

ABRASIVE SURFACE TREATMENT OF ALSI10MG PARTS MADE BY L-PBF

Authors:

Abdesselam Mechali, Jakub Mesicek, Quoc-Phu Ma, Jiri HajnyS, Preeti Gautam, Dominik Krisak, Jana Petru ¹

¹ VSB-Technical University of Ostrava, Faculty of Mechanical Engineering, Department of Machining Assembly and Engineering Metrology

Abstract:

The scientific community has been intensively studying how to improve the level of surface roughness on 3D-printed parts, particularly metallic parts made using the selective laser melting (SLM) technique. Various research papers on this subject have revealed that accurate surface roughness data can be generated using several methods that are, in fact, not cost-effective. For this reason, the finishing processes are an integral part of the overall production, especially for those components where the primary concern is not only appearance but also functional properties (e.g., lower friction, reduced noise, etc.). This work deals with the measurement of the surface roughness of tumbled parts produced with SLM after surface treatment with centrifugal and vibratory methods. Tumbling was performed with ceramic, plastic, and porcelain mediums. At the end, there is an evaluation of the measurement data based on the required surface roughness of the components.

Keywords:

Selective Laser Melting (SLM); Surface Roughness; Abrasive Surface Finishing; AlSi10Mg.