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Development of a systematic approach to identify non-value-adding operations in the LBM process chain

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Abstract

Additive manufacturing becomes increasingly important in industrial production. Laser beam melting (LBM) prevails amongst metal additive manufacturing and enables tool-free production of complex prototypes and functional parts. From setting up the LBM system to post-processing of manufactured parts, the LBM process chain contains manual and time-consuming process steps without added value. Therefore, a systematic approach for the analysis and evaluation of the LBM process chain was developed with regard to criteria such as time required and the degree of automation. The main influences are identified to enable a more sustainable production and a reduction of non-value-adding operations.

Keywords: Additive manufacturing; process optimization; process recording; laser beam melting