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EXPERIMENTAL INVESTIGATION ON CONCENTRICITY OF POLYAMIDE SINTERED PROTOTYPES, BY SELECTIVE LASER SINTERING PROCESS USING TAGUCHI METHOD

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ABSTRACT

In the present research paper, a 3D CAD model is created using CATIA V5 and exported to Rapid Prototyping machine and, by using Magics software; the facets are removed and sliced into layers. The model is build by layer, with polyamide PA2200 in powder form and sintered by co_2 laser. Total of nine (9) Experiments were conducted using taughi design of experiments L_9 orthogonal array approach. In present study, by optimizing the processes parameters laser power, Layer thickness and Temperature at three levels each factor and found to be maximum influence, on concentricity are Layer thickness at level 2, Laser Power at level 3 and last temperature at level 2 is +/- 0.030 microns. Main effects of Plots of Analysis of Mean, S/N Ratio single-to-noise with quality index smaller-the-better, regression Analysis and Predicted model are same.

KEYWORDS: Catia, Design of Experiments, Magics, Rapid Prototyping, Optimising