



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Antibus Scales & Systems, Inc.
1919 Research Drive
Fort Wayne, IN 46808

Fulfills the requirements of

ISO/IEC 17025:2017

and national standard

ANSI/NCSL Z540-1-1994 (R2002)

In the field of

CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

Jason Stine, Vice President

Expiry Date: 11 May 2024

Certificate Number: L2253



This laboratory 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 (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
AND ANSI/NCSL Z540-1-1994 (R2002)**

Antibus Scales & Systems, Inc.

1919 Research Drive
Fort Wayne, IN 46808
Lynn Billiard
260-432-3591

CALIBRATION

Valid to: **May 11, 2024**

Certificate Number: **L2253**

Electrical – DC/Low Frequency

| Parameter / Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method and/or Equipment |
|--|---|---|---|
| Electrical Simulation of Thermocouple Indicating Devices | Type K (-195 to 1 260) °C Type J (0 to 760) °C | 0.87 °C 0.87 °C | Fluke Process Calibrator |

Length – Dimensional Metrology

| Parameter / Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method and/or Equipment |
|-----------------------|--------------|---|---|
| Calipers | (0 to 6) in | 590 µin | Gage Blocks |
| Micrometer | (0 to 6) in | 590 µin | Gage Blocks |
| Height Gage | (0 to 12) in | 590 µin | Gage Blocks |

Mass and Mass Related

| Parameter / Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method and/or Equipment |
|---|--|--|--|
| Force Gages & Cells: UUTs with accuracies $\leq 0.1\%$ ^{1,6} | (0 to 10 000) lbf | 1d + 0.033% load | Class F/6 Weights |
| Force Gages & Cells: UUTs with accuracies $> 0.1\%$ ^{1,6} | (0 to 30 000) lbf | 1d + 0.10% load | Class F/6 Weights |
| Force – Tension and Compression ^{1,6} | (0 to 100 000) lbf | 1d + 0.20% load | Load Cells |
| Class F/6 and lower Mass Standards | 20 lb 25 lb 50 lb 500 lb 1 000 lb 10 kg 20 kg 25 kg | 0.000 42 lb 0.000 52 lb 0.001 0 lb 0.011 lb 0.021 lb 0.23 g 0.41 g 0.51 g | Modified Substitution |
| Lab Balances ^{1,6} (Five & Six Place Balances) | (0 to 500) g | 1d + 0.004 1% of load | Class 1 Weights and NIST Handbook 44 utilized for the Calibration of Weighing Systems |
| (Four Place and Class 1 Equivalent Balances) | (0 to 5 300) g | 1d + 0.000 3% of load | |
| (Class 2 & High Precision Scales) | (0 to 5 300) g | 0.6d + 0.000 07% of load | |
| Lab Balances and High Precision Scales ^{1,6} | (0 to 35) kg | 1d + 0.001 2% of load | Class 2 & 3 Weights and NIST Handbook 44 utilized for the Calibration of Weighing Systems |
| Lab Balances and High Precision Scales ^{1,6} | (0 to 150) kg | 1d + 0.000 7% of load | Class 1 and Class 2 Weights with Substitution to range of use |
| High Resolution Unmarked Scales ^{1,6} | (0 to 5 000) kg (0 to 50 000) lb | 1d + 0.012% of load 1d + 0.012% of load | Class F,6 Weights with Substitution to range of use |
| Industrial and Commercial Scales ^{1,3,6} | (0 to 5 000) kg (0 to 200 000) lb | 1d + 0.004% of load 1d + 0.004% of load | Class F,6 Weights with Substitution to range of use |

Mass and Mass Related

| Parameter / Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method and/or Equipment |
|---|--|--|---|
| Torque Analyzers – Fixed Points | (1 to 10) ozf·in (10 to 50) ozf·in (4 to 50) lbf·in (30 to 400) lbf·in (80 to 1 000) lbf·in (20 to 250) lbf·ft (60 to 600) lbf·ft (200 to 2 000) lbf·ft | 0.096 % of reading 0.061 % of reading 0.076 % of reading 0.062 % of reading 0.071 % of reading 0.062 % of reading 0.070 % of reading 0.074 % of reading | Torque Arm and Class F/6 Weights |
| Torque Wrench With Accuracies of 0 to 1.5% With Accuracies > 1.5% | (1 ozf·in to 2 000 lbf·ft) (1 ozf·in to 2 000 lbf·ft) | 1.2 % of reading 2.6 % of reading | Torque Analyzer |

Thermodynamic

| Parameter / Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method and/or Equipment |
|--|--------------------|---|---|
| Temperature Chamber ¹ (ovens/freezers) | (-195 to 1 260) °C | 1.3 °C | Fluke Series Process Calibrator |

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ($k=2$), corresponding to a confidence level of approximately 95%.

Notes:

- On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
- High Resolution Unmarked Scales include high resolution scales not complying with the accuracy class parameters of Table 3 of NIST Handbook 44.
- Industrial Scales include but are not limited to lab balances, bench scales, floor scales, tank and hopper scales, and vehicle scales.
- Antibus Scales & Systems, Inc has resident technicians located in Bowling Green, OH.
- This scope is formatted as part of a single document including Certificate of Accreditation No. L2253.
- When the uncertainty of measurement is significantly impacted by the UUT's resolution, then the uncertainty may be expressed as a formula using the UUT's resolution, represented by "d" above.



Jason Stine, Vice President