Conference Proceedings Volume 2544, Issue 1 AIP Conference Proceedings

Relationship of grain size & shape factor of nickel aluminium bronze at different cavity thickness

Abstract

The purpose of this study is to develop the customized connecting rod based on NAB alloy. Later the relationships of alloy's grain size with its shape factor, at different section of connecting rod mainly at large, medium and small were compared to cooling rate. Several parameters such as NAB's composition (based on ASTM B148 UNS C95800), the type and amount of degassing agent used, the microstructure behavior of NAB such as the effect of cooling rate to the grain size, DAS and SDAS of NAB alloy was also investigated. The experiment included optical microscope equipment for microstructure and SEM/ EDS observation to determine the grain size and distribution which may relate to its cooling rate. The experimental result shows that the grain size and shape factor are significantly depend on the cooling rate where is, slower cooling rate will produce more fine grain and microstructure. The same trend also observed in the grain size which is highly depend on the cooling rate. The higher the cooling rate, the smaller the grain size of the NAB connecting rod.