



Joint Acceptance Criteria and Repair Method Self-Piercing and Extruding Screws

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This specification provides the acceptance criteria and repair methods for parts that are joined with self-piercing and extruding flow drill screws (FDS).

1.2 Applicability. The criteria established in this standard become mandatory when referenced on a product drawing or Statement of Requirements. Deviation from any acceptance criteria provided in this standard shall be identified on the product drawing or Statement of Requirements.

1.3 Remarks. This specification is limited to M5 self-piercing and extruding flow drill screws. This specification does not apply to joints using thread cutting fasteners, such as sheet metal screws.

1.4 Clarification. For clarification of this specification or editorial comments, email the GM Weld Council at weld.council@gm.com.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW15563

2.3 Additional References.

- GM Global Quality Requirements Manual.

3 Requirements

3.1 General Acceptance Criteria.

3.1.1 Presence. A self-piercing and extruding flow drill screw that is missing or not installed is discrepant. Adjacent self-piercing and extruding flow drill screws that are missing or not installed cause the product to be nonconforming regardless of the pattern tolerance. Missing or not installed self-piercing and extruding flow drill screws at either end of components joined by a linear distribution of self-piercing and extruding flow drill screws cause the product to be nonconforming regardless of the pattern tolerance.

3.1.2 Fully Driven and Seated. A self-piercing and extruding flow drill screw that is not fully driven with the head of the fastener in contact with the part surface is discrepant (see Figure 1).

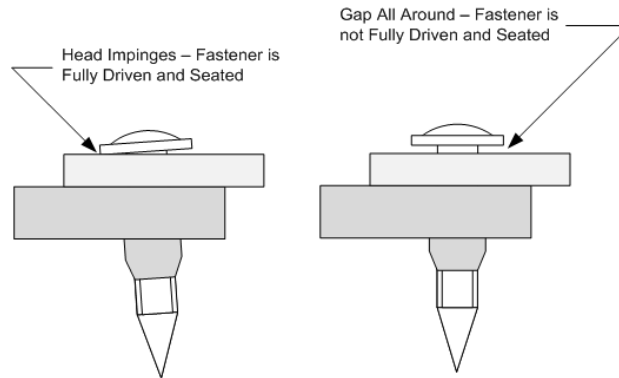


Figure 1: Seating

3.2 Visual Acceptance Criteria.

3.2.1 Head Broken Off. A self-piercing and extruding screw whose head is broken off is discrepant.

3.2.2 Cracks. A crack that is fully contained within the extrusion is a condition that does not cause the joint to be discrepant. When visible cracks extend beyond the extrusion to the part surface, the process should be adjusted to the original qualified setup to eliminate the condition. See Figure 2.

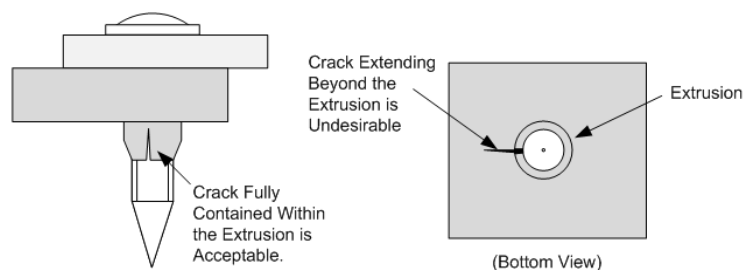


Figure 2: Cracks

3.3 Measurable Acceptance Criteria.

3.3.1 Location. A self-piercing and extruding screw that is placed outside the location tolerance indicated on the assembly drawing is discrepant. If no location tolerance is specified, screws located greater than 10 mm from the nominal design location are discrepant. Self-piercing and extruding screws must be contained within all edges of the material being joined. A screw is discrepant if the screw head extends over the edge of the top sheet regardless of location tolerance. See Figure 3.

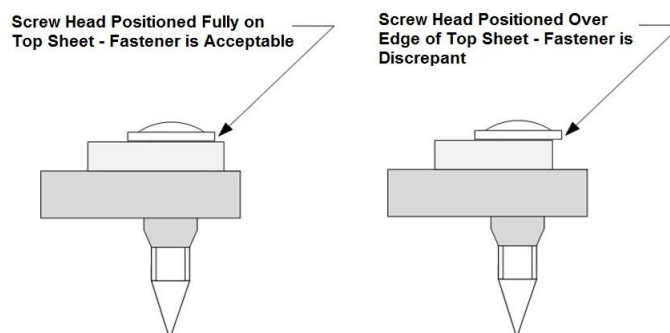


Figure 3: Screw Position