ASME Y14.41-2026

(Revision of ASME Y14.41-2019)

Digital Product Definition Data Practices

Engineering Product Definition and Related Documentation Practices

AN INTERNATIONAL STANDARD

The American Society of Mechanical Engineers

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The American Society of Mechanical Engineers
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CONTENTS

Foreword vii

Committee Roster viii

Correspondence With the Y14 Committee ix

Section 1 **General** 1
1.1 Scope 1
1.2 Structure of Standard 1
1.3 ASME Y14 Series Conventions 1
1.4 Reference to This Standard 3
1.5 Symbols 3
Section 2 **References** 4
2.1 Introduction 4
2.2 Cited Standards 4
Section 3 **Terms and Definitions** 5
Section 4 **Dataset Identification and Control** 9
4.1 General 9
4.2 Related Engineering Data 9
4.3 Data Management 9
Section 5 **Dataset Requirements** 12
5.1 General Annotated Model Requirements 12
5.2 General Method Requirements 14
5.3 Management Data 14
5.4 Security Markings 15
5.5 Views on Annotated Models 15
Section 6 **Model Requirements** 20
6.1 General 20
Section 7 **Annotated Model and Drawing Graphic Sheet Requirements** 21
7.1 Common Requirements 21
7.2 Annotated Model Requirements 21
7.3 Drawing Graphic Sheet Requirements 23
Section 8 **Notes and Special Notations** 39
8.1 Common Requirements 39
8.2 Annotated Model Requirements 39
8.3 Drawing Graphic Sheet Requirements 39
Section 9 **Model Values and Dimensions** 40
9.1 Common Requirements 40
9.2 Annotated Model Requirements 40
9.3 Drawing Graphic Sheet Requirements 41
Section 10 **Plus and Minus Tolerances** 45

10.1 Common Requirements . . . 45
10.2 Annotated Model Requirements . . . 45
10.3 Drawing Graphic Sheet Requirements . . . 45
Section 11 Datum Applications . . . 52
11.1 Common Requirements . . . 52
11.2 Annotated Model Requirements . . . 52
11.3 Drawing Graphic Sheet Requirements . . . 53
Section 12 Geometric Tolerances . . . 68
12.1 Common Requirements . . . 68
12.2 Annotated Model Requirements . . . 68
12.3 Drawing Graphic Sheet Requirements . . . 70
Section 13 Weld and Braze Joints . . . 114
13.1 Common Requirements . . . 114
13.2 Annotated Model Requirements . . . 114
13.3 Drawing Graphic Sheet Requirements . . . 114
Section 14 Surface Texture . . . 120
14.1 Common Requirements . . . 120
14.2 Annotated Model Requirements . . . 120
14.3 Drawing Graphic Sheet Requirements . . . 120

Nonmandatory Appendices

A Compliance Responsibility . . . 127
B Classification Codes for Drawings and Datasets . . . 132
C Example 3D PDFs and HTML With Viewing Instructions . . . 140

Figures

4-1 Contents of a Product Definition Dataset . . . 11
5-1 Left-Hand and Right-Hand Coordinate Systems . . . 16
5-2 Annotated Model for Symmetrically Opposite Parts . . . 17
5-3 Annotated Model With Tabulated Design Requirements . . . 18
5-4 Annotated Model With Part Family Tabulated Design Requirements . . . 19
7-1 Display Management . . . 24
7-2 Annotation and Model Geometry Relationship . . . 26
7-3 Tolerance Query Associativity . . . 27
7-4 Simplified Feature Representation and Attributes . . . 29
7-5 Annotation Planes Relative to Annotated Model Geometry . . . 30
7-6 Graphic Display of Associated Annotation . . . 31
7-7 Listing of Digital Element Identifiers . . . 32
7-8 Queries for Datum Feature Symbols and Datum Target Symbols . . . 33
7-9 Queries for Datum Targets . . . 34
7-10 Queries for Coordinates and Supplemental Geometry . . . 35
7-11 Annotated Model . . . 36
7-12 Model and Drawing Graphic Sheet . . . 37
7-13 Query for Nonuniform Tolerance Zones . . . 38
9-1 Placement and Attachment of Basic Dimensions . . . 43

9-2 Placement and Attachment of Size Dimensions 44
10-1 Attachment Techniques: Fillets, Rounds, and Chamfers 47
10-2 Attachment Techniques: Reliefs and Step Surfaces 48
10-3 Attachment Techniques: Countersinks and Oblique Surfaces 49
10-4 Attachment Techniques: Depth, Spotface, and Remaining Thickness 50
10-5 Attachment Techniques: Notches, Flats, and Pin Heights 51
11-1 Datum Reference Frame and Coordinates Relationship 55
11-2 Datum Feature Symbol Attachments 57
11-3 Partial Surface as a Datum Feature 58
11-4 Datum Targets and Symbols Attachment 59
11-5 Equalizing Target Points Establish a Datum Axis on an Internal Cylindrical Surface . . . 60
11-6 Two Cylindrical Features Establish a Datum Axis 61
11-7 Pattern of Features Establish a Datum Axis 62
11-8 Two Coaxial Features Establish a Datum Axis 63
11-9 Coplanar Surfaces Establish a Datum Plane 64
11-10 Separated Surfaces Establish a Datum Plane 65
11-11 Datum Targets and Symbols in an Axonometric View 67
12-1 General Application of Geometric Tolerances — Coincident or Perpendicular Annotation Plane 73
12-2 Circularity — Sphere, Conical, or Revolved Surface 74
12-3 Cylindricity 75
12-4 Straightness — Directed by Line Element 76
12-5 Straightness — Directed by Coordinate Axis 77
12-6 Straightness — Cylindrical or Conical Surface 78
12-7 Straightness — Median Line and Flatness: Median Plane 79
12-8 Orientation — Planar Surfaces 81
12-9 Each Element Orientation — Directed by Line Element 82
12-10 Each Element Orientation — Directed by Coordinate Axis 83
12-11 Orientation — Inclined Surface 84
12-12 Orientation — Cylinder or a Set of Opposed, Parallel Surfaces 85
12-13 Orientation of an Axis With a Parallel Planes Tolerance Zone 86
12-14 Profile — Planar, Conical, or Revolved Surface 88
12-15 Profile — Multiple or Coplanar Surfaces 89
12-16 Profile — Between Basis 90
12-17 Profile — All-Around Applications 92
12-18 Line Profile — Directed by Line Element 93
12-19 Line Profile — Directed by Coordinate Axis 94
12-20 Nonuniform Profile Tolerance Zones — Use of Supplemental Geometry 96
12-21 Position — Individual Patterns of Features 97
12-22 Position — Projected Tolerance Zones 98
12-23 Position — Extremities of Long Holes 99
12-24 Position — Elongated Holes (Slots) 100
12-25 Bidirectional Position — Polar or Rectangular 101
12-26 Position — Combined With Profile 102
12-27 Runout — Attachments, Associativity, Between Basis, and Indicated Usage 104

12-28 Runout — Perpendicular and Cylindrical Surfaces 106
12-29 Runout — Spherical, Conical, and Revolved Surfaces 107
12-30 Axonometric Views — Feature Control Frames 108
12-31 Axonometric Views — Limited Area Application 109
12-32 Axonometric Views — Straightness, Each Element Applications 110
12-33 Axonometric Views — Parallel Planes Tolerance Zone 111
12-34 Axonometric Views — Multiple Surfaces 112
12-35 Axonometric Views — Between Basis 113
13-1 Placement of a Welding Symbol 115
13-2 Extent of a Weld Using the Between Symbol 116
13-3 Indication of Location of Fillet Welds 117
13-4 Indication of Location of Spot Welds 118
13-5 Query of a Welding Symbol 119
14-1 Surface Texture Attached With a Leader to a Surface 121
14-2 Surface Texture Attached to a Feature Control Frame 122
14-3 Surface Texture Attached to a Dimension for a Feature of Size 123
14-4 Surface Texture Attached to a Dimension for a Width 124
14-5 Direction of Lay to a Coordinate Axis 125
14-6 Direction of Lay With Supplemental Geometry 126
B-1 Classification Code 1: Dataset With Drawing Graphic Sheet Without a Model 135
B-2 Classification Code 2: Dataset With Drawing Graphic Sheet and Model 136
B-3 Classification Code 3: Dataset With Model and Simplified Drawing Graphic Sheet 137
B-4 Classification Code 4: Dataset With Annotated Model and Drawing Graphic Sheet 138
B-5 Classification Code 5: Dataset With Annotated Model and No Drawing Graphic Sheet . 139
C-1 Bracket — Accessory Support 145
C-2 Bracket Support 146
C-3 Bracket — Accessory Support 3D HTML Example 147

Tables

9-1 Resolved Dimension Examples 42
10-1 Plus and Minus Tolerance Applications 46
12-1 Form Tolerances 72
12-2 Orientation Tolerances 80
12-3 Profile Tolerances 87
12-4 Location Tolerances 95
12-5 Runout Tolerances 103
A-1 Compliance Responsibility 128
B-1 Classification Code Requirements 134

FOREWORD

The development of this Standard was initiated at the request of industry and the government. A meeting was held to determine the interest in this subject in January 1997 in Wichita, Kansas, hosted by The Boeing Company in their facility. A subsequent meeting was held during the spring ASME meeting in 1997 to enlist membership of those who would be interested in working on this project.

The Chairs of the different Y14 standards continue to collaborate to improve the coordination of the Y14 standards. To this end, in this revision of ASME Y14.41, the following subject matter was either updated or added:

(a) Some definitions were added or revised to provide clarification to the content changed in this revision.

(b) Paragraph on dataset identifiers was updated to better align with ASME Y14.100.

(c) Limited length or area indicators (LLAI) were added to the section on supplemental geometry.

(d) Sections were added addressing annotated model requirements for reference models, annotated models with tabulated design requirements, and symmetrically opposite parts and assemblies.

(e) Content was clarified related to general requirements for annotated models without a drawing graphic sheet.

(f) Clarification was provided for what is required for management data and the use of notes.

(g) Model requirements were updated addressing geometric scale, precision, and model completeness.

(h) Content was clarified related to leader lines, extension lines, annotation planes, and the use of query.

(i) Figures indicating a user to query were updated to include color indicating what is queried and subsequently highlighted.

(j) Nonmandatory Appendix C was added to depict figures that are interactive annotated models.

(k) Nonmandatory Appendix B was updated to provide better description and use of classification codes. At the next revision of ASME Y14.100, the classification codes that appear in Nonmandatory Appendix F will be removed.

It is essential that this Standard be used in close conjunction with ASME Y14.24, ASME Y14.34, ASME Y14.35, and ASME Y14.100. Although the primary purpose of ASME Y14 series standards is to establish requirements for the preparation and revision of product definition data, this Standard also includes various software-dependent requirements that might not be achievable without computer software tools that have been developed in support of facilitating these requirements. Examples of such requirements include associativity, stationary and rotating annotation planes, display management, attributes available on demand, annotation and annotation plane orientation, query, highlighting, and resolved dimension preservation and association.

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 Y14.41-2026 was approved as an American National Standard on January 21, 2026.

ASME Y14 COMMITTEE
Engineering Product Definition and Related Documentation Practices

(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 email 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, 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

(4) the editions 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 Y14 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 https://go.asme.org/Y14committee.

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Section 1
General

1.1 SCOPE

This Standard establishes requirements and references documents applicable to the preparation and revision of digital product definition data and datasets, hereafter referred to as datasets. This Standard defines exceptions and additional requirements to existing ASME standards for using product definition datasets or drawing graphic sheet(s) in digital format. When no exception or additional requirements are stated, existing ASME standards shall apply. It is essential that this Standard be used in close conjunction with ASME Y14.24, ASME Y14.34, ASME Y14.35, and ASME Y14.100.

1.2 STRUCTURE OF STANDARD

This Standard supports two methods of preparing a dataset: annotated model, and an annotated model with a drawing graphic sheet. See paras. 5.2.1 and 5.2.2. The structure starts with the requirements common to both methods, and then branches to the other sections that have differing requirements for each method. In addition, it provides a guide for the many Computer-Aided Design (CAD) applications to develop better modeling and annotation practices for CAD and engineering disciplines.

1.3 ASME Y14 SERIES CONVENTIONS

The conventions in paras. 1.3.1 through 1.3.12 are used in this and other ASME Y14 standards.

1.3.1 Mandatory, Recommended, 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 words “typical,” “example,” “for reference,” and the Latin abbreviation “e.g.” indicate suggestions given for guidance only.

(f) The word “or” indicates that there are two or more options for complying with a list of options. When the word “or” is used without a qualifying word such as “all,” “both,” or “any” in a list, it is exclusive, meaning that only one option from the list is acceptable at a time, e.g., “Select option A or option B.” When the word “or” is used with a qualifying word such as “all,” “both,” or “any” in a list, it is inclusive, meaning that multiple options from the list are acceptable at a time, e.g., “Select option A, option B, or both.”

(g) The phrase “unless otherwise specified” or the abbreviation “UOS” indicates a default requirement if an exception is provided in this Standard.

1.3.2 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 other 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 other 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.

1.3.3 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.