

Surface analyze of SiC/AlMg10 at EDM drilling

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Abstract. In several situations the composites materials with metal matrix once they have improved their mechanical properties, they decrease their machinability. AlMg alloys have generally a good machinability by electrical discharge machining -EDM, but once they are reinforced with SiC, the EDM machinability decreases. If the metal matrix composite has a certain electrical conductivity, the opportunity of applying electrical discharge machining to drill parts of composites could be investigated. In order to study the EDM drilling process of AlMg10 alloy matrix composites reinforced with 5% SiC particles, an experimental research in accordance with Taguchi method was designed and applied. As input variables one considered the peak current, the servo-voltage, pulse on time and pulse off time. Tool electrode wear and material removal rate were chosen from the output parameters. The taper and the roundness of the achieved holes were analyzed. The experimental results were mathematically processed and empirical models were established and used for graphical illustration of the influence exerted by the process input factors on the above mentioned parameters considered of technological interest. Surface analyze was possible using SEM.