



BSI Standards Publication

Additive manufacturing of metals — Finished part properties — Orientation and location dependence of mechanical properties for metal parts

National foreword

This British Standard is the UK implementation of EN ISO/ASTM 52909:2024. It is identical to ISO/ASTM 52909:2024. It supersedes BS EN ISO/ASTM 52909:2022, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AMT/8, Additive manufacturing.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Amendments/corrigenda issued since publication

Date	Text affected
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English Version

Additive manufacturing of metals - Finished part
properties - Orientation and location dependence of
mechanical properties for metal parts (ISO/ASTM
52909:2024)

Fabrication additive de métaux - Propriétés des pièces
finies - Dépendance de l'orientation et de
l'emplacement sur les propriétés mécaniques pour les
pièces métalliques (ISO/ASTM 52909:2024)

Additive Fertigung von Metallen - Eigenschaften von
Fertigteilen - Ausrichtungs- und Lageabhängigkeit der
mechanischen Eigenschaften bei Metall-Bauteilen
(ISO/ASTM 52909:2024)

This European Standard was approved by CEN on 1 March 2024.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO/ASTM 52909:2024) 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of an identical text or by endorsement, at the latest by September 2024, and conflicting national standards shall be withdrawn at the latest by September 2024.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.

This document supersedes EN ISO/ASTM 52909:2022.

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Endorsement notice

The text of ISO/ASTM 52909:2024 has been approved by CEN as EN ISO/ASTM 52909:2024 without any modification.

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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 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).

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The 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).

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.

This second edition cancels and replaces the first edition (ISO/ASTM 52909:2022), of which it constitutes a minor revision.

The main changes are as follows:

- The third element of the title of the standard has been changed to "Orientation and location dependence of mechanical properties for metal parts";
- The title for [Figure A.6 b](#)) has been corrected;
- Reference [\[12\]](#) in bibliography has been corrected.

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.

Introduction

AM produced metallic parts are being intensively developed and used more widely today with an expected faster growth in near future. This document aims to support customers' needs to address specifics of the AM deposited parts – location and orientation dependent local properties and their variations over the part or deposition chamber.

This document provides a list of accurate terminologies and existing standards dedicated to mechanical testing of metallic materials, guidance on designation of coordinate systems and their application to AM specimens/parts designation, and recommendations on possibilities for local properties measurement.