



An Improved Self-Piercing Rivet

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Summary: A processing method to fabricate self-piercing rivets with enhanced ductility and improved strength.

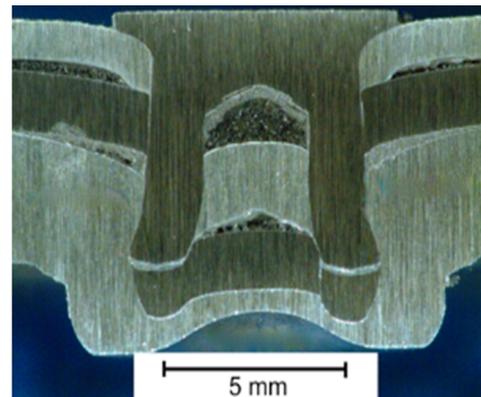
Description: Self-piercing rivets with improved mechanical properties have been manufactured with slight modifications to standard processing methods. The rivets have an equivalent column strength to conventional self-piercing rivets, but the ability to flare significantly more during riveting than currently used rivets. The combination of properties produced through the new processing method enables improved versatility in the application of rivets to multiple joining configurations. Currently, rivet strengths and rivet and die geometries are selected to optimize specific joining configurations, resulting in numerous combinations of rivets and dies that are implemented in production. These improved self-piercing rivets would enable the reduction of rivet and die combinations, thus improving manufacturing efficiency and producing cost savings. Furthermore, the automotive industry is increasingly utilizing mixed material combinations that are challenging to weld. Self-pierce riveting is a viable solution for these mixed material joints, but there are increasingly situations where the steel sheet is too strong for current rivet alloys. The invented processing method allows rivets to produce the strength and ductility necessary to produce mixed material joints involving ultra-high strength steels.

Main Advantages of this Invention

- Reduction of the number of unique rivets can reduce complexity and cost in manufacturing.
- The rivets can also join sheet metal combinations that include ultra-high strength steel sheets

Potential Areas of Application

- Automotive, Aerospace, and Nautical
- Building and Bridge Construction



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Intellectual Property Status: US provisional patent filed on Sept. 18, 2016.

Opportunity: We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.

For more information contact:

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