

Economic evaluation of production system flexibility

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To maintain the production company competition a production system able to meet the requirements for flexibility in terms of volume and variety of products which is able simultaneously to meet the requirements for flexibility in terms of volume and variety of products. The economic evaluation scheme of the production system flexibility, based on the simulation methodology, is proposed. The system associations have been determined, influential parameters, which adjustments ensure the production systems qualitative and quantitative flexibility, have been investigated.

The efficiency of the economic evaluation methods of flexible production systems in order to achieve the optimal level of flexibility is substantiated. The methodology of economic evaluation allows estimating expenses on the basis of resources activity and distribution for each process and thus estimating the cost of each unit of the product in the production system. Consequently, this ensures transparency of cost determination and appears to be the basis for decision-making regarding the flexibility of the products volume and range in the production system.

Simulation modeling allows to specifically study various production programs (in particular,

the program for product volumes and composition) as well as to adjust the process of resource consumption. Depending on this, the costs for each product and for the entire production system can be determined accurately.

The principle of flexibility makes it possible to adapt the production process to changes in economic and organizational conditions, and to constructive and technological requirements for manufactured products. This principle cuts the time and cost of the equipment readjusting during the release of parts and products of a wide range.

Flexible automated production operates on the basis of complex automation and is able (in the range of technical capabilities) switch to the release of new products of any nomenclature by reorganizing the technological process by replacing management programs with minimal costs and in a short time, without interrupting the production process and without stopping equipment. Simulation modeling allows to specifically study various production programs (in particular, the program for product volumes and composition), and to adjust the process with Resource Existence. The results show that a flexible manufacturing system can be economically adjusted to the fluctuation of market requirements.