ASME AED-1–2023
(Revision of ASME AED-1–2018)

Aerospace and Advanced Engineering Product Definition

AN AMERICAN NATIONAL STANDARD



The American Society of Mechanical Engineers

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The American Society of Mechanical Engineers
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FOREWORD

ASME AED-1–2023 is a revision of ASME AED-1–2018, Aerospace and Advanced Engineering Drawings. The objectives for this edition are to correct errors or inconsistencies, resolve deferred comments made during the review of the previous edition's draft, and introduce new concepts submitted by members of the ASME Aerospace and Advanced Engineering Product Definition (AED) Standards Committee.

It remains the intention of this Standard to be a supplement to the ASME Y14 series of standards for engineering product definition and not a replacement. To better support that aim, this Standard has been reorganized to group concepts based on the ASME Y14 standard where that concept is most likely to reside if adopted. The new section 4, Engineering Drawing Practices, covers similar concepts as ASME Y14.100. The new section 5, Dimensions and Tolerancing Practices, covers similar concepts as ASME Y14.5. ASME AED-1 will continue to add sections as it adopts additional concepts similar to those covered in other ASME Y14 standards.

In addition to regrouping existing concepts, ASME AED-1–2023 includes the following changes:

–Direction indicators for projected tolerance zones have been added.

–A symbol has replaced the "INDIVIDUALLY" notation for repetitive datum features.

–Existing concepts, such as the pilot hole location symbol, have been clarified or refined.

The ASME AED Committee collaborates with the ASME Y14 Standards Committee and its various subcommittees with the goal of migrating concepts to the appropriate ASME Y14 standards. For example, ASME Y14.5-2018 adopted the AED concept of dynamic profile. Other Y14 subcommittees are considering adopting ASME AED-1 concepts as well. When such adoptions occur, the AED Committee will move the affected information to an appendix within ASME AED-1. In this manner, control and ownership of the subject matter will be placed with the proper Y14 subcommittee, but the history and usage will remain visible within ASME AED-1. However, the AED Committee has maintained in ASME AED-1–2023 a paragraph on dynamic profile rather than moving the information to an appendix. The paragraph directs the user to ASME Y14.5-2018 for rules and methodology. Organizations that have not yet adopted ASME Y14.5-2018 can therefore access the dynamic profile control by adopting ASME AED-1–2023.

This Standard is available for public review on a continuing basis. Public review provides an opportunity for additional input from industry, academia, regulatory agencies, and the public-at-large.

ASME AED-1–2023 was approved by the AED Standards Committee. It was approved as an American National Standard by the American National Standards Institute on August 18, 2023.

ASME AED COMMITTEE
Aerospace and Advanced Engineering Product Definition

(The following is the roster of the committee at the time of approval of this Standard.)

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Revisions and Errata. The committee processes revisions to this Standard on a continuous basis to incorporate changes that appear necessary or desirable as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published in the next edition of the Standard.

In addition, the committee may post errata on the committee web page. Errata become effective on the date posted. Users can register on the committee web page to receive e-mail notifications of posted errata.

This Standard is always open for comment, and the committee welcomes proposals for revisions. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent background information and supporting documentation.

Cases

(a) The most common applications for cases are

(1) to permit early implementation of a revision based on an urgent need

(2) to provide alternative requirements

(3) to allow users to gain experience with alternative or potential additional requirements prior to incorporation directly into the Standard

(4) to permit the use of a new material or process

(b) Users are cautioned that not all jurisdictions or owners automatically accept cases. Cases are not to be considered as approving, recommending, certifying, or endorsing any proprietary or specific design, or as limiting in any way the freedom of manufacturers, constructors, or owners to choose any method of design or any form of construction that conforms to the Standard.

(c) A proposed case shall be written as a question and reply in the same format as existing cases. The proposal shall also include the following information:

(1) a statement of need and background information

(2) the urgency of the case (e.g., the case concerns a project that is underway or imminent)

(3) the Standard and the paragraph, figure, or table number(s)

(4) the edition(s) of the Standard to which the proposed case applies

(d) A case is effective for use when the public review process has been completed and it is approved by the cognizant supervisory board. Approved cases are posted on the committee web page.

Interpretations. The committee does not issue interpretations for this Standard.

Committee Meetings. The AED Standards Committee regularly holds meetings that are open to the public. Persons wishing to attend any meeting should contact the secretary of the committee. Information on future committee meetings can be found on the committee web page at AED https://go.asme.org/AEDcommittee.

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AEROSPACE AND ADVANCED ENGINEERING PRODUCT DEFINITION

1 GENERAL

1.1 Scope

This Standard provides a method to document requirements that are common across aerospace and other industries that use advanced manufacturing technologies. This Standard offers symbologies, terminologies, and concepts to enhance the understanding and abilities of those who create and use design documentation.

1.2 Conventions

The conventions in paras. 1.2.1 through 1.2.10 are used in this Standard. With the exception of the system of units described in para. 1.2.7, these conventions are similar to the conventions used in the ASME Y14 standards.

1.2.1 Mandatory, Nonmandatory, Guidance, and Optional Words

(a) The word "shall" establishes a mandatory requirement.
(b) The word "will" establishes a declaration of purpose on the part of the design activity.
(c) The word "should" establishes a recommended practice.
(d) The word "may" establishes an allowed practice.
(e) The words "typical," "example," "for reference," and the Latin abbreviation "e.g." indicate suggestions given for guidance only.
(f) The word "or" used in conjunction with a requirement or a recommended practice indicates that there are two or more options for complying with the stated requirement or practice.
(g) The phrase "unless otherwise specified" or the abbreviation "UOS" shall be used to indicate a default requirement. The phrase is used when the default is a generally applied requirement and an exception may be provided by another document or requirement.

1.2.2 Cross-Reference of Standards. Cross-reference of standards in text with or without a date following the standard designator shall be interpreted as follows:
(a) Reference to ASME Y14 standards in the text without a date following the standard designator indicates that the edition of the standard identified in the References section (section 2) shall be used to meet the requirement.
(b) Reference to ASME Y14 standards in the text with a date following the standard designator indicates that only that edition of the standard shall be used to meet the requirement.

1.2.3 Invocation of Referenced Standards. The following examples define the invocation of a standard when specified in section 2 and referenced in the text of this Standard:
(a) When a referenced standard is cited in the text with no limitations to a specific subject or paragraphs of the standard, the entire standard is invoked. For example, "Dimensioning and tolerancing shall be in accordance with ASME Y14.5" is invoking the complete standard because the subject of the standard is dimensioning and tolerancing and no specific subject or paragraphs within the standard are invoked.
(b) When a referenced standard is cited in the text with limitations to a specific subject or paragraphs of the standard, only the paragraphs on that subject are invoked. For example, "Assign part or identifying numbers in accordance with ASME Y14.100" is invoking only the paragraphs on part or identifying numbers because the subject of the standard is engineering drawing practices, and part or identifying numbers is a specific subject within the standard.
(c) When a referenced standard is cited in the text without an invoking statement such as "in accordance with," the standard is for guidance only. For example, "For gaging principles, see ASME Y14.43" is for guidance only, and no portion of the standard is invoked.

1.2.4 Definitions. Section 3 provides definitions specific to this Standard. For definitions of words used in but not defined in this Standard, see Merriam-Webster's Unabridged Dictionary at https://www.merriam-webster.com/.