



# SLOVENSKI STANDARD

## SIST EN ISO/ASTM 52911-3:2023

01-maj-2023

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**Aditivna proizvodnja - Konstruiranje - 3. del: Spajanje kovinskega prahu v postelji z elektronskim snopom (PBF-EB) (ISO/ASTM 52911-3:2023)**

Additive Manufacturing - Design - Part 3: PBF-EB of metallic materials (ISO/ASTM 52911-3:2023)

Additive Fertigung - Konstruktion - Teil 3: Pulverbettbasiertes Schmelzen von Metallen mittels Elektronenstrahl (ISO/ASTM 52911-3:2023)

Fabrication additive - Conception - Partie 3: BF-EB de matériaux métalliques (ISO/ASTM 52911-3:2023)

**Ta slovenski standard je istoveten z: EN ISO/ASTM 52911-3:2023**

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**ICS:**

25.030

3D-tiskanje

Additive manufacturing

**SIST EN ISO/ASTM 52911-3:2023**

**en,fr,de**



EUROPEAN STANDARD

EN ISO/ASTM 52911-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2023

ICS 25.030

English Version

## Additive Manufacturing - Design - Part 3: PBF-EB of metallic materials (ISO/ASTM 52911-3:2023)

Fabrication additive - Conception - Partie 3: BF-EB de  
matériaux métalliques (ISO/ASTM 52911-3:2023)

Additive Fertigung - Konstruktion - Teil 3:  
Pulverbettbasiertes Schmelzen von Metallen mittels  
Elektronenstrahl (ISO/ASTM 52911-3:2023)

This European Standard was approved by CEN on 17 February 2023.

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## European foreword

This document (EN ISO/ASTM 52911-3:2023) 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of an identical text or by endorsement, at the latest by September 2023, and conflicting national standards shall be withdrawn at the latest by September 2023.

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INTERNATIONAL  
STANDARD

ISO/ASTM  
52911-3

First edition  
2023-02

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**Additive manufacturing — Design —  
Part 3:  
PBF-EB of metallic materials**

*Fabrication additive — Conception —*

*Partie 3: PBF-EB de matériaux métalliques*

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Reference number  
ISO/ASTM 52911-3:2023(E)

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Published in Switzerland

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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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This document was prepared by Technical Committee ISO/TC 261, *Additive manufacturing*, in cooperation with ASTM Committee F42, *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, and 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).

A list of all parts in the ISO 52911 series can be found on the ISO website.

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## ISO/ASTM 52911-3:2023(E)

### Introduction

Powder bed fusion of metals (PBF/M) is an additive manufacturing (AM) process that offers additional manufacturing options alongside other established AM processes. PBF/M has the potential to reduce manufacturing time and costs, and increase part functionality. Practitioners are aware of the strengths and weaknesses of conventional, long-established manufacturing processes, such as cutting, joining and shaping processes (e.g. by machining, welding or injection moulding), and of giving them appropriate consideration at the design stage and when selecting the manufacturing process. In the case of PBF/M and AM in general, design and manufacturing engineers only have a limited pool of experience. Without the limitations associated with conventional processes, the use of PBF/M offers designers and manufacturers a high degree of freedom and this requires an understanding about the possibilities and limitations of the process.

The ISO 52911 series provides guidance for different powder bed fusion (PBF) technologies. In addition to this document on PBF-EB/M, the series is made up of ISO 52911-1 on laser-based powder bed fusion of metals (PBF-LB/M) and ISO 52911-2 on laser-based powder bed fusion of polymers (PBF-LB/P). Each document in the series shares [Clauses 1](#) to [5](#), where general information including terminology and the PBF process is provided. The subsequent clauses focus on the specific technology.

This document provides support to technology users, such as design and production engineers, when designing parts that need to be manufactured by means of PBF-EB/M. It will help practitioners to explore the benefits of PBF-EB/M and to recognize the process-related limitations when designing parts. It also builds on ISO/ASTM 52910 to extend the requirements, guidelines and recommendations for AM design to include the PBF-EB/M process.

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