

## **IMPROVING THE PRODUCTION STRUCTURE OF THE ENTERPRISE TAKING INTO ACCOUNT ORGANIZATIONAL CHANGES**

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The relevance of the chosen topic is that a necessary condition for improving economic efficiency and the development of any enterprise is a well-built production structure. To create and maintain a sufficient level of organization of production, we need a well-developed, optimized production structure of the enterprise, which is the basis for the successful activity of the enterprise.

The basis of an effective production structure is based on the following principles:

- 1) the principle of subordination of private interests to the interests of a whole: it is necessary to create a structure within the enterprise, if it will contribute to increasing the overall efficiency of its functioning, without contradicting its strategic interests;
- 2) the principle of proportionality: should follow a clear quantitative relationship between the various elements and areas of production;
- 3) the principle of concentration: it is desirable to concentrate the production of one or more similar species in large organizations;

4) the principle of specialization: for each production should be limited to the manufacture of a certain type of homogeneous products;

5) the principle of cooperation: there should be a system of relations between the individual departments of the enterprise, workshops, teams and individual workplaces;

6) the principle of maneuverability: if necessary, it should be possible for the rapid restructuring of production processes in the enterprise as a whole or in its individual sections;

7) the principle of preventiveness: with the help of operational production management, preventive maintenance, planning of material flow balances should be prevented deviations in the production process;

8) the principle of controllability: every action, element of production and structure should be manageable and controlled.

The Euro-Locks plant in Ruda Śląska, which is a leading manufacturer of locking systems supplied to customers throughout Poland, Russia and the countries of the former USSR, was selected as the object of analysis of the production structure. It produces a wide range of mechanical locks, as well as many non-standard products.

The company is part of the Lowe & Fletcher group of companies, which has been manufacturing lockind systems since 1889. The group includes branches in the UK, Belgium, France, Germany and the USA. All of them are modern, technologically advanced enterprises, serving both local markets and global activities of the company.

The company is currently in the process of expansion and, as a result, construction, as well as an increase in the production cycle to full. In accordance with the already designed model of several new buildings, the placement of workplaces, equipment, shelves for storing components and finished products is optimized. It was necessary to draw up a final plan on the basis of the layout developed by the production manager and to improve it, preferably by increasing the number of pallets for each of the production stages and organizing additional workplaces.

The new building will include such production stages as beginning assembly, manufacture of Westfalia and Renz locks, final assembly, key cutting, including cutting on the new equipment of the MLM group, as well as packaging of finished products for further sale in Poland and for export. The main difference of the new technology from the base is the launch of its own electroplating line, allowing to carry out coatings of trivalent chromium (Cr<sup>3+</sup>), meeting the requirements for environmental protection, as well as launching production of key blanks with a profile groove, for which the purchase of the MLM group is required.

In addition to jobs and equipment, it was necessary to place three-storey pallets in the room for storing spare parts and finished products for each of the departments. They needed to be placed in such a way that the pallets were relatively close to the department to which they directly belong. Their number for all production shops separately is presented in table.

#### Distribution of pallets in accordance with the production departments

Department	Quantity of pallets before the construction process	Quantity of pallets, Dawid's variant	Quantity of pallets, my variant
Beginning assembly	91	126	111
New department MLM	–	36	30
Department of cutting the keys	27	36	33
Westfalia & Renz	55	75	96

*Окончание*

Department	Quantity of pallets before the construction process	Quantity of pallets, Dawid's variant	Quantity of pallets, my variant
Final assembly	42	96	72
Package	217+3	252	276
Total	435	621	618

The projected version of the production structure of the enterprise, we created with the following requirements:

- the number of pallets on the final version of the plan should be no less than that available prior to the start of construction (in the developed version it increased by almost 25 %);

- the width of the corridors between departments and corridors leading to the three exits from the premises should be at least 2,5 meters, and the departments and lines should be located block by block. This requirement must be met, since the average weight of the boxes varies from 7 to 25 kg, and women's labor is used predominantly in production. For this reason, there is a need to use loaders, the width of which should be taken into account when determining the width of the corridors;

- the distance between the workplaces of installers, sitting back-to-back, must be at least one meter, and the width of the passage between them must be at least one and a half meters;

- the distance of 1-1,5 meters is preserved between workplaces and small equipment, except for cases with pallets;

- equipment for laser marking should be located in the center of the workplace unit at the initial installation;

- there must be a certain number of additional jobs in the reserve, 8–10 in each of the large departments (as the enterprise expands and installation work will be hired besides those already working).

The final version of the developed plan was presented to the management of the enterprise, approved for further implementation. Upon completion of construction, jobs, equipment and pallets will be placed in accordance with the plan described above.

Thus, the production structure proposed by us will allow the enterprise to increase its economic efficiency and the level of organization of production, and, as a result, reduce the time spent on production, increase the level of rhythm, concentration, specialization, cooperation and production location.