

STRUCTURES AND MATERIALS PERFORMANCE

Force Calibration Service

The NRC Institute for Aerospace Research (NRC Aerospace) deadweight force calibration service is the highest order service of its kind in Canada. The precision weights employed have been calibrated through transfer standards at the NRC Institute for National Measurement Standards, and measurement quality is assured through a biannual comparison with the National Institute for Standards and Technology (NIST) in the USA.

Federal regulations and contracts often require verification that measurements are traceable through an unbroken chain of calibrations to a national standard. The force calibration service at NRC Aerospace ensures this verification – in a short turnaround time and at reasonable rates.

We also serve clients requiring non-standard calibrations.

Testing capabilities

Force measuring devices operating in the range of 89 N (9.1 kgf; 20 lbf) to 445 kN (45,360 kgf; 100,000 lbf) can be calibrated in tension or compression by direct loading with deadweight force standards. The uncertainty of the applied forces is 0.005% after accounting for the uncertainty of the machine masses, the local gravitational constant, air buoyancy and machine to sensor interactions.

Calibrations are performed according to ASTM standard E 74. A standard calibration uses ten load levels, usually at 10 percent increments of the maximum load. Normally, three independent calibration runs are performed, with transducers being rotated 120 degrees between runs.



Calibrating the 100,000 lbf load cell

Data acquisition and analysis

Statistical analyses of tests include a second and third order curve fit to the corrected readings, standard deviation, uncertainty, lower limits for ASTM Class AA and Class A, and a linear correction factor when needed. Scatter and correction graphs are included.

Scheduling

Turnaround time for calibrations varies from a few days to several weeks. To avoid unnecessary delays, please make prearrangements with Roland Blais, who will provide you with an NRC Application Form, current fees, schedule, and tentative calibration date. A firm date can only be set after we receive your purchase order and the completed NRC Application Form. Please provide a detailed list of the devices to be submitted for calibration, including any serial numbers and the name and phone number of your technical contact. This information may be sent by fax or e-mail.

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Shipping instructions

Ship the equipment to NRC Aerospace at the address below. If a calibration is scheduled far in advance, you may delay shipping your equipment until shortly before the scheduled start date.

Use strong, reusable packing materials and containers. Include operating manuals and set-up instructions with your equipment. Please ship only items in good repair, as equipment in disrepair cannot be calibrated. If equipment defects are found after calibration has begun, the calibration will be terminated and a charge levied for work completed. Special arrangements may be made for minor repairs, which will be charged at cost.

If no shipping or insurance instructions are provided, NRC Aerospace will return the shipment by common carrier, collect and uninsured.

Shipping address

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Building M-14, 1200 Montreal Road
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Or visit our Web site at: www.nrcaerospace.com

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