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| STN P | Aditívna výroba kovov Princípy spôsobilosti Inštalácia, prevádzka a výkon (IQ/OQ/PQ) zariadení PBF-EB (ISO/ASTM TS 52949: 2025) | STN P CEN ISO/ASTM TS 52949 18 8519 |
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Additive manufacturing of metals - Qualification principles - Installation, operation and performance (IQ/OQ/PQ) of PBF-EB equipment (ISO/ASTM TS 52949:2025)

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

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/25

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CEN ISO/ASTM TS 52949

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English Version

**Additive manufacturing of metals - Qualification principles
- Installation, operation and performance (IQ/OQ/PQ) of
PBF-EB equipment (ISO/ASTM TS 52949:2025)**

Fabrication additive de métaux - Principes de qualification - Installation, fonctionnement et performances (IQ/OQ/PQ) des équipements PBF-EB (ISO/ASTM TS 52949:2025)

Additive Fertigung von Metallen - Grundsätze der Qualifizierung - Installation, Funktion und Leistung (IQ/OQ/PQ) von PBF-EB-Anlagen (ISO/ASTM TS 52949:2025)

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

CEN ISO/ASTM TS 52949:2025 (E)

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European foreword

This document (CEN ISO/ASTM TS 52949:2025) 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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Endorsement notice

The text of ISO/ASTM TS 52949:2025 has been approved by CEN as CEN ISO/ASTM TS 52949:2025 without any modification.



Technical Specification

ISO/ASTM TS 52949

Additive manufacturing of metals — Qualification principles — Installation, operation and performance (IQ/OQ/PQ) of PBF-EB equipment

*Fabrication additive de métaux — Principes de qualification —
Installation, fonctionnement et performances (IQ/OQ/PQ) des
équipements PBF-EB*

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11

Email: copyright@iso.org
Website: www.iso.org

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ASTM International
100 Barr Harbor Drive, PO Box C700
West Conshohocken, PA 19428-2959, USA
Phone: +610 832 9634
Fax: +610 832 9635
Email: khooper@astm.org
Website: www.astm.org

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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.

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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).

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ISO/ASTM TS 52949:2025(en)**Introduction**

Additive manufacturing is a machine-centric process. This document provides recommended practices for machine-related process qualification for serial production of metal parts produced with the powder bed fusion, by electron beam process (PBF-EB/M). Since this process is very similar to the PBF-LB/M this document references ISO/ASTM TS 52930 pointing only the differences on the validation processes. This document is addressed to organizations that already have a comprehensive quality system in place.

While this document is process specific, it is intended to apply to any industry with strict quality requirements. In such industries, it is not possible to complete machine qualification without ensuring repeatable production of the desired process result, given the current state of AM process knowledge. Operational quality and part performance quality sections are included for this reason.

Additive manufacturing of metals — Qualification principles — Installation, operation and performance (IQ/OQ/PQ) of PBF-EB equipment

1 Scope

This document addresses installation qualification (IQ), operational qualification (OQ), and performance qualification (PQ) issues directly related to the additive manufacturing system that has a direct influence on the consolidation of material. The first three elements of process validation, process mapping, risk assessment, and validation planning, are necessary pre-conditions to machine qualification, however, they are outside the scope of this document.

This document covers issues directly related to the AM equipment and does not cover feedstock qualification or post processing beyond powder removal.

Physical facility, personnel, process and material issues are only included to the extent necessary to support machine qualification.

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*

ISO/ASTM/TS 52930, *Additive manufacturing — Qualification principles — Installation, operation and performance (IQ/OQ/PQ) of PBF-LB equipment*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN