

УДК 621.74 (091)

THE HISTORICAL DEVELOPMENT OF CASTING TECHNOLOGY

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Foundry production is a method of forming metal products by pouring molten metal into specially prepared molds. This technology is widely used in various industries, including automotive, mechanical engineering, construction and other areas. Foundry production provides the ability to manufacture parts of any complexity and configuration, while guaranteeing the accuracy and quality of the finished product. Various casting methods are used for this purpose, including chill, vacuum, centrifugal and others. Each of these methods has good efficiency and can be adapted depending on the specific requirements for a variable product. Foundry production ranks second in modern industry, providing manufacturers with the necessary parts and components for the production of various goods. The method of obtaining products by casting metals has been known for more than five thousand years. The design was cast with simple household items and jewelry made of copper and bronze, such as boilers, washbasins, earrings, crosses and rings [1].

Due to the advancement of human society and the emergence of new requirements for metal products, the number of alloys has increased significantly. The history of foundry production shows that from various types of ores after appropriate processing, alloys were obtained that were individual not only in composition, but also in functionality depending on the purpose of the product. In most cases, castings are made in disposable or reusable molds. The development of foundry production is associated with the formation of material culture. Changes in the types of materials affect important concepts related to the production of products. When ancient man was able to obtain liquid metal, he realized that by pouring it into a prepared form, it is possible to make various combinations, which became the basis of foundry production. Metal casting arose 5000 years BC. After the Stone Age, the era of metals began, which be-

gan in the period (5-7 thousand years BC). The original type of metal processing was forging. Copper was used for casting, which melted well. Acceleration of production occurred due to the innovation of better alloys for casting molds.

The first alloy was billon, a compound of platinum and gold. This material was used because it was flexible. Over time, methods of processing products were improved, which helped to create works of art. Castings were often made of two layers – a casting and a coin. In the third millennium BC, this method of casting turned into impulse art casting. Hollow products were made, including a rod and soft alloy casting. The largest casting is considered to be a statue of Buddha, which was made in the 8th century. In the 19th century, there was a separation of blast furnaces and foundries, which helped the development of foundry production. Cast iron products were very popular. When studying technical re-equipment and modernization of plants, mechanical engineering centers were formed, steel was studied more. Improvement of steel from cast iron, to American cast iron with the addition of harmful substances. And in 1884, Emil Martin made the famous open-hearth furnace. Modernization of the production of machines for the production of steel casting requires more complex products [2].

In conclusion, we can say that foundry production to this day remains a developing area that is ready for new discoveries and breakthroughs in technologies. Currently, the casting industry is actively progressing thanks to the introduction of innovative methods that allow not only to maintain the achieved positions, but also to achieve a level of accuracy and productivity that previously seemed unattainable.

Only thanks to foundry production, in our time there is mechanical engineering, which allows us to produce various products aimed at satisfying human needs. Almost all automobiles and similar products have cast parts that have gone through a huge manufacturing process and stages of production.

References

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