Case study no. 3

Title of Case study	**Lorenzo-Pareto diagram.**
Keywords (meta tag)	Lorenzo-Pareto diagram, analysis
Provided by	University of Information Technology and Management in Rzeszów
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Case study

At "X" company, which produces grout templates. These stencils are an indispensable accessory used by designers and installers as well as people and companies planning to finish a facility, house, apartment and, perhaps, first of all, DIY stores (hypermarkets).

The joint template is an aluminum U-profile with a length of 4 to 12 cm, in which a sample of cement mortar is placed, which is to imitate a real joint between the tiles.

Most of the grout template manufacturers are small family businesses that make these products by hand with little machinery (most operations are hand-made).

Company "X" has developed and implemented a series of innovations aimed at improving work efficiency by mechanization a number of operations in the production process of joint formers, thus hoping to beat the competition.

After the trial period of introducing innovations, an increase in the number of production shortages was noticed. It was decided to carry out an internal control at the direct production department. The inspection report lists non-conformities related to insufficient processing quality or damage to the patterns at individual stages of the pattern production. The table below shows the number of deficiencies in individual production sections.

No.	The stage of the pattern production process	The number of shortages
1.	Storage of products (profiles)	3
2.	Cutting profiles	27
3.	Preparation of the cement mortar	65
4.	Rubbing in the cement mortar	8
5.	Drying	49
6.	Grinding	88
7.	Cleaning the samplers	167
8.	Transportation between work stations	17
9.	Drilling holes	103
10.	Laser marking	5
11.	Packing, confection	2
	Total errors found	**534**

Based on the control data, the managers of the company "X" decided to carry out an analysis with the Lorenzo-Pareto diagram in order to detect areas in the production process that need special attention, where the application of corrective actions will have the greatest effect.

Reference Link (if any)	----
Type of material	**CASE STUDY**

(Suggested answers on the next page)

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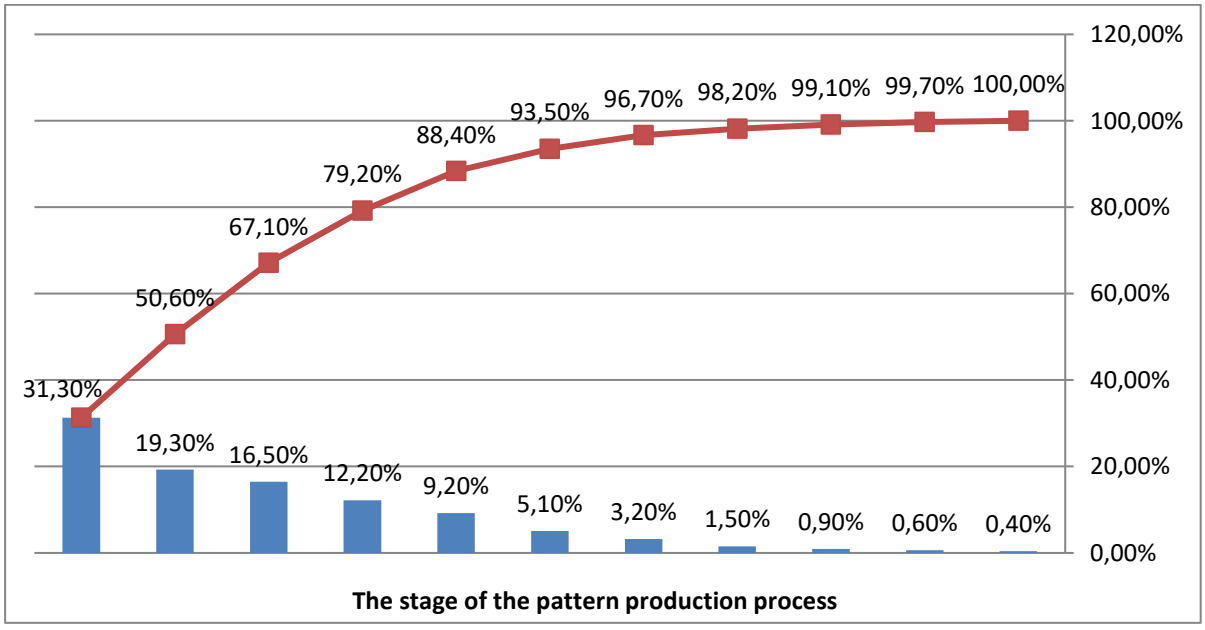
Suggested answers

The analysis of the current situation of the enterprise was started with ranking according to the frequency of occurrence (column C). Then, the cumulative number of defects was calculated (column D), the relative number in percent (column E) and the relative cumulative number of defects (column F).

Lp	The stage of the pattern production process	The number of shortages	The number of deficiencies cumulatively	Relative number (%)	Cumulative relative number (%)
A	B	C	D	E	F
1.	Storage of products (profiles)	167	167	31,3%	31,3%
2.	Cutting profiles	103	270	19,3%	50,6%
3.	Preparation of the cement mortar	88	358	16,5%	67,1%
4.	Rubbing in the cement mortar	65	423	12,2%	79,2%
5.	Drying	49	472	9,2%	88,4%
6.	Grinding	27	499	5,1%	93,5%
7.	Cleaning the samplers	17	516	3,2%	96,7%
8.	Transportation between work stations	8	524	1,5%	98,2%
9.	Drilling holes	5	529	0,9%	99,1%
10.	Laser marking	3	532	0,6%	99,7%
11.	Packing, confection	2	534	0,4%	100,0%
	Total errors found	**534**		**100%**	

Based on the data from the table, the Lorenzo-Pareto diagram was prepared.



The analysis using the Lorenzo-Pareto diagram showed that company "X" should place particular emphasis on improving the quality of operations in the sections: cleaning of the probes, drilling holes, grinding and preparation of the cement mortar. The most problems occur during the implementation of these operations. The implementation of these operations entails the production of 79.2% of the deficiencies in the entire production process.

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