

# Study on the Mechanical Property of High Strength ZA Zinc Alloy by Hot Chamber Die Casting

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## ABSTRACT

The high aluminum content ZA alloy is excellent of the owning high bearing-load ability, low wearing rate and good performance are applied in the situations of high loading low speed and lubricated bearing, the cheap ZA-8、ZA-12 and ZA-27 alloy that is in the price and usage is also multifarious, widespread apply to die-castings the piece in the zinc that produce the high load bearings, for example become soon the box spread to move the device and annoy to move the spare parts stalk to spread to move the component and mine for minerals the equipment of large bearings etc.. Therefore, this study used CAE analysis to evaluate the optimal casting schemes for producing these ZA alloy castings by hot chamber die-casting method which has lower cost of equipments compared to the other casting methods, make use of the more different property study the best of the hot room die-castings the manufacturing process parameter, and compares with the difference of the gravity foundry. Study to the result manifestation ZA-27 alloy has the better hardness and Tensile strength, compare with the ZA-12 and ZA-8 alloy, and hardness is increase with increased casting temperature, and under the condition that high casting pressure or lowly mold temperature, three kinds of zinc alloys die-casting hardness increase. Casting temperature(super heat)+20 , the hot chamber of three kinds of ZA zinc alloys die-castings has the best tensile strength, at higher casting pressure its alloy increase tensile strength, The fluidity of ZA alloys increase with increased casting temperature, mold temperature and casting pressure. Effect of size grain influence casting temperature, and porosity increase with increased casting temperature, and casting pressure increase will reduce porosity.

Keywords : ZA-8, ZA-12, ZA-27, hot chamber die-casting, hardness , tensile strength, fluidity, grain, porosity

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