

Mitutoyo 64AAA590

Mitutoyo 64AAA590 Calibration Set for Shore A Scales User Manual

Model: 64AAA590

1. INTRODUCTION

This user manual provides essential information for the correct operation, maintenance, and care of the Mitutoyo 64AAA590 Calibration Set. This set is designed for the calibration and verification of Durometer testers, specifically those operating on the Shore A scale. Adherence to these instructions will ensure accurate measurements and prolong the lifespan of the calibration set.

2. SAFETY INFORMATION

- Always handle the calibration blocks with clean hands or gloves to prevent contamination from oils or dirt, which can affect accuracy.
- Store the calibration set in its provided mahogany case when not in use to protect the blocks from damage, dust, and environmental factors.
- Avoid dropping or subjecting the blocks to impact, as this can alter their hardness properties and compromise calibration accuracy.
- Do not expose the blocks to extreme temperatures or direct sunlight for prolonged periods.
- Keep the set away from strong magnetic fields.

3. PRODUCT OVERVIEW

The Mitutoyo 64AAA590 Calibration Set includes three precision-engineered blocks with nominal hardness values for Shore A scales, housed in a protective mahogany case. These blocks are used to verify the accuracy of Durometer testers according to ASTM D 2240 standards.



Image 1: Mitutoyo 64AAA590 Calibration Set. The set includes three calibration blocks (blue, gray, black) within a mahogany case. A label inside the lid provides calibration details, including serial number (e.g., 10906), date calibrated (e.g., 10/09/12), and nominal durometer values for each block (e.g., Navy Blue 20 Duro: 21.7, Gray 40 Duro: 34.3, Black 80 Duro: 80.3). Values shown are nominal only.

The set typically includes blocks with nominal hardness values of 20, 40, and 80 Shore A. The actual calibrated values are provided on a label inside the case lid, along with the serial number and calibration date. Calibration of this set expires two years from the calibration date.

4. SETUP

1. **Unpack the Set:** Carefully remove the calibration set from its packaging.
2. **Inspect Components:** Verify that all three calibration blocks are present and free from visible damage or contamination.
3. **Prepare Work Area:** Ensure the calibration area is clean, stable, and free from vibrations. The ambient temperature should be within the recommended range for durometer testing (typically $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ or $73.4^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ as per ASTM D 2240).
4. **Acclimate Blocks:** Allow the calibration blocks to acclimate to the ambient temperature of the testing environment for at least 1 hour before use.

5. OPERATING INSTRUCTIONS

To verify or calibrate a Shore A Durometer using the Mitutoyo 64AAA590 Calibration Set, follow these steps:

1. **Select Block:** Choose the calibration block (20, 40, or 80 Shore A) that is closest to the hardness

value you intend to measure or verify.

2. **Position Durometer:** Place the durometer on a stable surface. Ensure the presser foot of the durometer is clean.
3. **Perform Measurement:**
 - Place the selected calibration block on a hard, flat surface.
 - Apply the durometer to the block, ensuring the presser foot is parallel to the block surface. Apply sufficient force to ensure firm contact between the presser foot and the specimen, without causing indentation.
 - Hold the durometer in position for the specified dwell time (typically 1 second for Shore A, as per ASTM D 2240) and record the reading.
4. **Take Multiple Readings:** Take an average of at least three readings in different spots on each test block. Ensure readings are taken at least 6 mm (0.24 inches) from any edge and from any previous indentation.
5. **Compare Readings:** Compare the average of your durometer readings to the indicated nominal values on the calibration label inside the case. The results should be approximate to those shown within ± 2 durometer points.
6. **Document Results:** Record the readings, date, and any discrepancies for future reference and compliance.

Note: For periodic verification of calibration accuracy, an average of three readings in different spots on each test block is recommended.

6. MAINTENANCE

- **Cleaning:** Gently wipe the calibration blocks with a soft, lint-free cloth. If necessary, use a mild, non-abrasive cleaning solution and ensure the blocks are completely dry before storage. Avoid harsh chemicals that could damage the material.
- **Storage:** Always return the blocks to their designated slots in the mahogany case after use. Close the case securely to protect the blocks from dust, moisture, and physical damage.
- **Calibration Expiration:** Note that the calibration of this set expires two years from the calibration date indicated on the label. After this period, the set should be re-calibrated by a qualified laboratory or replaced to ensure continued accuracy.
- **Inspection:** Periodically inspect the blocks for any signs of wear, scratches, or indentations that could affect their accuracy. If damage is observed, the block should be replaced or re-certified.

7. TROUBLESHOOTING

Inconsistent Readings:

- **Check Durometer:** Ensure your durometer is functioning correctly and has been recently calibrated.
- **Clean Surfaces:** Verify that both the durometer's presser foot and the calibration block surfaces are clean and free of debris.
- **Application Technique:** Ensure consistent application force, dwell time, and perpendicularity when applying the durometer to the block. Avoid applying force that causes indentation.
- **Environmental Factors:** Confirm that the ambient temperature and humidity are stable and within recommended ranges.

Readings Outside Tolerance:

- **Verify Calibration Date:** Check the calibration date on the label. If expired, the set requires re-calibration or replacement.
- **Inspect Blocks:** Examine the calibration blocks for any physical damage or wear.
- **Durometer Calibration:** Your durometer may require calibration or service.

8. SPECIFICATIONS

Feature	Specification
Model Number	64AAA590
Scale Type	Shore A
Nominal Hardness Values	20, 40, 80 Durometer
Block Dimensions	Approximately 2" x 2" x 1/4" (5.08 x 5.08 x 0.635 cm)
Calibration Standard	ASTM D 2240
Case Material	Mahogany
Item Weight	227 g (0.5 lbs)
Product Dimensions (Case)	20.07 x 9.65 x 3.81 cm (7.9 x 3.8 x 1.5 inches)

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries regarding your Mitutoyo 64AAA590 Calibration Set, please contact your authorized Mitutoyo distributor or visit the official Mitutoyo website. Please have your model number and serial number (found on the calibration label inside the case) available when contacting support.