# EXPERIMENTAL INVESTIGATIONS AND OPTIMIZATION OF JIG GRINDING PROCESS

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## ABSTRACT

In this paper, an evaluation of the jig grinding process using a comprehensive experimentation is performed. There are several factors influencing the performance of the grinding performance. The performance of the process was measured in terms of MRR and Ra. The experiments were conducted based on Taguchi $L_9$ orthogonal array with the chosen three parameters at three levels. The statistical analysis using ANOVA indicates that none of the parameters are significant at 95% confidence level. It was observed that speed followed by depth of cut and feed influence the roughness of the ground surfaces. The MRR was influenced by feed followed by speed and depth. The AOM analysis was performed for MRR and Ra at all processing conditions. The response graphs for means and S/N rations were generated for each of the chosen input parameters. Regression equations were developed corresponding to each of these processing conditions. This comprehensive analysis has helped characterize jog grinding at an experimental level.

**KEYWORDS:** Jig Grinding, Optimization, Taguchi Array, Surface Roughness, MRR and ANOVA