



SECTION 40_XX_XX
Knife Gate Valves

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Urethane Lined Knife Gate Valves for Abrasive and/or Corrosive service in dry, liquid, and slurry applications.

B. Related Sections:

1. (application specific requirements provided by the engineer)

1.02 REFERENCES

- A. ASME B16.1 and ASME B16.5 Pipe Flanges and Flanged Fittings
- B. ASME B16.20 Metallic Gaskets for Pipe Flanges
- C. MSS SP-81 Stainless Steel Knife Gate Valves with Flanged Ends
- D. ANSI/AWWA C606 Grooved and Shouldered Joints

1.03 SUBMITTALS

- A. (application specific requirements provided by the engineer)

1.04 WARRANTY

- A. Valves shall be warranted by the manufacturer for defects in materials and workmanship for a period of two years (24 months) from date of shipment.

PART 2 PRODUCTS

2.01 GENERAL

- A. (application specific requirements provided by the engineer)

2.02 Knife Gate Valves Abrasive and/or Corrosive service in dry, liquid, and slurry applications.

- A. Manufacturers: DeZURIK Model KUL Urethane Lined or pre-approved equal.

B. Design:

1. Knife Gate Valve shall be bonnetless, Urethane Lined, Bi-Directional Cast Knife Gate
2. General:
 - a. Body: One-piece cast ductile iron. Flanged valves shall conform to ASME B36.1, 125 lbs. Valve body shall be rated at ____ (150 psi; 1030 kPa) or (250psi/1720 kPa) maximum cold working pressure. Cold Working Pressure valve rating shall meet or exceed MSS SP-81 on valve 2-24" (50-500mm).
 - a. Flanged. Valve inside diameter shall be 100% of adjacent pipe area equal to ANSI B36.10 STD pipe inside diameter.
 - b. Grooved. Valve inside diameter shall conform to MSS SP-81.
 - b. Urethane Liner: Shall be cast, bonded, and seamless, rated for temperatures between -20° F up to 265° F (-29° C to 130° C) as dictated by urethane selection. Urethane shall be ____ (standard urethane black) (specify). All wetted surfaces of the body shall be urethane lined including entire port, chest cavity, and packing box.
 - c. Flanged valves shall include urethane raised or flat face on each side of the valve

requiring no gaskets. Gaskets are required when mating to Fiberglass Reinforced Flanges.

- d. Gate: The gate shall be ____ (304) (316) (254 SMO) (17-4 Heat Treated) (410 Heat Treated) (2205 Duplex) stainless steel (2507 Super Duplex) stainless steel or (Hastelloy C) for 150 psi maximum Cold Working Pressure or (17-4 Heat Treated) (410 Heat Treated) or (2205 Duplex) Stainless Steel for 250 psi maximum Cold Working Pressure. Gate edge shall be radiused and machined to reduce friction and extend life of valve packing and have a 45-degree beveled knife edge. Gate faces to be finished ground to 63 μ m Ra.
- e. Packing System: Low Maintenance Packing System shall fit a machined rounded packing chamber. The packing system shall consist of multiple layers of packing. The selected packing shall be for ____ (wet) (dry) (high temperature) (food grade) service. Packing gland material shall be 316 stainless steel or (specify). The fasteners shall be stainless steel or (specify).
- f. Design Maximum Working Pressure: 150 psi (1030 kPa) or 250 psi (1720 kPa)
- g. Maximum Fluid Temperature: (Dictated by application requirements and limited to urethane selection)
- h. Face-to-Face dimensions:
 - a. Standard Flange Valve shall meet MSS SP81 for knife gate valves on 2-24" (50-600mm).
 - b. Grooved End Valves shall meet ANSI/AWWA C606-15 ____ (Style 77 Table 4), (Style 31 Table 2), (Style 31 Table 3).
 - c. Extended Flange Valve shall meet industry accepted standard for "long-pattern", slurry push-through design valve with backing rings sizes 2-48". Option length without backing rings available in sizes 2-8".
- i. Flange Drilling shall be in accordance with ____ (ASME 16.5 class 150, 2-24" (50-600 mm) (ASME 16.47 Series A Class 150, 26-48"/650-1200mm) (JIS 10) (DIN 10) (Din 16) (ISO 7005-1/PN10) (ISO 7005-2/PN16) (BS 4504/PN10) (BS 4504/PN16) (AS2129 Table D) (AS2129 Table E) (SANS 1123-1000) or (SANS 1123-1600). Grooved end valves shall conform to ANSI/AWWA C606 standard
- j. Raised faces shall be full width per ASME 16.20 Face-to-Face dimension and MSS SP-81 for knife gate valves.
- k. Actuation Manually actuated valves 2-16" (50-400mm) shall have _____ (chainwheel) (handwheel) (bevel gear) actuators. The manual operated (handwheel) (chainwheel) actuator yoke shall be one-piece _____ (cast carbon steel) (304 cast stainless steel) or (specify). The bevel gear yoke shall be a two-piece _____ (cast carbon steel) (304 cast stainless steel) or (specify). The yoke sleeve shall be aluminum bronze. The stem shall be type 304 stainless steel. A standard locking device shall be available upon request. The lockout shall be rated to withstand the maximum output of the actuator.
- l. Power actuated valves shall be furnished with _____ (cylinder) (electric motor) actuators. Cylinder actuators shall be sized to operate with _____ psi (kPa) cylinder pressure at a maximum shutoff pressure of _____ psi (kPa). The powered actuator yoke shall be a two-piece design of _____ (cast carbon steel) (304 cast stainless steel) or (specify). An adjustable standard locking device shall be available upon request. The lockout shall be rated to withstand the maximum output of the actuator.
- m. Cylinder controls shall include _____ (solenoid valve) (speed control valves) (pneumatic, electro/pneumatic or digital positioners) (switches) mounted on the valve.

C. Materials:

1. Body: Cast Ductile Iron, ASTM A395 65-45-15
2. Gate: ((304, 316, 254 SMO, 2205 Duplex, 2507 Super Duplex, 410) stainless steel, ASTM 240)), (17-4 stainless steel, ASTM A564), (Hastelloy C, ASTM B574/B575),
3. Urethane Liners available in seven formulations consisting of polyether, polyester, and polybutadiene.
4. Bolting/hardware: Stainless steel

D. Testing:

1. Valves to be tested in accordance with MSS SP-151 specification. The valves shall be seat tested and drip tight to full rated pressure in either direction. The bodies shall be shell tested to 1.5 times the rated pressure.
2. Certified test reports shall be available upon request.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install valves as specified in section (application specific requirements provided by the engineer) and the manufacturer's instructions.

3.02 COMMISSIONING

- A. Field testing (application specific requirements provided by engineer)