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Additive manufacturing — General principles — Terminology

Fabrication additive — Principes généraux — Terminologie



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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is 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.

This first edition of ISO/ASTM 52900 cancels and replaces ASTM F2792.

Introduction

Additive manufacturing is the general term for those technologies that based on a geometrical representation creates physical objects by successive addition of material. These technologies are presently used for various applications in engineering industry as well as other areas of society, such as medicine, education, architecture, cartography, toys and entertainment.

During the development of additive manufacturing technology there have been numerous different terms and definitions in use, often with reference to specific application areas and trademarks. This is often ambiguous and confusing which hampers communication and wider application of this technology.

It is the intention of this International Standard to provide a basic understanding of the fundamental principles for additive manufacturing processes, and based on this, to give clear definitions for terms and nomenclature associated with additive manufacturing technology. The objective of this standardization of terminology for additive manufacturing is to facilitate communication between people involved in this field of technology on a world-wide basis.

This International Standard has been developed by ISO/TC 261 and ASTM F42 in close cooperation 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.

Additive manufacturing — General principles — Terminology

1 Scope

This International Standard establishes and defines terms used in additive manufacturing (AM) technology, which applies the additive shaping principle and thereby builds physical 3D geometries by successive addition of material.

The terms have been classified into specific fields of application.

New terms emerging from the future work within ISO/TC 261 and ASTM F42 will be included in upcoming amendments and overviews of this International Standard.

2 Terms and definitions

2.1 General terms

2.1.1

3D printer, noun

machine used for *3D printing* ([2.3.1](#)).

2.1.2

additive manufacturing, noun

AM

process of joining materials to make *parts* ([2.6.1](#)) from 3D model data, usually *layer* ([2.3.10](#)) upon layer, as opposed to subtractive manufacturing and formative manufacturing methodologies

Note 1 to entry: Historical terms: additive fabrication, additive processes, additive techniques, additive layer manufacturing, layer manufacturing, solid freeform fabrication and freeform fabrication.

Note 2 to entry: The meaning of “additive-”, “subtractive-” and “formative-” manufacturing methodologies are further discussed in [Annex A](#).

2.1.3

additive system, noun

additive manufacturing system

additive manufacturing equipment

machine and auxiliary equipment used for *additive manufacturing* ([2.1.2](#))

2.1.4

AM machine, noun

section of the *additive manufacturing system* ([2.1.3](#)) including hardware, machine control software, required set-up software and peripheral accessories necessary to complete a *build cycle* ([2.3.3](#)) for producing *parts* ([2.6.1](#))

2.1.5

AM machine user, noun

operator of or entity using an *AM machine* ([2.1.4](#))

2.1.6

AM system user, noun

additive system user

operator of or entity using an entire *additive manufacturing system* ([2.1.3](#)) or any component of an additive system