

# Penta-Rnd<sup>®</sup> Gage (Patent #5,165,176)

for measuring five-lobed screw designs

## Set-up & Operating Instructions



Customer:



<b>Gage Serial #</b>	<b>.00288</b>	<b>Pre-set Value*</b>	<b>.317 MM</b>
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\* Note: Pre-set value is the gage reading when the indicator point is resting in the v-block.

The Penta-Rnd<sup>®</sup> Gage was specifically designed to measure the circumference diameter, frequently referred to as the "C" dimension. This is the largest circumscribing circle around high points of a five lobed screw body.

The Penta-Rnd<sup>®</sup> Gage measures the "C" dimension on five lobed screws and the "C". The "C" dimension is the largest circumscribing circle around high points of a five lobed screw body.

The Gage Repeatability and Reproducibility Study percentage of the Penta-Rnd<sup>®</sup> Gage is 9.5%. This gage is recommended for use in monitoring the "C" dimension on both blanks and finished screws in Statistical Process Control programs.

**Greenslade & Company, Inc. USA**

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Penta-Rnd ® Gage Measuring Capacity (headed blanks and threaded screws):

Inch sizes: #1 through 3/8 inch diameters  
Metric sizes: M1.0 through M10 diameters

NOTE: No Gage adjustment is required to measure this range.

### **Readying Penta-Rnd ® Gage for Inspection:**

1. **Starting:** With the indicator foot sitting firmly in the v-block, press and release the "ZERO/ON" button. The indicator should read the "Pre-set Value" that is indicated on the front sheet of this document. If any value other than the Pre-set Value" indicated on the front sheet shows on the indicator press and release the "ZERO/ON" button. The correct "Pre-set Value" should appear. The gage is ready to start measuring five lobed screws.
2. **Checking accuracy:** To assure the gage is reading accurately, raise the indicator stem by lifting the weighted knob on the top of the indicator and place a gage pin of any size between 1.0 mm and 10.0 mm into the v-block. Lower the indicator stem to allow the point to set on the gage pin. The indicator should read the calibrated size of the gage pin. If you get any other reading remove the pin and start with step one again.

Note: If the "Pre-set Value" does not read as indicated on the front sheet after following the instruction above contact Greenslade & Company for assistance.

### **Measuring the " C " Dimension on five lobed screws:**

1. Raise the indicator stem and place the five lobed screw in the V-block. Lower the stem so that the indicator point rests on the screw. Do not press the underside of the head against the end of the V-block because the screw's radius may cause the screw to cock in the "V".
2. Carefully rotate the screw in the V-block. The highest observed value is the screw's "C" dimension. Record this value.

NOTE: Most data collection systems can be programmed to automatically record this highest observed value.

### **Changing Indicator Between Inches and Millimeters:**

Press and release "inch/mm" button any time the indicator is in the measurement mode to change between inches and millimeters.

## **Calibration Procedure-for Penta-Rnd® Gage:**

Turn gage ON as described above. Place a series of calibrated "X" tolerance gage pins of known size in the gage's V-block and observe the readings. The gage is considered accurate if the observed numbers on the gage match the gage pin sizes within  $\pm 0.002$  mm.

## **Low Battery Signal (bA Lo):**

Battery changing procedure:

1. Carefully tilt the gage back until the back end of the upper arm rests on a table surface.
2. Locate the battery drawer in the bottom of the indicator. Using a small screw driver, carefully press in the elongated hole and release the drawer lock.
3. After the drawer is released grasp the drawer and pull it out of the bottom of the indicator.
4. Remove the two old batteries and replace them with new batteries with the (+) positive side facing downward in the drawer.
5. Place the drawer into the indicator slowly until it is approximately inside the indicator. Then quickly press the drawer until it locks into place.

After the drawer is locked into place the indicator goes through a set-up routine before the indicator can be used. If this does not occur remove the drawer and re-install it.

**Note: If the batteries are replaced the preset may be lost. If the pre-set is lost the "Initial set-up" procedure must be performed before using the gage.**

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