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Additive manufacturing — Design — Requirements, guidelines and recommendations

AS ISO/ASTM 52910:2020

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Additive manufacturing — Design — Requirements, guidelines and recommendations

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Preface

This Standard was prepared by the Standards Australia Committee MB-028, Additive Manufacturing.

The objective of this document is to give requirements, guidelines and recommendations for using additive manufacturing (AM) in product design.

It is applicable during the design of all types of products, devices, systems, components or parts that are fabricated by any type of AM system. This document helps determine which design considerations can be utilized in a design project or to take advantage of the capabilities of an AM process.

General guidance and identification of issues are supported, but specific design solutions and process-specific or material-specific data are not supported.

The intended audience comprises three types of users as follows:

(a) Designers who are designing products to be fabricated in an AM system and their managers.

(b) Students who are learning mechanical design and computer-aided design.

(c) Developers of AM design guidelines and design guidance systems.

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by ISO/TC 261, *Additive manufacturing*, in cooperation with ASTM 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.

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CAUTION — This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate Health and Safety (H&S) practices and determine the applicability of limitations prior to use.

1 Scope

This document gives requirements, guidelines and recommendations for using additive manufacturing (AM) in product design.

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General guidance and identification of issues are supported, but specific design solutions and process-specific or material-specific data are not supported.

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— designers who are designing products to be fabricated in an AM system and their managers;

— students who are learning mechanical design and computer-aided design; and

— developers of AM design guidelines and design guidance systems.

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 52921, *Standard terminology for additive manufacturing — Coordinate systems and test methodologies*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/ASTM 52921 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/