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Comparative Study of Different Welding Joining Processes on Aluminum Plate

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Abstract: *We observed that when we weld on Aluminum plate with various welding processes some defects are found in the weld. Some weld defects are less corrosion resistance, less strength, porosity, lack of fusion, black spot, change in mechanical properties, change in microstructure and environmental harmful gases produced. Welding is process of permanent joining of two materials with or without using filler material between two metal plates. Welding use a non-consumable or consumable tool to generate heat in the abutting surface. To change in welding parameter such as temperature, pressure, voltage, current, tip angle, welding speed, rotational speed, tool geometry play major role in deciding joint properties. So our attempt for this project is to comparative study of considering three welding processes such as Friction stir welding, manual metal arc welding and Metal inert gas welding Aluminum plate and observes changes in mechanical properties and microstructure of Aluminum plate. Also to find best welding process to overcome defects in different welding processes to join Aluminum.*

Keywords: Tungsten inert gas welding, Metal inert gas welding, Friction stir welding, Aluminum 6082, Tool pin EN8 series, Process parameter & mechanical Testing, Microstructural Analysis of TIG, MIG & FSW

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