

عنوان مقاله:

Experimental Study of the Effect of Variable Pitch in Indexable Cutting Tool on AISI4140 Steel Surface Finish in Milling

محل انتشار:

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خلاصه مقاله:

Chatter is one of the most limitations that cause undesirable effect on improving productivity and part quality. In this paper, an experimental method has been used for analysing the effect of changing pitch in the indexable cutting tool in milling. For this purpose, the cutting forces of machining in three different directions were investigated and a comparison was made between tools with equal and unequal pitches. Milling of AISI 4140 has been performed with two different depths of cut (0.5&1mm) and the machining surface finish were examined. Furthermore, by using accelerometer sensors, the machining vibrations and machining forces by using dynamometer were measured. According to the findings, as well as the reduction of vibrations of machining about 50 %, machining forces reduction between 15% and 30% and surface finish improvement more than 200% were observed. In this regard, utilizing tools with different pitches leads to improvement in machining efficiency, reducing energy consumption, manufacture of high quality parts and it will ultimately reduce costs.

کلمات کلیدی:

Machining Efficiency, Milling, Chatter Phenomenon, Tools with Different Pitch

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