

An experimental study for optimization of electrical discharge turning (EDT) process

ABSTRACT

The paper presents the application of the Taguchi robust design methods to optimize the precision and accuracy of the electrical discharge machining process (EDM) for machining of precise cylindrical forms on hard and difficult-to-machine materials. The present study has been carried out on the influence of six design factors: intensity supplied by the generator of the EDM machine (I), pulse-on time (t_i), voltage (V), pulse-off time (t_o), servo (VG), and rotational speed (C) which are the most relevant parameters to be controlled by the EDM process machinists, over material removal rate (MRR) as an indicator of the efficiency and cost-effectiveness of the process. The study of behaviour of the mentioned response has done by means of the technique called design of experiments (DOE). In this case, an L18 (21×37) Taguchi standard orthogonal array was chosen due to the number of factors and their levels in the study.

Keyword: Design of experiments, Taguchi, Electrical discharge turning, Material removal rate