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Abstract Details

Title Comparative analysis of the parameters for optimising the surface roughness in selective laser sintering

Authors: Ritesh Sharma, Sanjeev Kumar, Rajeev Saha

Abstract SLS is an additive manufacturing process which is considered to be one of the most versatile of all the AM methods. Mainly due to its ability to sinter a variety of materials which ranges from plastic to polymers, metals and even composites. Thus this machine has a significant role in transferal of rapid prototyping to additive manufacturing. Like most of AM techniques, it also creates a 3D entity layer by layer but in this method a laser selectively sinter the material on which it is focused. The process overall is satisfactory but the output part has some drawbacks like poor repeatability, high surface roughness, and slow production time. These drawbacks are studied by many researchers. In the present study, surface roughness optimization of SLS parts is reviewed as investigated in two independent researches. Both used polyamide as raw material and RSM as tool for design of experiments and ANOVA to study the significance of the process variables on surface roughness. The results and derivations from both the studies have been compared.

Keywords: Selective Laser Sintering, Surface Roughness, Process Parameters

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