CREATECH REHDER
INNOVATIONS IN SIGHT
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Calibration:

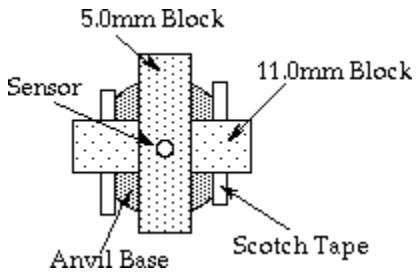
It should be noted that the ET-3 system is very stable and should rarely go out of calibration. However,periodic calibration may be necessary to satisfy governmental regulations. Therefore, the following instructions are provided.

Equipment Needed:

- Type B89.1.9 Grade 0 , or better, precision ground gauge blocks. One each of the following thicknesses: 11.0mm, 5.0mm, 5.5mm, and 6.0mm.Approximately 10mm wide x 35mm long. Total cumulative error between any two blocks should be no more thanapproximately 0.10 microns
- Two small strips of mylar or Scotch "Magic" tape.
- One small screwdriver ~ 2 mm wide.
- One 9/64 inch hex key.

Createch / Rehder Develpopment Co. can supply a Calibration Set consisting of the necessarygauge blocks, traceable to the NIST, and the precision dynamometer.

Calibration Procedure:



1. - Preparation:

- For maximum accuracy, calibration should be done at approximately the same temperture at which the instrument will be used (± 5° F). A 25° F temperature difference in the instrument may cause a 3 or 4 µm shift at 1000µm. Turn on the instrument for 30 minutes to one hour prior to calibrating so the instrument can stabalize at the operating temperature

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- Remove the anvil from its base and apply a 2mm or 3mm wide strip of tape, roughly parallel and at opposite edges to the top of the anvil base (see above). If your instrument has been fitted with a "Ball Anvil" it will be necessary to attach aspacer block to the anvil base. The tape is then attached to the top of the spacer block. The two strips of tape provide a stable, two point base for the 11mm block to sit on (like a pair of saw horses) and keeps the gauge block from being scratched by the anvil base. The 5.0mm, 5.5mm and 6.0mm blocks rest on top of the 11mm block to give precise 000 microns, 500 microns and 1000 microns positions. It is imperative that all oil, dust, finger prints, etc. are removed from thegauge blocks during calibration. The smallest speck of dust or a finger print on the face of a gauge block can change the reading by several microns. When finished with the calibration apply a film of noncorrosive oil to the blocks to prevent them from rusting.

2. - Calibrating the 000 micron to 1000 microns range:

The 000 microns to 1000 microns range is adjusted by turning a small screw on a trimpot that is located behind a plug in the upper left corner on the back of the ET-3 electronics . Readings above 1000 microns are out of the accurate measuring range of the ET-3.

- Place the 11mm Gauge block across the two strips of tape.
- Place the 5.0mm block in place on the 11.0mm block and note the reading. The displayed reading may be adjusted with the zero knob if you prefer. It doesnot need to be "Zero".
- Replace the 5.0mm block with the 6.0mm block. This provides a 1000 microns step for the sensor and the meter reading should be 1000 microns greaterthan with the 5mm block. If it is not, check for dust, etc. on the blocks and try again. Only after it is determined beyond any doubt that there is no dust, etc. should the trimpot be adjusted. If needed, adjust the trimpot so the 1000 microns step gives an exact 1000 microns difference between the two readings. Repeat the5.0mm and 6.0mm blocks a few times to make sure.
- When the 1000 microns range has been properly adjusted place the 5.5mm block in place. The reading should be 500 microns (± 2 µm) greater than with the 5.0mm block. If not check for dust etc. on all blocks and recheck. This routine should be repeated until 000 microns and 1000 microns readings are exact and the 500 microns reading is within ± 2 µm. A few sequences of the three gauge blocks should then be repeated to ensure accuracy and repeatability. If there is inconsistency of the readings additional cleaning of the gauge blocks is probably needed.

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The ± 2 µm tolerance comes from ± 1 µm for digital rounding, plus, ± 1 µm forpossible sensor error.

a. When calibration has been completed, prior to replacing the anvil, check the sensor force with the precision dynamometer. (See Sensor Force instructions.)

b. After the calibration and sensor force adjustments have been completed replace the anvil on the anvil base. Make sure that the anvil is centered under the sensor. This can be done by lowering the sensor to the top of the anvil and then sighting across the top of the anvil from two positions approximately 90 degrees apart. When the sensor appears to be centered on the apex of the anvil from the two positions, tighten the screw that holds the anvil in place.

c. If the Zero balance (plus/minus 15 µm) on the Zero knob is off by more than a few microns you should now adjust the sensor coil position. (See Sensor Coil Adjustment instructions.)

d. Adjust the display to +000 microns with the "ZERO" knob and calibration is complete.

If there is a conflict or problem, please call Createch Rehder Development Co at 1-833-833-1994 or email a.snow@createchrehder.com for further instructions.