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## Flank wear prediction in high-speed face milling using monte carlo simulation method (Conference Paper)

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### Abstract

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In high-speed machining, Flank wear length is tough to predict due to significant dynamical change in the cutting zone. Therefore, using the traditional methods in predicting the flank wear may be varied from the accurate values. One of the practical alternatives is by using the Monte Carlo simulation method. This research compares three different scenarios in predicting the flank wear in high-speed face milling under dry conditions. The experiments were conducted using Box Behnken Design (BBD) in dry machining in high-speed face milling of AISI 1050. Six scenarios have been implemented: 50, 100, 250, 500, 1000, and 2000 simulated runs. The results were analyzed and indicated that even with the complexity of the process, the Monte Carlo method gave results high accuracy as compared with the actual experimental results with an error of 0.24%, 0.16%, 0.11%, 0.09%, 0.046% and 0.047%. Determining the optimum number of runs that give the minimum number of runs is time effectiveness. Finally, the optimum number of simulation runs was determined. knowing the best number of simulations runs that same time and increase the accuracy is essential to increase the advantages of using MC method. © IEOM Society International.

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