

Optimization of Welding Process Parameters for Welding of Pipes using Taguchi's Tools

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Abstract: The aim of work is to weld carbon steel pipes with GTAW process thereby deciding levels and contribution of significant process parameters in welding quality. In this study an attempt is made to investigate the effect of welding process parameters on tensile strength of the welded joint. The analysis of the selected process parameters such as welding current, gap between the pipes, shielding gas flow rate and diameter of electrode has been conducted as an influential factor on tensile strength based on Taguchi's experimental design methods. Taguchi's tools such as orthogonal array, ANOVA, signal -to-noise ratio, parameter design have been used for this purpose and an optimal condition has been found out. The estimation of optimum performance characteristics at the optimum levels of parameters is done. Also the optimal variable combination was selected and confirmatory experiment was performed to find improvement in present performance.

Keywords: GTAW process

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