



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Acro Instrument Company
1121 Coolidge Ave. National City, CA 91950

(Hereinafter called the Organization) and hereby declares that Organization is accredited

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):

Chemical, Dimensional, Electrical, Mechanical, Thermodynamic and Mass, Force, and Weighing Devices 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:

September 6, 2021

Issue Date:

September 6, 2021

Expiration Date:

November 30, 2023

Revision Date:

December 23, 2022

Accreditation No.:

80432

Certificate No.:

L21-539-R2

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.pjilabs.com



Certificate of Accreditation: Supplement

Acro Instrument Company

1121 Coolidge Ave. National City, CA 91950
 Contact Name: Randy Penrose Phone: 619-474-7068

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

Chemical

| 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 |
|--|--|--|---|
| Gas Detector ^{FO} | Hydrogen Sulfide 25 ppm (H ₂ S) | 0.2% of Reading | Ideal Calibration Gas 58DAL-0063 A.I. 21A1-5-001-1 |
| | Carbon Monoxide 100 ppm (CO) | | |
| | Methane 50% (LEL) | | |
| | Oxygen 18% (O ₂) | | |
| | Nitrogen Balance (N) | | |
| | Isobutylene 100 ppm (C ₄ H ₈) | | Nor Lab P1055100PA A.I. 21A1-5-001-1 |
| Conductivity Meter ^{FO} | 0.56 μ S | 0.62 μ S/cm | Certified Conductivity Reference Solutions A.I. 21A1-10-001-1 |
| | 9.12 μ S | 0.62 μ S/cm | |
| | 1411 μ S | 4.6 μ S/cm | |
| pH Tester ^{FO} | 4.01 pH | 0.03 pH | Certified pH Reference Solutions A.I. 21A1-10-002- |
| | 7.00 pH | 0.03 pH | |
| | 10.01 pH | 0.05 pH | |

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 – Vernier, Dial ^{FO} | Up to 12 in | (385 + 3.46 L) μ in | Gage Block Set Standard Rod Set Surface Plate 33K6-4-552-1 |
| Calipers – Digital ^{FO} | | (88 + 1.46 L) μ in | Gage Block Set Standard Rod Set Surface Plate 33K6-4-552-1 |
| Height Gauges – Vernier, Dial ^{FO} | Up to 24 in | (585 + 2.14 L) μ in | Gage Block Set Standard Rod Set Surface Plate 33K6-4-3445-1 |
| Height Gauges – Digital ^{FO} | | (124 + 3.74 L) μ in | Gage Block Set Standard Rod Set Surface Plate 33K6-4-3445-1 |
| Indicators – Dial ^{FO} | Up to 4 in | (389 + 3.34 L) μ in | Gage Block Set Surface Plate 33K6-4-889-1 |
| Indicators – Digital ^{FO} | | (116 + 4.62 L) μ in | Gage Block Set Surface Plate 33K6-4-889-1 |
| Micrometers ^{FO} | Up to 24 in | (305 + 2.48 L) μ in | Gage Block Set Standard Rod Set Surface Plate 33K6-4-15-1 |



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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 Output AC Voltage ^{FO} (45 Hz to 1 kHz) | Up to 33 mV | 0.021% of Reading | Fluke 5080A A.I. 21A1-4-001-1 |
| | 33 mV to 330 mV | 0.03% of Reading | |
| | Up to 3.3 V | 0.27% of Reading | |
| | 3.3 V to 33 V | 0.015% of Reading | |
| | 33 V to 102 V | 0.021% of Reading | |
| | 102 V to 330 V | 0.035% of Reading | |
| | 330 V to 1 020 V | 0.028% of Reading | |
| Equipment to Output DC Voltage ^{FO} | Up to 330 mV | 0.027% of Reading | Fluke 5080A A.I. 21A1-4-001-1 |
| | 0 V to 3.3 V | 0.036% of Reading | |
| | 0 V to 33 V | 0.039% of Reading | |
| | 10 V to 102 V | 0.019% of Reading | |
| | 30 V to 330 V | 0.03% of Reading | |
| | 330 V to 1 020 V | 0.003% of Reading | |
| Equipment to Output AC Current ^{FO} (45 Hz to 1 kHz) | Up to 330 μ A | 0.1% of Reading | Fluke 5080A A.I. 21A1-4-001-1 |
| | 0 mA to 3.3 mA | 0.064% of Reading | |
| | 3.3 mA to 33 mA | 0.003 7% of Reading | |
| | 33 mA to 330 mA | 0.003 2% of Reading | |
| | 0.33 A to 3 A | 0.01% of Reading | |
| | 3.3 A to 20.5 A | 0.076% of Reading | |
| Equipment to Output DC Current ^{FO} | Up to 330 μ A | 0.01% of Reading | Fluke 5080A A.I. 21A1-4-001-1 |
| | 330 μ A to 3.3 mA | 0.003% of Reading | |
| | 3.3 mA to 33 mA | 0.045% of Reading | |
| | 33 mA to 330 mA | 0.002% of Reading | |
| | 0 to 3 A | 0.031% of Reading | |
| | 3 A to 20.5 A | 0.075% of Reading | |
| Equipment to Output Resistance ^{FO} | Up to 190 Ω | 0.063% of Reading | Fluke 5080A A.I. 21A1-4-001-1 |
| | 1 k Ω to 190 k Ω | 0.089% of Reading | |
| | 1 M Ω to 190 M Ω | 0.058% of Reading | |
| Equipment to Measure DC Voltage ^{FO} | Up to 1 000 mV | 0.0013% of Reading | Fluke 45 A.I. 21A1-4-001-1 |
| | 3 V to 30 V | 0.006 6% of Reading | |
| | 300 V to 1 000 V | 0.0097% of Reading | |
| Equipment to Measure AC Voltage ^{FO} (45 Hz to 1 kHz) | Up to 300 mV | 0.2% of Reading | Fluke 45 A.I. 21A1-4-001-1 |
| | 3 V to 30 V | 0.028% of Reading | |
| | 300 V to 750 V | 0.011% + 0.22 V | |



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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 ^{FO} | Up to 300 Ω | 0.13% of Reading | Fluke 45 A.I. 21A1-4-001-1 |
| | 300 Ω to 3 k Ω | 0.003 7% of Reading | |
| | 30 k Ω to 300 k Ω | 0.013% of Reading | |
| | 3 M Ω to 300 M Ω | 0.044% of Reading | |
| Equipment to Measure AC Current ^{FO} 45 Hz to 1 kHz | Up to 30 mA | 0.014% of Reading | Fluke 45 A.I. 21A1-4-001-1 |
| | 30 mA to 100 mA | 0.017% of Reading | |
| | 1 A to 10 A | 0.11% of Reading | |
| Equipment to Measure DC Current ^{FO} | Up to 30 mA | 0.000 34% of Reading | Fluke 45 A.I. 21A1-4-001-1 |
| | 30 mA to 100 mA | 0.018% of Reading | |
| | 1 A to 10 A | 0.069% of Reading | |

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 |
|--|---|--|--|
| Vacuum Gauge ^{FO} | -30 inHg to 0 psi | 0.011% of Reading | Ametek IS33 A.I. 21A1-1-002-1 |
| Pressure Gauge ^{FO} | Up to 36 psi | 0.011% of Reading | Ametek IS33 A.I. 21A1-1-001-1 |
| | 36 psi to 5 000 psi | 0.035% of Reading | |
| | 1 000 psig to 10 000 psig | 0.015% + 0.66 psig | Fluke 700G31 A.I. 21A1-1-001-1 |
| Torque Wrench ^{FO} | 30 lbf·ft to 600 lbf·ft | 0.81% + 0.14 lbf·ft | Digitool Solutions SPT-6004 A.I. 21A1-2-001-1 |

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 Sensor ^{FO} | 50 °C to 650 °C | 0.001 7% + 0.51°C | Fluke 9141 A.I. 21A1-3-001-1 |
| Infrared Thermometer ^{FO} | 122 °F to 302 °F | 0.56% + 0.32 °F | Hart Scientific 9135 A.I. 21A1-3-002-1 |
| Temperature Sensor/Indicator ^{FO} | -200 °C to 1 370 °C | 0.038% + 0.1 °C | Fluke 724 A.I. 21A1-3-001-1 |
| Environmental Chambers ^{FO} | -40 °F to 169 °F | 0.28 % + 0.01 °F | Onset Hobo UX100-003 A.I. 21A1-3-001-1 |
| | 0% RH to 99% RH | 2. 7% of Reading + 0.15% RH | |



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Mass, Force, and 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 |
|---|---|---|---|
| Balances ^{FO} | 1 g to 180 g | .01% + 0.000 5 g | Class 7 Weights NAVAIR 17-20MM-18 |

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 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.
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.