

Abstract Details

Title Optimization of parameters in trim cutting operation in wedm of tungsten carbide composite.

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Abstract: In the present work, multi trims cutting operations have been performed on WC-Co composite in wire electrical discharge machining process. The trim cutting or finish cutting is an operation where the wire electrode traces back the same path with a certain amount of offset with respect to the path of the first cut. In WEDM, the prime objective in rough cutting operation is to achieve the highest possible cutting speed, but in case of trim cutting the prime objective is to achieve the desired surface finish without sacrificing productivity. Therefore, in trim cutting, very low energy pulses are applied to obtain a good surface finish which results in very small material removal rate. Investigating the influence of parameters, namely pulse on time, peak current, wire off-set and number of trim cut on the performance characteristics (cutting speed and surface roughness) in trim cutting operation of WEDM. The optimum condition has been determined with the help of main effect plot and ANOVA table to find out which parameters have most affected the performance characteristics. The mathematical modeling has been carried out using Minitab 15 software and different models have been analyzed with the help of the Taguchi design using L18 orthogonal array.

Keywords: WEDM, Surface finish, Cutting speed, Trim Cutting.