

Me and my specialty

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What is factory automation?

The background image shows a factory environment with several orange robotic arms (likely KUKA) positioned over a production line. The robots are working on a conveyor system with yellow rollers. The scene is brightly lit, and the background features industrial structures and safety railings.

Automation of production is a process in the development of machine production, in which the functions of management and control, previously performed by a person, are transferred to instruments and automatic devices. Before the introduction of automation tools, the replacement of physical labor took place through the mechanization of the main and auxiliary operations of the production process. Intellectual labor remained unmechanized for a long time.

History of factory automation.



The industrial revolution created the necessary conditions for the mechanization of production, primarily spinning, weaving, metal and woodworking. K. Marx saw in this process a fundamentally new direction of technical progress and suggested the transition from the use of individual machines to an “automatic system of machines”, in which a person retains conscious control functions: a person becomes close to the production process as its controller and regulator.



Automated controls in the USSR.

In the USSR, the development of automated means of control and regulation of production processes began simultaneously with the creation of heavy industry and mechanical engineering and was carried out in accordance with the decisions of the Communist Party and the Soviet government on the industrialization and mechanization of production. In 1930, on the initiative of G. M. Krzhizhanovsky, a committee on automation was organized at the Glavenergotsentr of the Supreme Economic Council of the USSR to manage work on automation in the energy sector. In the board of the All-Union Electrotechnical Association in 1932, a bureau of automation and mechanization of electrical industry plants was created.



Elements of production automation.

Modern manufacturing systems that provide flexibility in automated manufacturing include:

- Robotic technological complex, first appeared on the market back in 1970-80. Mass distribution began with the use of programmable control systems;
- CNC machines first appeared on the market in 1955. Mass distribution began only with the use of microprocessors;
- Industrial robots first appeared in 1962. Mass distribution is associated with the development of microelectronics.

Automation of production in modern Russia.

A wide-angle photograph of a modern industrial factory. The scene is dominated by a long, central conveyor belt that recedes into the distance, creating a strong sense of perspective. On either side of the conveyor, numerous white, articulated robotic arms are mounted on bases. The factory has a high ceiling with a complex network of metal trusses and several long, bright fluorescent light fixtures. The overall atmosphere is clean, organized, and technologically advanced.

In Russia, the main work continues to be done by people, at a time when in other countries it is already being done by robots.

Today, Russia needs 350 thousand industrial robots to be able to approach developed countries in terms of automation of production processes.

The End

