Starrett 82A4

Instruction Manual

Starrett 82A4 Individual Probe for A Series Bore Gauge

Model: 82A4

Introduction

This manual provides essential information for the proper use, setup, operation, and maintenance of your Starrett 82A4 Individual Probe for A Series Bore Gauge. This probe is designed for precise internal diameter measurements, ensuring accuracy in various industrial and scientific applications. All probes are furnished with an actuating rod.

Image: The Starrett 82A4 Individual Probe, showing its main body, threaded top for attachment, and the split-ball contact at the bottom.

Key Features

- The split-ball contact is self-centering, providing stable and accurate measurements.
- Two-point contact design is useful for detecting hole geometry problems such as taper, bell-mouth, and out-of-roundness.
- Capable of reading measurements to 0.0001" and 0.002mm, offering high precision.
- Facilitates controlling the approach to tolerance without the need to remove the workpiece from a machine.
- Interchangeable probes are hard chrome plated and polished for durability and smooth operation.
- Furnished with an actuating rod for complete functionality.

Setup

1. **Unpacking:** Carefully remove the 82A4 probe from its packaging. Inspect for any signs of damage during transit.
2. **Compatibility Check:** Ensure the probe is compatible with your existing Starrett A Series Bore Gauge handle and indicator. The 82A4 probe is designed specifically for the A Series.
3. **Attachment:** Thread the 82A4 probe securely onto the bore gauge handle. Ensure it is finger-tight to prevent any movement during measurement, but do not overtighten.
4. **Indicator Installation:** If not already installed, attach the appropriate dial indicator or electronic indicator to the bore gauge handle according to the indicator's specific instructions.
5. **Calibration:** Before first use and periodically thereafter, calibrate the bore gauge assembly (handle + probe + indicator) using a master ring gauge or setting master of known dimension within the probe's range (0.171-0.203"). Follow the calibration procedure outlined in your main bore gauge manual.

Operating Instructions

1. **Preparation:** Ensure the bore to be measured is clean and free of debris, oil, or burrs that could affect accuracy.
2. **Insertion:** Gently insert the split-ball contact end of the probe into the bore. The self-centering design will help align the probe.
3. **Measurement:** Rock the bore gauge assembly slightly within the bore to find the minimum reading on the indicator. This minimum reading represents the true diameter at that point.
4. **Detecting Geometry Issues:**
    - *Taper:* Take measurements at different depths along the bore. A consistent change in reading indicates taper.
    - *Bell-mouth:* Take measurements near the opening and deeper inside. If the opening is wider, it indicates bell-mouth.
    - *Out-of-roundness:* Rotate the probe within the bore at a single depth. Variations in readings indicate out-of-roundness.
5. **Reading:** Record the measurement from the indicator. Remember to account for any deviation from the master setting if not zeroed on the master.
6. **Removal:** Carefully withdraw the probe from the bore after measurement.

Maintenance

- **Cleaning:** After each use, wipe the probe clean with a soft, lint-free cloth. If necessary, use a mild, non-corrosive cleaning solution. Ensure all parts are dry before storage.
- **Lubrication:** The actuating rod and moving parts should be kept clean and may require a very light application of precision instrument oil periodically, as recommended by Starrett for your main bore gauge assembly.
- **Storage:** Store the probe in its protective case or a designated storage area to prevent damage from impacts, dust, and moisture. Avoid storing in areas with extreme temperature fluctuations or high humidity.
- **Inspection:** Regularly inspect the split-ball contacts for wear, damage, or deformation. Worn contacts can lead to inaccurate measurements.
- **Handling:** Always handle the probe with care. Avoid dropping or subjecting it to undue force, as this can affect its precision.

Troubleshooting

Problem	Possible Cause	Solution

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Inconsistent Readings	Probe not properly seated. Bore surface is dirty or rough. Worn or damaged probe contacts. Improper rocking motion during measurement.	Ensure probe is securely attached and fully inserted. Clean the bore thoroughly. Inspect contacts; replace probe if damaged. Practice the correct rocking motion to find the minimum reading.
Probe sticks or moves roughly	Dirt or debris on actuating rod. Lack of lubrication. Damage to the probe body.	Clean the actuating rod and internal mechanisms. Apply a very light amount of precision instrument oil. Inspect for physical damage; contact Starrett support if damaged.
Cannot zero indicator with master	Incorrect master ring gauge used. Probe range exceeded. Indicator malfunction. Probe damage.	Verify master gauge size is within 0.171-0.203" range. Ensure the bore gauge assembly is correctly set up. Test indicator separately or replace. Inspect probe for damage; replace if necessary.

Specifications

Attribute	Detail
Model Number	82A4
Product Type	Individual Probe for A Series Bore Gauge
Measurement Range	0.171 - 0.203 inches
Readout Precision	0.0001" (inches) and 0.002mm (millimeters)
Contact Type	Split-ball, two-point contact, self-centering
Probe Material	Hard chrome plated and polished
Included Components	Actuating rod
Product Dimensions	1.1 x 1.1 x 3.6 inches
Item Weight	0.8 ounces
Manufacturer	Starrett
Country of Origin	USA

Warranty and Support

Starrett products are manufactured to the highest standards and are backed by a commitment to quality. For specific warranty information regarding your 82A4 probe or the complete A Series Bore Gauge system, please refer to the documentation provided with your original bore gauge purchase or visit the official Starrett website.

For technical support, calibration services, or replacement parts, please contact Starrett customer service. You can find contact information and additional resources on the official Starrett website: www.starrett.com.
Always ensure that any repairs or servicing are performed by authorized Starrett service centers to maintain product integrity and warranty validity.