



THE AMERICAN ASSOCIATION FOR
LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

MTS FIELD SERVICE

Eden Prairie, MN

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration. 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 18 June 2005*).

Presented this 2nd day of October 2008.

A handwritten signature in cursive script, reading "Peter Abney".

President
For the Accreditation Council
Certificate Number 1145.01
Valid to September 30, 2010



For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
& ANSI/NCSL Z540-1-1994

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CALIBRATION

Valid To: September 30, 2010

Certificate Number: 1145.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Mechanical

| Parameter/Equipment | Range | Best Uncertainty ² (±) | Comments |
|---------------------------------------|-----------------------|-----------------------------------|--|
| Force Transducers | (1 to 1 000 000) lbf | 0.1 % IV | ASTM E4, EN10002-2, ISO 7500-1 |
| | (0.0022 to 100) lbf | 0.05 % IV | Load cells Deadweight |
| Torque | (4 to 750 000) in·lb | 0.1 % IV | Torque transducer |
| | (0.15 to 200) in·lb | 0.1 % IV | Deadweight & torque arm |
| Pressure (Oil) | (4 to 50 000) psi | 0.2 % IV | Pressure transducer |
| Testing Machines – Crosshead Speed | (0.002 to 400) in/min | 0.2 % IV | Magneto-Restrictive linear transducer |

| Parameter/Equipment | Range | Best Uncertainty ² (±) | Comments |
|---------------------------|---|--|---|
| Fatigue Testing Machines– | | | MIL-STD 1312B |
| Static Alignment | (0.2 to 100) % bending | 1 % of indicated bending | Strain measurement ASTM E1012 MIL-STD 1312B |
| Dynamic Verification | (3 to 500) kip 0.1 Hz to 1 kHz | 0.5 % of maximum force indication I.V. | Force measurement Strain gage specimen ASTM E467 MIL-STD 1312B |
| Vibration | 20 Hz to 2.5 kHz (2.5 to 5) kHz (5 to 10) kHz | 2.0 % IV 3.0 % IV 4.0 % IV | Endevco 28959F |
| | (3 to 100) Hz 100 Hz to 2.5 kHz (2.5 to 10) kHz | 1.5 % IV 1.2 % IV 2.5 % IV | Bruel & Kjaer 3629 |

II. Dimensional

| Parameter/Equipment | Range | Best Uncertainty ² (±) | Comments |
|----------------------|------------------------------------|-------------------------------------|---|
| Linear Displacement | (0.04 to 80) in (0.004 to 2) in | (100 + 200L) μin (50 + 100L) μin | Glass scale <i>L</i> is the displacement in inches. |
| Extensometers – | | | |
| Gage Length | (0.5, 1, 2) in | (50 + 200L) μin | Glass scale |
| Displacement | (0.0015 to 10) in | 0.02 % strain | ASTM E83, E399; ISO 9513 <i>L</i> is the length in inches. |
| Angular Displacement | Up to 1200° | 0.2 % IV | Rotary encoder |

III. Electrical – DC & Low Frequency

| Parameter/Equipment | Range | Best Uncertainty ² (\pm) | Comments |
|---------------------|---------------|---|----------|
| DC Voltage | (0.1 to 15) V | 0.01 % IV | EDC 522 |

¹ Commercial field calibration service is sometimes available for this laboratory. Field calibration service is available for this calibration and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the uncertainties achievable on a customer's site can normally be expected to be larger than the Best Measurement Capabilities (BMC) that the accredited laboratory has been assigned as Best Uncertainty on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the calibration uncertainty being larger than the BMC.

² “Best Uncertainty” is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards of nearly ideal measuring equipment. Best uncertainties represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The best uncertainty of a specific calibration performed by the laboratory may be greater than the best uncertainty due to the behavior of the customer's device, to the environment and to influences from the circumstances of the specific calibration.