



Material Standards & Specifications

Specialty Products Company

MSS	4.012	Quality Requirements – Steel Forgings
Revised by:	JAW	Added pictures for reference
Reviewed by:	BJB	
Revision:	B	
Date:	2019-05-29	

Scope:

This specification summarizes SPC's quality requirements for steel forgings and is intended to supplement, not replace or invalidate any published standards or specifications that may be referenced on a drawing. This specification provides general requirements to ensure quality and consistency of forgings produced for SPC. Only explicit notes or dimensions on a drawing shall override any requirements of this specification. *This standard applies to all SPC steel forgings from the revision date forward, regardless of whether or not it is explicitly called out on a print.*

Requirements:

1. Maximum surface roughness of As-Forged surfaces:

- 500 Ra μ in. with *consistent finish*. (Forgings of good quality are typically less than 250 Ra μ in.)
- Final acceptability subject to First Article approval. Surface roughness / Finish must remain consistent with First Articles



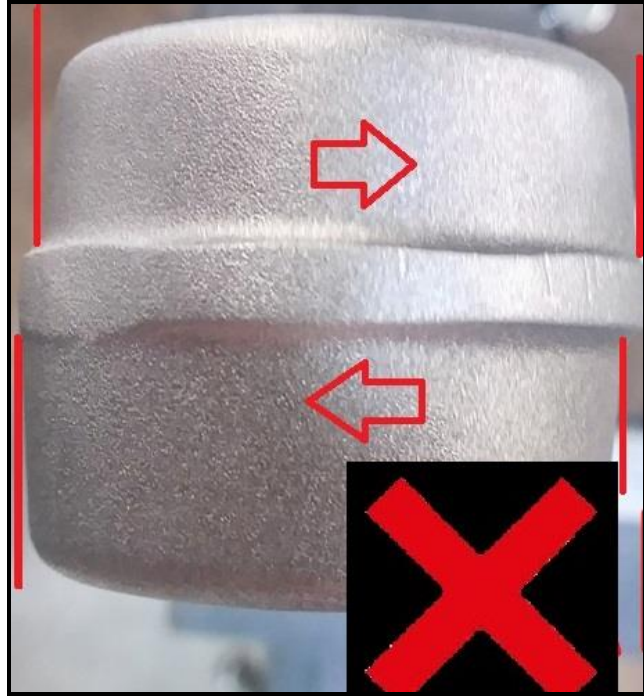


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2. Die Shift:

- Parts \leq 2 kg mass: 0.5mm MAX
- Parts $>$ 2kg mass: 0.75mm MAX



3. Tooling Marks from Trim and Coining dies:

- Allowed up to limit of 3D CAD tolerance on print



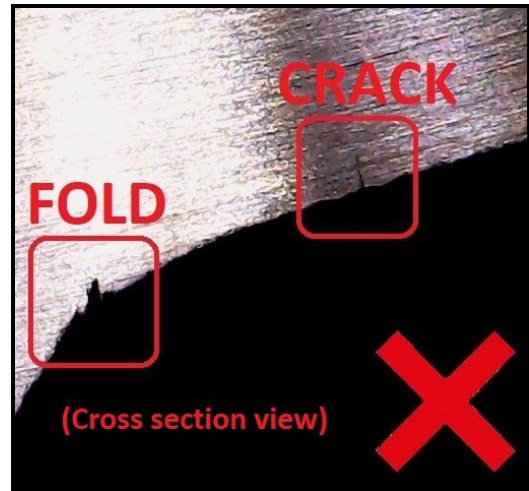
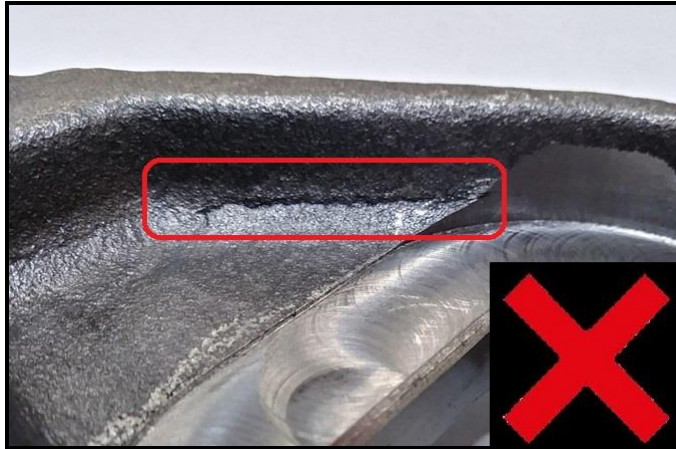


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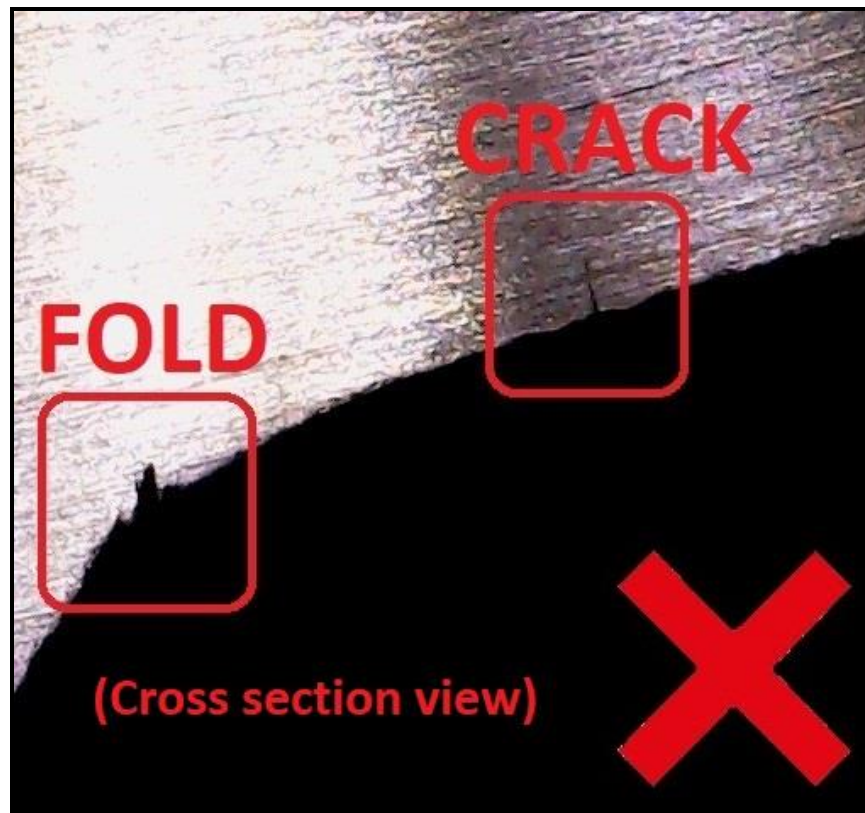
4. Material Laps (Folds):

- NOT allowed



5. Cracks (internal or external):

- NOT allowed



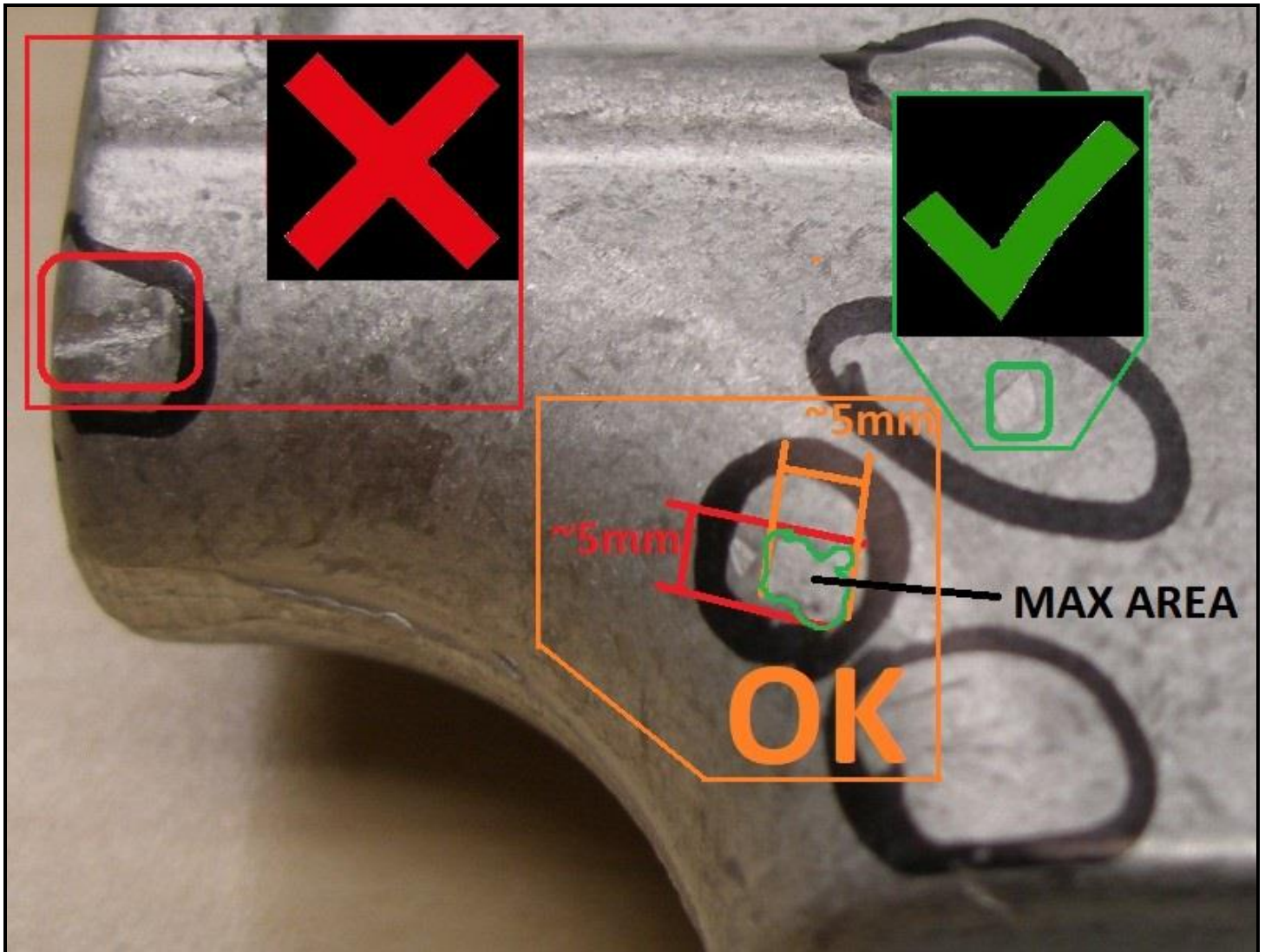


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6. Scale Impressions:

- Allowed up to limit of 3D CAD tolerance on print with area no greater than 25 mm² (use best estimate to judge area)
- Final acceptability subject to First Article approval.



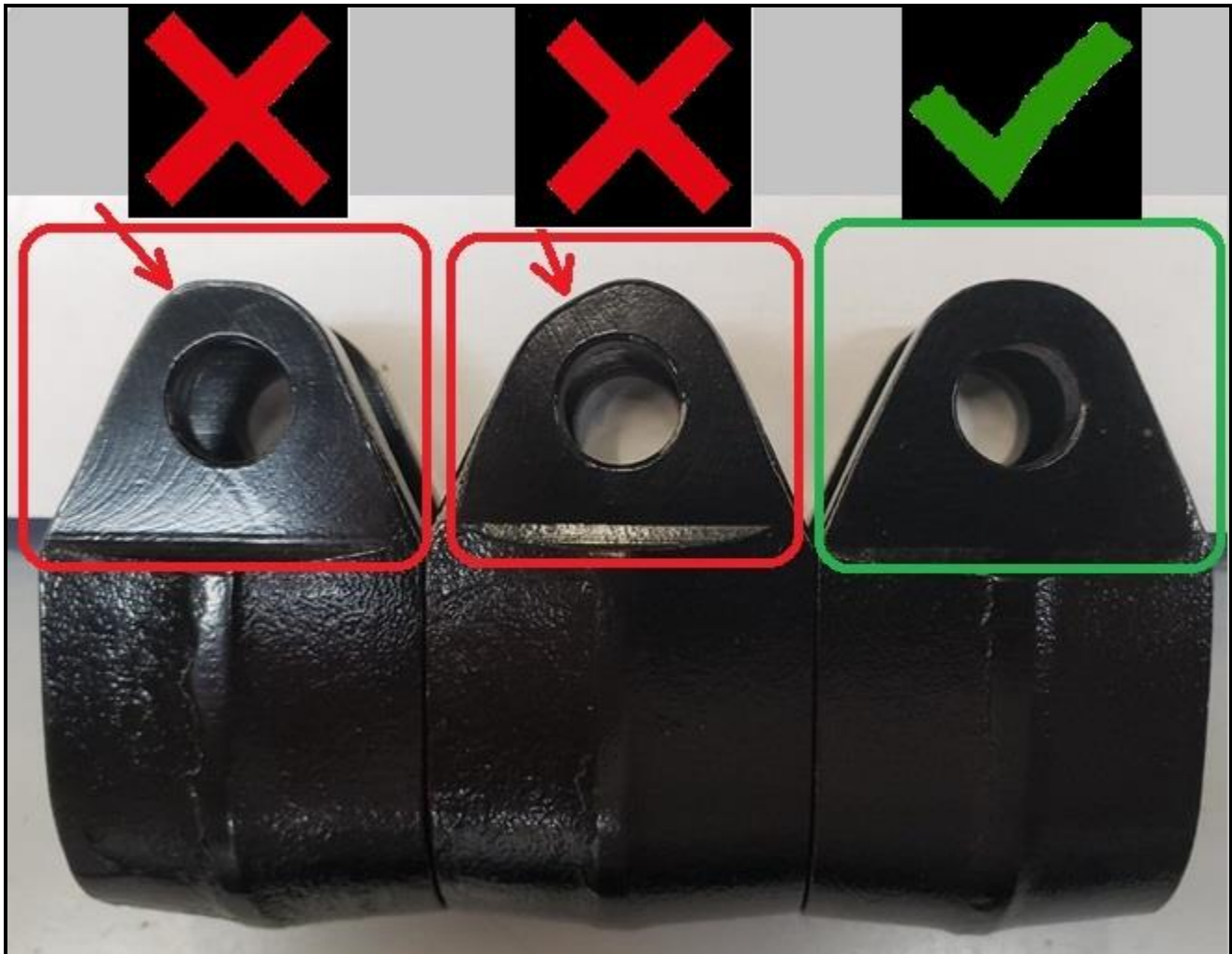


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7. Grinding, hand-rework, manual-shaping:

- Excessive grinding, blasting or sanding which causes part to deviate from intended shape, violating 3D tolerance on print is NOT ALLOWED





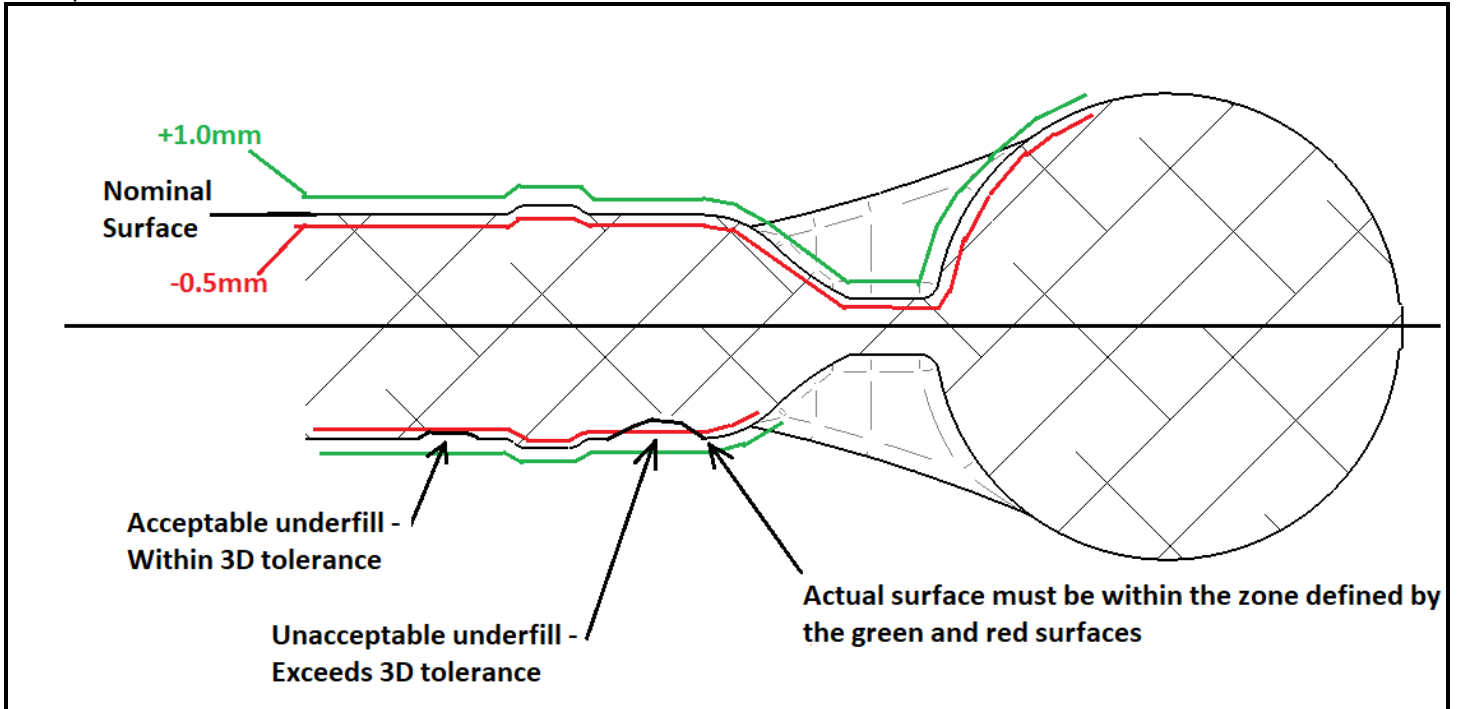
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8. Under-fill / non-fill:

- Allowed up to limit of 3D CAD tolerance on print

Example:





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9. Exceptions:

- Requirements of surface roughness, tooling marks, grinding, and under-fill/non-fill may be waived on surfaces that are removed during machining process. Machined areas are defined on machined forging print.
- The above exception does not apply to un-machined forgings or forgings that are purchased by SPC and later machined.

10. Final acceptability of parts subject to First Article approval.

- Production quality must be consistent with or better than First Article submission.