

Tri-roll Thread Gage Inspection Practices

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Thread Inspection Applications

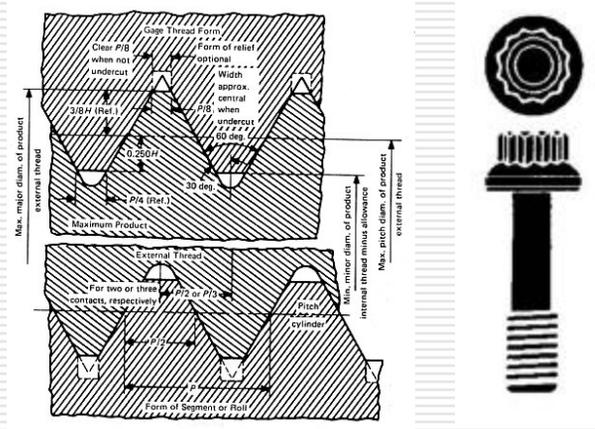
Process Set-up / Final Inspection

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 Thread Gage Usage Practices

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

Set gage to the certified pitch diameter size of the setting plug.



Tri-roll Thread Gage Usage Practices

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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.

Tri-roll Thread Gage Usage Practices

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

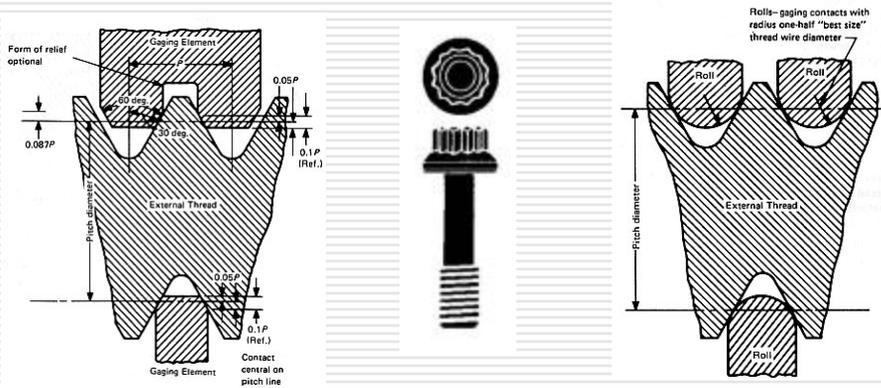


- ❑ Open rolls and move the part between rolls to the **opposite end of the part** without engaging the runout threads.
- ❑ Rotate part slightly and observe the reading.
- ❑ Rotate and release the part two or more times until the part has been rotated 360 degrees.
- ❑ Record the highest reading observed only if it is larger than the point-end measurement.

Tri-roll Thread Gage Usage Practices

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



Tri-roll Thread Gage Usage Practices

Tri-roll Gage: Measuring **Minimum Material** Set gage to the plug's certified pitch diameter size.



Tri-roll Thread Gage Usage Practices

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 Thread Gage Usage Practices

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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 runout 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.

Tri-roll Thread Gage Usage Practices

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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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