

EXPERIMENTAL INVESTIGATION OF EDM PROCESS PARAMETERS USING TAGUCHI DESIGN METHOD : A REVIEW

AHEMAD K. KHAN¹ AND RAJESH A. KUBDE²

¹PG Student and ²Associate Professor, Department of Mechanical Engineering,
Prof. Ram Meghe Institute of Technology and Research, Badnera, Amravati, India.

Abstract

Electrical Discharge machining (EDM) has been recognized as an efficient production method for machining of electrically conductive hard material. The large number of parameters and the inherent complexity of material removal mechanism taking place in EDM make it even more difficult to select machining conditions for optimal performance. Hard material are generally difficult to machine but getting great demand from industries like aerospace, automobile and die making. Taguchi Design Method is used to investigate and optimize the effect of four important EDM process parameter namely discharges current, Gap Voltage , Pulse on Time and pulse off time on material removal rate (MRR) and surface roughness (Ra). The process has been successfully modeled and model adequacy checking is also carried out using MINITAB software. The model have been validated with analysis of variance(ANOVA). An attempt has been made to estimate the optimum machining conditions to produce the best possible response within the experimental constraints. Experimental results demonstrating the feasibility of the EDM process are available from a few research groups. However, literature in this field is insufficient and further research is required to make this process commercially feasible. This paper presents a review on electrical discharge machining and future trends of its application.

Keywords: EDM, surface finish, material removal rate, surface finish.