

# Butterfly Valves

**Standard Practice**  
**Developed and Approved by the**  
**Manufacturers Standardization Society of the**  
**Valve and Fittings Industry, Inc.**  
**127 Park Street, NE**  
**Vienna, Virginia 22180**  
**Phone: (703) 281-6613**  
**Fax: (703) 281-6671**  
**e-mail: [info@mss.hq.com](mailto:info@mss.hq.com)**



**[www.mss-hq.com](http://www.mss-hq.com)**

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Unless otherwise specifically noted in this MSS SP, any standard referred to herein is identified by the date of issue that was applicable to the referenced standard(s) at the date of issue of this MSS SP. (See Annex B).

U. S. customary units in this SP are the standard; the metric units are only for reference only.

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## 1. SCOPE

1.1 This Standard Practice covers dimensions, design, testing, and marking requirements for butterfly valves. Further reference should be made to the MSS SP-68.

1.2 This Standard Practice covers two types of butterfly valves:

Type I - Valves for tight shut-off  
(tested per subsection 10.2.1).

Type II - Valves permitting seat leakage  
(see subsection 10.2.2).

1.3 This Standard Practice covers flangeless (wafer-type), single flange (lug-type), and flanged end valves in sizes 1 1/2 NPS thru 72 NPS, grooved end valves, and shouldered end valves with pressure ratings in accordance with the requirements of Sections 3 and 4.

## 2. DEFINITIONS

2.1 **Face-to-Face of Valve before Installation.** This is the dimension of the valve face-to-face before it is installed in the pipe line. It does not include the thickness of gaskets if separate gaskets are used. It does include the thickness of gaskets or seals that are an integral part of the valve and this dimension is before these gaskets or seals are compressed.

2.2 **Face-to-Face of Valve Installed.** This is the dimension of the valve face-to-face after it is installed in the pipe line. It does not include the thickness of gaskets if separate gaskets are used. It does include the thickness of gaskets or seals that are an integral part of the valve, however this dimension is established with the gaskets or seals compressed. See Fig. 1A, 1B, 1C and Table 3.

2.3 **Face-to-Face of Valve and Gaskets Installed.** This is the dimension of the valve face-to-face including separate gaskets when installed in the pipe line. This dimension must be established using the thickness of the valve face-to-face dimension and the compressed thickness of the gaskets to be used in such installations.

2.4 **CWP - Cold Working Pressure (PSIG).** The pressure rating for the pressure containing components of the valve at temperatures up to and including 100°F.

2.5 **System Pressure.** Maximum specified operating pressure for the application.

2.6 **Differential Pressure.** The difference in pressure between two points located on opposite sides of the valve disc.

2.7 **Shut-Off Pressure.** The maximum differential pressure with the valve in the fully closed position.

## 3. STANDARD ENDS

3.1 **Flanged Ends.** Valves shall be compatible for use with flanges to ASME B16.1 Class 25 or 125, ASME B16.5 Class 150, ASME B16.47 Class 150 Series A, ASME B16.24 Class 150, ASME B16.42 Class 150 or ANSI/AWWA C207. Figure 2 illustrates bolting options.

3.2 **Single Flange (Lug Type).** Valves shall be compatible for use with flanges to ASME B16.1 Class 25 or 125, ASME B16.5 Class 150, ASME B16.24 Class 150, ASME B16.42 Class 150, or ANSI/AWWA C207. Figure 3 illustrates bolting options.

3.3 **Flangeless (Wafer Type).** Valves shall be compatible for use with flanges to ASME B16.1 Class 25 or 125, ASME B16.5 Class 150, ASME B16.24 Class 150, ASME B16.42 Class 150, or ANSI/AWWA C207. Figure 4 illustrates bolting options.

3.4 **Grooved Ends.** Valve ends shall conform to ANSI/AWWA C606.

3.5 **Shouldered Ends.** Valve ends shall conform to ANSI/AWWA C606.

## 4. DESIGN REQUIREMENTS

4.1 **Wall Thickness.** The design requirements of this section apply only to the valve body. The disc and shaft are specifically excluded.