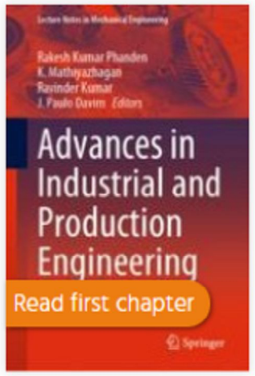
2021 | OriginalPaper | Chapter

Parametric Optimization of Gas Tungsten Arc Welding Using AHP-Based Taguchi Method



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Abstract

In the present paper, AHP-based Taguchi approach is used to choose the perfect combination of welding process variables for the gas tungsten arc welding (GTAW) process of two different metals, MS (AISI 1040) and SS (AISI304). Initially, the Taguchi method is used to discover an optimum mix of process parameters. Since the Taguchi method could not address the multi-objective optimization problem, therefore the MODM method (AHP) is used to find the best combination of input process parameters based on the set criteria. Process variables considered for the study are travel speed of the weld, current, gas flow rate, and weld angle. During this study, methodology of this approach is explained in detail. This AHP-based Taguchi method helps to select the best combination of process