ASME B16.33-2024

[Revision of ASME B16.33-2012 (R2017)]

Manually Operated Metallic Gas Valves for Use in Gas Piping Systems Up to 175 psi

(Sizes NPS ½ Through NPS 2)

AN AMERICAN NATIONAL STANDARD

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FOREWORD

The B16 Standards Committee was organized in the Spring of 1920 and held its organizational meeting on November 21 of that year. The group operated as a Sectional Committee (later redesignated as a Standards Committee) under the authorization of the American Engineering Standards Committee [subsequently named American Standards Association, United States of America Standards Institute, and now, American National Standards Institute (ANSI)]. Sponsors for the group were The American Society of Mechanical Engineers (ASME), Manufacturers Standardization Society of the Valve and Fittings Industry, and the Heating and Piping Contractors National Association (later the Mechanical Contractors Association of America).

The American Gas Association (AGA) determined that standardization of gas shutoff valves used in distribution services was desirable and needed. The AGA Task Committee on Standards for Valves and Shut-Offs was formed, and development work commenced in 1958. In 1968, it was determined that a more acceptable document would result if approval were gained from ANSI and to facilitate such action, the AGA Committee became Subcommittee No. 13 of the B16 activity.

This Standard offers more performance requirements than has been customary in B16 standards. It is expected that this will permit both manufacturers and users greater latitude in producing and using products made to this Standard.

Work was extremely slow as the group gradually developed the document in the desired format. Its efforts were successful when, on July 18, 1973, final approval was granted by ANSI.

The revision incorporated some major revisions to the format. In addition, the scope of the standard was clarified so that the standard could be applicable to all manually operated metallic gas valves for use in gas piping standards up to 125 psig. The revised standard incorporated testing criteria for valves that could have a specific pressure rating within this pressure range. This revision was made to clarify the fact that the standard is also applicable to valves with service designations other than 60 psig and 125 psig. The revision was approved on February 10, 1981.

The 1990 revision deleted the sampling inspection table on the basis that the scope clearly limited the standard to turning torque valves at the time of manufacture. This edition established U.S. customary units as the standard and metric equivalents were deleted.

In 1982, American National Standards Committee B16 was recognized as an ASME Committee operating under procedures accredited by ANSI.

In 2002, a new materials section was added along with several other revisions. Also incorporated were metric values and a nonmandatory quality system program annex. Use of these valves in higher rated systems is outside the scope of this Standard, and is neither permitted nor prohibited.

The 2012 edition of ASME B16.33 brought an updated scope to allow all manually operated metallic gas valves for use in gas piping standards up to 175 psig. Testing requirements were revised to match this increase in pressure, and references were updated. Following approval by the ASME B16 Standards Committee, ASME B16.33-2012 was approved as an American National Standard by ANSI on August 21, 2012.

In ASME B16.33-2024, the figures and tables have been redesignated. Cross-references have been updated accordingly. Also, the references in Mandatory Appendix I have been updated. Following approval by the ASME B16 Standards Committee, ASME B16.33-2024 was approved by ANSI on January 2, 2024.

ASME B16 COMMITTEE
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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General. ASME codes and standards are developed and maintained by committees with the intent to represent the consensus of concerned interests. Users of ASME codes and standards may correspond with the committees to propose revisions or cases, report errata, or request interpretations. Correspondence for this Standard should be sent to the staff secretary noted on the committee's web page, accessible at https://go.asme.org/B16committee.

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, 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 Interpretation Submittal Form at https://go.asme.org/InterpretationRequest. Upon submitting the form, the inquirer will receive an automatic e-mail confirming receipt.

ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the information submitted, it is the opinion of the committee that the inquirer should seek assistance, the request will be returned with the recommendation that such assistance be obtained. Inquirers can track the status of their requests at https://go.asme.org/Interpretations.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Interpretations are published in the ASME Interpretations Database at https://go.asme.org/Interpretations as they are issued.

Committee Meetings. The B16 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/B16committee.

ASME B16.33-2024
SUMMARY OF CHANGES

Following approval by the ASME B16 Standards Committee and ASME, and after public review, ASME B16.33-2024 was approved by the American National Standards Institute on January 2, 2024.

In ASME B16.33-2024, the figure and tables have been redesignated. Cross-references have been updated accordingly. In addition, this edition includes the following changes identified by a margin note, **(24)**. 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 (Record Number)*
3	4	In paras. 4.1, 4.2, and 4.3, title added to third-level headings *(15-1082)*
4	Table 4.4.4-1	In column heads, the unit of measure for "Load" corrected by errata from "lbf-in. (N·m)" to "lbf (N)" *(18-486)*
6	Mandatory Appendix I	Updated *(14-817)*

LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
14-817	Updated references in Mandatory Appendix I.
15-1082	Revised paragraphs in Section 4 to include headers where missing.
18-486	Corrected the units of Load in Table 4.4.4-1 (former Table 3). The correct units of load are lbf (N).

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MANUALLY OPERATED METALLIC GAS VALVES FOR USE IN GAS PIPING SYSTEMS UP TO 175 psi (Sizes NPS ½ Through NPS 2)

1 SCOPE

1.1 General

This Standard covers requirements for manually operated metallic valves sizes NPS ½ through NPS 2, for outdoor installation as gas shutoff valves at the end of the gas service line and before the gas regulator and meter where the designated gauge pressure of the gas piping system does not exceed 175 psi (12.1 bar). This Standard applies to valves operated in a temperature environment between −20°F and 150°F (−29°C and 66°C).

1.2 Design

This Standard sets forth the minimum capabilities, characteristics, and properties that a valve at the time of manufacture must possess in order to be considered suitable for use in gas piping systems. Details of design and manufacture (other than those stated in this Standard, including such design and production tests that will produce a valve that will have the required capabilities to meet this Standard) remain the responsibility of the manufacturer.

1.3 Standards and Specifications

Standards and specifications adopted by reference in this Standard are shown in Mandatory Appendix I. It is not considered practical to refer to a specific edition of each of the standards and specifications in the individual references. Instead the specific edition references are included in Mandatory Appendix I. A product made in conformance with a prior edition of reference standards and in all other aspects conforming to this Standard will be considered to be in conformance even though the edition reference may be changed in a subsequent revision of this Standard.

1.4 Quality Systems

Nonmandatory requirements relating to the manufacturer's quality system program are described in Nonmandatory Appendix A.

1.5 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.

1.6 Codes and Regulations

A valve used under the jurisdiction of the Code of Federal Regulation (CFR), such as Title 49, Part 192; the ASME Code for Pressure Piping, such as ASME B31.8; or the National Fuel Gas Code, AGA Z223121/ANSI Z223.1/NFPA 54, is subject to any limitation of that code or regulation.

2 CONSTRUCTION

2.1 General

Each valve at the time of manufacture shall be capable of meeting the requirements set forth in this Standard. The workmanship employed in the manufacture and assembly of each valve shall provide gas tightness, safety, and reliability of performance, and freedom from injurious imperfections and defects.

2.2 Tamperproof Features

Where valves are specified to be tamperproof, they shall be designed and constructed to minimize the possibility of the removal of the core of the valve with other than specialized tools.

2.3 Configuration

2.3.1 Operating Indication. The valve shall be so marked or constructed that the operator can visually determine

(a) when a ¼ turn valve is in the open or closed position (if flat head, longitudinal axis of the head shall be perpendicular to the longitudinal axis of the valve when valve is in the closed position)