



Standard Specification for Envelope Dimensions for Butterfly Valves—NPS 2 to 24¹

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1. Scope

1.1 This specification provides standard dimensions for manual (lever and gear actuator) butterfly valves installed in shipboard piping systems in NPS 2 to NPS 24, inclusive.

1.2 This specification covers conventional and ANSI B16.34 class butterfly valves of both lug and wafer types.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 *ANSI Standard*:²

B 16.34 Small Butt Welding End Valves

¹ This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.11 on Machinery and Piping Systems.

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² Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

3. Dimensions

3.1 *Face-to-Face Dimensions*:

3.1.1 Valve body face-to-face dimensions are provided in **Table 1**.

3.1.2 The face-to-face dimensions are the metal-to-metal dimensions between the valve body flange faces that require separate gaskets or the compressed or installed condition for valves using liners that extend from the body contact faces and act as flange gaskets.

3.2 *Actuator Dimensions*:

3.2.1 The maximum permissible dimensions for lever- and gear-type actuators are provided in **Fig. 1**.

3.2.2 The handwheel and handle may be on either side of the valve.

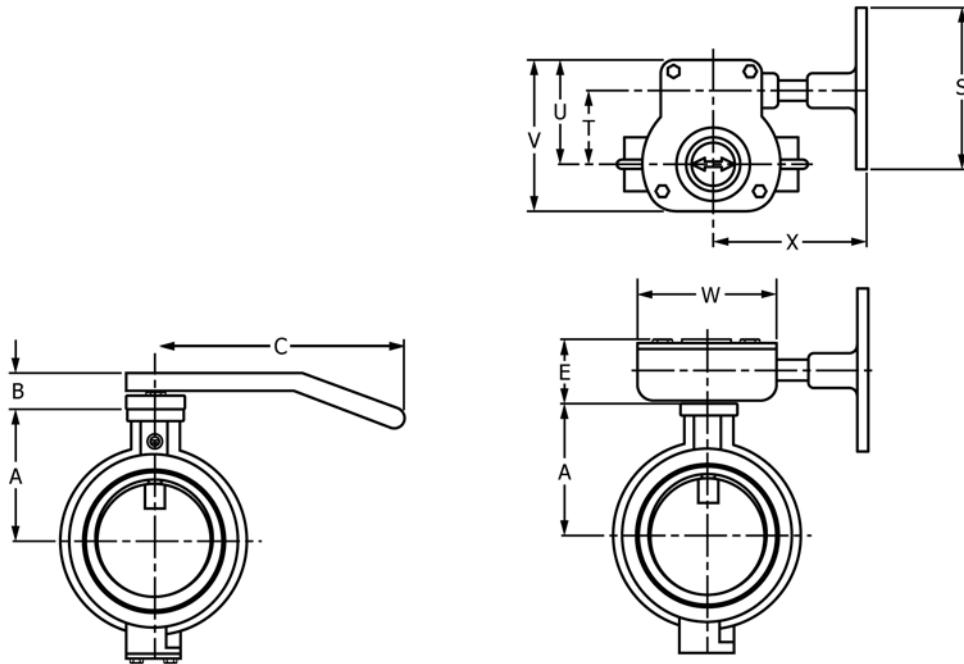
3.2.3 All handwheels and handles rotate clockwise to close the valve.

4. Tolerances

4.1 *Face-to-Face Dimensions*—A plus or minus tolerance of $\frac{1}{16}$ in. (1.6 mm) for all sizes shall be allowed (see **Table 1**).

5. Keywords

5.1 envelope dimensions; gear actuator butterfly valves; lever butterfly valves; manual butterfly valves




NOTE 1—1 in. = 25.4 mm

Dimensions, in.	Valve Size—NPS													
	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
A	8.00	9.00	10.00	10.00	11.00	11.00	12.00	14.00	17.00	19.00	21.00	23.00	25.00	27.00
B	3.00	3.00	3.50	3.50	3.50	4.00	4.00	4.00	4.00					
C	15.00	15.00	15.00	15.00	15.00	15.00	24.00	24.00	24.00					
E	4.00	4.00	5.50	5.50	5.50	5.50	5.50	6.00	6.00	8.00	8.00	9.00	9.00	10.00
S	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	24.00	24.00	24.00	24.00	24.00
T	2.50	2.50	2.50	2.50	2.50	3.50	3.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
U	4.00	4.00	4.00	4.00	4.00	4.00	4.00	5.00	5.00	8.00	8.00	8.00	8.00	9.50
V	6.50	6.50	6.50	6.50	6.50	6.50	6.50	8.50	8.50	10.50	10.50	11.50	12.00	13.50
W	5.00	5.00	5.00	5.00	5.00	5.00	6.00	7.00	7.50	9.00	9.00	11.00	11.00	11.50
X	9.50	9.50	9.50	9.50	9.50	9.50	9.50	10.50	13.00	13.00	14.50	14.50	20.00	20.00

FIG. 1 Actuator Envelope Dimensions

TABLE 1 Face-to-Face Dimensions

Valve Size, NPS	Conventional, 200 psig, in. (mm)	ANSI B16.34, 150 Class, in. (mm)
2	1 ⁵ / ₈ (41)	1 ³ / ₄ (44)
2 ¹ / ₂	1 ³ / ₄ (44)	1 ⁷ / ₈ (48)
3	1 ³ / ₄ (44)	1 ⁷ / ₈ (48)
3 ¹ / ₂	1 ¹⁵ / ₁₆ (49)	2 (51)
4	2 (51)	2 ¹ / ₈ (54)
5	2 ¹ / ₁₆ (52)	2 ¹ / ₄ (57)
6	2 ¹ / ₈ (54)	2 ¹ / ₄ (57)
8	2 ⁷ / ₁₆ (62)	2 ¹ / ₂ (64)
10	2 ⁹ / ₁₆ (65)	2 ¹³ / ₁₆ (71)
12	3 (76)	3 ³ / ₁₆ (81)
14	3 ¹ / ₁₆ (93)	3 ⁵ / ₈ (92)
16	4 ¹ / ₁₆ (103)	4 (102)
18	4 ⁹ / ₁₆ (116)	4 ¹ / ₂ (114)
20	5 ¹ / ₁₆ (128)	5 (127)
24	5 ⁷ / ₈ (149)	6 ¹ / ₁₆ (154)

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