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Surface Roughness Improvements of Grey Cast Iron Grade 25 Bearing Cap With Green Sand Casting

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Abstract

Experimental study determine the surface roughness of grade 25 bearing cap casting using green sand casting process. Four control factors namely- metal temperature, carbon equivalent, moisture percentage and bentonite clay were selected. Each process factor was considered at two levels and orthogonal array L_8 (2^7) was used. These parameters are affecting both the average and variability of process. Levels of Bentonite percentage (8%) at level –I and Pouring Temperature (1438^oc) at level II and their interaction were playing a significant role. The confirmation tests of two samples have been cast at the optimum conditions as above with surface roughness at position 1 &2 are 10.134, 11.523, 10.848, and 10.911, 11.176, and 10.004 micron. The average of the sample has been found to be 10.766 micron, which is within the confidence interval. The improvement in surface roughness has been found 26.63 %.

Keywords: *Bearing Cap Casting (grade 25 grey cast iron), Taguchi's Method, Green Sand and Orthogonal Array.*