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INFLUENCE OF WEDM PARAMETERS FOR ESTIMATING THE SURFACE INTEGRITY OF LASER ADDITIVE MANUFACTURED HYBRID MATERIAL

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ABSTRACT

Amongst all the manufacturing process Wire Electric Discharge Machining is one of the important processes in the manufacturing industries and also considered as finishing operation. But wire cut machined components are affected by the input process parameter's effect of machining process. For this reason, the study of input process parameter's effect on the machined components plays an important role. In this article Laser Assisted Directed Energy Deposited 100% Inconel 625 and combination of 50% Inconel 625 and 50% SS304L on SS304L substrate is machined by WEDM. Machining is done at different input parameters such as pulse width, pulse duration, servo voltage and peak current. Study is done on the surface integrity such as surface roughness, kerf width, cutting speed, MRR, and heat affected zone generated due to high temperature of spark. Experiment is performed based on the literature and post experimentation parameters are studied to identify the most effective factor.

Keywords: Heat Affected Zone, Directed Energy Deposition, Inconel 625, Stainless Steel 304L, Wire EDM, Functionally Graded Material, Laser Additive Manufacturing, Surface Roughness