Energy Consumption Model of Electrical Drives for Machine Tools

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Abstract

The energy saving of machine tools is recently a hot issue in the manufacturing process. The prediction of the energy consumption is an important step to achieve the energy saving process of machine tools. This paper describes a development of the energy consumption model of the electrical motor drives for machine tools to predict the energy consumption during the machining process. The model can be generally represented as polynomial of the processing variables which can be obtained from the NC controller, and its coefficients can be determined by the curve fitting of the measured data. The energy consumption of the machine tools can further be optimized based on this model. The validity of the derived model is proved through the experimental works.

Reference

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