

QUESTIONS OF GREASING OF CASTING MOLDS FOR ALLOYS OF NON-FERROUS METALS

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Abstract: Article is devoted to questions of greasing of casting molds since when casting under pressure important operation is greasing of forms as renting of castings and their quality, firmness of the equipment and a working condition depend on a way of putting the lubricant (L) and its properties. However insufficient attention is paid to greasing of forms in conditions of production.

Keywords: casting mold, lubricant, casting.

When casting under pressure, lubrication of the molds is an important operation, since the method of applying a lubricant (CM) and its properties determine the removal of castings and their quality, tool life and working conditions. However, insufficient attention is paid to the lubrication of forms in production conditions.

An analysis of the condition shows that more than 20 different types of lubricant are used. The main ones are: technical and beeswax Elitol, lubricant based on silicone and others. Part of the lubricant used is produced centrally, and part is manufactured by the enterprises themselves.

As a rule, the lubricant forms are applied manually to the surface, and among the automation tools used, lubrication systems based on stationary nozzles and a movable unit of nozzles are most common. However, there remains a high marriage of castings due to the fault of the lubricant. Typical types of defects: scoring on castings (welding them to the surface of the mold due to low separation and lubricating properties of the lubricant), not fit, "frost", traces of lubricant on the surface of the castings, porosity. To eliminate the effects of a lubricant on the quality of castings, shot-blasting and sandblasting of castings, hydro-casting, sealing of gas pores with various composites, and other types of finishing castings are used. In addition, used lubricants and methods of their application worsen working conditions.

Many of these shortcomings can be eliminated by introducing a method of smearing forms in the closed state, which has been successfully used in many enterprises. This method has significant advantages compared to traditional methods of applying a lubricant: it significantly reduces the emission of lubricant into the atmosphere of the workshop and, as a result, improves sanitary and hygienic working conditions; reduces lubricant consumption by about 10 times; increases

productivity due to combination of operations of greasing of forms and pressing; reduces the number of failures of the casting machine as a result of simplifying the design and improving the reliability of the device lubrication forms.

The introduction of the method on the robotic technological complexes of the injection molding of many production associations in the manufacture of aluminum castings of simple and medium difficulty groups with the use of lubricants shows that it is necessary to develop new lubricants for lubricating molds in the closed state, upon receipt of difficult to remove castings.

To solve this problem it is necessary to develop the technological requirements for this product. This requires a theoretical analysis of the process of forming a layer of lubricant on the surface of the mold when lubricating the molds in the closed state, taking into account the thermal properties of the lubricant and generally accepted models of the behavior of the lubricant from the moment the melt enters the mold cavity. Thus, a relationship is established between the properties of the lubricant and the conditions for removal of castings, and their quality.

The main criterion for assessing the quality of a lubricant are the conditions for the removal of castings, and then assess the influence of the lubricant on the porosity, the cleanliness of the surface of the castings and other indicators. The ease of removal of castings is provided by the separation and lubricating ability of the lubricant. The conditions for casting the castings are estimated by the rate of their blasting, which characterizes the separation capacity of the lubricant and the removal performance indicator that characterizes the lubricating and separation capacity of the lubricant, which is determined by the pressure developed in the working cavity of the hydraulic cylinder of the injection molding machine. The lower the value of the index of undermining and removal, the better the conditions for the removal of castings. In addition, the porosity of the castings is determined by the method of hydro-weighing and the cleanliness of the surface by their reflectivity.

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