

Artificial Neural Network Application for Surface Roughness Prediction when Drilling Nickel Based Alloy

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Article deals with design of appropriate artificial neural network for prediction of surface roughness as one of the very important indicators of machined surface quality. The drilling of nickel based super alloy UDIMET 720, was applied as test material. This type of material is most frequently used for jet engines components such as discs etc. Experimental data collected from tests were used as input parameters into neural network to identify the sensitivity among cutting conditions, tool wear and monitoring parameters and surface roughness. Selected parameters were used to design a suitable algorithm for control and monitoring of the drilling process with respect on surface roughness. The accuracy of predicted and measured values are compared and discussed.

Keywords: artificial neural network, surface roughness prediction, nickel based alloy Udimet 720

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