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STUDENT PROJECTS (2017-2018)

MANUFACTURING AND TESTING OF END MILLING

ABSTRACT

This study is focused to determine the optimum operating parameters for the end milling process of AA6061T6 under wet cooling conditions. A central composite design of response surface methodology is used to develop an effective analytical model for surface roughness. The primary cutting parameters, namely, speed, feed rate and depth of cut, are considered in this study. Surface roughness is measured using a pertho meter. The adequacy of the model is tested using ANOVA at 95% confidence level. Significant parameters are identified in terms of the cutting parameters. The obtained results show that the most significant parameters for the machining of the mentioned alloy are feed rate and depth of cut. The resultant model is then tested for optimization using a genetic algorithm.

Milling is the most extensively used metal machining operation. Most of the finished products undergo milling processes at any stage of fabrication. The widespread use of end milling for machining parts is attributed to its capability to a faster rate of metal removal as well as a reasonably good surface texture. End milling operations is highly adaptable for both the roughing and finishing operations for different products can be produced using end milling cutting operation with a high level of accuracy and surface finish. Machining productivity with good design and specifications, as well as the process economics and product quality make the study of the milled surface very vital. The machining process for producing a milled surface is affected by a number of machining parameters such as the cutting conditions and tool geometry. These parameters play a key role in the final quality and finish of a milled surface. Surface texture or surface quality plays a vital role in improving the fatigue strength, corrosion resistance and the creep life of the machined part.

Spindle RPM will 2000, 3000, 4000, with different depth of cut Testing of surface finishing and hardness testing will done to test the material strength.

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