
Probabilistic models for calculating the performance of automated machine tools

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Performance and reliability of automated cutting machines is an important indicator of efficiency of their operation. However, the scientific literature does not address the issues of their work in terms of servicing a large number of requirements for processing of parts and service intensity of these requirements, described by the method of queueing theory. The article considers mechanisms of flow applications for processing, failure of equipment, tools and service flows on the example of a machine tool as a kind of queuing system. The proposed method for describing the mechanism of application stream formation and services allows to estimate effect of the conditions machine operation on its performance and reliability. The study results extend the knowledge about the use of performance and reliability theory, queueing theory in the analysis of the operation of cutting machines and other processing devices of discrete.

Keywords: *automated cutting machines, performance, reliability, flow applications, the flow of services, the state probabilities of the machine, the queueing system.*

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