



Morehouse
THE FORCE IN CALIBRATION SINCE 1925



MF-1001
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Products and Services for Making Superior Force and Torque Measurements



Making the World a Safer Place Together

Load Cells

Reduce Annual Calibration Costs by Doing More with Less



Morehouse is a recognized authority when it comes to load cells. We offer different types of increasing capacity and increasing accuracy load cells. From Ultra-Precision Shear Web to button load cells we have the right tools for your application.

- Metrology and Field Kits
- Up to 27,000 kN (6,000,000 lbf)
- Lightweight systems for your travel needs
- 0.005 % Accuracy on Ultra-Precision load cells
- Common capacities are in stock

Indicators

Various Models for Different Applications and Accuracies



At Morehouse we know that having superior accuracy load cells does not matter unless you can precisely read the load cell output. We have a range of indication solutions to match your accessibility and readability requirements.

- 4215: Highly accurate, dual channel
- HADI: Accurate, computer power with USB
- PSD: Handheld, battery operated
- DSC-USB: Analog to digital with DC excitation

Universal Calibrating Machines (UCM)

Hydraulic Force Calibration Systems that Last for Generations



Morehouse's Universal Calibrating Machines are the gold standard in calibration machines. We can calibrate the machines' reference standard to the highest accuracies available in commercial industry.

- Tension / Compression
- Capacities from 100 lbf to 3,000,000 lbf (0.5 kN to 14 MN)
- Precision alignment
- Fine and coarse adjustment
- Easy-to-use
- Low maintenance
- Custom designs available

Quick Change Tension Members & Clevis Sets

Versatile, Patent Pending Adapter System that Saves Time and Money



Morehouse has created multiple adapters, adapter sets, and accessories to meet specific customer application requirements. They are designed to provide proper loading and alignment to ensure the highest possible measurement accuracy.

- No need to change Tension Members
- Automatic alignment
- ISO 376 compliant
- Large variety with different capacities
- Fit for crane scales

Deadweight Calibrators

The Most Accurate Force Calibration System

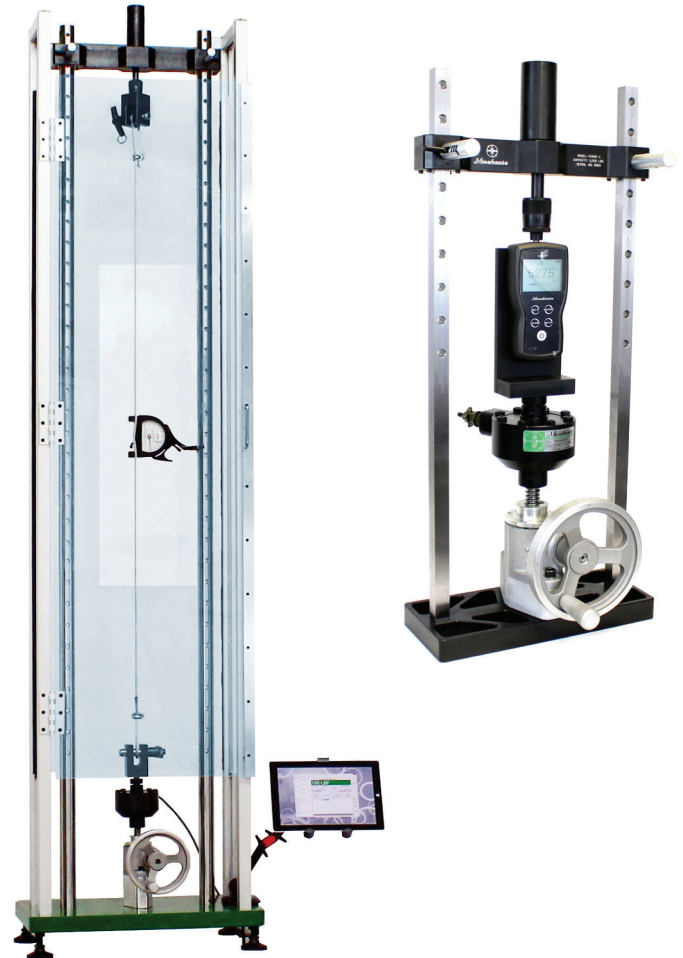


Morehouse Deadweight Calibrators provide the most accurate force calibration standards available and include a set of calibrated weights at different sizes. All machines make full use of the accuracy of deadweights and are built using true primary standards.

- Calibration uncertainty as low as 0.0016 % of applied force
- Tension / Compression calibration
- Capacities from 100 lbf to 120,000 lbf (0.5kN to 600kN)
- Custom designs available

Mechanical Force Calibrators

A Better Way to Calibrate Hand-Held Force Gauges, Load Cells, and More...



Morehouse's simple, low maintenance calibrators allow for a quick change of calibration setups to save on calibration time. These machines eliminate the need for carrying and stacking hand weights. Instead, a mechanical jack generates forces, making them an attractive, versatile, and economic solution.

- Eliminates the need to stack weights
- Portable designs
- Capacities up to 10,000 lbf (50kN)
- 5 ft (1.5m) Plus Tensiometer version available

Aircraft and Truck Scale Calibrator

Accommodates Large Size, High Capacity Scales



The Aircraft and Truck Scale Calibrator accommodates scales that are utilized to weigh aircrafts and heavy weight vehicles. Designed to speed up the calibration and certification of scales, it maintains the high degree of accuracy needed for proper certification. The calibrator can be used for all kinds of truck and aircraft scales, including:

- Intercomp
- GEC
- Haenni
- Rice Lake
- Ohaus
- Jackson Aircraft Weighing (JAWS)
- Proform
- Brechnell
- Tanner Racing
- Taylor

More Force Solutions

Calibration Kits, Digital Proving Rings, Force Gauges and Custom Solutions



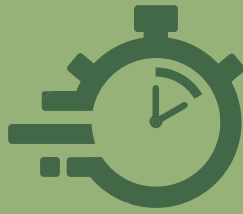
Whatever your force calibration needs, Morehouse has a solution! From the design of the proving ring in the 1920's to custom load cell designs today, our products have been providing force calibration solutions to the industry for more than 100 years.

- Digital proving ring
- Concrete compression machine calibration kit
- Force gauge
- Load cell tester
- 5 in 1 force verification system
- Hardness tester
- Hand-held force gauge calibration adapter kit
- Custom load cells

Force and Torque Calibration Services



High accuracy



Quick lead time



Low measurement risk

**Highest
deadweight
calibration
capabilities**

of any commercial
lab in the US

Primary standards
are **10-50 times
better** than other
force calibration
suppliers using
secondary standards

Can calibrate
instruments
from **.1 lbf
through 2.25
million lbf**

**ISO/IEC
17025:2017**
accredited
**ASTM E74, ISO
376** and other
force calibrations

We Inspire Confidence and Results

Morehouse exercises calibration best practices, such as initial inspection of all instrument components and simulation of customer loading conditions during calibration. We can calibrate load cells (regular and multi-axis), proving rings, force gauges, dynamometers, crane scales, aircraft scales, and other force-measuring instruments.

- Primary Standards laboratory, directly traceable to SI through NIST.
- Featuring the second lowest torque uncertainty in the world from 1N·m to 2 kN·m, second only to National Physics Laboratory.
- Accredited force calibration services through 2,250,000 lbf (10,000 kN) in compression and 1,125,000 lbf (5,000 kN) in tension.
- Deadweight calibration up to 120,000 lbf (600 kN), accurate to 0.0016 % of applied force.
- Audits performed by Nuclear Procurement Issues Committee (NUPIC) for compliance with 10 CFR 50 Appendix B, and 10 CFR Part 21.



Morehouse Training Courses

Morehouse provides in-person and virtual courses where you will learn from the experts. The instructors will teach you how to measure better, build tools, simplify uncertainty, and achieve the best result possible with our tools. If you have any questions or need customized training for your team, contact us at info@mhforce.com.



Force Fundamentals

This course will cover applied force calibration techniques and potential errors made in everyday force measurements, including errors associated with improper alignment, use of different and/or incorrect adapter types, thread depth and thread loading. This course also covers the importance of calibrating force measurement devices in the manner in which they are being used in order to reduce errors and lower uncertainty.

Measurement Uncertainty

This course covers techniques for laboratories in estimating the measurement uncertainty for their scope of accreditation. It covers several tools and techniques that a lab may apply in measurement uncertainty analysis estimation per ISO Guide 98 (GUM). The tools are generic in nature so that it can be applied to various parameters.

Implementing Metrology & SPC Concepts with Excel

This one-day course prepares the metrology professional to apply the power of Microsoft Excel's mathematical and statistical tools to assist in managing the laboratory's Quality Management System including Measurement Uncertainty.

ISO/IEC 17025 Implementation

This 2-day course provides a general framework of tools for the laboratory seeking ISO/IEC accreditation. Attendees will learn how to interpret the standard and what is required of the laboratory to successfully get accredited the first time. Time saving techniques and tools are shared so the laboratory does not fail major criteria for accreditation.



Instructor: Henry Zumbrun, President, Morehouse Instrument Company

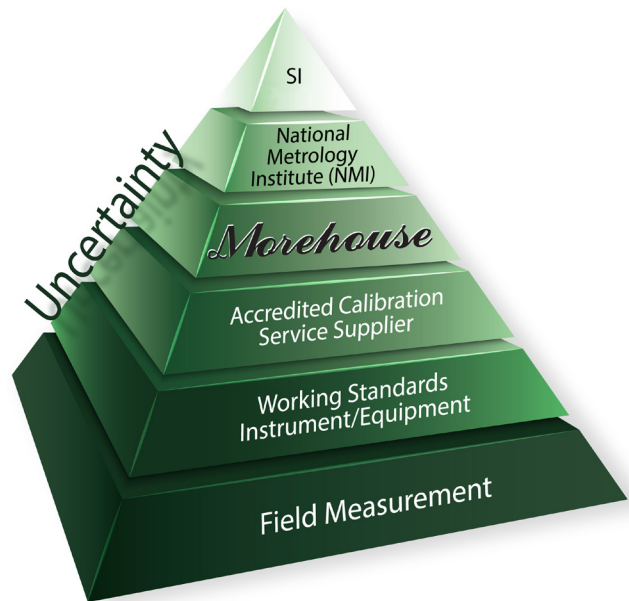
Henry's passion is to help labs make better force measurements to make the world a safer place. He explains error sources and how to use this knowledge to make better measurements. He has taught various classes for NCSLI, NIST, MSC, and A2LA, and has authored published papers and the Guidance on Uncertainty Budgets for Force Measurement and Calibration for A2LA.

Visit www.mhforce.com/training-programs to register for an upcoming training course.

Why Morehouse?

Problems related to bad measurement practices often result in critical failures. Proper calibration and best practices result in less product or process failures. Our goal is to solve problems before failures occur.

Morehouse is a primary standards laboratory, directly traceable to SI through NIST. Over our 100+ year history we've built a reputation and earned trust by helping companies improve their force and torque measurements. Morehouse works carefully to determine every customer's calibration needs, both in our calibration service labs and with each product sold.



What's in it for you?

Lower Risk

Your measurement risk is determined by the accuracy of the standards used for calibration. By using highly accurate standards, which are most often better than 0.002 % of applied force, we can reduce your measurement risk.

Less Downtime

Your downtime can result in overtime, lost revenue, rescheduled work, and lost customers. We offer calibration service with less than two-week lead times and expedited next-day turnaround to ensure your equipment is there when you need it most.

Cost Effective Systems

A typical Morehouse system will use fewer load cells. This translates into a reduction in calibration, setup, and transportation costs. Our versatile adapters eliminate the need for intermediate adapters and reduce setup time and cost.

Problems Solved

Have you been treated like a number, or someone of low priority? Morehouse puts customers first, working directly with you to answer questions and solve problems. Emails are answered daily, and callers are greeted by a live person.

For more information on calibration, products, or training courses, contact us. We are a customer-oriented company, where a live person answers the phone.