

ANALYSIS OF ELECTROCHEMICAL MICROMACHINING

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ABSTRACT

The present paper deals with the analysis of electrochemical micro-machining process at the basic level. This study has demonstrated the EMM process from both a theoretical and experimental point of views, based on earlier investigations. The functional aspects of EMM set-ups and systems were understood, considering the mechanism of removal as well as the precision of the machining process. Comparative analyses of the processing conditions governing the electrical and chemical aspects of the EMM process were performed. The input parameters chosen were: voltage (V) and concentration of the electrolyte (C). The effect of these parameters on productivity and quality of EMM were evaluated in terms of MRR and geometric overcut. It is observed that the maximum improvement in MRR with voltage and concentration were 100% and 70% respectively. The optimum processing conditions for EMM was obtained based on the parameter relationship graphs.

KEYWORDS: Electrochemical Machining, Micro-Machining, Inter-Electrode Gap, Electrolyte, Processing Parameter, MRR and Overcut