

# # C616614 : MAJOR INDUSTRIAL ENGINEERING

KEY WORD: INFLUENCE / ALUMINIUM / DIE CASTING

SUCHART SHEVASATH : INFLUENCE OF CONTROLLING FACTORS  
ON ALUMINIUM PROPERTIES IN THE DIE CASTING PROCESS.

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The objective of this research was studied the controlling factors that influence properties of aluminium die casting process. The controlling factors studied were the the distance for first phase of plunger movement , plunger speed for first phase movement, plunger speed for second phase movement , casting pressure for last movement , solidification time and the cooling rate in the mould . The results were concentrated on the microstructure and mechanical properties . This research used Al-Si alloy ADC12 by 800 tons machine with 247 - 360 mm. of the distance for first phase , 0.12 - 0.19 m/s of the plunger speed for first phase , 2.4 - 3.9 m/s of plunger speed for second phase movement , 320 - 1120 bar of casting pressure and 5 -10 sec. for the solidification time .

The factors which influence in surface and porosity of cast parts were the distance for first phase of plunger movement , plunger speed for first and second phase and casting pressure for the last movement . The solidification time was effect on surface quality . The microstructure was related the cooling rate with effect on the hardness . In this experiment the optimum conditions were 320 mm. of the distance for first phase of plunger movement , 0.17 m/s of the plunger speed for first phase , 3.3 m/s of the plunger speed for second phase , 800 bar of the casting pressure and 10 sec. of the solidification time .

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