ASME B16.10-2022
(Revision of ASME B16.10-2017)

Face-to-Face and End-to-End Dimensions of Valves

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

Errata
to
ASME B16.10-2022
Face-to-Face and End-to-End Dimensions of Valves

Several column headings in Tables 1.3-1 and 1.3-3 of ASME B16.10-2022 were inadvertently misaligned. The corrected pages, 13 and 21, follow this cover sheet.

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Two Park Avenue, New York, NY 10016-5990

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J 3 1 2 2 E

Table 1.3-1
Class 125 Cast Iron Flanged and Class 150 Steel Flanged and Buttwelding End Valves, Face-to-Face and End-to-End Dimensions (Cont'd)

19	20	21	22	23	
Class 150 Steel					
Flanged End [1.5 mm (0.06 in.) Raised Face] and Welding End	Flanged End		Welding End		
	Ball				
Y-Globe and Y-Swing Check, *A* and *B*	Long Pattern, *A*	Short Pattern, *A*	Long Pattern, *B*	Short Pattern, *B*	Nominal Valve Size, DN (NPS)
...	1372 (54.00) (13)	...	1524 (60.00)	...	800 (32)
...	1473 (58.00) (13)	...	1626 (64.00)	...	850 (34)
...	1524 (60.00) (13)	...	1727 (68.00)	...	900 (36)
...	...	...	...	...	1000 (40)
...	...	...	...	...	1050 (42)
...	...	...	...	...	1200 (48)
...	...	...	...	...	1350 (54)
...	...	...	...	...	1500 (60)
...	...	...	...	...	1650 (66)
...	...	...	...	...	1800 (72)

Table 1.3-3
Classes 125 and 250 Cast Iron and Classes 150 to 2500 Steel Wafer Type Valves, Face-to-Face Dimensions

8	9	10	11	12	13	14	15	16	17	18	
Swing Check, Single and Dual Plate, Installation Between Standard ASME Flanges [Note (4)]											
Class Long Pattern [Note (5)]						Class Short Pattern [Note (6)]					Nominal Valve Size, DN (NPS)
150	300	600	900	1500	2500	150	300	600	900	1500	
60 (2.38)	60 (2.38)	60 (2.38)	70 (2.75)	70 (2.75)	70 (2.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	50 (2)
67 (2.62)	67 (2.62)	67 (2.62)	83 (3.25)	83 (3.25)	83 (3.25)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	65 (2½)
73 (2.88)	73 (2.88)	73 (2.88)	83 (3.25)	83 (3.25)	86 (3.38)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	22 (0.88)	80 (3)
73 (2.88)	73 (2.88)	79 (3.12)	102 (4.00)	102 (4.00)	105 (4.12)	19 (0.75)	19 (0.75)	22 (0.88)	22 (0.88)	32 (1.25)	100 (4)
...	...	...	...	...	...	...	...	...	...	...	125 (5)
98 (3.88)	98 (3.88)	136 (5.38)	159 (6.25)	159 (6.25)	159 (6.25)	19 (0.75)	22 (0.88)	29 (1.12)	35 (1.38)	44 (1.75)	150 (6)
127 (5.00)	127 (5.00)	165 (6.50)	206 (8.12)	206 (8.12)	206 (8.12)	29 (1.12)	29 (1.12)	38 (1.50)	44 (1.75)	57 (2.25)	200 (8)
146 (5.75)	146 (5.75)	213 (8.38)	241 (9.50)	248 (9.75)	254 (10.00) (7)	29 (1.12)	38 (1.50)	57 (2.25)	57 (2.25)	73 (2.88)	250 (10)
181 (7.12)	181 (7.12)	229 (9.00)	292 (11.50)	305 (12.00)	305 (12.00)	38 (1.50)	51 (2.00)	60 (2.38)	...	...	300 (12)
184 (7.25)	222 (8.75)	273 (10.75)	356 (14.00)	356 (14.00)	...	44 (1.75)	51 (2.00)	67 (2.62)	...	...	350 (14)
191 (7.50)	232 (9.12)	305 (12.00)	384 (15.12)	384 (15.12)	...	51 (2.00)	51 (2.00)	73 (2.88)	...	...	400 (16)
203 (8.00)	264 (10.38)	362 (14.25)	451 (17.75)	468 (18.44)	...	60 (2.38)	76 (3.00)	83 (3.25)	...	...	450 (18)
219 (8.62)	292 (11.50)	368 (14.50)	451 (17.75)	533 (21.00)	...	64 (2.50)	83 (3.25)	92 (3.62)	...	...	500 (20)
222 (8.75)	318 (12.50)	438 (17.25)	495 (19.50)	559 (22.00)	...	...	...	...	...	...	600 (24)
...	...	...	...	...	...	...	...	...	...	...	650 (26)
...	...	...	...	...	...	...	...	...	...	...	700 (28)
305 (12.00)	368 (14.50)	505 (19.8)	...	...	...	...	...	...	...	...	750 (30)
...	...	...	...	...	...	...	...	...	...	...	800 (32)
368 (14.50)	483 (19.00)	635 (25.00)	...	...	...	...	...	...	...	...	900 (36)
432 (17.00)	568 (22.37)	701 (27.61)	...	...	...	...	...	...	...	...	1050 (42)
524 (20.62)	629 (24.75)	...	...	...	...	...	...	...	...	...	1200 (48)

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AN AMERICAN NATIONAL STANDARD

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Two Park Avenue • New York, NY • 10016 USA

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The next edition of this Standard is scheduled for publication in 2027.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the Committee web page and under http://go.asme.org/InterpsDatabase. Periodically certain actions of the ASME B16 Committee may be published as Cases. Cases are published on the ASME website under the B16 Committee Page at http://go.asme.org/B16committee/ as they are issued.

Errata to codes and standards may be posted on the ASME website 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 B16 Committee Page can be found at http://go.asme.org/B16committee/. 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
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CONTENTS

FOREWORD

In 1921, the American Engineering Standards Committee, later the American Standards Association (ASA), organized Sectional Committee B16 to unify and further develop national standards for pipe flanges and fittings (and, later, for valves, gaskets, and valve actuators). Cosponsors of the B16 Committee were The American Society of Mechanical Engineers (ASME), the Heating and Piping Contractors National Association [now the Mechanical Contractors Association of America (MCAA)], and the Manufacturers Standardization Society of the Valve and Fittings Industry (MSS). Cosponsors were later designated as cosecretariat organizations.

Pioneer work on standardization of end-to-end dimensions of valves began in 1917 under the direction of J. A. Stevens. It was put aside at the end of World War I and interest did not revive until 1926. ASA and ASME agreed to include the topic in the scope of the B16 Committee, and Subcommittee 5 (now Subcommittee E) was established for the purpose. Work began in 1928 and covered ferrous flanged-end gate, globe, angle, and check valves.

Development of a national standard was hindered by the diversity of existing practices and by adverse economic conditions in the early 1930s. A proposed 1933 American Standard for face-to-face dimensions of ferrous flanged valves did not gain acceptance, even though it was largely based on a 1931 Standard Practice of MSS. Further work and industry developments led to a meeting in May 1937, which undertook to reconcile differences among the draft ASA standard, two American Petroleum Institute (API) standards (5-G-1 on pipeline valves and 600A on flanged OS&Y steel wedge gate valves), and a newly updated MSS SP-32.

A revised B16 proposal was voted favorably in June 1938, was approved by ASA, and was published in 1939. The standard was reaffirmed in 1947. Work began on a revision in 1953 to include buttwelding end valves, plug valves, and control valves in both cast iron and steel. That edition was published as ASA B16.10-1957. Further revision was begun in 1964. After reorganization of ASA, first as the United States of America Standards Institute (USASI), then as American National Standards Institute (ANSI), with the Sectional Committee being redesignated as an American National Standards Committee, a new edition adding ball valves was approved and published as ANSI B16.10-1973.

In 1982, American National Standards Committee B16 was reorganized as an ASME Committee operating under procedures accredited by ANSI. In the 1986 Edition, ductile iron and the alloys covered by ANSI B16.34 were added to the materials covered. Wafer type gate and check valves, Class 150 Y-pattern globe and check valves, and several patterns of butterfly valves were added to the types covered. Inch dimensions were converted from common to two-place decimal fractions.

In 1991, Subcommittee E — Face-to-Face and End-to-End Dimensions of Valves, was combined with Subcommittee N — Steel Valves. In the 1992 Edition, steel offset seat and grooved end butterfly valves were added. Globe and flangeless style control valves, which previously had been included, were removed from the Standard. Information regarding control valve dimensions may be obtained from The International Society of Automation (ISA), 67 T. W. Alexander Drive, Research Triangle Park, NC 27709.

In the 2000 Edition, metric dimension tables were added. All tables and references to Class 400 steel and Class 800 cast iron were removed. All tables were renumbered. Following the approvals of the Standards Committee and ASME, approval for the edition was granted by ANSI on June 7, 2000.

In the 2009 Edition, Nonmandatory Appendix A was revised and updated. Also, all affected regions of the Standard were updated to reflect the changes in Nonmandatory Appendix A. PN values and references to API 605 were removed from the Standard. Following approval by the B16 Standards Committee and the ASME Supervisory Board, the Standard was approved as an American National Standard by ANSI on June 15, 2009.

In the 2017 Edition, tolerances for straightway valves were modified and new NPS sizes were added. Singular Face-to-Face dimensions for Class 150 and Class 300 valves, and short and long pattern face-to-face dimensions were added to Tables 7 and I-7.

In ASME B16.10-2022, the U.S. Customary tables in former Mandatory Appendix I have been merged with the SI tables in the main text. The tables have been redesignated, former Mandatory Appendix I has been deleted, and the subsequent Mandatory Appendix has been redesignated. Cross-references have been updated accordingly. Also in this edition, Table 1.3-1 (formerly Tables 1 and I-1), Table 1.3-3 (formerly Tables 7 and I-7), Table 1.5-1 (formerly Tables 3 and I-3), Table 1.5-2 (formerly Tables 4 and I-4), Table 1.5-3 (formerly Tables 5 and I-5), and Table 1.5-4 (formerly Tables 6 and I-6) have been revised. Following approval by the ASME B16 Standards Committee, ASME B16.10-2022 was approved by the American National Standard Institute on April 15, 2022.

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 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 requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B16 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 and 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.

Interpretations. Upon request, the B16 Standards Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B16 Standards Committee.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may e-mail the request to the Secretary of the B16 Standards Committee at SecretaryB16@asme.org, or mail it to the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a “yes” or “no” reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of “Yes” or “No,” with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, 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 inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

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.

Attending Committee Meetings. The B16 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 B16 Standards Committee.

SUMMARY OF CHANGES

Following approval by the ASME B16 Standards Committee and ASME, and after public review, ASME B16.10-2022 was approved by the American National Standards Institute on April 15, 2022.

In ASME B16.10-2022, the U.S. Customary tables in former Mandatory Appendix I have been merged with the SI tables in the main text. The tables and figures have been redesignated, former Mandatory Appendix I has been deleted, and the subsequent Mandatory Appendix has been redesignated. Cross-references have been updated accordingly. In addition, this edition includes the following changes identified by a margin note, **(22)**. 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)*
2	2.3.1	Subparagraphs (b) and (c) revised *(22-55)*
3	3.1.2	Revised *(22-55)*
3	3.1.3	Revised *(22-55)*
6	Table 1.3-1	(1) Revised *(19-1665)* (2) Column head spanning columns 9 through 20 revised *(22-55)*
16	Table 1.3-2	Column head spanning columns 1 through 6 and 7 through 17 revised *(22-55)*
20	Table 1.3-3	(1) In Column 13, the rating callout corrected by errata to "2500" *(19-2986)* (2) Note (7) revised *(19-3004)*
24	Table 1.5-1	(1) For NPS 12, Note (4) deleted *(19-3188)* (2) Inserted comma between "Globe" and "Lift Check" in column headers *(18-2248)* (3) Column head spanning columns 1 through 10 revised *(22-55)*
28	Table 1.5-2	(1) Comma inserted between "Globe" and "Lift Check" in headers for columns 5 and 6 *(18-2248)* (2) Column head spanning columns 1 through 10 revised *(22-55)*
31	Table 1.5-3	(1) Comma inserted between "Globe" and "Lift Check" in headers for columns 5 and 6 *(18-2248)* (2) Column head spanning columns 1 through 8 revised *(22-55)*
33	Table 1.5-4	(1) Comma inserted between "Globe" and "Lift Check" in headers for columns 4 and 5 *(18-2248)* (2) Column head spanning columns 1 through 7 revised *(22-55)*
35	Table 3.2-1	(1) Column heads for fourth and fifth columns revised *(22-55)* (2) Notes (4) and (6) revised *(22-55)*
38	Figure 2.3.1-1	Dimensions revised throughout *(22-55)*

LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
18-2248	Revised column headers 7 and 8 in Table 1.5-1 (former Tables 3 and I-3), column headers 5 and 6 in Table 1.5-2 (former Tables 4 and I-4) and Table 1.5-3 (former Tables 5 and I-5), and column headers 4 and 5 in Table 1.5-4 (Tables 6 and I-6).
19-1665	Revised Table 1.3-1 (former Tables 1 and I-1).
19-2986	Revised Class rating to 2500 for column 13 of Table 1.3-3 (former Tables 7 and I-7).
19-3004	Revised Note (7) of Table 1.3-3 (former Tables 7 and I-7).
19-3188	Deleted Note (4) from NPS 12 for column 7 in Table 1.5-1 (former Tables 3 and I-3).
22-55	Revised paras. 2.3.1, 3.1.2, and 3.1.3, Figure 2.3.1-1 (former Figure 1), and column headers in Table 1.3-1 (former Tables 1 and I-1), Table 1.3-2 (former Tables 2 and I-2), Table 1.5-1 (former Tables 3 and I-3), Table 1.5-2 (former Tables 4 and I-4), Table 1.5-3 (former Tables 5 and I-5), Table 1.5-4 (former Tables 6 and I-6), and Table 3.2-1 (former Tables 9 and I-9) to align flange raised face dimension with ASME B16.5.

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FACE-TO-FACE AND END-TO-END DIMENSIONS OF VALVES

1 SCOPE

1.1 General

1.1.1 Application. This Standard covers face-to-face and end-to-end dimensions of straightway valves, and center-to-face and center-to-end dimensions of angle valves. Its purpose is to ensure installation interchangeability for valves of a given material, type, size, rating class, and end connection. Face-to-face and center-to-face dimensions apply to flanged end valves with facings defined in para. 2.3.1 and to other valves intended for assembly between flat face or raised face flanges. End-to-end dimensions apply to grooved end, buttwelding end, and flanged end valves with facings defined in para. 2.3.3. Center-to-end dimensions apply to buttwelding end and to flanged end valves with facings defined in para. 2.3.3.

1.1.2 Data Source Reference. Throughout this Standard, data references are cited, e.g., "extracted from" and "compatible with." These data are relevant to the reference standard in place at the date shown in the Foreword for American National Standards Institute approval of this Standard.

1.2 Standard Units

This Standard states values in both SI (Metric) and U.S. Customary units. These systems of units are to be regarded separately as standard. In this Standard, 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. Combining values from the two systems constitutes nonconformance with this Standard.

1.3 Cast Iron Valves

Only flanged end valves (and others intended for assembly between flanges) are covered by this Standard. Mating dimensions and facings of flanged ends conform to those in ASME B16.1. Dimensional tables for various types and sizes of valves are specified in paras. 1.3.1 through 1.3.4.

1.3.1 Gate, Plug, and Check Valves

(a) Class 125 — Table 1.3-1
(b) Class 250 — Table 1.3-2

1.3.2 Globe and Angle Valves

(a) Class 125 — Table 1.3-1
(b) Class 250 — Table 1.3-2

1.3.3 Wafer Swing Check Valves

(a) Class 125 — Table 1.3-3
(b) Class 250 — Table 1.3-3

1.3.4 Butterfly Valves

(a) Class 25 — Table 1.3-4
(b) Class 125 — Table 1.3-4

1.4 Ductile Iron Valves

Only flanged end valves (and others intended for assembly between flanges) are covered. Mating dimensions and facings of flanged ends conform to those in ASME B16.42. Valves are rated Class 150 and Class 300. The following cast iron and steel dimensional tables are also used for ductile valves:

(a) Class 150 — Table 1.3-1
(b) Class 300 — Table 1.3-2

1.5 Steel and Alloy Valves

This category includes carbon, alloy, stainless steels, and the nonferrous materials listed in ASME B16.34. It includes flanged, buttwelding, and grooved ends, as well as the types of valves intended for assembly between flanges. Mating dimensions and facings of flanged ends conform to those in ASME B16.5, ASME B16.47, Series A, or MSS SP-44. [For flanged end butterfly valves, refer to Note (2) of Table 1.3-4 for flange information.] For flangeless or wafer valves intended for assembly between flanges, refer to Tables 1.3-3 and 1.3-4 for flange information. Only buttwelding end valves in rating Classes 150 through 2500 are included in this Standard. Dimensional tables for various types and sizes of valves are specified in paras. 1.5.1 through 1.5.5.

1.5.1 Gate, Globe, Angle, Check, Plug, and Ball Valves

(a) Class 150 — Table 1.3-1
(b) Class 300 — Table 1.3-2
(c) Class 600 — Table 1.5-1
(d) Class 900 — Table 1.5-2
(e) Class 1500 — Table 1.5-3
(f) Class 2500 — Table 1.5-4

1.5.2 Y-Pattern Globe and Y-Pattern Swing Check Valves Class 150 — Table 1.3-1

1.5.3 Wafer Knife Gate Valves

(a) Class 150 — Table 1.3-3
(b) Class 300 — Table 1.3-3

1.5.4 Wafer Swing Check Valves Class 150 to 2500 — Table 1.3-3

1.5.5 Butterfly Valves

(a) Class 150 — Table 1.3-4
(b) Class 300 — Table 1.3-4
(c) Class 600 — Table 1.3-4

1.6 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 A29. 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 DEFINITIONS

2.1 Valve Size Designation

2.1.1 Nominal Diameter (DN). The size of a valve is designated by the nominal size of its end connections. This is denoted by DN, a dimensionless number indirectly related to the physical size of the connecting pipe [see Tables 1.3-1 through 3.3-1]. The valve size is not necessarily the same as the inside diameter or port diameter.

2.1.2 Valve Size Designation. NPS, followed by a dimensionless number, is the designation for nominal valve size. NPS is related to the reference *nominal diameters*, DN, used in international standards. The relationship is, typically, as follows:

DN	NPS
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1 1/4
40	1 1/2
50	2
65	2 1/2
80	3
100	4

GENERAL NOTE: For NPS ≥ 4, the related DN = 25 multiplied by the NPS number.

2.1.3 Reduced Port Valves

(a) Reduced port, gate, and ball valves conforming to API 6D are designated for size by two numbers, the first being the NPS on the valve ends and the second being the NPS of the port (seats, moving parts, etc.); e.g., NPS 6 × 4 designates a valve of end size NPS 6 with a port to match NPS 4. These valves shall have face-to-face or end-to-end dimensions corresponding to valves having the same size end connections; i.e., a NPS 6 × 4 valve shall have the face-to-face or end-to-end dimensions of a NPS 6 valve.

(b) Reduced port, pressure seal bonnet, gate, globe, and check valves are designated for size by three numbers, the first and last being the NPS of the valve ends, the second being the NPS of the port; e.g., NPS 6 × 4 × 6 designates a valve having ends matching NPS 6 with a port to match NPS 4. Likewise, NPS 6 × 4 × 4 would designate a valve having one end matching NPS 6, the other matching NPS 4, and the port matching NPS 4. These valves shall have face-to-face or end-to-end dimensions corresponding to valves having the same port size; i.e., either a NPS 6 × 4 × 6 or a NPS 6 × 4 × 4 valve shall have the face-to-face or end-to-end dimensions of a NPS 4 valve.

2.2 Pressure Rating Designations

Class, followed by a dimensionless number, is the standardized designation for pressure temperature-ratings used for valves. The numerical designations in use are as follows:

(a) for cast iron: 25, 125, 250
(b) for ductile iron: 150, 300
(c) for steel:[1] 150, 300, 600, 900, 1500, 2500

2.3 Flanged Valve Dimensions

2.3.1 Face-to-Face. The face-to-face dimension for flanged valves is the distance between the extreme ends that the gasket contact surfaces (see Figure 2.3.1-1). Face-to-face applies to flanged valves having the following nominal flange facing identifiers: (22)

(a) flat
(b) 1.5 mm (0.06 in.) raised
(c) 6.4 mm (0.25 in.) raised
(d) large or small male[2]
(e) large or small tongue[2]

2.3.2 Installed Face-to-Face. The installed face-to-face dimension of certain butterfly valves [see Table 1.3-4, Note (6)] may include allowances for gasket or resilient-facing compression. Refer to MSS SP-67 for definitive illustrations.

2.3.3 End-to-End. For those flanged valves where the gasket contact surfaces are not located at the extreme ends of the valve, the distance between the extreme ends is

[1] Includes all ferrous and nonferrous materials in ASME B16.34.
[2] Face-to-face dimensions in Tables 1.3-1 through 1.5-4 must be adjusted as indicated in Table 3.2-1.