ASME B16.36-2025
(Revision of ASME B16.36-2020)

Orifice Flanges

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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FOREWORD

August of 1956 marked the first recorded correspondence noting the lack of standardization for orifice flanges. There were, and still are, several codes for the performance and calibration of orifice flanges, but there had been no standardization of the flanges themselves. Over the ensuing 3 years, correspondence continued among the Instrument Society of America, American Gas Association, and the B16 Standards Committee.

On December 3, 1959, Subcommittee 3 (now Subcommittee C) of B16 authorized the appointment of a Task Force to undertake drafting of a standard. Although the initial work progressed smoothly, a controversy developed over the standard size of taps to be specified for the flanges. This required many years to resolve. It was finally achieved in 1973 with the issuance of a draft from the Task Force. Comments and objections to this draft from members of Subcommittee C were resolved, and a redraft was approved by the Subcommittee late in 1974. The B16 Standards Committee was balloted in the spring of 1975 and approval was gained. Comments from B16 members from the gas industry requested that the Class 400 orifice flange be included, and the B16 Subcommittee C agreed to consider this for a possible addendum. The Standard was approved by the American National Standards Institute (ANSI) on August 15, 1975.

On April 30, 1979, an addenda was issued, which added Class 400 flanges and Mandatory Appendix II covering reference documents and organizations.

In 1982, American National Standards Committee B16 was reorganized as an ASME Committee operating under procedures accredited by ANSI. In the 1988 edition, figures were added to illustrate jack bolts and corner taps, metric units were omitted, and references to other standards were updated. Following approval by the B16 Main Committee and the ASME Supervisory Board, the Standard was approved as an American National Standard by ANSI on February 18, 1988.

In 1996, several revisions were made, including the addition of angular meter taps for ring joint flanges in sizes not previously covered. Following approval by the B16 Main Committee and the ASME Supervisory Board, the Standard was approved as an American National Standard by ANSI on November 6, 1996.

In 2006, several revisions were made, including the use of metric units as the primary reference units, while maintaining U.S. Customary units in either parenthetical or separate forms. Changes to dimensions and nomenclature followed that were contained within the 2003 edition of ASME B16.5. This included the change of minimum flange thickness from C to t_f and corrections for Y_1 and Y_2. Class 400 remained in U.S. Customary tables in Mandatory Appendix II but was not given in the metric dimensional tables. There were numerous requirement clarifications and editorial revisions. Following the approvals of the Standards Committee and ASME, approval for the new edition was granted by ANSI on November 6, 2006.

In the 2009 edition, Mandatory Appendix III was revised and updated. Also, section 4, the materials section, was revised to cover requirements of material specification editions other than those listed in Mandatory Appendix III of ASME B16.5.

In ASME B16.36-2020, the U.S. Customary tables in former Mandatory Appendix I were merged with the SI tables in the main text. The tables and figures were redesignated, former Mandatory Appendix I was deleted, and subsequent Mandatory Appendices were redesignated. Cross-references were updated accordingly. In addition, ASME B16.36-2020 added caution regarding O.D. of raised faces, updated requirements for nipple connections, and clarified several sections. Following approval by the ASME B16 Standards Committee, ASME B16.36-2020 was approved as an American National Standard by ANSI on December 4, 2020.

In ASME B16.36-2025, requirements for spacing between pressure taps to specify a default orientation have been added. Additionally, definitions of “may,” “shall,” and “should” have been added and references have been updated. Following approval by the ASME B16 Standards Committee, ASME B16.36-2025 was approved as an American National Standards by ANSI on March 5, 2025.

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Standardization of Valves, Flanges, Fittings, and Gaskets

(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. Upon request, the committee will issue an interpretation of any requirement of this Standard. An interpretation can be issued only in response to a request submitted through the online Inquiry Submittal Form at https://go.asme.org/InterpretationRequest. Upon submitting the form, the inquirer will receive an automatic email confirming receipt.

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ASME B16.36-2025
SUMMARY OF CHANGES

Following approval by the ASME B16 Standards Committee and ASME, and after public review, ASME B16.36-2025 was approved by the American National Standards Institute on March 5, 2025.

ASME B16.36-2025 includes the following changes identified by a margin note, **(25)**. The Record Numbers listed below are explained in more detail in the "List of Changes in Record Number Order" following this Summary of Changes.

Page	*Location*	*Change*
1	2.7	Added (*22-2279*)
2	9.1	In first paragraph, penultimate sentence added (*22-565*)
4	Table 5-1	Diameter of pressure connection, *TT*, for 3 NPS editorially corrected from $^{8}/_{3}$ in. to $^{3}/_{8}$ in.
8	Table 5-2	Diameter of pressure connection, *TT*, for 3 NPS editorially corrected from $^{8}/_{3}$ in. to $^{3}/_{8}$ in.
12	Table 5-3	Diameter of pressure connection, *TT*, for 3 NPS editorially corrected from $^{8}/_{3}$ in. to $^{3}/_{8}$ in.
29	Mandatory Appendix II	Updated (*23-2265*)

LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
22-565	Revised para. 9.1 to state the default tap orientation of 180 deg.
22-2279	Added para. 2.7 to define “may,” “shall,” and “should.”
23-2265	Updated the references.

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ORIFICE FLANGES

1 SCOPE

This Standard covers pressure–temperature ratings, materials, dimensions, tolerances, testing, and making of flanges (similar to those covered in ASME B16.5) that have orifice pressure differential connections. Coverage is limited to the following:

(a) welding neck flanges Classes 300, 400, 600, 900, 1500, and 2500

(b) slip-on and threaded Class 300

2 GENERAL

2.1 References

Codes, standards, and specifications containing provisions to the extent referenced herein constitute requirements of this Standard. These reference documents are listed in Mandatory Appendix II.

2.2 Quality Systems

Nonmandatory requirements relating to the product manufacturer's Quality System Program are described in Nonmandatory Appendix A.

2.3 Relevant Units

This Standard states values in both SI (metric) and U.S. Customary units. As an exception, diameter of bolts and flange bolt holes are expressed in inch units only. These systems of units are to be regarded separately as standard. Within the text, the U.S. Customary units are shown in parentheses. The values stated in each system are not exact equivalents; therefore, it is required that each system of units be used independently of the other. Except for diameter of bolts and flange bolt holes, combining values from the two systems constitutes nonconformance with the Standard. The main text of this Standard does not contain requirements expressed in SI units for Class 400 flanges; however, Mandatory Appendix I does contain requirements for this class, expressed in U.S. Customary units only.

2.4 Convention

For determining conformance with this Standard, the convention for fixing significant digits where limits (maximum and minimum values) are specified shall be as defined in ASTM E29. This requires that an observed or calculated value be rounded off to the nearest unit in the last right-hand digit used for expressing the limit. Decimal values and tolerances do not imply a particular method of measurement.

2.5 Denotation

2.5.1 Pressure Rating Designation. Class, followed by a dimensionless number, is the designation for pressure–temperature ratings as follows: Classes 300, 400, 600, 900, 1500, and 2500.

2.5.2 Sizes. NPS, followed by a dimensionless number, is the designation for the nominal flange size. NPS is related to the reference nominal diameter, DN, used in international standards. The relationship is, typically, as follows:

NPS	DN
1	25
1½	40
2	50
2½	65
3	80
4	100

GENERAL NOTE: For NPS ≥ 4, the related DN = 25 × (NPS).

2.6 Service Conditions

Criteria for selection of materials suitable for the particular fluid service are not within the scope of this Standard.

2.7 Definitions (25)

may: the term used to denote permission, neither a requirement nor a recommendation.

shall: the term used to denote a requirement.

should: the term used to denote a recommendation.

3 PRESSURE–TEMPERATURE RATINGS

The pressure–temperature ratings, including all use recommendations and limitations, and the method of rating given in ASME B16.5 apply to these flanges.