عنوان مقاله:

Experimental study of the effects of tool parameters on the glassmicro-drilling by using ECDM process

محل انتشار:

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خلاصه مقاله:

The present research deals with the experimental study of the effects of tool shape and applied voltage on material removal rate of glass micro drilling using the ECDM process. In this study, three different tools including cylindrical rod, micro-drill and micro-mill with various applied voltages are examined and the achieved machining speeds and the relevant patterns during the process are discussed. The obtained results show that the micro-drill has the highest MRR in different process conditions while the cylindrical rod results in the worst machining speed because of its poor electrolyte circulation effects. In addition to the tool shape, increase in the applied voltage results in increase in MRR in the case of different tool shapes.Experimental results show that in comparison with NaOH, using KOH as electrolyte results in a higher material removal rate. Photos taken from the surface and bottom of the holes show that with NAOH as electrolyte overcut is larger and precision is lower, also the bottom surface of the holes has a better finish which is due to the superior etching of KOH

کلمات کلیدی:

Electrochemical discharge machining (ECDM), glass, micro machining, tool electrode, overcut