Thread Inspection Applications

- **Process Set-up / Final Inspection**
  This requires the evaluation of all applicable thread characteristic to assure their conformance to all requirements.

- **Process Control**
  During manufacturing fewer measurements need to be made to assure the process is “in control”. Which characteristics to measure, in what sample sizes, and at what frequency must be at the discretion of the manufacturer.
Gaging External Thread **Maximum Material** (Functional Pitch Diameter)

**Tri-roll Gage: Measuring Maximum Material (Functional Pitch Diameter)**

Set gage to the certified pitch diameter size of the setting plug.
Tri-roll Gage:
**Measuring Maximum Material #1**

- Open rolls and place part between rolls with the point within the rolls.
- Rotate part slightly and observe the reading.
- Rotate the part two or more times until the part has been rotated 360 degrees.
- Record the highest reading observed.

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Tri-roll Gage:
**Measuring Maximum Material #2**

- Open rolls and move the part between rolls to the opposite end of the part without engaging the runnout threads.
- Rotate part slightly and observe the reading.
- Rotate and release the part two or more times until the part has been rotated 360 degrees.
- Record the highest reading observed only if it is larger than the point-end measurement.
Tri-roll Gage: Measuring the Minimum Material (Pitch or Groove Diameter)

Set gage to the plug’s certified pitch diameter size.
Tri-roll Gage: Measuring the **Minimum Material #1** (Pitch or Groove Diameter)

- Open rolls and place part between rolls **near the point** above the lead threads within the rolls.
- Rotate part slightly and observe the reading.
- Rotate the part two or more times until the part has been rotated 360 degrees.
- Record the lowest reading observed.

Tri-roll Gage: Measuring the **Minimum Material #2** (Pitch or Groove Diameter)

- Open rolls and move the part between rolls to the **opposite end of the part** without engaging the runnout threads.
- Rotate part slightly and observe the reading.
- Rotate and release the part two or more times until the part has been rotated 360 degrees.
- Record the lowest reading observed only if it is smaller than the point-end measurement.
Process Control
for External Threads

- All thread characteristic **MUST BE IN CONFORMANCE** before the threading process is put into full production.

- Once production has started the manufacturer must decide which characteristics to monitor, how many samples to measure, and at what frequency.

- At a minimum the maximum material size should be measured periodically. This should be measured at “mid-length” making a single observation on each part. The results must be recorded on a control chart to determine if the process remains “in-control”.

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