



# PERRY JOHNSON LABORATORY ACCREDITATION, INC.

## Certificate of Accreditation

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

### **Automated Control Systems-Calibration**

**5855 Fortner St., Dothan, AL 36305**

*(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, Thermodynamic, and Mass, Force, and Weighing Devices**

*(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 22, 2018

*Issue Date:*

August 5, 2020

*Expiration Date:*

August 5, 2022

*Accreditation No.:*

98908

*Certificate No.:*

L20-451

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](http://www.pjllabs.com)*



# Certificate of Accreditation: Supplement

## Automated Control Systems-Calibration

5855 Fortner St, Dothan, AL 36305  
 Contact Name: Gary McGowan Phone: 334-792-0113

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
Calipers <sup>FO</sup>	0.5 in to 9 in 175 mm to 300 mm	(33 + 5.7L) $\mu$ m (2.4 + 0.005L) $\mu$ m	Grade 0 Gage Blocks Grade 3 Gage Blocks Surface Plate Ring Gauge Glass Scale WI-04-08
Height Gages <sup>FO</sup>	0.05 in to 8 in	(47 + 4.3L) $\mu$ m	
Micrometer <sup>FO</sup>	0.05 in to 6 in	(42 + 5.2L) $\mu$ m	
Indicators <sup>FO</sup>	0.05 in to 4 in	(1.3 + 30L) $\mu$ m	
Optical Comparators X and Y Axis Linearity <sup>FO</sup>	0.1 mm to 100 mm	0.0039 mm	

### 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 Measure DC Current <sup>FO</sup>	0.01 $\mu$ A to 100 $\mu$ A	0.060 % of reading + 25 nA	Fluke 8846A WI-17
	100 $\mu$ A to 1 mA	0.061 % of reading + 0.05 $\mu$ A	
	1 mA to 10 mA	0.063 % of reading + 2 $\mu$ A	
	10 mA to 100 mA	0.061 % of reading + 5 $\mu$ A	
	100 mA to 1 A	0.066 % of reading + 0.2 mA	
	1 A to 3 A	0.13 % of reading + 0.6 mA	
	3 A to 10 A	0.19 % of reading + 0.8 mA	
Equipment to Output DC Current <sup>FO</sup>	2 $\mu$ A to 202 $\mu$ A	0.076 $\mu$ A	Transmille 3041 WI-12
	0.2 mA to 2.02 mA	0.000 31 mA	
	2.02 mA to 20.2 mA	0.001 9 mA	
	20.2 mA to 202 mA	0.023 mA	
	0.202 A to 2.02 A	0.000 34 A	
	2 A to 30 A	0.016 A	



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### Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure Resistance <sup>FO</sup>	0.1 $\Omega$ to 10 $\Omega$	3 m $\Omega$ + 0.13 % of reading	Fluke 8846A WI-18
	10 $\Omega$ to 100 $\Omega$	4 m $\Omega$ + 0.012 % of reading	
	100 $\Omega$ to 1 k $\Omega$	10 m $\Omega$ + 0.012 % of reading	
	1 k $\Omega$ to 10 k $\Omega$	0.1 $\Omega$ + 0.12 % of reading	
	10 k $\Omega$ to 100 k $\Omega$	1 $\Omega$ + 0.012 % of reading	
	100 k $\Omega$ to 1 M $\Omega$	10 $\Omega$ + 0.012 % of reading	
	1 M $\Omega$ to 10 M $\Omega$	0.1 k $\Omega$ + 0.047 % of reading	
	10 M $\Omega$ to 100 M $\Omega$	10 k $\Omega$ + 0.95 % of reading	
Equipment to Output Resistance <sup>FO</sup>	0.1 $\Omega$ to 1 $\Omega$	0.006 $\Omega$	Transmille 3041 WI-12
	1 $\Omega$ to 10 $\Omega$	0.007 5 $\Omega$	
	10 $\Omega$ to 100 $\Omega$	0.014 $\Omega$	
	0.1 k $\Omega$ to 1 k $\Omega$	0.000 11 k $\Omega$	
	1 k $\Omega$ to 10 k $\Omega$	0.001 1 k $\Omega$	
	10 k $\Omega$ to 100 k $\Omega$	0.009 7 k $\Omega$	
	0.1 M $\Omega$ to 1 M $\Omega$	0.000 2 M $\Omega$	
	1 M $\Omega$ to 10 M $\Omega$	0.005 4 M $\Omega$	
	10 M $\Omega$ to 100 M $\Omega$	0.67 M $\Omega$	
Equipment to Measure DC Voltage <sup>FO</sup>	10 mV to 100 mV	0.005 1 % of reading + 3.5 $\mu$ V	Fluke 8846A WI-19
	0.1 V to 1 V	0.003 1 % of reading + 7 $\mu$ V	
	1 V to 10 V	0.002 9 % of reading + 0.05 mV	
	10 V to 100 V	0.004 6 % of reading + 0.6 mV	
	100 V to 1 000 V	0.005 4 % of reading + 10 mV	
Equipment to Output DC Voltage <sup>FO</sup>	0.2 mV to 202 mV	0.009 5 mV	Transmille 3041 WI-12
	0.2 V to 2.02 V	0.000 077 V	
	2 V to 20.2 V	0.000 80 V	
	20 V to 200 V	0.009 6 V	
	200 V to 1 000 V	0.052 V	



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Equipment to Measure Capacitance <sup>FO</sup>	0.1 nF to 1 nF	25 nF + 2.7 % of reading	Fluke 8846A WI-11
	1 nF to 10 nF	0.05 nF + 1.3 % of reading	
	10 nF to 100 nF	0.5 nF + 1.2 % of reading	
	0.1 $\mu$ F to 1 $\mu$ F	5 nF + 1.2 % of reading	
	1 $\mu$ F to 10 $\mu$ F	0.05 $\mu$ F + 1.2 % of reading	
	10 $\mu$ F to 100 $\mu$ F	0.5 $\mu$ F + 1.2 % of reading	
	100 $\mu$ F to 1 mF	5 $\mu$ F + 1.2 % of reading	
	1 mF to 10 mF	0.05 mF + 1.3 % reading	
	10 mF to 100 mF	0.2 mF + 4.8 % of reading	
Equipment to Output Capacitance <sup>FO</sup>	10 nF	0.47% of reading	Transmille 3041 WI-12
	20 nF	0.47% of reading	
	50 nF	0.47% of reading	
	100 nF	0.47% of reading	
	1 $\mu$ F	0.47% of reading	
	10 $\mu$ F	0.47% of reading	



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Equipment to Measure Frequency (at the listed frequencies) <sup>FO</sup>			
3 Hz to 5 Hz	100 mV to 1 000 V	0.12 % of reading	Fluke 8846A WI-16
5 Hz to 10 Hz	100 mV to 1 000 V	0.06 % of reading	
10 Hz to 40 Hz	100 mV to 1 000 V	0.035 % of reading	
40 Hz to 300 kHz	100 mV to 1 000 V	0.012 % of reading	
300 kHz to 1 MHz	100 mV to 1 000 V	0.012 % of reading	
Equipment to Output Frequency <sup>FO</sup>	1 Hz to 10 MHz	0.003 5 % of reading	Transmille 3041 WI-12
Equipment to Measure AC Current (at the listed frequencies) <sup>FO</sup>			
5 Hz to 10 Hz	0.1 $\mu$ A to 100 $\mu$ A	0.4 $\mu$ A + 0.36 % of reading	Fluke 8846A WI-17
10 Hz to 5 kHz	0.1 $\mu$ A to 100 $\mu$ A	0.4 $\mu$ A + 0.12 % of reading	
5 kHz to 10 kHz	0.1 $\mu$ A to 100 $\mu$ A	0.25 $\mu$ A + 0.24 % of reading	
Equipment to Measure AC Current (at the listed frequencies) <sup>FO</sup>			
5 Hz to 10 Hz	100 $\mu$ A to 1 mA	0.4 $\mu$ A + 0.36 % of reading	Fluke 8846A WI-17
10 Hz to 5 kHz	100 $\mu$ A to 1 mA	0.4 $\mu$ A + 0.12 % of reading	
5 kHz to 10 kHz	100 $\mu$ A to 1 mA	2.5 $\mu$ A + 0.24 % of reading	
Equipment to Measure AC Current (at the listed frequencies) <sup>FO</sup>			
5 Hz to 10 Hz	1 mA to 10 mA	4 $\mu$ A + 0.36 % of reading	Fluke 8846A WI-17
10 Hz to 5 kHz	1 mA to 10 mA	4 $\mu$ A + 0.12 % of reading	
5 kHz to 10 kHz	1 mA to 10 mA	23 $\mu$ A + 0.24 % of reading	
Equipment to Measure AC Current (at the listed frequencies) <sup>FO</sup>			
5 Hz to 10 Hz	10 mA to 100 mA	0.04 mA + 0.36 % of reading	Fluke 8846A WI-17
10 Hz to 5 kHz	10 mA to 100 mA	0.04 mA + 0.12 % of reading	
5 kHz to 10 kHz	10 mA to 100 mA	0.25 mA + 0.24 % of reading	
Equipment to Measure AC Current (at the listed frequencies) <sup>FO</sup>			
10 Hz to 5 kHz	100 mA to 1 A	0.4 mA + 0.12 % of reading	Fluke 8846A WI-17
5 kHz to 10 kHz	100 mA to 1 A	7 mA + 0.42 % of reading	



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### Electrical

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Equipment to Output AC Current (at the listed frequencies) <sup>FO</sup>			Transmille 3041 WI-12
10 Hz to 44 Hz	20 $\mu$ A to 202 $\mu$ A	0.98 $\mu$ A	
45 Hz to 999 Hz	20 $\mu$ A to 202 $\mu$ A	0.58 $\mu$ A	
1 kHz to 10 kHz	20 $\mu$ A to 202 $\mu$ A	4.1 $\mu$ A	
Equipment to Output AC Current (at the listed frequencies) <sup>FO</sup>			
10 Hz to 44 Hz	0.2 mA to 2.02 mA	0.006 5 mA	
45 Hz to 999 Hz	0.2 mA to 2.02 mA	0.002 mA	
1 kHz to 10 kHz	0.2 mA to 2.02 mA	0.021 mA	
Equipment to Output AC Current 2 mA to 20.2 mA (at the listed frequencies) <sup>FO</sup>			
10 Hz to 44 Hz	2 mA to 20.2 mA	0.07 mA	
45 Hz to 999 Hz	2 mA to 20.2 mA	0.02 mA	
1 kHz to 10 kHz	2 mA to 20.2 mA	0.14 mA	
Equipment to Output AC Current (at the listed frequencies) <sup>FO</sup>			
10 Hz to 44 Hz	20.2 mA to 202 mA	0.65 mA	
45 Hz to 999 Hz	20.2 mA to 202 mA	0.2 mA	
1 kHz to 10 kHz	20.2 mA to 202 mA	1.4 mA	
Equipment to Output AC Current (at the listed frequencies) <sup>FO</sup>			
10 Hz to 44 Hz	0.2 A to 2.02 A	0.006 7 A	
45 Hz to 999 Hz	0.2 A to 2.02 A	0.002 9 A	
1 kHz to 5 kHz	0.2 A to 2.02 A	0.018 A	
Equipment to Output AC Current (at the listed frequencies) <sup>FO</sup>			
30 Hz to 44 Hz	2 A to 30 A	0.083 A	
45 Hz to 99 Hz	2 A to 30 A	0.03 A	
100 Hz to 10 kHz	2 A to 30 A	0.13 A	





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Equipment to Measure AC Current (at the listed frequencies) <sup>FO</sup>			Fluke 8846A WI-19
10 Hz to 5 kHz	3 A to 10 A	4 mA + 0.18 % of reading	
Equipment to Measure AC Voltage (at the listed frequencies) <sup>FO</sup>			
5 Hz to 10 Hz	0.1 mV to 100 mV	0.04 mV + 0.42 % of reading	
10 Hz to 20 kHz	0.1 mV to 100 mV	0.04 mV + 0.07 % of reading	
20 kHz to 50 kHz	0.1 mV to 100 mV	0.05 mV + 0.14 % of reading	
50 kHz to 100 kHz	0.1 mV to 100 mV	0.08 mV + 0.71 % of reading	
Equipment to Measure AC Voltage (at the listed frequencies) <sup>FO</sup>			
5 Hz to 10 Hz	0.1 V to 1 V	0.3 mV + 0.42 % of reading	
10 Hz to 20 kHz	0.1 V to 1 V	0.3 mV + 0.071 % of reading	
20 kHz to 50 kHz	0.1 V to 1 V	0.5 mV + 0.14 % of reading	
50 kHz to 100 kHz	0.1 V to 1 V	0.8 mV + 0.71 % of reading	
Equipment to Measure AC Voltage (at the listed frequencies) <sup>FO</sup>			
5 Hz to 10 Hz	1 V to 10 V	3 mV + 0.42 % of reading	
10 Hz to 20 kHz	1 V to 10 V	3 mV + 0.071 % of reading	
20 kHz to 50 kHz	1 V to 10 V	5 mV + 0.14 % of reading	
50 kHz to 100 kHz	1 V to 10 V	8 mV + 0.71 % of reading	
Equipment to Measure AC Voltage (at the listed frequencies) <sup>FO</sup>			
10 Hz to 20 kHz	10 V to 100 V	0.03 V + 0.071 % of reading	
20 kHz to 50 kHz	10 V to 100 V	0.05 V + 0.14 % of reading	
50 kHz to 100 kHz	10 V to 100 V	0.08 V + 0.71 % of reading	
Equipment to Measure AC Voltage (at the listed frequencies) <sup>FO</sup>			
10 Hz to 20 kHz	100 V to 1 000 V	0.3 V + 0.071 % of reading	
20 kHz to 50 kHz	100 V to 1 000 V	0.5 V + 0.14 % of reading	
50 kHz to 100 kHz	100 V to 1 000 V	0.8 V + 0.71 % of reading	



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### Electrical

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Equipment to Output AC Voltage (at the listed frequencies) <sup>FO</sup>			Transmille 3041 WI-12
10 Hz to 45 Hz	1 mV to 202 mV	0.68 mV	
45 Hz to 1 000 Hz	7 mV to 202 mV	0.14 mV	
1 kHz to 20 kHz	8 mV to 202 mV	0.3 mV	
20 kHz to 100 kHz	8 mV to 202 mV	2.8 mV	
100 kHz to 500 kHz	8 mV to 202 mV	3.5 mV	
Equipment to Output AC Voltage: (at the listed frequencies) <sup>FO</sup>			
10 Hz to 45 Hz	0.2 V to 2.02 V	0.006 5 V	
45 Hz to 1 000 Hz	0.2 V to 2.02 V	0.001 2 V	
1 kHz to 20 kHz	0.2 V to 2.02 V	0.002 3 V	
20 kHz to 100 kHz	0.2 V to 2.02 V	0.011 V	
100 kHz to 500 kHz	0.2 V to 2.02 V	0.032 V	
Equipment to Output AC Voltage (at the listed frequencies) <sup>FO</sup>			
10 Hz to 45 Hz	2.02 V to 20.2 V	0.065 V	
45 Hz to 1 000 Hz	2.02 V to 20.2 V	0.011 V	
1 kHz to 20 kHz	2.02 V to 20.2 V	0.02 V	
20 kHz to 100 kHz	2.02 V to 20.2 V	0.12 V	
Equipment to Output AC Voltage (at the listed frequencies) <sup>FO</sup>			
30 Hz to 45 Hz	20.2 V to 202 V	0.2 V	
45 Hz to 1 000 Hz	20.2 V to 202 V	0.16 V	
1 kHz to 20 kHz	20.2 V to 202 V	0.34 V	
Equipment to Output AC Voltage (at the listed frequencies) <sup>FO</sup>			
30 Hz to 45 Hz	202 V to 1 020 V	1.1 V	
45 Hz to 1 000 Hz	202 V to 1 020 V	0.71 V	
1 kHz to 10 kHz	202 V to 1 020 V	2.7 V	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K <sup>FO</sup>	-200 °C to -100 °C	0.59 °C	Transmille 3041A + EA001A WI-21
	-100 °C to 120 °C	0.49 °C	
	120 °C to 1 370 °C	0.54 °C	





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### Electrical

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Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J <sup>FO</sup>	-100 °C to 150 °C	0.47 °C	Transmille 3041A + EA001A WI-21
	150 °C to 1 200 °C	0.39 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T <sup>FO</sup>	-150 °C to 400 °C	0.39 °C	

### 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 Gauges <sup>FO</sup>	0.35 psi to 0.35 psi	0.000 43 psi	Druck DPI 610 WI-01
	-14 psi to 30 psi	0.018 psi	Ametek IPI030 WI-01
	30 psi to 100 psi	0.062 psi	Ametek IPIMKII100 WI-01
	100 psi to 500 psi	0.31 psi	Ametek IPIMKII500 WI-01
	500 psi to 2 000 psi	1.2 psi	Ametek IPIMKII2000 WI-01
	2 000 psi to 5 000 psi	3.0 psi	Ametek IPI05KGBXXINDG
Torque Wrenches <sup>FO</sup>	40 in•lb to 400 in•lb	0.65 % of reading	CDI 4002-I-DTT WI-22
	33 ft•lb to 250 ft•lb	1.2 % of reading	Proto J6476 WI-22



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## Automated Control Systems

122 S. Woodburn Drive, Dothan, AL 36305  
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### 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 <sup>FO</sup>	-196 °C to 0 °C	0.049 °C	Fluke 5615 with Fluke 8846 Fluke 5627A with Fluke 8846A WI-03
	0 °C to 200 °C	0.11 °C	
	200 °C to 420 °C	0.17 °C	
Temperature Source <sup>FO</sup>	-30 °C to 0 °C	0.049 °C	Fluke 5615 with Fluke 8846 Fluke 5627 with Fluke 8846 WI-03
	0 °C to 200 °C	0.0.11 °C	
	200 °C to 420 °C	0.17 °C	
Equipment to Measure Humidity <sup>FO</sup>	30 % RH to 75 % RH	1.7% RH	Vaisala HMT333 with Fluke 8846 WI-13

### Mass, Force, and Weighing Devices

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Analytical Balances <sup>FO</sup>	1 g to 200 g	(0.16 + 0.003Wt) mg	ASTM Class 1 Weights WI-02
Precision Balances <sup>FO</sup>	1 g to 600 g	(0.5 + 0.004Wt) mg	
Bench Scales <sup>FO</sup>	1 lb to 2 lb	0.000 1 lb	Class F Weights WI-02
	2 lb to 5 lb	(2 x 10 <sup>-6</sup> + 7.4 x 10 <sup>-5</sup> Wt) lb	
	5 lb to 10 lb	(2.4 x 10 <sup>-4</sup> + 4.3 x 10 <sup>-5</sup> Wt) lb	
	10 lb to 17 lb	0.005 7 % of reading	
	17 lb to 250 lb	0.013 % of reading	

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



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### **Automated Control Systems**

122 S. Woodburn Drive, Dothan, AL 36305  
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calibration of zero capacity.

3. 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.
4. 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.
5. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.
6. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.

