

MSS SP-81-2001

**Stainless Steel, Bonnetless,
Flanged Knife Gate Valves**

**COMPLIMENTARY
COPY**

Standard Practice
Developed and Approved by the
Manufacturers Standardization Society of the
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STAINLESS STEEL, BONNETLESS, FLANGED KNIFE GATE VALVES

1. SCOPE AND FIELD OF APPLICATION

This standard covers all stainless steel or stainless steel lined, cast or fabricated bonnetless, flanged knife gate valves in sizes NPS 2 (DN 50) through NPS 36 (DN 900). The valves in this standard are intended for use in applications where shock loadings are not encountered. Applications at conditions other than those specified in Section 3 require special design considerations.

2. STANDARD UNITS

The values stated in either U.S. customary units or metric units are to be regarded separately as the standard. Within the text, the metric units are shown in parenthesis. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with this standard.

3. PRESSURE RATING

This standard covers valves with a gage pressure rating not exceeding the values in the following table at temperatures between 32°F and 150°F (0°C and 66°C).

U.S. Customary		Metric	
N P S	psi	DN	bar
2 - 24	150	50 - 600	10.3
30, 36	100	750, 900	6.9

4. SIZE

The valve size in Tables 1 and 1A is the nominal size of the end connection.

5. MARKING

Valves shall be marked in accordance with MSS SP-25 including the following requirements and modifications.

a) Manufacturer's name or trademark/logo.

b) The body material of construction or code.
When more than one material or grade of material is used, each shall be identified. The material in contact with the fluid media shall be listed and identified as "lining" on the name plate. It is not required to repeat the material designation on fabricated bodies.

c) Since these valves are normally manufactured for closure in one direction only, the valve shall be marked showing the "seat side" (downstream side) of the valve in such a manner that the markings can be seen with the valve installed in the pipeline. The user shall be responsible for correct directional installation.

d) A tag is to be attached to the valves for installation purposes indicating:

- 1) Care to be taken in valve installation with respect to direction of closure.
- 2) Care to be taken when installing studs or bolts in the tapped holes of the flange in the area of the chest to prevent chest damage. The chest is the body area between the packing chamber and the flanges.
- 3) Packing nuts may require adjustment to obtain a tight seal.

e) The stem material need not be listed.

6. MATERIALS

Materials used for major components of these valves are listed in Table 2. Equivalent stainless steel grades are listed in Table 3.

7. DESIGN

7.1 Valves preferably shall be all stainless steel. However, a combination of stainless steel and either carbon steel or cast iron is acceptable. All interior wetted surfaces, including raised faces, shall be stainless steel. Dimensions shall be in accordance with Table 1.

7.2 The design of all valves shall prevent permanent distortion of the body or seats when tested as specified in Section 10. Some permanent distortion of stainless steel parts is acceptable during the shell test of Par. 10.1 provided it can be demonstrated that there will be no further deformation upon subsequent pressure loadings.

7.3 When through bolting is specified, valves shall have flange holes per ASME B16.5 for Class 150 (PN 20) except holes that contact the chest shall be tapped in accordance with Table 1.