ABSTRACT

Due to the high growth rate of manufacturing industry for 3C products, automobile application and tools, the complexity and process precision of components have been required. During the process, the surface precision, time of process and efficiency are strongly influenced by cutting tool wear and coating. Therefore, it is important to study the surface coating on the cutting tool.

Firstly, in order to discover the differences between cutting parameters and flank wear, an end mill without coating treatment has been using in a changing circumstances of cutting speed, feed rate and depth of cut during process. After discovering the influence of cutting parameters and flank wear, based on Taguchi method end mills with variety of coating treatment were used for an experiment and the main purpose of this experiment is to show the ability of anti-flank wear by using different coated end mills.

According to an observation from SEM, by using the coated end mills with different processing conditions of coating, the different thickness of coat on those mills has no significant influence on flank wear. Finally, based on the result of hardness test, the direct ratio of cutting hardness to thickness is shown.

Keywords : Taguchi Method; flank wear; coating


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