

## Optimization of Machining Parametric Study on Electrical Discharge Machining

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**Abstract :** Productivity and quality are two important aspects that have become great concerns in today's competitive global market. Every production/manufacturing unit mainly focuses on these areas in relation to the process, as well as the product developed. The electrical discharge machining (EDM) process, even now it is an experience process, wherein the selected parameters are still often far from the maximum, and at the same time selecting optimization parameters is costly and time consuming. Material Removal Rate (MRR) during the process has been considered as a productivity estimate with the aim to maximize it, with an intention of minimizing surface roughness taken as most important output parameter. These two opposites in nature requirements have been simultaneously satisfied by selecting an optimal process environment (optimal parameter setting). Objective function is obtained by Regression Analysis and Analysis of Variance. Then objective function is optimized using Genetic Algorithm technique. The model is shown to be effective; MRR and Surface Roughness improved using optimized machining parameters.

**Keywords :** MMR, TWR, OC, DOE, ANOVA, minitab

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