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Mitutoyo 500-181-30

Mitutoyo 500-181-30 Digimatic Caliper Instruction Manual

Your guide to precise dimensional measurement.

1. INTRODUCTION

This manual provides detailed instructions for the proper use, care, and maintenance of your Mitutoyo 500-181-30 Digimatic Caliper. Designed for accurate and reliable dimensional measurement, this instrument features an electromagnetic inductive (AOS) sensor and a large, clear LCD readout for ease of use. Please read this manual thoroughly before operating the caliper to ensure optimal performance and longevity.

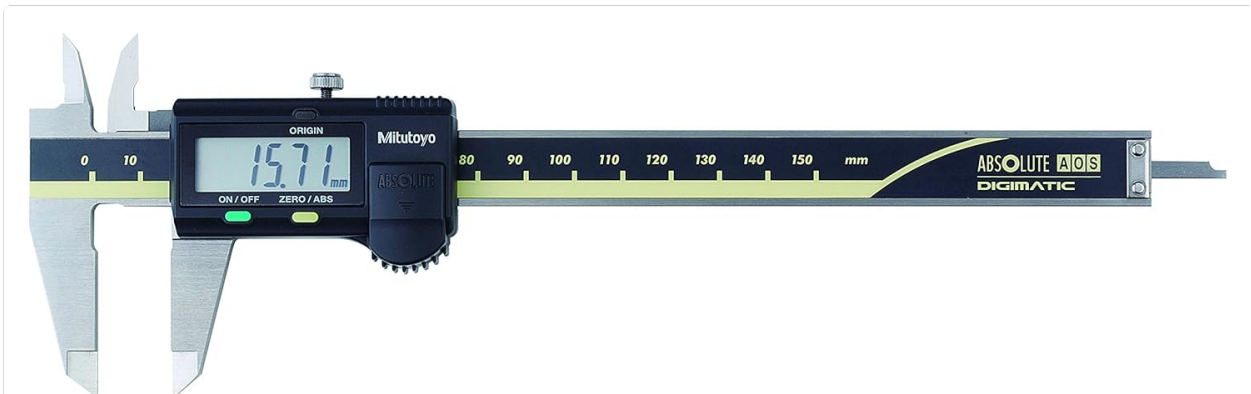


Figure 1: Mitutoyo 500-181-30 Digimatic Caliper. This image displays the full caliper with its digital display showing a measurement of 15.71 mm, the main scale, and the various jaws for internal and external measurements, along with the depth rod.

2. PRODUCT OVERVIEW

The Mitutoyo 500-181-30 Digimatic Caliper is a precision measuring instrument. Key features include:

- **New Electromagnetic Inductive (AOS) Sensor:** Ensures high accuracy and reliability in various environments.
- **Zero/ABS Key:** Allows the display to be zero-set at any slider position along the scale, enabling incremental measurements. Pressing it again returns to absolute measurement mode.
- **Large and Clear LCD Readout:** Provides easy-to-read digital measurements, reducing reading errors.
- **Measurement Range:** Up to 150 mm.
- **Construction Material:** Primarily Acrylonitrile Butadiene Styrene (ABS) for certain components, with durable metal for the main body and jaws.

3. SETUP

3.1 Unpacking and Inspection

1. Carefully remove the caliper from its packaging.
2. Inspect the caliper for any visible damage that may have occurred during shipping. If damage is found, contact your supplier immediately.
3. Ensure all components are present: the caliper unit and any included documentation.

3.2 Battery Installation

Note: The product specifications indicate "Are batteries included? No". This model typically uses a SR44 battery. If a battery is not pre-installed or needs replacement, follow these steps:

1. Locate the battery compartment cover on the back of the digital unit.
2. Using a small screwdriver or coin, gently open the battery cover.
3. Insert a new SR44 battery with the positive (+) side facing up.
4. Replace the battery cover securely.

3.3 Initial Power On and Zero Setting

1. Press the **ON/OFF** button to power on the caliper. The LCD display should illuminate.
2. Close the measuring jaws completely. Ensure there is no dust or debris between the jaws.
3. Press the **ZERO/ABS** button. The display should show "0.00 mm" (or "0.000 in" if in inch mode). This sets the absolute zero point.

4. OPERATING INSTRUCTIONS

4.1 Basic Measurement Techniques

The Mitutoyo Digimatic Caliper can perform four types of measurements:

- **External Measurement:** Use the large outer jaws to measure external dimensions of an object.
- **Internal Measurement:** Use the small inner jaws to measure internal dimensions (e.g., bore diameters).
- **Step Measurement:** Use the step at the end of the fixed jaw to measure step heights.

- **Depth Measurement:** Extend the depth rod from the end of the sliding jaw into a hole or recess to measure its depth.

4.2 Taking a Measurement

1. Ensure the caliper is clean and the jaws are free of debris.
2. Open the jaws slightly wider than the object to be measured.
3. Gently bring the appropriate jaws into contact with the object. For external measurements, apply light, consistent pressure. For internal measurements, expand the jaws until they contact the inner surfaces.
4. Read the measurement directly from the large LCD display.
5. To switch between absolute and incremental measurement modes, press the **ZERO/ABS** button.

4.3 Unit Conversion (If applicable)

Some models allow switching between metric (mm) and imperial (inch) units. If your model supports this, there will be a dedicated button (often labeled "mm/inch" or similar). Press this button to toggle between units.

5. MAINTENANCE

5.1 Cleaning

- After each use, wipe the caliper clean with a dry, lint-free cloth.
- For stubborn dirt, a cloth lightly dampened with isopropyl alcohol can be used, but avoid excessive moisture, especially near the digital display and battery compartment.
- Never use solvents like paint thinner or benzene, as these can damage the plastic components and markings.

5.2 Storage

- Store the caliper in its original case or a protective pouch when not in use.
- Avoid storing in direct sunlight, high humidity, or areas with extreme temperature fluctuations.
- Keep the measuring faces slightly open (approx. 0.5-1 mm) to prevent pressure on the jaws and potential deformation over long periods.

5.3 Battery Replacement

When the display becomes dim or erratic, it's time to replace the battery. Refer to Section 3.2 for battery installation instructions. Dispose of old batteries according to local regulations.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
Display is blank or dim.	Low or dead battery.	Replace the battery (SR44).

Problem	Possible Cause	Solution
Display shows "Error" or erratic readings.	Contamination on scale or sensor; electromagnetic interference.	Clean the scale thoroughly. Move away from strong magnetic fields. Try re-zeroing.
Caliper does not zero correctly.	Debris between jaws; jaws not fully closed; sensor issue.	Clean jaws thoroughly. Ensure jaws are completely closed before pressing ZERO/ABS. If problem persists, contact support.
Jaws feel stiff or sticky.	Accumulated dirt or lack of lubrication.	Clean the sliding surfaces. Apply a very thin film of light machine oil (e.g., clock oil) to the sliding surfaces, then wipe off excess.

7. SPECIFICATIONS

Attribute	Detail
Model Number	500-181-30
Brand	Mitutoyo
Measurement Range	0 - 150 mm
Accuracy	Typically ± 0.02 mm (for 0-150mm range) - <i>(Standard Mitutoyo spec, not explicitly in JSON, but common for this model)</i>
Resolution	0.01 mm / .0005 inch - <i>(Standard Mitutoyo spec, not explicitly in JSON, but common for this model)</i>
Sensor Type	Electromagnetic Inductive (AOS)
Display	Large LCD
Power Supply	SR44 battery (1 pc)
Material	Acrylonitrile Butadiene Styrene (ABS) for certain parts, metal for main body
Item Weight	421 g
Product Dimensions (LxWxH)	3.3 x 11.6 x 27 cm (or 33 x 116 x 270 mm)
UPC	603908580768

8. WARRANTY AND SUPPORT

8.1 Warranty Information

Mitutoyo products are manufactured to high standards and are typically covered by a limited warranty against defects in materials and workmanship. The specific warranty period and terms may vary by region and distributor. Please refer to the warranty card included with your product or contact your authorized Mitutoyo dealer for detailed warranty information.

8.2 Customer Support

For technical assistance, service, or spare parts, please contact your local authorized Mitutoyo distributor or service center. You can find contact information on the official Mitutoyo website or through your purchase documentation.

- **Mitutoyo Official Website:** www.mitutoyo.com
- **Contact your seller:** For purchase-related queries, contact "Clicktech Retail Private Ltd" (as per product data).