1 kHz to 5 kHz	330 V to 1 020 V	200 μV/V + 6 000 μV	
5 kHz to 10 kHz	330 V to 1 020 V	250 μV/V + 6 000 μV	
Equipment to Output AC Current Clamp Meters- 10 Turn Coil (at the listed frequencies)			Fluke 5522A, Fluke 9100-200 Fluke METCAL
10 Hz 100 Hz	3.2 A to 32 A	0.20 mA/A ± 5.5 mA	
100 Hz to 440 Hz	3.2 A to 32 A	0.78 mA/A ± 27 mA	
Equipment to Output AC Current Clamp Meters- 10 Turn Coil (at the listed frequencies)			
10 Hz 100 Hz	32 A to 200 A	0.21 mA/A ± 90 mA	
100 Hz to 440 Hz	32 A to 200 A	0.67 mA/A ± 0.25 mA	
Equipment to Output AC Current Clamp Meters- 50 Turn Coil (at the listed frequencies)			
10 Hz to 100 Hz	16 A to 160 A	0.20 mA/A ± 28 mA	
Equipment to Output AC Current Clamp Meters- 50 Turn Coil (at the listed frequencies)			
10 Hz to 100 Hz	160 A to 1000 A	0.21 mA/A ± 0.45 A	
100 Hz to 3 kHz	160 A to 1000 A	0.50 mA/A ± 23 mA/A	
Equipment to Measure AC Current ^{FO} (at the listed frequencies)			Fluke 5522A Fluke METCAL
10 Hz to 20 Hz	29 μA to 330 μA	2 mA/A + 0.1 μA	
20 Hz to 45 Hz	29 μA to 330 μA	1.5 mA/A + 0.1 μA	
45 Hz to 1 kHz	29 μA to 330 μA	1.25 mA/A + 0.1 μA	
1 kHz to 5 kHz	29 μA to 330 μA	3 mA/A + 0.15 μA	
5 kHz to 10 kHz	29 μA to 330 μA	8 mA/A + 0.2 μA	
10 kHz to 30 kHz	29 μA to 330 μA	16 mA/A + 0.4 μA	



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Equipment to Measure AC Current ^{FO} (at the listed frequencies)			Fluke 5522A Fluke METCAL
10 Hz to 20 Hz	0.33 mA to 3.3 mA	2 mA/A + 0.15 µA	
20 Hz to 45 Hz	0.33 mA to 3.3 mA	1.25 mA/A + 0.15 µA	
45 Hz to 1 kHz	0.33 mA to 3.3 mA	1 mA/A + 0.15 µA	
1 kHz to 5 kHz	0.33 mA to 3.3 mA	2 mA/A + 0.2 µA	
5 kHz to 10 kHz	0.33 mA to 3.3 mA	5 mA/A + 0.3 µA	
10 kHz to 30 kHz	0.33 mA to 3.3 mA	1 mA/A + 0.6 µA	
Equipment to Measure AC Current ^{FO} (at the listed frequencies)			
10 Hz to 20 Hz	3.3 mA to 33 mA	1.8 mA/A + 2 µA	
20 Hz to 45 Hz	3.3 mA to 33 mA	0.9 mA/A + 2 µA	
45 Hz to 1 kHz	3.3 mA to 33 mA	0.4 mA/A + 2 µA	
1 kHz to 5 kHz	3.3 mA to 33 mA	0.8 mA/A + 2 µA	
5 kHz to 10 kHz	3.3 mA to 33 mA	2 mA/A + 3 µA	
10 kHz to 30 kHz	3.3 mA to 33 mA	4 mA/A + 4 µA	
Equipment to Measure AC Current ^{FO} (at the listed frequencies)			
10 Hz to 20 Hz	33 mA to 330 mA	1.8 mA/A + 20 µA	
20 Hz to 45 Hz	33 mA to 330 mA	0.9 mA/A + 20 µA	
45 Hz to 1 kHz	33 mA to 330 mA	0.4 mA/A + 20 µA	
1 kHz to 5 kHz	33 mA to 330 mA	1 mA/A + 50 µA	
5 kHz to 10 kHz	33 mA to 330 mA	2 mA/A + 100 µA	
10 kHz to 30 kHz	33 mA to 330 mA	4 mA/A + 200 µA	



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Equipment to Measure AC Current ^{FO} (at the listed frequencies)			Fluke 5522A Fluke METCAL
10 Hz to 45 Hz	0.33 A to 1.1 A	1.8 mA/A + 100 µA	
45 Hz to 1 kHz	0.33 A to 1.1 A	0.5 mA/A + 100 µA	
1 kHz to 5 kHz	0.33 A to 1.1 A	6 mA/A + 1 000 µA	
5 kHz to 10 kHz	0.33 A to 1.1 A	25 mA/A + 5 000 µA	
Equipment to Measure AC Current ^{FO} (at the listed frequencies)			
10 Hz to 45 Hz	1.1 A to 3 A	1.8 mA/A + 100 µA	
45 Hz to 1 kHz	1.1 A to 3 A	0.6 mA/A + 100 µA	
1 kHz to 5 kHz	1.1 A to 3 A	6 mA/A + 1 000 µA	
5 kHz to 10 kHz	1.1 A to 3 A	25 mA/A + 5 000 µA	
Equipment to Measure AC Current ^{FO} (at the listed frequencies)			
45 Hz to 100 Hz	3 A to 11 A	0.6 mA/A + 2 000 µA	
100 Hz to 1 kHz	3 A to 11 A	1 mA/A + 2 000 µA	
1 kHz to 5 kHz	3 A to 11 A	30 mA/A + 2 000 µA	
Equipment to Measure AC Current ^{FO} (at the listed frequencies)			
45 Hz to 100 Hz	11 A to 20.5 A	1.2 mA/A + 5 000 µA	
100 Hz to 1 kHz	11 A to 20.5 A	1.5 mA/A + 5 000 µA	
1 kHz to 5 kHz	11 A to 20.5 A	30 mA/A + 5 000 µA	
Oscilloscopes ^{FO}			Fluke 5522A/SC600 Fluke METCAL
Leveled Sine Amplitude 50 kHz Reference	5 mV to 5.5 Vp-p	2 % of reading + 300 µV	
Leveled Sine Wave Flatness - Amplitude	50 kHz to 100 MHz	1.5 % of reading + 100 µV	
	100 MHz to 300 MHz	2 % of reading + 100 µV	
	300 to 600 MHz	4 % of reading + 100 µV	
Square Wave 50 Ω at 10 kHz Source	1.8 mV to 2.5 Vp-p	0.25 % of reading + 40 µV	
Square wave 1 MΩ at 10 kHz Source	1 mV to 55 Vp-p	0.1 % of reading + 40 µV	
Time Marker Output	2 ns to 20 ms	3 µs/s	
Pulse Rise Time – 150 ps 1 kHz to 2 MHz	5 mV to 3 V	27 ps	



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Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type E ^{FO}	-250 °C to -100 °C	0.27 °C	Fluke 5522A Electrical Simulation of Thermocouple Output Fluke METCAL
	-100 °C to -25 °C	0.16 °C	
	-25 °C to 350 °C	0.14 °C	
	350 °C to 650 °C	0.16 °C	
	650 °C to 1 000 °C	0.16 °C	
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J ^{FO}	-210 °C to -100 °C	0.27 °C	
	-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 ^{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 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 RTD Pt 385, 100 Ω ^{FO}	-200 °C to -80 °C	0.05 °C	Fluke 5522A Electrical Simulation of RTD Output Fluke METCAL
	-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 3926, 100 Ω ^{FO}	-200 °C to -80 °C	0.05 °C	
	-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	



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Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916, 100 Ω^{FO}	-200 °C to -190 °C	0.25 °C	Fluke 5522A Electrical Simulation of RTD Output Fluke METCAL
	-190 °C to -80 °C	0.04 °C	
	-80 °C to 0 °C	0.05 °C	
	0 °C to 100 °C	0.06 °C	
	100 °C to 260 °C	0.07 °C	
	260 °C to 300 °C	0.08 °C	
	300 °C to 400 °C	0.09 °C	
	400 °C to 600 °C	0.1 °C	
	600 °C to 630 °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 Calibration, Indication and Control Equipment Used With RTD PtNi 385, 120 Ω ^{FO}	-80 °C to 0 °C	0.08 °C	Fluke 5522A Electrical Simulation of RTD Output Fluke METCAL
	0 °C to 100 °C	0.08 °C	
	100 °C to 260 °C	0.14 °C	
Temperature Calibration, Indication and Control Equipment Used With RTD Cu 427, 10 Ω ^{FO}	-100 °C to 260 °C	0.30 °C	

Mass, Force, and Weighing Devices

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Analytical Balances ^{FO}	1 mg to 100 mg	0.009 4 mg	Troemner Ultra Class 0 AOP-SCA-105 Weights
	100 mg to 20 g	0.007 2 mg	
	20 g to 1 kg	0.075 mg	
Bench Scales ^{FO}	1 kg to 20 kg	1.4 mg	INSCO Class ASTM 1 AOP-SCA-105 Weights
	25 kg to 125 kg	35 mg	INSCO Class NIST F Weights AOP-SCA-105
Pipettes ^{FO}	Up to 20 μ L	0.12 μ L	A&D AD-421B-PT AOP-PIP-135
	Up to 200 μ L	0.48 μ L	
	Up to 10 000 μ L	3.3 μ L	
Force (Tension/Compression) ^{FO}	100 lbf to 1 000 lbf	0.034 % of reading + 0.004 4 lbf	Morehouse Load Cell No. P8325 Model Precision AOP-LOA-112/AOP-FOR-112
	2 000 lbf to 20 000 lbf	0.05 % of reading + 0.024 lbf	Morehouse Load Cell No. P8326 Model Precision AOP-LOA-112/AOP-FOR-112
	5 000 lbf to 50 000 lbf	0.1 % of reading + 0.002 lbf	Morehouse Load Cell No. P8327 Model Precision AOP-LOA-112/AOP-FOR-112



Certificate of Accreditation: Supplement

Alpha & Omega Calibration Services, LLC

2400 W. 80 St. Unit 6 Hialeah, FL 33016
Contact Name: Liz Lago Phone: 305-556-3155

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

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Pressure Gauge and Transducer ^{FO}	Up to 5 psi	0.058 psi	Omega, DPG1001B-05G Druck, DPI104-2-100PSI Druck, DPI104-2-1000PSI Druck, DPI104-2-5000PSI Druck, DPI104-2-10000PSI AOP-PRE-102
	Up to 100 psi	0.082 psi	
	Up to 300 psi	0.096 psi	
	Up to 1 000 psi	0.58 psi	
	Up to 5 000 psi	2.9 psi	
	Up to 10 000 psi	5.8 psi	
Vacuum Gauge and Transducer ^{FO}	Up to 30 in Hg	0.033 in.Hg	FLUKE 2700G-G35M AOP-PRE-102
Torque Wrench ^{FO}	Up to 2 000 lbf•ft	0.14 % of reading	TDS821, TDS1250 AOP-TOR-104 CDI

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Temperature Measurement ^{FO}	-196 °C to 420 °C	0.041 °C	Amphenol M2801/RTD-400 Intelligent RTD Temp Std. Temperature Chamber with Liquid Nitrogen for Cooling AOP-THE-108
Temperature Source ^{FO}	-40 °C to 140 °C	0.041 °C	Fluke 9103 Dry-Well Amphenol CTR-40 Bath Calibrator / Amphenol M2801/RTD-400 Intelligent RTD Temp Std. AOP-THE-108
Equipment to Measure Humidity ^{FO}	5 % RH to 95 % RH	0.42 % RH	Vaisala MI70/HMP76 AOP-HYG-108
Equipment to Output Humidity ^F	5 % RH to 95 % RH	0.42 % RH	Folyon Technologies H300 Temperature & Humidity Chamber Vaisala HMP76 AOP-HYG-108

1. The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of accreditation represent the smallest Measurement uncertainties attainable by the laboratory when performing a more or less routine calibration of a nearly ideal device under nearly ideal conditions. It is 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.



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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. The presence of a superscript F means that the laboratory performs calibration of the indicated parameter at its fixed location. Example: Outside Micrometer^F would mean that the laboratory performs this calibration at its fixed location.
4. The presence of a superscript FO means that the laboratory performs calibration of the indicated parameter both at its fixed location and onsite at customer locations. Example: Outside Micrometer^{FO} would mean that the laboratory performs this calibration at its fixed location and onsite at customer locations.
5. 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
6. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.

