



SLOVENSKI STANDARD

SIST-TP CEN ISO/ASTM/TR 52916:2022

01-september-2022

Aditivna proizvodnja za medicino - Formati datotek - Optimizirani medicinski slikovni posnetki (ISO/ASTM TR 52916:2022)

Additive manufacturing for medical - Data - Optimized medical image data (ISO/ASTM TR 52916:2022)

Additive Fertigung - Datenformate - Normspezifikation für optimierte medizinische Bilddaten (ISO/ASTM TR 52916:2022)

Fabrication additive dans le secteur médical - Données - Données d'images médicales optimisées (ISO/ASTM TR 52916:2022)

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25.030	3D-tiskanje	Additive manufacturing

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English Version

Additive manufacturing for medical - Data - Optimized
medical image data (ISO/ASTM TR 52916:2022)

Fabrication additive dans le secteur médical - Données
- Données d'images médicales optimisées (ISO/ASTM
TR 52916:2022)

Additive Fertigung - Datenformate - Normspezifikation
für optimierte medizinische Bilddaten (ISO/ASTM TR
52916:2022)

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European foreword

This document (CEN ISO/ASTM/TR 52916:2022) 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.

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Additive manufacturing for medical — Data — Optimized medical image data

*Fabrication additive dans le secteur médical — Données — Données
d'images médicales optimisées*

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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).

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This document was prepared by 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).

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ISO/ASTM TR 52916:2022(E)**Introduction**

This document has been developed in close cooperation of ISO/TC 261 and ASTM F 42 on 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.

Digital imaging and communications in medicine (DICOM) image files cannot be used directly for 3D printing; further steps are necessary to make them readable by additive manufacturing system. In particular, as the thickness of the computed tomography slice increases, there is a problem that the error in 3D reconstruction of the anatomical structure increases. Therefore, the focus of this technical report is to automatically reconfigure the slice interval through the application of isotropic conversion technology to utilize the existing dicom file and visualization and editing software as it is. In addition, in order to present a method for optimized medical image data for additive manufacturing, tomography metadata without compression is used by editing and processing the output format file without loss in the AM equipment system, or tomography within the maximum allowable range of radiation. Consider reducing the spacing of slices as much as possible and increasing the resolution per image as much as possible.

This document benefits from the direction of development and high quality additive manufacturing output through the technical optimization of medical imaging for additive manufacturing: medical academics, clinic and industry fields for AM like as anatomical measurements, 3D analysis, finite element analysis and surgical planning or simulation, patient-specific implant and device design. There are many affected stakeholder like as medical AM system manufacturer, AM feedstock manufacturer, AM feedstock supplier and vendor, medical AM hardware manufacturer, medical AM software manufacturer, medical AM system manufacturer, medical AM platform manufacturer, AM based medical device manufacturer, medical 3D scanning and digitizing device manufacturer, surgical simulation AM model manufacturer, AM surgical implant manufacturer, AM surgical guide manufacturer, AM physical model for clinical education and diagnostic treatment, disposable medical AM consumable devices.

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