STUDY ON SURFACE INTEGRITY OF TUNGSTEN CARBIDE MACHINED BY DIE-SINKING EDM USING TAGUCHI METHOD

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ABSTRACT

Tungsten Carbide is one of the important composite materials that are used in the manufacture of cutting tools, dies and other special tools. It has high hardness and excellent resistance to shock and wear, and is not possible to machine easily using conventional techniques. Tungsten Carbide is subjected to electro discharge machining (EDM) which is one of the famous non-traditional cutting techniques in industry. In Malaysia industries, EDM is widely used for machining plastic injection moulds, stamping dies and parts of automotive, defense, electronics and telecommunication industries. Taguchi method with the selected parameter was implemented in this study to identify the influence of selected parameter towards the surface integrity. Surface integrity is an analysis on microstructure, topography, depth of cut, roundness and hardness. The results are discussing on the influence of selected combination of factors toward the material. All the machined specimens were studied in Material Science and Metrology Laboratories, Faculty of Mechanical Engineering in Universiti Teknologi MARA (UiTM) Shah Alam. It was found that the parameters produced different kind of surface results. It is depend on priority of product criteria that want to be produced. The priority on each surface integrity aspects such as roundness, topography, depth of cut and hardness has its own parameter setup.

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CHAPTER II LITERATURE REVIEW