

ELECTRICAL DISCHARGE MACHINING PERFORMANCE OF ALUMINUM HYBRID COMPOSITE MATERIAL

Adrian Iosub & Florin Negoescu

Technical University "Gheorghe Asachi" of Iasi-Romania, Department of Machine Manufacturing Technology

Corresponding author: Adrian Iosub, adrianiosub@tcm.tuiasi.ro

Abstract: Among the many unconventional machining techniques, electrical discharge machining has proved itself to be one among the effective tool in shaping difficult-to-machine materials as aluminium metal matrix composites. The objectives of this work is to investigate the effects of peak current (I_p), pulse on time (t_{on}) and pulse off time (t_{of}) on tool wear rate and material removal rate. The surface integrity of electrode and machined surface will be analysed and discussed. SODICK AD3L CNC electrode discharge machine was used for the proposed research with cylindrical brass electrode as tool. The quality of machined surface and heat affected layer after electrical discharge machining process is discussed. It was observed that material removal rate increases with increasing of discharge peak current and with increased pulse duration

Key words: composites, electrical discharge, electrode wear, material removal rate