SLOVENSKI STANDARD
SIST EN ISO/ASTM 52904:2020

01-september-2020

Aditivna proizvodnja - Značilnosti in tehnične lastnosti procesa - Ravnanje pri procesu fuzije plasti kovinskih prašnih delcev za doseganje kritičnih aplikacij (ISO/ASTM 52904:2019)

Additive manufacturing - Process characteristics and performance - Practice for metal powder bed fusion process to meet critical applications (ISO/ASTM 52904:2019)

Additive Fertigung - Prozessanforderungen und Qualifizierung - Verwendung des pulverbettbasierten Schmelzens von Metallen bei kritischen Anwendungen (ISO/ASTM 52904:2019)

Fabrication additive - Caractéristiques et performances du procédé - Pratique du procédé de fusion sur lit de poudre métallique en vue de répondre aux applications critiques (ISO/ASTM 52904:2019)

Ta slovenski standard je istoveten z: **EN ISO/ASTM 52904:2020**

ICS:

25.030	3D-tiskanje	Additive manufacturing

SIST EN ISO/ASTM 52904:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO/ASTM 52904

June 2020

ICS 25.030

English Version

Additive manufacturing - Process characteristics and performance - Practice for metal powder bed fusion process to meet critical applications (ISO/ASTM 52904:2019)

Fabrication additive - Caractéristiques et performances du procédé - Pratique du procédé de fusion sur lit de poudre métallique en vue de répondre aux applications critiques (ISO/ASTM 52904:2019)

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European foreword

The text of ISO/ASTM 52904:2019 has been prepared by Technical Committee ISO/TC 261 "Additive manufacturing" of the International Organization for Standardization (ISO) and has been taken over as EN ISO/ASTM 52904:2020 by 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of an identical text or by endorsement, at the latest by December 2020, and conflicting national standards shall be withdrawn at the latest by December 2020.

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The text of ISO/ASTM 52904:2019 has been approved by CEN as EN ISO/ASTM 52904:2020 without any modification.

INTERNATIONAL STANDARD

ISO/ASTM 52904

First edition
2019-08

Additive manufacturing — Process characteristics and performance — Practice for metal powder bed fusion process to meet critical applications

Fabrication additive — Caractéristiques et performances du procédé — Pratique du procédé de fusion sur lit de poudre métallique en vue de répondre aux applications critiques

Reference number
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Foreword

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by ASTM Committee F42, *Additive Manufacturing Technologies* (as ASTM F3303-2018), and drafted in accordance with its editorial rules. It was assigned to Technical Committee ISO/TC 261, *Additive manufacturing*, and adopted under the "fast-track procedure".

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

ISO/ASTM 52904:2019(E)

Designation: F3303 – 2018

Standard for Additive Manufacturing – Process Characteristics and Performance: Practice for Metal Powder Bed Fusion Process to Meet Critical Applications[1]

This standard is issued under the fixed designation F3303; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice describes the operation and production control of metal powder bed fusion (PBF) machines and processes to meet critical applications such as commercial aerospace components and medical implants. The requirements contained herein are applicable for production components and mechanical test specimens using powder bed fusion (PBF) with both laser and electron beams.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Normative References

2.1 The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

2.2 *ASTM Standards:*[2]

E8/E8M Test Methods for Tension Testing of Metallic Materials

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E2910 Guide for Preferred Methods for Acceptance of Product

F2924 Specification for Additive Manufacturing Titanium-6 Aluminum-4 Vanadium with Powder Bed Fusion

F2971 Practice for Reporting Data for Test Specimens Prepared by Additive Manufacturing

F3049 Guide for Characterizing Properties of Metal Powders Used for Additive Manufacturing Processes

F3122 Guide for Evaluating Mechanical Properties of Metal Materials Made via Additive Manufacturing Processes

2.3 *ISO/ASTM Standards:*[2]

52900 Standard Terminology for Additive Manufacturing – General Principles – Terminology

52921 Terminology for Additive Manufacturing – Coordinate Systems and Test Methodologies

2.4 *ISO Standards:*[3]

4497 Metallic powders – Determination of particle size by dry sieving

D6892–1 Metallic materials – Tensile testing at ambient temperature

D6892–2 Metallic materials – Tensile testing – Part 2: Method of test at elevated temperature

8573-1 Compressed air – Part 1: Contaminants and purity classes

9001 Quality management systems – Requirements

9044 Industrial Woven Wire Cloth – Technical Requirements and Testing

13320 Particle size analysis – Laser diffraction methods

13485 Medical devices – Quality management systems – Requirements for regulatory purposes

2.5 *Other Standards:*

ANSI/ASQC C1-1996 Specification of General Requirements for a Quality Program[4]

AS9100 Quality Management Systems - Requirements for

[1] This practice is under the jurisdiction of ASTM Committee F42 on Additive Manufacturing Technologies and is the direct responsibility of Subcommittee F42.05 on Materials and Processes, and is also under the jurisdiction of ISO/TC 261.

Current edition approved Feb. 1, 2018. Published June 2018. DOI: 10.1520/F3303-18.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from International Organization for Standardization (ISO), ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, http://www.iso.org.

[4] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.