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## Effect of scanning speed on laser deposited 17-4PH stainless steel

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### Abstract

Laser metal deposition (LMD) is one of the additive manufacturing technologies that is used in the production of fully dense parts layer by layer. This innovative manufacturing process has the potential to reduce the weight, time and cost of manufacturing components. It is able to process different metallic powders and also produce custom alloy or functionally graded material by consolidating different metallic powders. The purpose of this study was to investigate and discuss the structural integrity, mechanical property and microstructure of 17-4 precipitation hardened stainless steel processed by laser metal deposition. In this study, the laser scanning speed was varied while other process parameters were kept constant. Material characterization was done using optical microscopy and Vickers indentation testing. The results show that, the processed material was structurally sound and defect free. The microstructure was predominantly martensitic and the laser scanning speed was observed to have an influence on the micro-hardness of the structure.