

Article Abstract

Title:	Optimization of parameters on material removal rate in micro-WEDG process
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Journal:	<i>International Journal of Engineering, Science and Technology</i> , Vol. 3, No. 9, 2011, pp. 66-76.
Abstract:	The micro-electrical discharge machining (micro-EDM) process has proved to be an appropriate nonconventional machining method for manufacturing accurate and complex three dimensional structural micro-parts and micro-tools which are difficult to be produced by conventional machining processes. The accuracy and the repeatability of the μ EDM process are still highly dependent on the μ WEDG process. In this work, an orthogonal array, signal to noise (S/N) ratio and Pareto analysis of variance (ANOVA) are employed to analyze the effect of the micro-WEDG parameters such as feed rate, capacitance and voltage on MRR. This paper focuses on the Taguchi technique for the optimization in micro-WEDG process to achieve maximum metal removal rate (MRR) considering the feed rate, capacitance and voltage as the cutting parameters. Based on the experimental result and analysis it is concluded that medium feed rate, high value of capacitance and voltage such combination of optimized parameters gives high value of MRR (0.39mg/min). The experimental result shows that the most influential parameter on the MRR is feed rate, capacitance and voltage. Also from the verification experiment it is concluded that Taguchi technique is suitable to solve the above said problem.
Keywords:	Taguchi method of DOE, optimization, micro-WEDG, MRR, Pareto ANOVA