SLOVENSKI STANDARD
SIST EN ISO/ASTM 52945:2024

01-marec-2024

Aditivna proizvodnja v avtomobilski industriji - Kvalifikacija - Splošno vrednotenje strojev in popis ključnih pokazateljev lastnosti za spajanje kovinskega prahu v postelji z laserskim žarkom (PBF-LB/M) (ISO/ASTM 52945:2023)

Additive manufacturing for automotive - Qualification principles - Generic machine evaluation and specification of key performance indicators for PBF-LB/M processes (ISO/ASTM 52945:2023)

Additive Fertigung für die Automobilindustrie - Grundsätze der Qualifizierung - Generische Maschinenbewertung und Spezifikation von Leistungskennzahlen für PBF-LB/M-Prozesse (ISO/ASTM 52945:2023)

Fabrication additive pour l'automobile - Principes de qualification - Évaluation générique de la machine et spécifications des indicateurs clefs de performance pour les procédés PBF-LB/M (ISO/ASTM 52945:2023)

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European foreword

This document (EN ISO/ASTM 52945:2024) has been prepared by Technical Committee ISO/TC 261 "Additive manufacturing" in collaboration with Technical Committee CEN/TC 438 “Additive Manufacturing” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2024, and conflicting national standards shall be withdrawn at the latest by July 2024.

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Foreword

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This document was prepared by Technical Committee ISO/TC 261, *Additive manufacturing technologies*, on the basis of a partnership agreement between ISO and ASTM International with the aim to create a common set of ISO/ASTM standards on additive manufacturing, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 438, *Additive manufacturing,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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Introduction

This document provides a methodology to evaluate PBF-LB/M AM-machines in the context of automotive on an objective basis. The need to provide a document standardizing this topic exists because in high-volume industrial production, the reproducibility of the produced component is crucial to meet production goals. Therefore, reproducibility and capability of the machines used for manufacturing need to be evaluated upfront. A methodology and performance characteristics are introduced to enable the evaluation on an objective and quantitative basis. The documentation resulting from the AM-machine evaluation is used to obtain a reliable orientation selection and evaluation of PBF-LB/M AM-machines.

Moreover, the document provides guidelines for machine production key performance indicators (KPIs) which can be used in procurement, production planning and production to improve the understanding between the machine manufacturer and user. The KPIs to be determined within the scope of this document help to systematically evaluate the performance of PBF-LB/M machines. However, this does not necessarily guarantee that the KPIs can always be used to select the most suitable machine for a specific application scenario. Since a large number of very specific influencing factors affect the selection of an optimal machine, situational, individual parameters must be included in the decision. However, the KPIs can form the basis for this decision.

The requirements regarding quality and planning of build jobs are specific for the automotive industry. The introduced generic approach can be expanded to other industries.