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Optimization of Process Parameters in Wire Cut EDM of Mild Steel and Stainless Steel using robust design

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Abstract : Mild steel and stainless steel are difficult to machine in traditional machining method. Wire cut electrical discharge machining (WEDM), a hybrid manufacturing technology which enables machining of all engineering materials. This research article deals with the investigation on optimization of the process parameters of the wire cut EDM of mild steel and stainless steel. material removal rate, surface roughness, were studied against the wire cut EDM process parameters, such as pulse on, voltage and wire feed rate. A regression model was obtained for material removal rate and surface roughness. Thus, the machining parameters for WEDM were optimized for achieving the combined objectives of a higher rate of material removal and lower surface roughness value of the work material considered in this work. The obtained results show that the Taguchi's robust design analysis is being an effective technique to optimize the machining parameters for the WEDM process.

Keyword : mild steel, stainless steel, WEDM, Taguchi, material removal rate, surface roughness.

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