

<b>STN</b>	<b>Aditívna výroba Skúšobné artefakty Posudzovanie geometrickej schopnosti systémov aditívnej výroby (ISO/ASTM 52902: 2023)</b>	<b>STN EN ISO/ASTM 52902</b>  18 8502
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Additive manufacturing - Test artefacts - Geometric capability assessment of additive manufacturing systems (ISO/ASTM 52902:2023)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

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**Additive manufacturing - Test artefacts - Geometric  
capability assessment of additive manufacturing systems  
(ISO/ASTM 52902:2023)**

Fabrication additive - Pièces types d'essais - Évaluation  
de la capacité géométrique des systèmes de fabrication  
additive (ISO/ASTM 52902:2023)

Additive Fertigung - Testkörper - Geometrische  
Leistungsbewertung additiver Fertigungssysteme  
(ISO/ASTM 52902:2023)

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**EN ISO/ASTM 52902:2023 (E)**

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## **European foreword**

This document (EN ISO/ASTM 52902:2023) 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of an identical text or by endorsement, at the latest by February 2024, and conflicting national standards shall be withdrawn at the latest by February 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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## **Endorsement notice**

The text of ISO/ASTM 52902:2023 has been approved by CEN as EN ISO/ASTM 52902:2023 without any modification.

# INTERNATIONAL ISO/ASTM STANDARD 52902

Second edition  
2023-08

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## Additive manufacturing — Test artefacts — Geometric capability assessment of additive manufacturing systems

*Fabrication additive — Pièces types d'essai — Évaluation de la capacité géométrique des systèmes de fabrication additive*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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)).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://www.iso.org/iso/foreword.html).

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).

This second edition cancels and replaces the first edition (ISO/ASTM 52902:2019), which has been technically revised.

The main changes are as follows:

- addition of a test artefact for testing the performance of the Z-axis in an AM system.
- changed dimensions in text and in drawing (see [Figure 3](#)) of medium circular artefact such that the description in the text matches the dimensions in the downloadable STEP file; [Figure 3](#) was also re-drawn to better depict the circular artefact geometry.

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](http://www.iso.org/members.html).

# Additive manufacturing — Test artefacts — Geometric capability assessment of additive manufacturing systems

## 1 Scope

This document covers the general description of benchmarking test piece geometries, i.e. artefacts, along with quantitative and qualitative measurements to be taken on the benchmarking test piece(s) to assess the performance of additive manufacturing (AM) systems.

This performance assessment can serve the following two purposes:

- AM system capability evaluation;
- AM system calibration.

The benchmarking test piece(s) is (are) primarily used to quantitatively assess the geometric performance of an AM system. This document describes a suite of test geometries, each designed to investigate one or more specific performance metrics and several example configurations of these geometries into test build(s). It prescribes quantities and qualities of the test geometries to be measured but does not dictate specific measurement methods. Various user applications can require various grades of performance. This document discusses examples of feature configurations, as well as measurement uncertainty requirements, to demonstrate low- and high-grade examination and performance. This document does not discuss a specific procedure or machine settings for manufacturing a test piece.

## 2 Normative references

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.

ISO/ASTM 52900, *Additive manufacturing — General principles — Fundamentals and vocabulary*

ASME B46.1, *Surface Texture (Surface Roughness, Waviness and Lay)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**