EFFECT NUMBER OF GATE FOR CAST DEFECT AT THE MAKING FCD 600 CRANKSHAFT USING SAND CASTING

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Abstract

The manufacture of crankshaft forgings and casting process in the automotive industry contributed significantly to the cost of investment. For forging process requires very high investment costs due to the forging machines are very expensive and processes are long compared to the casting process more efficient, but the casting process are many defects in the product yields mainly shrinkage, porosity, crack and slag.

Research on crankshaft manufacturing of materials FCD 600 with sand casting method, where patterns and channel system attached to a flat plate section cup and drag, made producing patterns of molding easily. Then comparing the number, type and location of the defect between the single inlet channel system with double inlet channel system, after that was measured and analyzed by the visual and non-destructive test (NDT) method to find out how much percentage of the defects on the results of the single inlet system and double inlet system.

The results of this research showed that the two-channel system without using riser and ventilation defects are shrinkage with the highest percentage at 3.11%. The addition of risers and ventilation on a single channel system can minimize shrinkage defects and air cavity, as well as variations with the addition of a blind riser greater percentage of shrinkage scheme 5.69% of the open riser. Results of NDT testing the prototype 1 and 4 on the shaft surface after the machining process no surface defects were found crack.
Keywords: Casting, Crankshaft, FCD 600, NDT