

## **Abstract**

DF2 is a general purpose oil-hardened tool steel with good characteristics such as: wear resistance, resistance to chipping and cracking, resistance to plastic deformation, good machinability and grindability. These characteristics combined to make DF2 steel suitable for the manufacture of tooling with good tool life. DF2 is supplied by manufacturers in various surface executions including hot rolled, pre-machined, fine machined and precision ground. DF2 is also available in the form of hollow bar. This material is widely applied in the fabrication of blanking die, punching die, bending and burnishing die, gauges, measuring tools, woodwork cutters and lathe thimble. This research project aims to study the machining of DF2 using wire electrical discharge machining (WEDM) with zinc coated brass electrode wire. This project has the objective of investigating the optimization of parameters in the machining of DF2 steel using WEDM. Machining characteristics namely, surface roughness ( $R_a$ ) and material removal rate (MRR) were observed. Taguchi method of experimental design was employed in this study. Analysis of variance, ANOVA, was applied to study how a given factor in a particular variable can have a significant effect on the studied machining characteristics. The optimal levels of machining parameters were then determined to achieve the optimum machining performance.