APPLICATION OF DESIGN OF EXPERIMENTS TO MODEL ELECTRIC DISCHARGE MACHINING PROCESS

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ABSTRACT

Ever since its introduction, the EDM process has become a cornerstone in the area of unconventional manufacturing, the reason being is its increased use in applications involving tight tolerances in design and higher material removal rate (MRR). The process generates number of scarf on the surface of workpiece hence reducing the surface quality which happens to be the most important criteria when going for the manufacturing of dies. Lot of research has been done in this area to improve surface characteristics along with other parameters such as Material removal rate, tool wear rate, and relative wear rate. The technique used, involves conducting experiments on EDM process by taking into consideration the critical input parameters and varying them in the mathematical model developed using Design of Experiments. Using statistical tools, the EDM process is analyzed and the effects of variations of these critical parameters are investigated and the best possible combinations of parameters are utilized to get a product with a superior quality. Hence, the main objective of this analysis is to apply Design of Experiments method to optimize the EDM process for robustness, high efficiency and high product dimensional accuracy.