Analysis of Influence Dimensions of the Gate on the Homogeneity of the Low Weight Castings Made of Silumin

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The design of the gating system is a major factor in the internal homogeneity for casting. A properly designed system should ensure a proper and continuous filling of cavities in a mold. A continuous filling in a mold cavity gives the initial condition for internal soundness and homogeneity when casting, which in turn is reflected in the quality and mechanical properties. The geometry and shape of the gate models and directs the melt stream entering the mold cavity, this greatly affect the properties of the castings. Homogeneity of castings closely correlates with the mechanical properties of castings. The present paper is devoted to analyzing the effect of the dimensions of the inlet slit on the homogeneity of the casting. As the width of the gully is constant according to the design method of the ingate systems, the variable parameter was the height of the gate. The aim of the experiments was to find the most advantageous height of the gate that is necessary to achieve the lowest porosity values. The boundary values of the height of the gate were determined based on the numerical design of the ingate system for the particular casting and the NovaFlow & Solid simulation program. The porosity analysis *f* was performed by the OLYMPUS GX51 microscope and the evaluation of the samples was carried out using the ImageJ computer program.

Keywords: die casting, homogeneity, porosity

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