ASME Y14.100-2017
(Revision of ASME Y14.100-2013)

Engineering Drawing Practices

Engineering Product Definition and Related Documentation Practices

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

ADOPTION NOTICE

ASME Y14.100, Engineering Drawing and Related Documentation Practices, was adopted on 30 January 1998 for use by the Department of Defense, DoD. Proposed changes by DoD activities must be submitted to the DoD Adopting Activity: Commander, U.S. Army ARDEC, ATTN: AMSRD-AAR-AIS-SS, Picatinny Arsenal, NJ 07806-5000 or e-mailed to usarmy.picatinny.ardec.list.ardec-stdzn-branch@mail.mil. Copies of this document may be purchased from The American Society of Mechanical Engineers (ASME), 150 Clove Road, 6th Floor, Little Falls, NJ 07424-2139; http://www.asme.org.

Custodians:
Army — AR
Navy — SA
Air Force — 16
DLA — DH

Adopting Activity:
Army — AR

(Project ORPR-2013-003)

Review Activities:
Army — AV, CR, MI, PT, TE, TM
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The American Society of Mechanical Engineers
Two Park Avenue • New York, NY • 10016 USA

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This Standard will be revised when the Society approves the issuance of a new edition.

Periodically certain actions of the ASME Y14 Committee may be published as Cases. Cases are published on the ASME Web site under the Y14 Committee Page at http://go.asme.org/Y14committee as they are issued.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The Y14 Committee Page can be found at http://go.asme.org/Y14committee. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting "Errata" in the "Publication Information" section.

The American Society of Mechanical Engineers
Two Park Avenue, New York, NY 10016-5990

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FOREWORD

This Standard addresses engineering drawing practices and ties together the engineering drawing and related documentation practices in the ASME Y14 series of standards. It is not the intent of this Standard to be a standalone document for the purpose of addressing basic practices. An accurate perception of engineering drawing practices is derived by treating ASME Y14.100, ASME Y14.24, ASME Y14.34, ASME Y14.35, and ASME Y14.41 as a composite set.

The initial attempt to convert the DoD drawing practices standard, MIL-STD-100, to a long-ernment standard resulted in two drawing practices standards: ASME Y14.100M-1998, which consisted of basic practices common to DoD and industry, and MIL-STD-100G, which consisted of those practices and requirements unique to DoD. The impact on the community was that judgments on when to use which Standard as a standalone or in combination was causing a good deal of confusion. The consensus was that one standard was needed. To accomplish this, this Standard contains appendices that may be invoked and tailored by DoD, thereby making possible the cancellation of MIL-STD-100.

The revision of this Standard was initiated after the official release of ASME Y14.100-2013. Changes contained in this revision are intended to improve standardization and harmonize practices and methodology between industry and government.

It is not the intent of this Standard to prevent individual organizations from designing specific drawing practices that meet their individual needs, but rather to provide common engineering delineation standards to aid the increasing interchange of drawings between industry, government, and other users. When individual companies have detailed requirements for their specific method of operation, it shall be noted on the drawing or by tailoring the contract. Consequently, the minimum requirements set forth in this Standard will provide them flexibility in implementation. The appendices are intended for use by other than strictly commercial applications, such as DoD. However, nothing prevents commercial organizations from using the appendices and tailoring them as necessary to meet their own needs.

The successful revision of this Standard is attributed to the subcommittee members and their respective companies, and the departments and agencies of the U.S. Government.

Suggestions for improvement of this Standard are welcome. They should be sent to The American Society of Mechanical Engineers; Attention: Secretary, Y14 Standards Committee, Two Park Avenue, New York, NY 10016-5990.

This revision was approved as an American National Standard on June 22, 2017.

ASME Y14 COMMITTEE
Engineering Drawing and
Related Documentation Practices

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

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General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by proposing revisions or a case and attending Committee meetings. Correspondence should be addressed to:

Secretary, Y14 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

Proposing Revisions. Revisions are made periodically to the Standard 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 periodically.

The Committee welcomes proposals for revisions to this Standard. 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 documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee Web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard, the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Attending Committee Meetings. The Y14 Standards Committee regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the Y14 Standards Committee. Future Committee meeting dates and locations can be found on the Committee Page at go.asme.org/Y14committee.

ASME Y14.100-2017
SUMMARY OF CHANGES

Following approval by the Y14 Committee and ASME, and after public review, ASME Y14.100-2017 was approved by the American National Standards Institute on June 22, 2017.

ASME Y14.100-2017 includes editorial changes, revisions, and corrections introduced in ASME Y14.100-2013, as well as the following changes identified by a margin note, **(17)**. In addition, "data elements" is changed to "product definition elements," and "hyperlink" is changed to "directed" when associating an approval indicator with the engineering data in a digital approval system.

Page	*Location*	*Change*
2	2	Clarification added to specify applicable standard when a referenced standard is substituted
16	4.27.6	In subpara. (d), sentence added to indicate that notes may be reused when they are authored in a product data management system as database objects
22	6.8.1	Change requirements for a new PIN or computer program moved from Nonmandatory Appendix D
24	Table 7-1	Key characteristic added
34	B-2	MIL-PRF-28000, MIL-PRF-28001, MIL-PRF-28002, and MIL-STD-1840 deleted
37	C-4.1	Requirement for approved item names clarified by adding reference to para. C-6.2
42	D-3.7	Revised
	D-4	Requirement for phrase CAGE CODE or CAGEC in the block of the engineering drawing or associated list deleted
43	D-9.3	Technical manuals added to the list of items that are not considered reference documents
	D-9.5	In subpara. (d), text added to indicate that forward or backslash as symbols shall not be used in a drawing number structure
44	Figure D-1	Design activity identification block name changed from CAGE CODE to DAI in the title block of the engineering drawing
45	D-9.9	Requirement clarified for all sheets of a

Page	*Location*	*Change*
		drawing to be assigned the original design activity
51	F-2.1	Added
52	F-3.1.1	Reference to ASME Y14.41 added for marking on an annotated model
	F-3.3	Requirements for Classification Code 1 clarified
	F-3.4	Requirements for Classification Code 2 clarified
	F-3.5	Requirements for Classification Code 3 clarified
	F-3.6	Requirements for Classification Code 4 clarified
	F-3.7	Requirements for Classification Code 5 clarified

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ENGINEERING DRAWING PRACTICES

1 GENERAL

1.1 Scope

This Standard establishes the essential requirements and reference documents applicable to the preparation and revision of manual or computer-generated engineering drawings and associated lists, unless tailored by a specialty standard. It is essential that this Standard be used in close conjunction with ASME Y14.24, ASME Y14.34, ASME Y14.35, and ASME Y14.41.

1.2 Application

Application of this Standard may necessitate tailoring to exclude unnecessary requirements (see para 3.75). A tailoring guide, Nonmandatory Appendix A, has been included for that purpose.

1.3 ASME Y14 Series Conventions

The conventions in paras. 1.3.1 through 1.3.10 are used in this and other ASME Y14 standards.

1.3.1 Mandatory, Nonmandatory, Guidance, and Optional Words

(a) The word "shall" establishes a 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 word(s) "typical," "example," "for reference," or the Latin abbreviation "e.g." indicate(s) 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 "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.

1.3.2 Cross-Reference of Standards. Cross-reference of standards in text with or without a date following the standard identity is interpreted as follows:

(a) Reference to other ASME Y14 series standards in the text without a date following the standard identity indicates the issue of the standard as identified in the References section (section 2) shall be used to meet the requirement.

(b) Reference to other ASME Y14 series standards in the text with a date following the standard identity indicates that only that issue of the standard shall be used to meet the requirement.

1.3.3 Invocation of Referenced Standards. The following examples define the invocation of a standard when specified in the References section (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 paragraph(s) of the standard, the entire standard is invoked, e.g., "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 paragraph(s) within the standard are invoked.

(b) When a referenced standard is cited in the text with limitations to a specific subject or paragraph(s) of the standard, only the paragraph(s) on that subject is invoked. For example, "assign part or identifying numbers in accordance with ASME Y14.100" is invoking only the paragraph(s) 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 invoked for guidance only. For example, "for gaging principles, see ASME Y14.43" is only for guidance, and no portion of the standard is invoked.

1.3.4 Parentheses Following a Definition. When a definition is followed by a standard referenced in parentheses, the standard referenced in parentheses is the source for the definition.

1.3.5 Notes. Notes depicted in this Standard in ALL UPPERCASE letters are intended to reflect actual drawing entries. Notes depicted in Initial Uppercase or lowercase letters are to be considered supporting data to the contents of this Standard and are not intended for literal entry on drawings.

A statement requiring the addition of a note with the qualifier "such as" is a requirement to add a note, and the content of the text is allowed to vary to suit the application.

1.3.6 Acronyms and Abbreviations. Acronyms and abbreviations are spelled out the first time used in this Standard, followed by the acronym or abbreviation in parentheses. The acronym or abbreviation is used thereafter throughout the text.

1.3.7 Units. The International System (SI) of units is featured in this Standard. It should be understood that U.S. Customary units could equally have been used without prejudice to the principles established.

1.3.8 Figures. The figures in this Standard are intended only as illustrations to aid the user in understanding the practices described in the text. In some cases, figures show a level of detail as needed for emphasis. In other cases, figures are incomplete by intent so as to illustrate a concept or facet thereof. The absence of figure(s) has no bearing on the applicability of the stated requirements or practice. To comply with the requirements of this Standard, actual data sets shall meet the content requirements set forth in the text. To assist the user of this Standard, a listing of the paragraph(s) that refer to an illustration appears in the lower right-hand corner of each figure. This listing may not be all-inclusive. The absence of a listing is not a reason to assume inapplicability. Some figures are illustrations of models in a three-dimensional environment. The absence of dimensioning and tolerancing annotations in a view may indicate that the product definition is defined in 3D. Dimensions that locate or orient and are not shown are considered basic and shall be queried to determine the intended requirement. When the letter "h" is used in figures for letter height or for symbol proportions, select the applicable letter height in accordance with ASME Y14.2. Multiview drawings contained within figures are third-angle projections.

1.3.9 Precedence of Standards. The following are Y14 standards that are basic engineering drawing standards:

ASME Y14.1, Drawing Sheet Size and Format
ASME Y14.1M, Metric Drawing Sheet Size and Format
ASME Y14.2, Line Conventions and Lettering
ASME Y14.3, Orthographic and Pictorial Views
ASME Y14.5, Dimensioning and Tolerancing
ASME Y14.24, Types and Applications of Engineering Drawings
ASME Y14.34, Associated Lists
ASME Y14.35, Drawing Revisions
ASME Y14.36, Surface Texture Symbols
ASME Y14.38, Abbreviations and Acronyms
ASME Y14.41, Digital Product Definition Data Practices
ASME Y14.100, Engineering Drawing Practices

All other ASME Y14 standards are considered speciality types of standards and contain additional requirements or take exceptions to the basic standards as required to support a process or type of drawing.

1.3.10 Nonmandatory Appendices. Nonmandatory appendices are provided in this Standard for other than commercial application or practice when invoked.

1.4 Reference to This Standard

When drawings or data sets are based on this Standard, this fact shall be noted on the drawing or in the data set. A note similar to the following shall be added:

THIS DRAWING SHALL BE INTERPRETED IN ACCORDANCE WITH ASME Y14.100-2017.

(17) 2 REFERENCES

The following revisions of American National Standards form a part of this Standard to the extent specified herein. A more recent revision may be used, provided there is no conflict with the text of this Standard. In the event of a conflict between the text of this Standard and the references cited herein, the text of this Standard shall take precedence. Unless otherwise specified, the standards referenced shall be used for data preparation: