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Additive manufacturing of metals - Powder bed fusion - Classification of imperfections (ISO/ASTM 52948:2026)

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

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## Additive manufacturing of metals - Powder bed fusion - Classification of imperfections (ISO/ASTM 52948:2026)

Fabrication additive de métaux - Fusion sur lit de  
poudre - Classification des imperfections (ISO/ASTM  
52948:2026)

Additive Fertigung von Metallen - Pulverbettfusion -  
Klassifizierung von Fehlern (ISO/ASTM 52948:2026)

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**EN ISO/ASTM 52948:2026 (E)**

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## **European foreword**

This document (EN ISO/ASTM 52948:2026) 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of an identical text or by endorsement, at the latest by July 2026, and conflicting national standards shall be withdrawn at the latest by July 2026.

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# International Standard

**ISO/ASTM 52948**

## **Additive manufacturing of metals — Powder bed fusion — Classification of imperfections**

*Fabrication additive de métaux — Fusion sur lit de poudre —  
Classification des imperfections*

**First edition  
2026-01**

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**ISO/ASTM 52948:2026(en)****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 document 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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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).

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).

**ISO/ASTM 52948:2026(en)****Introduction**

Industrial additive manufacturing (AM) with powder bed fusion (PBF) processes for metallic materials, using a laser beam (PBF-LB/M) or an electron beam (PBF-EB/M), is in full development. The principle is based on depositing layers of powder on a build platform and selectively fusing each layer with a laser or an electron beam. It is thus possible to produce parts of high geometric complexity.

The control of this process is the subject of numerous studies to attain the best possible quality. It is essential to supplement the approaches addressed by these studies with a standard describing observable imperfections to serve as a basis for non-destructive testing (NDT) and destructive testing (DT).

Knowledge of the imperfections generated by the manufacturing process and their standardised classification are preliminary and essential steps in defining and determining acceptance criteria.

# Additive manufacturing of metals — Powder bed fusion — Classification of imperfections

## 1 Scope

This document specifies the classification of imperfections possibly generated during an additive manufacturing process by PBF-LB (laser beam powder bed fusion) or PBF-EB (electron beam powder bed fusion) for metallic parts.

This document also indicates the most probable causes of the formation of imperfections and includes illustrations.

This can be extended to other additive manufacturing process categories, nevertheless, the indication of probable causes is process specific.

Acceptance criteria and dimensional description or scale for imperfections are not included in this document.

## 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 version cited applies. For undated references, the latest version of the referenced document (including any amendments) applies.

ISO 3252, *Powder metallurgy — Vocabulary*

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

ASTM B243, *Standard Terminology of Powder Metallurgy*

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