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Accurate Measurement for Precision Work

1. INTRODUCTION

This manual provides detailed instructions for the proper use and maintenance of your EISCO IME Type 6-Inch Vernier Caliper. Designed for precision, this carbon steel caliper offers dual-scale measurements in both metric and imperial units, with laser-engraved graduations for lasting clarity. It is suitable for measuring external dimensions, internal dimensions, and depths of objects up to 6 inches (approximately 150mm).



Image 1.1: The EISCO Vernier Caliper stored in its protective case.

2. PRODUCT COMPONENTS

The EISCO Vernier Caliper consists of several key parts that enable precise measurements:

- **External Jaws:** Used for measuring external dimensions (e.g., length, outer diameter).
- **Internal Jaws:** Used for measuring internal dimensions (e.g., inner diameter).
- **Depth Rod:** Extends from the end of the main scale to measure depth.
- **Main Scale:** The fixed scale, marked in inches and centimeters/millimeters.
- **Vernier Scale (Sliding Scale):** The movable scale that slides along the main scale, used for reading fractional measurements with high precision.
- **Thumb Roller:** Allows for fine adjustment of the sliding jaw.
- **Locking Screw:** Secures the sliding jaw in place to hold a measurement.



Image 2.1: An overview of the EISCO Vernier Caliper, highlighting its various parts.

3. SETUP

Before using your Vernier Caliper, perform the following steps:

1. **Unpacking:** Carefully remove the caliper from its protective case.
2. **Initial Inspection:** Check the caliper for any visible damage or debris. Ensure the jaws close completely and smoothly.
3. **Cleaning:** Wipe the caliper with a clean, dry, lint-free cloth to remove any dust or manufacturing residue. Avoid using abrasive cleaners.
4. **Zero Check:** Close the jaws completely. The zero mark on the Vernier scale should align perfectly with the zero mark on the main scale. If it does not, ensure the jaws are clean and free of obstructions.

4. OPERATING INSTRUCTIONS

Follow these steps for accurate measurements:

4.1. Taking External Measurements

1. Open the external jaws wider than the object to be measured.
2. Place the object between the external jaws.

3. Gently close the jaws until they make firm contact with the object. Use the thumb roller for fine adjustment.
4. Tighten the locking screw to secure the measurement.
5. Carefully remove the caliper from the object and read the measurement.

4.2. Taking Internal Measurements

1. Close the internal jaws and insert them into the opening to be measured.
2. Open the internal jaws until they make firm contact with the inner surfaces of the opening. Use the thumb roller for fine adjustment.
3. Tighten the locking screw.
4. Carefully remove the caliper and read the measurement.

4.3. Taking Depth Measurements

1. Place the end of the main scale firmly on the top surface of the object or hole.
2. Extend the depth rod until it touches the bottom of the hole or step. Use the thumb roller for fine adjustment.
3. Tighten the locking screw.
4. Read the measurement.

4.4. Reading the Vernier Scale

The caliper features both metric (millimeters) and imperial (inches) scales. To read a measurement:

1. **Read the Main Scale:** Note the last whole unit (millimeter or inch) on the main scale that the zero mark of the Vernier scale has passed.
2. **Read the Vernier Scale:** Find the line on the Vernier scale that aligns perfectly with any line on the main scale. This aligned line indicates the fractional part of your measurement.
3. **Combine Readings:** Add the main scale reading to the Vernier scale reading to get the total measurement.

For convenience, the back of the caliper includes scientific conversion tables. Refer to these tables for quick reference during measurements.



Image 4.1: The reverse side of the caliper features useful conversion tables.

5. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your Vernier Caliper:

- **Cleaning:** After each use, wipe the caliper clean with a dry, soft cloth. If necessary, a small amount of isopropyl alcohol can be used to remove stubborn grime, followed by a dry wipe. Ensure no liquid enters the sliding mechanism.
- **Lubrication:** Periodically apply a very thin film of light machine oil to the sliding surfaces to ensure smooth operation and prevent corrosion. Wipe off any excess oil.
- **Storage:** Always store the caliper in its provided protective case when not in use. This protects it from dust, moisture, and physical damage. Store in a dry environment.
- **Handling:** Avoid dropping the caliper or subjecting it to impacts, as this can affect its accuracy and calibration.

6. TROUBLESHOOTING

If you encounter issues with your Vernier Caliper, consider the following:

- **Inaccurate Readings:**
 - Perform a zero check (Section 3.3). If the zeros do not align, ensure the jaws are clean.
 - Check for debris between the jaws or on the sliding mechanism.
 - Ensure the caliper is held perpendicular to the object being measured.
- **Jaws Not Sliding Smoothly:**
 - Clean the sliding surfaces thoroughly.
 - Apply a thin layer of light machine oil (Section 5).

- Check for any physical damage or bending of the beam.
- **Locking Screw Not Holding:**
 - Ensure the screw is tightened sufficiently. Avoid over-tightening.
 - Inspect the screw and its mechanism for wear or damage.

7. SPECIFICATIONS

Feature	Specification
Model	IME Type 6-Inch Vernier Caliper
Material	Carbon Steel
Measurement Range	0-6 inches (0-150mm)
Accuracy	0.05mm and 1/128 inch
Scale Type	Dual Scale (Metric and Imperial)
Graduations	Laser Engraved
Features	External Jaws, Internal Jaws, Depth Rod, Thumb Roller, Locking Screw
Included	Protective Storage Case

8. WARRANTY AND SUPPORT

For information regarding product warranty, please refer to the documentation provided at the time of purchase or contact your retailer. For technical support or inquiries, please reach out to EISCO customer service through their official channels.

You can visit the EISCO store for more information: [EISCO Store on Amazon](#)