



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Mid-South Measurements, LLC
110 Line Drive, Mendenhall, MS 39114

(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):

Calibration of Dimensional (Calipers), Mass (Weighing Devices), Thermodynamic (Ovens), Mechanical, and Time and Frequency
(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President

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

Initial Accreditation Date:

April 29, 2019

Issue Date:

September 15, 2021

Expiration Date:

August 31, 2023

Accreditation No.

97746

Certificate No.:

L21-574

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

Mid-South Measurements, LLC

110 Line Drive, Mendenhall, MS 39114

Contact Name: Tim McMillan Phone: 601-214-3590

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 |
|---|---|--|---|
| Dial & Digital Calipers ^{FO} | Up to 305 mm (Up to 12 in) | 0.008 mm (0.0003 in) | Gage Blocks/Length Standards Ring Gages MSM-CAL0219-4 |
| Sieves ^{FO} Wire diameter/ opening diameter | 0.01 mm to 102 mm (Up to 4 in) | 0.032 mm (0.013 in) | Mitutoyo 8" Caliper MSM-S0219-3 |
| Molds ^{FO} Opening and Height Thickness | 25.4 mm to 203.2 mm (1 in to 12 in) | 0.032 mm (0.013 in) | Mitutoyo 8" Caliper 6 inch Bore Gauge MSM-Gm0805-3 |

Mass, Force, & Weighing Devices

| 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 |
|--|---|--|--|
| Electronic Balances & Scales ^O | 5 g to 200 g | 0.013 g | Class 1 Weights MSM-Bal- 0219-2 |
| | 201 g to 5 000 g | $(1.13 \times 10^{-2} + 1.35 \times 10^{-6}Wt)$ g | |
| | 5 001 g to 20 000 g | $(4.6 \times 10^{-3} + 2.72 \times 10^{-6}Wt)$ kg | |
| Scales and Balances ^{FO} | 20 000 g to 60 000 g | $(3.9 \times 10^{-3} + 1.15 \times 10^{-4}Wt)$ g | Class F Weights MSM-Bal- 0219-2 |
| Compression/Tensile Machines ^{FO} | 2 585 lbf to 22 500 lbf | $(1.63 \times 10^{-2} + 1.91 \times 10^{-4}T)$ lbf | Matest Load Cells 200 KN & 100 KN MSM-Comp.0220-2 |
| | 22 510 lbf to 450 000 lbf | $(-2.02 \times 10^{-2} + 1.92 \times 10^{-4}T)$ lbf | |

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 |
|--|---|--|--|
| Pipettes ^{FO} | 2 μ L to 10 μ L | 0.031 μ L | Troemner Weight Kit Analytical Balance MSM-P1-7298-1 |
| | 11 μ L to 50 μ L | 0.11 μ L | |
| | 51 μ L to 100 μ L | 0.18 μ L | |
| | 101 μ L to 200 μ L | 0.54 μ L | |
| | 201 μ L to 1 000 μ L | 1.7 μ L | |
| | 1 001 μ L to 5 000 μ L | 5.3 μ L | |
| | 5 001 μ L to 25 000 μ L | 5.5 μ L | |

Time and Frequency

| 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 |
|--|---|--|--|
| Stopwatches & Timers ^{FO} | Up to 86 400 s | 510 ms | NIST Time Standard NIST 960-12 |



Certificate of Accreditation: Supplement

Mid-South Measurements, LLC

110 Line Drive, Mendenhall, MS 39114

Contact Name: Tim McMillan Phone: 601-214-3590

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

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 |
|---|---|--|--|
| Ovens, Furnaces, Incubators, & Baths ^o | -12 °C to 750 °C (-22 °F to 1 350 °F) | 2.8 °C (5.1 °F) | Fluke 50 Series w/ Type K Thermocouple MSM-OV0219-2 |
| | | 0.7 °C (0.13 °F) | Martel 650.0006 100 Ω RTD MSM-OV0219-Z |
| Thermometers ^{FO} | -12 °C to 750 °C (-22 °F to 1 350 °F) | 0.13 °C (0.24 °F) | Martel 650.006 MSM-THO219-02 |

1. The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of accreditation represents the smallest measurement uncertainty attainable by the laboratory when performing a more or less routine calibration of a nearly ideal device under nearly ideal conditions. It is typically expressed at a confidence level of 95 % using a coverage factor k (usually equal to 2). The actual measurement uncertainty associated with a specific calibration performed by the laboratory will typically be larger than the CMC for the same calibration since capability and performance of the device being calibrated and the conditions related to the calibration may reasonably be expected to deviate from ideal to some degree.
2. The laboratories range of calibration capability for all disciplines for which they are accredited is the interval from the smallest calibrated standard to the largest calibrated standard used in performing the calibration. The low end of this range must be an attainable value for which the laboratory has or has access to the standard referenced. Verification of an indicated value of zero in the absence of a standard is common practice in the procedure for many calibrations but by its definition it does not constitute calibration of zero capacity.
3. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations. Example: Outside Micrometer^o would mean that the laboratory performs this calibration onsite at the customer's 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 Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.
7. The term T represents torque in lbf (including SI multiple and submultiple units) appropriate to the uncertainty statement.