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Tensile Properties of Diffusion Bonded Duplex Stainless Steel to Low Carbon Steel

Abstract
The diffusion bonding is one of the methods used to join dissimilar metals. Specimens of duplex stainless steel and low carbon steel were joined by diffusion bonding under varied temperature and holding time. The specimens were clamped using jigs and heated in a furnace. Tensile test was performed on the joined samples. The effect of bonding time and holding temperature on tensile strength and quality of the diffusion bonds were observed. Tensile strength of the joints was examined and the highest tensile strength of 116.12 MPa are obtained at temperatures of 900 °C and holding time of 180 min. Keywords
1F position; Aluminium alloy; Friction stir welding; MILKO 37 conventional milling machine; T-joint

Keywords
Diffusion bonding; Dissimilar metals; Duplex stainless steel