

Brinell Hardness Tester Bulletin 227



GENERAL SPECIFICATIONS FOR BRINELL CALIBRATOR:

Overall Dimensions: 5-1/4" x 2" x 5-7/8" high

Certified accuracy: 1/10 of 1%

Weight of Calibrator: 4 lbs

Calibrated Loads: 500 kgs.; 1,000 kgs.; 1,500 kgs.; 2000 kgs.; 2,500 kgs.; and 3,000 kgs.

Approx. deflection at capacity in inches: .060"

Approx. deflection at capacity in divisions: 600 div.

Sensitivity: 1/10 Division

Readability: 1/10 Division

Shipping Weight: Approx 10 lbs.

Brinell Hardness Testers

The ever-increasing emphasis on product quality control demands that inspection and test equipment constantly be maintained at peak performance levels. To achieve this condition, standards used to check performance of quality control equipment must afford unquestionable accuracy.

Further, because modern technology is demanding more and more lightweight components made from heat-treated metal, it becomes increasingly important that the highest attainable degree of accuracy in hardness measurement and control be maintained to help assure maximum product quality and reliability, and thereby greatly reduce cost incurred by rejections, or perhaps complete product failure.

For many years the world-famous Morehouse Proving Ring, which fully meets the exacting requirements of The National Bureau of Standards specifications has been recognized as the standard for calibration of all materials testing machines and Brinell Hardness testers. Because the Morehouse Proving Ring is an expensive instrument to make, however, its use may be economically impractical where only one or two Brinell hardness testers must be calibrated.

To offset this problem, Morehouse Instrument Company is proud to offer two different models of the Morehouse Brinell Calibrator.

The instrument operates on the same time proven principles as the proving ring, and is produced with the same care.

The specially-alloyed steel ring used in the Brinell Calibrator is made to the same exacting, closely controlled specifications as the Morehouse Proving Ring. To doubly insure the desired degree of accuracy, the special, fully jeweled indicator used to measure ring deflection under load is carefully preselected and precalibrated prior to its installation in a Brinell Calibrator.

The assembled Brinell Calibrator is calibrated against a series 200 (1/20 or 1% accuracy) Morehouse Proving Ring, which in turn is directly calibrated by NIST, recognized as a vital requirement in a standardization program.

Only after the Brinell Calibrator has been proven to meet the accuracy of 1/10 of 1% of the applied load is a *Certificate of Calibration* issued for it. The *Certificate of Calibration* issued for each approved Morehouse Brinell Calibrator shows: (1) the actual deflection of each load for three calibration runs; (2) the average deflection of three runs at each load, used to determine the actual applied load in use; and (3) the departure of each load from the average, which is used to verify accuracy.

In use the Morehouse Brinell Calibrator is simply inserted into a hardness tester in place of the usual metal specimen. The load is applied to the Brinell Calibrator and the resulting deflection is read on the indicator.

The error of the hardness tester load is determined by dividing the deflection of the Brinell Calibrator under load into the difference between the actual deflection and what the deflection should be for the load being calibrated.

Example:

- A. Load applied according to hardness tester reading3,000 Kg.
- B. Deflection of the Brinell Calibrator under load575.8 Div.
- C. Deflection of Brinell Calibrator should be according to average on certificate of calibration at 3,000 Kg. Load 610.5 Div.
- D. Difference between B and C34.7 Div.
- E. Error of Brinell Hardness Tester in applying load5.8%

Each Morehouse Brinell Calibrator is supplied with a polished hardwood instrument case; and a pad of certificates of calibration forms which are used to show the results of the calibration of the individual hardness testers calibrated, and then posted with the machine.



Pictured above a Morehouse low profile brinell calibrator

This calibrator is used when an opening smaller than 6" high is required. The low profile brinell calibrator is does not exceed a height of 4".

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