Effects of micro resistance spot welding parameters on the quality of weld joints on aluminum thin plate aa 1100

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Abstrak

Resistance spot welding (RSW) is widely used in industries such as the aerospace, automotive, and electrical application industries. RSW is very useful for joining aluminum and its welding parameters lead to good quality joints. This research studied the influence of the welding parameters, such as welding current, welding time, and the electrode force, of micro resistance spot welding (MRSW) on the mechanical properties and fracture of a nugget of aluminum alloy (AA) 1100. AA 1100 plate with a thickness of 0.4 mm was used in this experiment. An alternating current (AC) RSW machine and electrode were used in this study. The welding parameters used in this study are welding current, welding time, and electrode force. Holding time is assumed to be constant. The welding time values of 6 CT, 8 CT, and 10 CT were combined with a welding current of 8 kV, and electrode forces of 32 kg, 42 kg, and 52 kg. The results showed that by increasing the electrode force, the load rate decreases, and the elongation distance tends to decrease, except for the electrode force of 52 Kg. The effect of the electrode force on the diameter and thickness of the weld nugget was not significant.