

STUDY ON THE EFFECT OF MACHINING PARAMETERS ON ECSM OF GLASS

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ABSTRACT

To successfully compete in today's global market, the need of rapid product development reducing the lead-time between the designs of the product to its arrival in the market is increasing day by day. Moreover the market demands are changing fast. To respond to fast changes in demands, development of new innovative products is required which requires several sophisticated manufacturing processes. New machining processes are required to machine the advanced difficult-to-machine materials that are replacing the conventional materials at a very fast rate. Recently, a new trend has been introduced to combine the features of different machining processes. Such machining processes are called as Hybrid Machining Processes (HMPs).

Electro-Chemical Spark Machining (ECSM) is an evolving advanced hybrid machining process comprising the techniques of electrochemical machining (ECM) and electro discharge machining (EDM). ECSM is useful for both conducting and non-conducting materials. ECSM is a hybrid process, where the material removal is achieved by thermal and chemical processes.

In this work, an experiment on machining of glass with ECSM with different tool materials was conducted. A detailed study was also conducted to find out the influence of different machining parameters on the ECSM machining of glass and developed a mathematical model of the same.

KEYWORDS: ECSM, HMPs, Machining Parameters, Mathematical Model