Abstract

Friction stir welding is an advanced joining process for different similar and dissimilar metals. It is commonly used for joining Aluminium alloys. In this study, an attempt was made to join commercial structural Aluminium with 7039 aluminium alloy. A zig-zag pattern of hardness was found in the weld nugget. Microstructural characterization and fractography of joints were examined using optical and scanning electron microscopes. Also, the effects of the welding parameters on tensile properties of friction stir welded joints were analyzed. The results showed that the optimum parameters to get a maximum of tensile strength were 635 rev/min, 12 mm/min and, where the maximum of tensile elongation was obtained at 635 rev/min, 8 mm/min after post
weld heat treatment. All welds were failed outside of weld nugget in low strength alloy side. The tensile strength of welds was decreases after post weld heat treatment.

References


Index Terms

Computer Science
Engineering and Technology