

PRODUCTION OF MODEL EQUIPMENT IN THE MODERN FOUNDRY

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Production of foundry equipment in modern production is difficult, but one of the main tasks in the production of castings. Previously, model equipment was made manually according to templates, as well as on universal machines. This process was long, time-consuming and imprecise.

One of the ways to improve the quality of castings is the use of computer technologies in the design and manufacture of equipment. The cost of manufacturing a model kit is 8% of the total cost of foundry products, and the labor intensity of their production corresponds to approximately 18% of the total labor intensity of casting production.

Currently, in connection with the development of computerization of foundry production, two main methods of manufacturing model equipment are used:

- 3D printing, adding material (Additive Manufacturing).

This approach allows you to create castings by adding material layer by layer. A CNC system creates tooling parts directly from digital models using different types of materials, including plastic, metal and resins. 3D printing allows the creation of complex shapes and structures that are difficult or impossible to create using traditional methods.

- Milling on CNC machines (numerical program control).

This is a layer-by-layer removal of material. The method also allows you to create details from a mathematical 3D model. You can use different materials: wood, plastics, soft metals, steel, cast iron.

As an example, the manufacture of model equipment for casting of the "Impeller wheel" type is considered, both methods are used. When making models of the top and bottom, as well as the base of the core box: we use the 3D CNC milling method, so it will be optimally fast and high-quality. As for the production of the blades themselves, which have a more complex curvilinear configuration, we make them using 3D printing.

Experience has shown that when manufacturing model equipment, I recommend that all massive and simple elements be executed by the 3D CNC milling method, where three processing axes will be sufficient. But if there are thin parts in the model equipment, with a complex configuration, it will be advisable to manufacture them by the method of 3D printing.

The use of CNC machines for the production of model foundry equipment helps to increase the efficiency, accuracy and quality of production, which makes this method very attractive to many businesses, both small and large.