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Optimization of the GTA Welding Process Using Combination of the Taguchi Method and a Neural-Genetic Approach

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Abstract

Many parameters of the GTA welding process are not easy to control. This paper applies an integrated approach of the Taguchi method, genetic algorithm (GA), and artificial neural network (ANN) to optimize the GTA welding process. The proposed approach is applied via Taguchi method to optimize the GTA welding process. The ANN is used to model the relationship between the input parameters and the output. The GA is applied to optimize the parameters of the ANN. The results show that the proposed approach is effective in optimizing the GTA welding process. It is not easy to control the GTA welding process. This paper applies an integrated approach of the Taguchi method, genetic algorithm (GA), and artificial neural network (ANN) to optimize the GTA welding process. The proposed approach is applied via Taguchi method to optimize the GTA welding process. The ANN is used to model the relationship between the input parameters and the output. The GA is applied to optimize the parameters of the ANN. The results show that the proposed approach is effective in optimizing the GTA welding process.

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Notes

Average SNR of total trial $\hat{\eta}$ is -4.487 (dB).

The factors are treated as pooled error.

Related Research Data

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Source: Informa UK Limited

Optimization of Machine Process Parameters in EDM for EN 31 Using Evolutionary Optimization Techniques

Source: Multidisciplinary Digital Publishing Institute

Weldability of Duplex Stainless Steel

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