CONCERNING ECONOMICITY OF THE TECHNOLOGICAL PROCESS FOR MANUFACTURING A PIECE. METHODS TO REDUCE COSTS

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Abstract:*The production costs are influenced by internal factors, dependent on producer activity, and external factors, independent of its activity. Among the external factors that influence costs are: the purchase prices of the factors of production and selling prices of the goods. The constructive shape and size have a decisive influence both on material consumption and the workload, which is reflected by the respective construction tehnologicity.*

In this paper I have the aim to analyze the economicity of the technological process for manufacturing a piece and scoring methods to reduce costs.

Keywords: efficiency, costs, discount, economicity

1.ECONOMIC EFFICIENCY OF THE SHAPE AND OF THE TECHNOLOGICAL DESIGNED PROCESS

The constructive shape and size have a decisive influence both on material consumption and the workload, which is reflected by the respective construction tehnologicity.

Achieving the optimum technologicity involves:

- Creating a form as simple;
- Ensuring a minimum weight;
- Use cheap materials, of quality and easily available;
- Choosing the workpiece and thus the technological process leading to machining allowances as small;
- Optimal use of tolerances;
- Use of standardized and typified construction;

When the piece is done by achieving more technological processes, the choice of manufacturing method is usually required by the minimum cost, whichever is the method which ensures minimal costs.

The economic factor which is decisive for the profitability of production does not exclude other factors such as: reducing the physical effort of the worker, reducing production cycle due to mechanization and others.

2.THE COST OF PRODUCTS AND ANALYZING ITS STRUCTURE

The analysis of the cost structure allows to establish mutual relations between the components of this fair proportion, to reveal abnormally high costs, being able to find ways to reduce and saving rational use of materials, labor, energy, etc.

The influence of the shape workpiece on economicity technology of processing and the use of material.

From an economic perspective, the establishment of the form of the workpiece and of its processing technology to take into accounts the costs of preparing the workpiece and of the necessary processing to the final, knowing that they influence each other.

The workpiece is set at the indicated design and technological process of producing the same.

The technological process is determined by a number of factors such as:

- Material properties;
- Shape and size of the finished piece;
- Volume of production;

Depending on the technological process adopted resulting shape and size of the workpiece and thus the economicity of the finished piece.

3.THE COMPARATIVE ANALYSIS FOR DETERMINING THE SHAPE OF THE ECONOMIC VARIANT AND OF THE TECHNOLOGICAL PROCESS

To obtain maximum economic efficiency it is necessary to establish the shape of the pieces, the designer should consider the interdependence between form, used material, production volume and technological process expected.

For a proper assessment of economic efficiency is taken into account a number of factors such as:

- indices technical- economic superior;
- indices of use of material as high;
- indices as lower power consumption;
- indices to use machinesand the tools as small as that would result in a quick return on investment;

The minimum volume of work to develop the product although the workload is an important indicator, it may not always fully characterize economic efficiency.

To achieve comparative analysis must first determine the variations of achievement.

The study of economic alternatives is based on concrete conditions that will apply the technological process and namely:

- Determine the form and technology for production in a newly designed.

It is the most favorable situation because taking into account the prospects for developmentthe endowment is according to the latest achievements of science and technology.

In this case the analysis of economicity of the manufacturing process will be shared with the technologist, for the development of workpieces for machining and assembly.

- Establish economic alternatives for a new production in an enterprise with a certain endowment;

This situation is more difficult because the shape and therefore the technological processes are limited by the existing possibilities in the enterprise.

When analyzing technological options will have to be taken into account the possibilities for modernization of equipment, the introduction of new technologies, and even some machines equipped with new tools. To this analysis will consider increasing productivity, possibilities and investment payback period.

4.ESTABLISHING THE OPTIMAL TECHNOLOGICAL PROCESS

For the execution of one piece can be produced different variations of technological processes, different from each other by the workpiece chosen for the realization of the piece by the content and organization of operations.

A technological process is considered optimal and respectively economical when ensure the implementation definitely of the piece of technical conditions prescribed in execution drawings with the least cost and in a short time.

5.METHODS FOR REDUCING THE COST OF PRODUCTS

The application of the methods for reducing product cost efficiency should permanently remain to the attention of designers and technologists who must develop continuously, starting from the design stage until the final stage of the final product.

Here are some common methods for reducing the cost of products:

5.1.The decrease of specific consumption of materials

This can be achieved by setting the shape and dimensions of the workpiece as close as possible to those of the finished piece in order to obtain the minimum processing additives.

Also need to apply cutting plans (simple, compound or complex) to yield high coefficient of use of the material and provide cutting small additions.

5.2.Increasing labor productivity

The labor productivity of a technological process is given by the workplace productivity with the lowest productivity. These places are also called “narrow places” or “bottlenecks” of production.

It is therefore necessary to find ways to increase the productivity of these places at the level to the other jobs.

Special expenses necessary for increasing the productivity of these places will increase the cost of operations that are conducted at these jobs, but the losses due to these increased costs as well as special costs will be much covered the whole technological process of production size.

It also requires a better use of working time as well as a logical rationalization as simple of movements and handling performed by each person involved in the technological process in question.

5.3.Rational organization of pieces manufacturing operations

When at a workplace is running the full piece can increase labor productivity by using tools combined or simultaneous processing of multiple tools.

When at a workplace is processed the piece on position while working postures is performed working at the loading - unloading position,it removed the workpiece and processing prepares another piece.
Thus are overlapping different time auxiliary over basis time.

5.4.Improved the indices using work machines

Into the cost of machined pieces, the depreciation of machine - tools, and costs of current repairs and medium have a weight high enough. Therefore must be reduced as much share of each party manufactured pieces.
This fact is achieved by increasing the productivity of machine tools and their increased use.
Also a precise loading and as uniform of the machine can lead to the ability to judiciously determine the cost of working hours and the cost of some operations each M.U.

5.5. The decrease number of rejects

The rejects represents material losses and expenses that increase the cost of products.
Knowing the causes that lead to rejects allow adoption of measures to minimize them .
These causes are varied, but often of subjective nature, namely:

- Failure technological discipline;
- Inattention;
- Lack of conscientiousness due to low skills of the worker;
- Unsatisfactory technical control etc.

Sometimes the rejects due to hidden defects of the material, some unsatisfactory heat treatment installations and inadequate technology.

6.CONCLUSIONS

Production costs are influenced by internal factors, dependent on producer activity, and external factors independent of their activity. Among the external factors that influence costs are: the purchase prices of the factors of production and selling prices of the goods.
The manufacturer activity should focus on the following ways to reduce costs:

- reducing the specific consumption of raw materials, fuel and water
- increasing labor productivity
- full use of production capacities and production spaces
- retrofitting
- optimal sizing of development costs
- reducing quality costs
- cost reduction through design (design)
- renegotiating contracts with suppliers and distributors
- reduce administrative costs household
- decreasing sale prices
- optimal sizing advertising costs
- reducing wage costs per unit of product

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