

An Experimental Analysis of Squeeze Casting Parameters for 2017 a Wrought Al Alloy

Authors : Mohamed Ben Amar, Najib Souissi, Chedly Bradai

Abstract : A Taguchi design investigation has been made into the relationship between the ductility and process variables in a squeeze cast 2017A wrought aluminium alloy. The considered process parameters were: squeeze pressure, melt temperature and die preheating temperature. An orthogonal array (OA), main effect, signal-to-noise (S/N) ratio, and the analysis of variance (ANOVA) are employed to analyze the effect of casting parameters. The results have shown that the selected parameters significantly affect the ductility of 2017A wrought Al alloy castings. Optimal squeeze cast process parameters were provided to illustrate the proposed approach and the results were proven to be trustworthy through practical experiments.

Keywords : Taguchi method, squeeze casting, process parameters, ductility, microstructure

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