

# MOREHOUSE GENERAL PRODUCT LINE BULLETIN



## Morehouse Proving Rings “THE CALIBRATION STANDARD AGAINST WHICH ALL OTHERS ARE MEASURED”

Depending on your calibration needs a Morehouse Proving Ring can provide you with an accuracy of .075% to .0125% of capacity. To simplify this, assume you want to measure 100lbf, depending on what series\* Morehouse Ring you are using the uncertainty can range from .075lbf to .0125lbf.

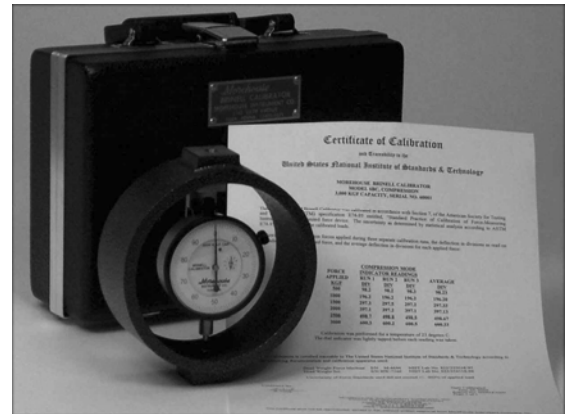
What makes a Morehouse Proving Ring a superior instrument?

Besides low uncertainties it has been proven that a steel ring made of the correct steel alloy and properly manufactured will perform as a near perfect elastic member. The Morehouse Proving if used and maintained

properly can last indefinitely. In fact, several of our Rings manufactured in the late twenties and early thirties are still in use. A major advantage of Proving Rings is that they are not sensitive to rotation/positioning problems associated with many load cells.

## Morehouse Brinell Calibrators

Morehouse Brinell Calibrators are calibrated in accordance with ASTM E74 and certified directly traceable to the United States National Institute of Standards & Technology. This calibrator has approximately .060” deflection at capacity. To insure the desired degree of accuracy, the fully jeweled indicator used to measure ring deflection under load is carefully pre selected and pre calibrated prior to its installation in a Brinell Calibrator. The assembled Brinell Calibrator is calibrated using a Deadweight machine.



## Morehouse Deadweight Load Cell Calibrators

Morehouse Deadweight Load machines are the “cream of the crop”. The machines feature unmatched accuracies of .002%. With all weights adjusted to specific gravity of the location they are being shipped. The machines are available in three different models. The Model L, the Model MH and the Model ML. The capacities available range from 100 LBF to 120,000 LBF. The Model L is available up to 2,000 LBF with the weights being applied using a series of hand controlled levers. The Model MH is a pneumatic machine with the weights being controlled by a series of air controlled switches. The Model ML is reserved for all machine above 100,000 LBF. The machine is based on the MH design and everything operates similar to the model MH. The ML differs in regards to shear size and weight. Any machine over 100,000 LBF is considered a model ML. Both the Model MH and ML can be controlled via a computer and manual switches. All of the machines can be manufactured to support equivalent weights in KGF, KN, and Newtons. All Morehouse Deadweight machines feature a movable stage beam that allows for both Tension and Compression calibration of load cells, proving rings (pictured in compression), force gauges, dynamometers, brinell calibrators and various other force measuring instruments.

MOREHOUSE INSTRUMENT COMPANY, INC

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## Morehouse Ring Force Gauges

A low-cost calibrating instrument for use where high accuracy certified proving rings are not required. It is constructed of an elastic steel load ring with a precision dial indicator that gives a direct reading in pounds (also available with a digital read). The Ring Force Gauge is supplied with tapped holes in the external bosses so it can be fitted with adaptors, accessories, mounting brackets or base plates. Standard fittings are supplied with both compression and tension models to facilitate calibrations and other uses. Analog Force Gauges have an accuracy of 1/2 % of full-scale capacity are available in capacities from 2 LBF to 1,000,000 LBF and can be used in several applications. These applications include; calibration of certain testing machines, weighing devices, and assembly presses, control instruments, cable tension, soil testing, or other equipment measuring force in pounds. Also as a prime weighing device or permanent load-sensing component in testing or production equipment. Morehouse also offers a digital force gauge with readout. The Morehouse Digital Force Gauge offers an accuracy of .1% of capacity in tension and .2% of capacity in a Tension and Compression gauge.



## Morehouse Universal Calibrating Machines



A versatile machine which greatly facilitates both compression and tension calibrations. The movable yoke has an adjustable upper platen to allow for different size cells. The design contributes to accurate calibrations by assuring axial loading while eliminating all friction and machine losses. The machine can accommodate several different calibration standards. A Morehouse Proving Ring (pictured left) or a Morehouse Load Cell can be used as the calibration standard. A powered hydraulic pump activated by a precision, manually operated, two-speed pump especially designed for calibration work produces the force. Many accessories such as pulling rods, adaptors, alignment bushings and studs are available to help adapt load cells of many varieties for calibration. Available in Capacities from 10,000 LBF to 1,100,000 LBF or its equivalent in KGF, KN or Newtons. Please Note: We can make any accessory or adaptor for use with your force calibrating instrument or machine to suite your needs.



## Morehouse Load Cells



Morehouse load cells are available in different models. With uncertainties as low as .005% (Ultra Precision Model) to 100,000 LBF. ASTM-E74 class A lower limits from 2% of capacity or better and class AA from 10% of capacity or better. The Morehouse Precision grade calibration standard has guaranteed uncertainties of .01% or better and Class A lower limits of 4% or better of capacity. Our general purpose Calibration grade load cells are guaranteed to have uncertainties of .02% or better and ASTM E74 class A lower limits of better than 8% in Tension and Compression. All Morehouse

Load Cells above 100,000 capacity are column load cells that will have uncertainties of .02% or better. (pictured left a Morehouse Ultra Precision Shear Web Load Cell)

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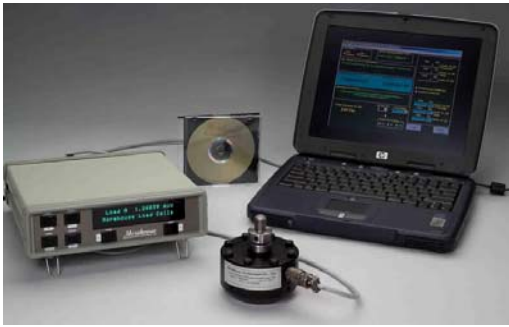
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Force Calibration By Us in Our Lab. Force Measurement By You With Our Products. Directly Traceable to N.I.S.T.

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## Morehouse Direct Reading Load Cell Systems



FOR CALIBRATION OF LOAD CELLS, TESTING MACHINE AND OTHER FORCE SYSTEMS. DIRECT READING ACCORDING TO ASTM-E74 WHEN USING A COMPUTER INTERFACE WITH MOREHOUSE INDICATOR AND MOREHOUSE CUSTOM SOFTWARE.

THE MOREHOUSE DIRECT READING SOFTWARE ELIMINATES THE NEED FOR LOAD TABLES. THIS SYSTEM WAS DESIGNED TO USE THE COEFFICIENTS FROM A CALIBRATION REPORT AND APPLY THEM TO THE "LIVE" SIGNAL OF THE INDICATOR.

SOME ADVANTAGES OF THIS SYSTEM ARE:

THE UNITS "AS RECEIVED" CALIBRATION IS THE SAME AS THE UNITS "AS RETURNED" CALIBRATION (THE SYSTEM IS SETUP SO THAT THE UNIT IS CALIBRATED IN mV/V. THEN WHEN THE LOAD CELL IS RECALIBRATED THE NEW CALIBRATION COEFFICIENTS ARE ENTERED USING THE CALIBRATION DATA SUPPLIED BY MOREHOUSE. THE DATA REPORT ISSUED IS ALWAYS IN mV/V)

THE SYSTEM IS A **TRUE DIRECT READING ACCORDING TO ASTM E74 DEVICE**. IT REQUIRES A LAPTOP COMPUTER AND USES COEFFICIENTS FROM ASTM E74 CALIBRATIONS TO GENERATE THE VALUE FOR THE LOAD BEING APPLIED. THE END USER CAN READ DIRECT ENGINEERING UNITS IN LBF, KGF, KN and NEWTONS

## Morehouse Force Calibration Services



Our lab is unique in that we are the first A2LA accredited commercial laboratory that offers deadweight calibrations up to 120,000 LBF (pictured left Morehouse 120,000 LBF dead weight machine). Having the capability to offer deadweight calibrations to our customers not only lowers our best uncertainty (.002 % of capacity up to 120,000LBF) but also offers the best possible calibration, which in general can drastically lower the uncertainty of the instrument being calibrated. Our calibration laboratory has the facilities for calibrating from 0.1 LBF through 1,000,000lbf, or its equivalent in Kilograms force or Newtons in either tension or compression under controlled conditions. The temperature is maintained at all times within .5 degrees Celsius and the best possible alignment fittings and adaptors are used to ensure quality calibration. In addition, all force standards used by Morehouse comply with ASTM specification E 74 and iso guide 17025 and are directly traceable to N.I.S.T.

- We can calibrate but are not limited to the following: Load Cells, Load Rods, Load Rings, Force Gauges, Proving Rings, Crane Scales, Strain Gauges, Traction Dynamometers, Electronic Dynamometers, Brinell Calibrators, Loop Rings, Bolt Testers, Rockwell Calibrators, Dynalinks, Dynafors,

Dillon Ed-2000, Single Acting Cylinders, Clevis Pins, Push/Pull Gauges and more

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