

## Material Removal Rate: Electrical discharge machining using Copper-Chromium electrode

Abhinav Shard<sup>1</sup>, Deepshikha<sup>2</sup>, Vishal Gupta<sup>3</sup> and M.P Garg<sup>1\*</sup>

<sup>1</sup>*Department of Mechanical Engineering, DAV University Jalandhar-144001,  
Punjab( India)*

<sup>2</sup>*School of Physics and Materials Science Thapar Institute of Engineering and  
Technology Patiala- 147004, Punjab (India)*

<sup>3</sup>*Mechanical Engineering Department, Thapar Institute of  
Engineering and Technology Patiala- 147004, Punjab (India)*

*\*deepshikhanit@gmail.com (Corresponding author)*

**Abstract:** In the present study powder metallurgy electrodes generated from copper (Cu) and chromium (Cr) powders are used in Electrical discharge machining (EDM). The design of the experiment (DOE) and L<sub>18</sub> orthogonal array (OR) are helpful in finding the best level input parameters. In order to obtained an excellent material removal rate (MRR) five input parameters like peak current, polarity, pulse on time, gap voltage and electrode type are chosen. It has been concluded that powder metallurgy electrodes achieved a higher material removal rate than metal electrode.

**Keywords:** Material removal rate (MRR), Design of experiment (DOE) and Electrical discharge machining (EDM).