Optimization of Pulsed TIG Welding Process Parameters on Mechanical Properties of AA 6061 Alloy Joints

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Pratik T Kikani (https://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=4802621)
Atmiya Institute of Tech. & Sci.,

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Abstract

The study pertains to the improvement of mechanical properties of aluminum alloy welds through pulsed Tungsten Inert Gas (TIG) welding process. The study aims at selecting optimum parameters on Pulsed TIG welding aluminum alloy 6061 butt joint. Input process parameters (peak current, base current and frequency) are varied, and tensile strength and hardness are determined. Full factorial method is employed to optimize the pulsed TIG welding process parameters of aluminum alloy welds for increasing the mechanical properties. Optimization of selected parameters is done by response optimizer. After optimization, the results are validated.

Keywords: Pulsed TIG welding, Aluminum Alloy 6061, Tensile strength, Hardness

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