

9060 SCDM - Shaft Calibrator Dial Micrometer

Installation Manual



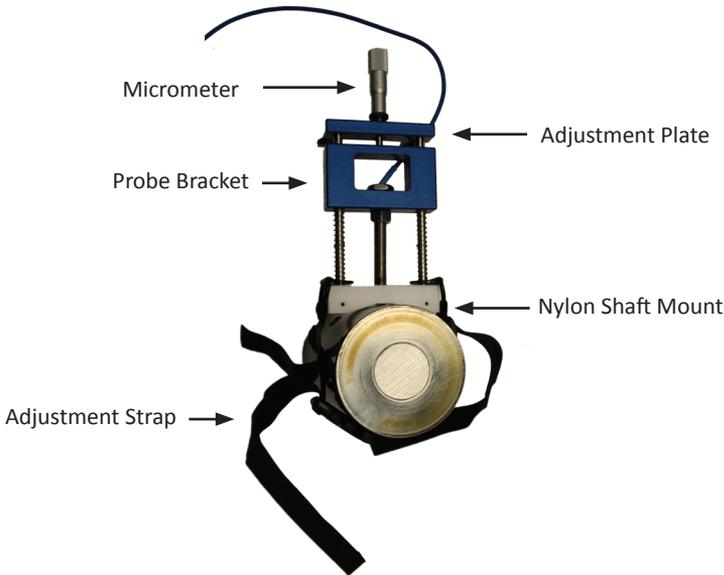
The Metrix Shaft Calibrator is used to determine the actual proximity probe system output in mV/mil or mV/ μm of a machine shaft or piston rod. Proximity probe systems are usually calibrated by the manufactures to 200 mV/mil (7.87 mV/ μm) using a 4140 Steel as standard. The 9060 SCDM (Shaft Calibrator Dial Micrometer) is used for testing 5mm or 8mm probes that have probe bodies less than 75mm (3.0") long. If the probes are 11mm or larger, or have probe bodies greater than 75mm (3.0"), or you want to keep the reverse mount probe in the probe holder use the Metrix 9060 SCTS (Shaft Calibrator Touch Select) model.

FEATURES

- Used for testing 5mm or 8mm probes that have probe bodies less than 75mm (3.0") long
- Accepts proximity probes up to 10mm (0.4") diameter
- 12.7mm (.50") range
- Nylon base does not affect sensitivity mounting strap included
- Adjustment strap for shaft diameters from 25mm (1.0") to 150mm (6.0")

GENERAL INSTRUCTIONS

1. Strap the Shaft Calibrator to the shaft (rotor or connecting rod) as shown in the photograph below.
2. Adjust the straps as necessary to get a tight mounting.
3. Adjust the Dial Micrometer on the Shaft Calibrator to "0" mils or μm .
4. Insert the probe into the Probe Bracket. Adjust the probe depth from the Probe Bracket so that it will touch the shaft (passing through the Nylon Shaft Mount) when the Adjusting Plate is adjusted.
5. Adjust the Adjusting Plate so that the probe is touching the shaft while the Dial Micrometer reads "0".



WITH ENGLISH UNITS

1. Gently set the probe against the shaft or target material. Adjust the shaft calibrator dial micrometer to read "0" mils when the probe tip is touching the shaft or target material.
2. Connect the probe / cable / driver or transmitter to a digital voltmeter so you can measure the gap voltage. At "0" gap, the proximity probe system should read less than 1 volt DC.
3. Rotate the dial on the dial micrometer to 10 mils, generating a 10 mil gap, the voltage on the digital voltmeter should read $1.0 \text{ VDC} \pm 0.5 \text{ VDC}$. Record the voltage.
4. In increments of 10mils, record the voltage, to the limit of the proximity probe linear range (usually 90 mils).
5. Using plotting paper, Excel or other tool the data can be plotted and the slope of the line (curve) can be measured. For 5mm and 8mm proximity probe systems the slope is usually $200 \text{ mV/mil} \pm 5\%$.
6. Depending upon the situation, you may want to calculate the Incremental Scale Factor, which is the slope between points, or the deviation from a straight line, which are both API 670 requirements.
7. An Excel file to plot the static calibrator data can be found on the Metrix website at the following link (Probe Curve Template): <http://www.metrixvibration.com/products/proximity/accessories/product/681/static-calibrator>

WITH METRIC UNITS

1. Gently set the probe against the shaft or target material. Adjust the shaft calibrator dial micrometer to read "0" μm when the probe tip is touching the shaft or target material.
2. Connect the probe / cable / driver or transmitter to a digital voltmeter so you can measure the gap voltage. At "0" gap, the proximity probe system should read less than 1 volt DC.
3. Rotate the dial on the dial micrometer to 250 μm , generating a 250 μm gap, the voltage on the digital voltmeter should read 1.0 VDC \pm 0.5 VDC. Record the voltage.
4. In increments of 250 μm , record the voltage, to the limit of the proximity probe linear range (usually 2500 μm).
5. Using plotting paper, Excel or other tool the data can be plotted and the slope of the line (curve) can be measured. For 5mm and 8mm proximity probe systems the slope is usually 7.87 mV/ μm \pm 5%.
6. Depending upon the situation, you may want to calculate the Incremental Scale Factor, which is the slope between points, or the deviation from a straight line, which are both API 670 requirements.
7. An Excel file to plot the static calibrator data can be found on the Metrix website at the following link (Probe Curve Template): <http://www.metrixvibration.com/products/proximity/accessories/product/681/static-calibrator>

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