International Journal of Production Research, vol. 52(10), 2014, pages 2946-2953

Optimisation of machining parameters by criterion of maximum productivity

Abstract

The optimisation of machining parameters for machine tools using the criterion of maximum productivity rate is not a new problem - many unresolved issues remain. The intensification of machining processes leads to changes in the productivity rate; analytically defining optimal machining parameters for the maximum productivity rate in real-world manufacturing processes is, therefore, an important problem that needs to be addressed. This paper aims to formulate a mathematical model for the optimisation of cutting processes on machine tools based on the criterion of maximum productivity rate. The mathematical model is based on technological data, machining and reliability parameters of the machine tool units. Several practical applications are discussed.

Keywords

Machining; Optimisation; Productivity