

PRATT®

Custom Fabricated and Cast Knife Gate Valves



**Engineering Creative Solutions
for Fluid Systems Since 1901**

Pratt® Knife Gate Valve Custom Fabrication



Henry Pratt Company designs and manufactures virtually any configuration of fabricated knife gate valve or slide gate valve you require. Our factory, located in Woodland, Washington, USA, is staffed with some of the most knowledgeable and skilled craftsman in the knife gate valve industry. Our engineering and manufacturing staff work hand in hand to assure the highest possible quality without sacrificing a competitive price or reasonable ship date. Henry Pratt Company has experienced fabricators who are certified to weld materials and alloys including:

- 300 Series Stainless Steel
- Alloy 20
- 254 SMO
- Hastelloy
- Titanium
- Monel
- Inconel
- and more

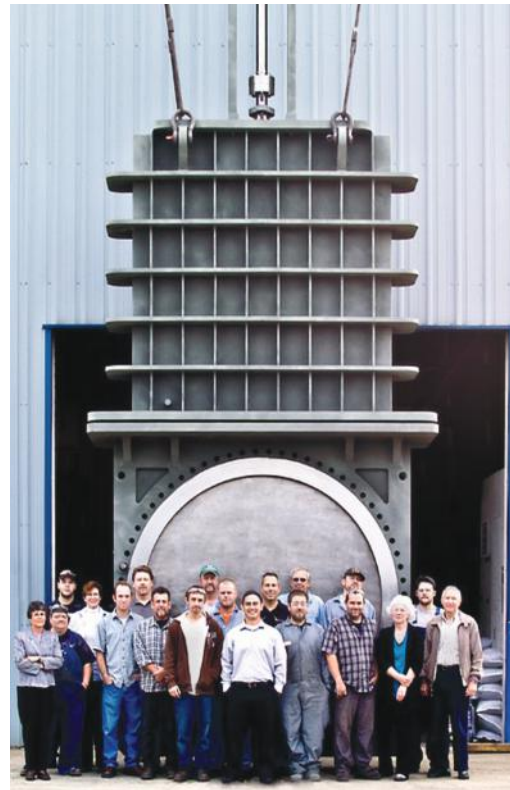
Domestic Steel Requirements

Our sales and engineering staff are familiar with legislation and provisions pertaining to the use of domestic materials in manufactured products. At the time you request a quote, please notify us if the product will be required to meet a provision of one of these acts.

1. American Iron and Steel. The EPA funding provisions for water and waste water infrastructure projects include a restriction against using the funds to purchase certain iron or steel products that are produced outside the US. Clear Water and Drinking Water State Revolving Loan Funds recipients are required to “use iron and steel products that are produced in the US on projects for the construction, alteration, maintenance, or repair of a public water system or treatment works.” Valves made of iron and steel are specifically mentioned.

2. The “Buy America” provisions of the 2009 American Recovery and Reinvestment Act state, “none of the funds appropriated or otherwise made available by this Act may be used for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the US.

3. The 1978 PA Steel Products Procurement Act, amended in 2012 state, “if any steel products are to be used or supplied in the performance of the contract, only steel products defined as American made in the Act are to be used”.



96" Figure 193 bonneted knife gate valve, 65 PSI CWP, one integral seat with EPDM seal and one replaceable seat ring with EPDM seal to provide tight shut off in reverse flow. Full pressure rated bonnet and Rotork electric motor. Three were built for use in a water treatment plant.



24" Figure 82 slide gate valve, constructed of all Titanium for a paper mill in the New England area.

Custom Design & Manufacture

The range of fabricated valves we design and build is extensive, as are the industries we serve throughout the world. From titanium to stainless steel materials, bonneted to bonnetless, metal to resilient seated, circular to rectangular shape valves, 2"-96" plus, no job is too difficult. Our team of experienced engineers custom designs exclusive knife gates to solve your unique challenges. Our skilled welders and machinists craft quality, rugged knife gate valves that you can rely on.

Pratt® robust knife gates are more substantial; we do not cut back on material thickness to save costs. Each valve is tested to 150% of its design pressure so you can be confident the valve will work. Your custom specification results in our custom engineering. The end product is a custom fabricated knife gate valve that you can depend on for many years of quality service.



Left: 48" Figure 76 square bottom metal seated knife gate valve.
Right: 42" Figure 76 round bottom metal seated knife gate valve.



66" Figure 193 bonneted knife gate valve.



Underneath these flush ports is a fabricated 30" Figure 163 resilient seated knife gate valve. This unique valve is used on a dredge.



Figure 193 bonneted metal seat-ed knife gate valve with 60"x72" inlet and outlet, working in a Colorado dam.

Industries & Applications

Pulp & Paper

High density stock cleaner, Cyclone trash recovery; Refiner manifold isolation and transfer lines; Green & Black liquor transfer lines; Lime mud to washer; Chlorinated stock transfer; White liquor tank discharge; Brown stock pump isolation; Pulp stock to re-pulpers; Ground wood slurry pump isolation; Mill water pump isolation; Flyash pump isolation; Bleached stock high density isolation; Wood yard river water pump isolation; Paper machine stock feed; Primary paper stock grit pot service; Dry lime pneumatic conveyor; Recovery gas vent isolation; Blow down tank isolation.

Wastewater Treatment

Lift stations; Pump isolation; Oily sludge slurry pump isolation dry sludge pneumatic conveying, Chlorine contact discharge, Sludge lines, River water intake, Pump discharge; Pond diversion; Pump stations; Ocean/River outfalls; Hot tapping; Pond isolation; Irrigation; Force main diversion and Force main isolation; Wet well isolation; Dewatered sludge transfer; Sludge hoppers; Grit removal chambers; Effluent; Filtration process; Chemical batching tanks; Lagoon transfer; Dewatering systems; Scum basins; Activated sludge; Influent.

Power Generation

Scrubber area pump isolation; River water de-sanding circuit; Limestone slurry pump isolation; Limestone grinding circuit isolation; Lime and limestone injection flow control; pH balance flow control; Fly ash slurry pump isolation; Bottom ash de-watering circuit; Sluice line; Coal slurry pump isolation; Boiler wash down circuit.

Mining

Tailing distribution; Hydro-cyclone and pump isolation; Thickener overflow shut off and Thickener underflow control; Storage tank dump; Flotation feed shut off; Flotation column level control; Filter tank dump; Leach circuits.

Food Processing

Pork and Poultry processing; Mill waste water pump suction and discharge lines; Molasses centrifugal pump isolation and pan cover; Soy bean oil transfer line.

Chemicals & Fertilizers

Gypsum pond fill; Soda ash slurry pump isolation and tank control; Phosphoric acid attack tank, Fine feed and transfer lines; Phosphate ore charge pump; Hydrosizer underflow; Column head feed; Tailings, Hot pit cooling water.

Cement

Cement slurry pump suction and discharge lines, and tank recirculation; Cement slurry routing; Dry cement pneumatic conveying; Bin control.

Coal

Coal slurry heavy medium circuit isolation; Coal slurry transfer line; Tank farm.

Sand

Sand slurry pump isolation; Silica sand cyclone and pump isolation.

Beverages

Wine crush tank outlet; Brewery effluent discharge; Bottle washing machine outlet; Musk lines.

Industrial

Process water transfer line, pump and cyclone isolation; Metals reclaiming; Slag ash isolation.

Figure 53 Ductile Iron Resilient Seated Knife Gate Valve

Features

- Heavy duty cast ductile iron body, packing gland, and yoke for the most rugged service.
- Through bolting on side flange bolts allows easy installation.
- Easily replaceable natural rubber seat provides bi-directional drip tight seal across the gate from 0 to 150 PSI. Also available in EPDM and Buna. See reverse side for temperature limits.
- Seat is flush with the bottom of the port eliminating pockets in the bottom of the valve that may collect material in media such as slurries, pellets or powders.
- Rubber seat has a molded-in steel reinforcement and is bolted in place to prevent shifting out of position by gate movement.
- Machined stainless steel gate provides corrosion resistance and durability.
- Easy conversion from handwheel operator to hydraulic or pneumatic cylinder, bevel gear, chain wheel, electric motor, or fail safe spring cylinder operator using existing cast yoke.
- Enclosed bronze stem nut provides reduced operating torque and is protected from harsh environments.
- Stainless steel stem resists corrosion.
- Full packing seal around gate minimizes the potential for packing leakage.
- MSS SP-81 and AWWA C520 face-to-face and flange dimensions.
- Minimum 4 bolt packing gland to ensure proper gland alignment in all valve sizes.
- Entire valve (inside and outside) is epoxy powder coated to provide corrosion resistance.
- CRN Registered



Figure 63 High Performance Polymer Lined Knife Gate Valve

Features

- Heavy duty fabricated carbon or stainless steel body, yoke, and packing gland.
- UHMW, PTFE, or Polypropylene liner and seat provide bi-directional tight shut off. Contact Factory for service limits.
- Three-piece field replaceable liner/seat.
- Standard pressure ratings of 150 or 300 PSI CWP. Higher pressure ratings and custom designs available.
- ANSI B16.5 Class 150 lb or 300 lb flange bolting.
- MSS SP-81 face-to-face and flange dimensions for 150 PSI only.
- Stainless steel gate and stem for corrosion resistance and durability. Special Alloys, coatings and surface hardening available.
- Superior packing arrangement provides improved sealing performance in high cycle applications.
- Full port inside diameter in all sizes. Custom port sizes and designs available.
- Minimum 4 bolt packing gland design to assure proper gland alignment in all sizes.
- Standard TFE lubricated synthetic packing (TLSP).
- Available with manual handwheel, chainwheel, bevel gear, pneumatic or hydraulic cylinder, fail safe spring cylinder, or electric motor actuator.
- Enclosed bronze stem bushing provides reduced operating torque and protects the stem bushing in harsh environments.
- Recommended for applications requiring superior corrosion and/or erosion resistance, heavy slurry, and high cycle applications.
- MSS SP-81 Stainless Steel, Bonnetless, Flanged Knife Gate Valves.
- CRN Registered.



Figure 65 Urethane Lined Ductile Iron Body Knife Gate Valve

Features

- Heavy duty cast ductile iron body, packing gland and yoke for the most rugged service.
- Heavy duty solid lug body design.
- Urethane liner and seat provide bi-directional bubble tight seal across gate from 0 to 150 PSI.
- Seat is flush with the bottom of the port, eliminating pockets in the bottom of the valve to collect material in media such as slurries, pellets, or powders.
- Urethane liner is a one-piece, molded-in-place full body liner with integral seat for temperatures to 165°F.
- Stainless steel gate and stem provide corrosion resistance and durability.
- MSS SP-81 face-to-face and flange dimensions.
- Easy conversion from handwheel operator to hydraulic or pneumatic cylinder, bevel gear, chainwheel, electric motor, or fail safe spring cylinder operator using existing cast yoke.
- Enclosed bronze stem bushing provides reduced operating torque and protects the stem bushing in harsh environments.
- Superior packing arrangement provides improved sealing performance in high cycle applications.
- Full packing seal around gate minimizes the potential for packing leakage.
- Minimum 4 bolt packing gland to assure proper gland alignment in all sizes.
- Standard TFE lubricated synthetic packing (TLSP).
- Time proven urethane liner provides the best resistance in abrasive applications.
- Full port ID.
- MSS SP-81 Stainless Steel, Bonnetless, Flanged Knife Gate Valves.
- CRN Registered.



Figure 75 Urethane Lined Ductile Iron Body High Chrome Iron Inserts Knife Gate Valve

Features

- Robust urethane lined valve featuring one-piece, molded-in-place full body liner and integral 650 Brinell hardness high-chrome iron inserts.
- Designed for bottom ash and mining tailings, this heavy duty cast ductile iron body and yoke serve abrasive applications.
- Urethane liner and high-chrome iron inserts provide bi-directional bubble tight seal across gate from 0-150 PSI.
- Stainless steel gate and stem provide corrosion resistance and durability.
- MSS SP-81 face-to-face and flange dimensions.
- Easy conversion from handwheel operator to hydraulic or pneumatic cylinder, bevel gear, chainwheel, electric motor, or fail safe spring cylinder operator using existing cast yoke.
- Enclosed bronze stem bushing provides reduced operating torque and protects the stem bushing in harsh environments.
- Superior packing arrangement provides improved sealing performance in high cycle applications.
- Full packing seal around gate minimizes the potential for packing leakage.
- Minimum 4 bolt packing gland to assure proper gland alignment in all sizes.
- Standard TFE lubricated synthetic packing (TLSP) rated to 500° F and pH range of 3-11.
- Time proven urethane liner rated to 165°F provides the best resistance in abrasive applications.
- Full port ID.
- MSS SP-81 Stainless Steel, Bonnetless, Flanged Knife Gate Valves.
- CRN Registered, Alberta.



Figure 77 Stainless Steel Resilient Seated, Bi-Directional Knife Gate Valve

Features

- Cast stainless steel body, packing gland, and yoke.
- Rubber seat provides a BI-DIRECTIONAL drip tight seal across the gate from 0 to 150 PSI.
- Gate design withstands full 150 PSI rated pressure as required by MSS SP-81.
- Bi-directional Buna resilient seat standard. Also available in EPDM, Viton, Neoprene and other materials. See reverse side for temperature limits.
- Compact wafer configuration to TAPPI and MSS standard face-to-face.
- Heavy duty body design resists deflection from line loads and internal pressure.
- Rubber seat is flush with the bottom of the port ELIMINATING any pockets in the bottom of the valve that will collect media material.
- Smooth flow non-clogging full port design.
- Heavy duty cast stainless steel yoke will not bend or twist under extreme loads.
- Easy conversion from handwheel operator to hydraulic or pneumatic cylinder, bevel gear, chainwheel, electric motor, or fail safe spring cylinder operator using existing cast yoke.
- Bonnetless, outside screw and yoke, non-rising handwheel, and rising stem.
- Enclosed bronze stem bushing provides reduced operating torque and protection of the stem bushing in harsh environments.
- Stainless steel stem resists corrosion.
- Standard TFE lubricated synthetic packing (TLSP).
- Full port ID.
- MSS SP-81 Stainless Steel, Bonnetless, Flanged Knife Gate Valves.
- AWWA C520-10 Knife Gate Valves, 2in.—96in.

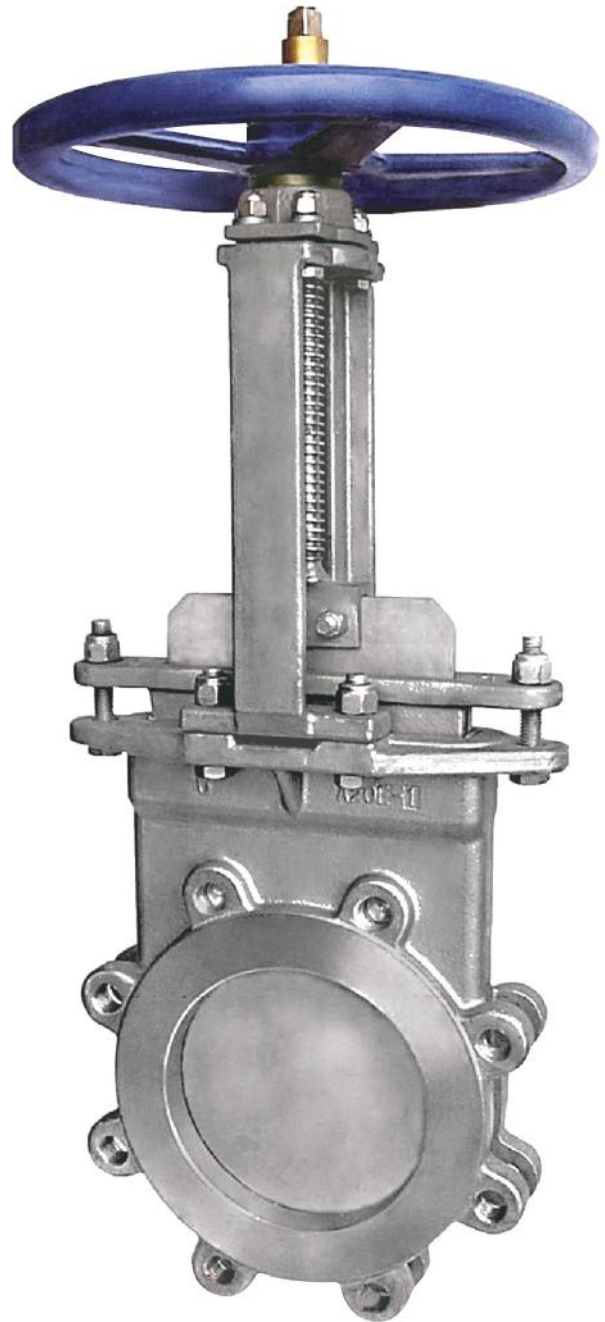


Figure L77

Ductile Iron Body Stainless Steel Lined Resilient Seated Knife Gate Valve

Features

- Heavy duty cast ductile iron body, packing gland, and yoke.
- Heavy duty solid lug body design resists deflection from line loads and internal pressure.
- Fabricated stainless steel liner. Available in any weldable alloy.
- Stainless steel gate.
- Gate design withstands full 150 PSI rated pressure as required by MSS SP-81.
- Resilient seat provides bi-directional, drip tight shut off.
- Bi-Directional Buna resilient seat standard. Also available in EPDM, Viton, Neoprene and other materials. See reverse side for temperature limits.
- Quick and easy resilient seat replacement.
- Heavy duty cast ductile iron yoke will not bend or twist under extreme loads.
- Easy conversion from handwheel operator to hydraulic or pneumatic cylinder, bevel gear, chainwheel, electric motor, or fail safe spring cylinder operator using existing cast yoke.
- Enclosed bronze stem bushing provides reduced operating torque and protection of the stem bushing in harsh environments.
- Precision machined stainless steel gate for superior seating capability.
- Stainless steel stem resists corrosion.
- Standard TFE lubricated synthetic packing (TLSP).
- Available in sizes 14", 16", 18", 20", and 24".
- MSS SP-81 Stainless Steel, Bonnetless, Flanged Knife Gate Valves.
- AWWA C520 Knife Gate Valves, 2in.— 96in.
- CRN Registered.

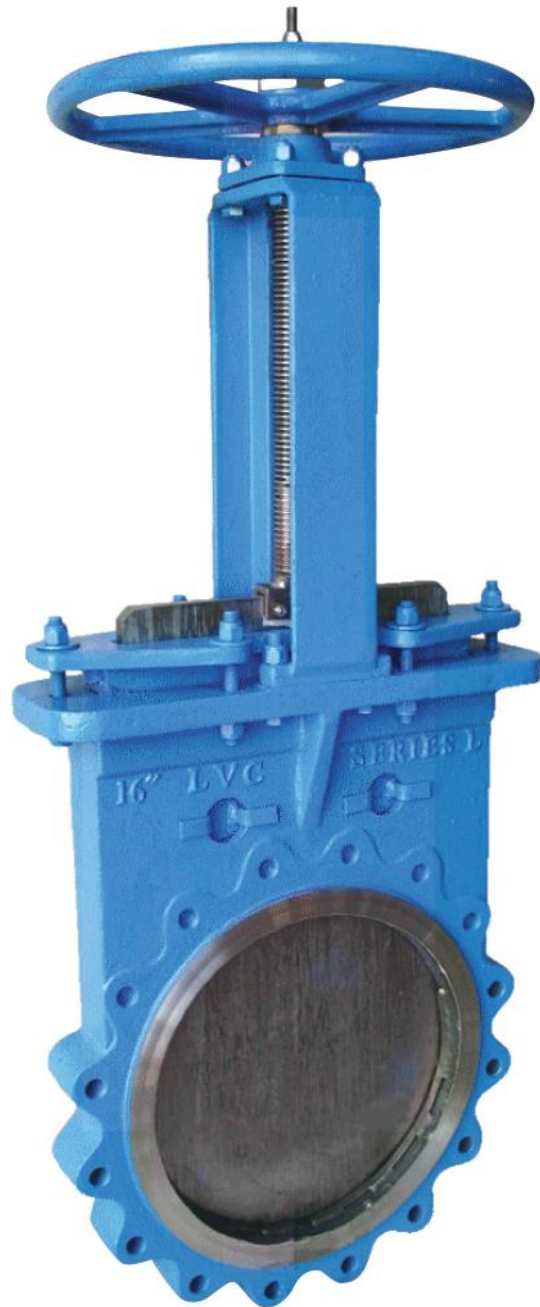


Figure F77 Fabricated Large Diameter Knife Gate Valve

Features

- Fabricated heavy duty carbon steel body, flanges, packing gland, and yoke.
- All stainless steel construction available.
- Fabricated stainless steel liner and raised face. Available in any weldable alloy.
- Precision machined stainless steel gate for superior seating capability. Available in other alloys.
- Bi-Directional Buna resilient seat standard. Also available in EPDM, Viton, Neoprene and other materials. See reverse side for temperature limits.
- Heavy duty designed body to resist deflection from line loads and internal pressure.
- Standard valves designed for 50 or 150 PSI CWP rating. Other pressure ratings also available.
- Heavy fabricated steel yoke will not bend or twist under extreme loads.
- Easy conversion from handwheel operator to hydraulic or pneumatic cylinder, bevel gear, chainwheel, electric motor, or fail safe spring operator.
- Enclosed bronze stem bushing provides reduced operating torque and protects the stem nut in harsh environments.
- Standard TFE lubricated synthetic packing (TLSP).
- Stainless steel stem provides corrosion resistance.
- Sizes include 30", 36", 42", 48", 54", 60", 72", 96" and larger.



Figure 93 Stainless Steel Metal Seated Knife Gate Valve

Features

- Cast stainless steel body, packing gland, and yoke.
- Heavy duty body designed to resist deflection from line loads and internal pressure.
- Body cavity, seat configuration and beveled gate design provides shut-off capability in thick media such as pulp stock and slurries, or solid media such as pellets and powders.
- Heavy duty cast stainless steel yoke will not bend or twist under extreme loads.
- Easy conversion from handwheel operator to hydraulic or pneumatic cylinder, bevel gear, chainwheel, electric motor, or fail safe spring cylinder operator using existing cast yoke.
- Enclosed bronze stem bushing provides reduced operating torque and protection of the stem bushing in harsh environments.
- Hard faced seat available to prevent galling in high cycle and/or high end pressure or abrasive applications.
- Factory installed V-Port inserts available for metering or throttling service.
- O-Ring resilient seat available.
- Precision machined stainless steel gate provides superior seating capability.
- Gate designed to withstand full 150 PSI rated pressure as required by MSS-SP-81.
- Stainless steel stem resists corrosion.
- Various wiper materials available in packing to provide gate support and stabilize packing seal.
- Standard TFE lubricated synthetic packing (TLSP) rated to 500° F and pH range of 3-11.
- Full port ID.
- MSS SP-81 Stainless Steel, Bonnetless, Flanged Knife Gate Valves.
- AWWA C520-10 Knife Gate Valves, 2in.—96in.

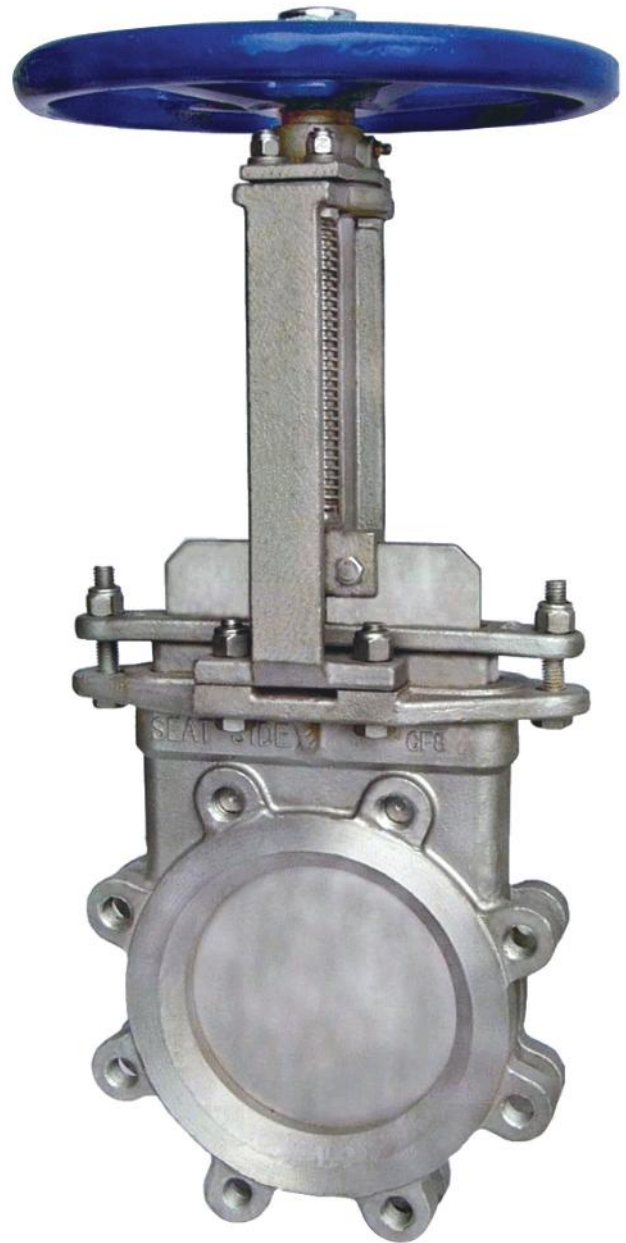


Figure F93 Fabricated Large Diameter Knife Gate Valve

Features

- Fabricated heavy duty carbon steel body, flanges, packing gland, and yoke.
- All stainless steel construction available.
- Fabricated stainless steel liner, seat and raised face. Available in any weldable alloy.
- Precision machined stainless steel gate for superior seating capability. Available in other alloys. Round or Square bottom gates available.
- Stainless steel metal to metal seat.
- O-Ring uni-directional resilient seat available.
- Heavy duty designed body to resist deflection from line loads and internal pressure.
- Standard valves designed for 50 or 150 PSI CWP rating. Custom pressure ratings also available.
- Seat configuration and beveled gate provides shut off capability in thick media such as pulp stock, slurries, and with solid media like pellets or powders.
- Heavy fabricated steel yoke will not bend or twist under extreme loads.
- Easy conversion from handwheel operator to hydraulic or pneumatic cylinder, bevel gear, chainwheel, electric motor, or fail safe spring operator.
- Enclosed bronze stem nut provides reduced operating torque and protects the stem bushing in harsh environments.
- Standard TFE lubricated synthetic packing (TLSP).
- Stainless steel stem provides corrosion resistance.
- Sizes include 30", 36", 42", 48", 54", 60", 66", 72", 84", 90", 96" and larger.
- Bonneted (Figure 193) versions are also available.
- Designed in accordance with MSS SP-81 Stainless Steel, Bonnetless, Flanged Knife Gate Valves and AWWA C520 Knife Gate Valves, 2" – 96".



Figure 193 Bonneted Metal Seated Knife Gate Valve

Features

- Bonneted knife gate valves are ideally suited to reduce fugitive emissions and packing leakage.
- Cast stainless steel body, gland and yoke.
- Wiper between body and bonnet prevents solids from entering bonnet.
- Bonnet design pressure same as valve pressure rating of 150 PSI.
- Standard TFE lubricated synthetic packing (TLSP) rated for 500° F and a pH range of 3-11.
- Heavy duty body design resists deflection from line loads and internal pressure.
- Gate design withstands full 150 PSI rated pressure as required by MSS SP-81.
- Body cavity, seat configuration, and beveled gate design provide shut off capability in thick media such as pulp stock and slurries, or solid media like pellets and powders.
- Heavy duty cast stainless steel yoke prevents bending or twisting under extreme loads.
- Easy conversion from handwheel operator to pneumatic or hydraulic cylinder, bevel gear, or electric motor operator using existing cast yoke.
- Enclosed bronze stem bushing reduces operating torque and protects the stem bushing in harsh environments.
- Hard faced seat available to prevent galling in high cycle and/or high end pressure or abrasive applications.
- V-Port or O-Ring resilient seats available to suit specific applications.
- Precision machined stainless steel gate provides superior seating capability.
- Stainless steel stem provides corrosion resistance.
- Flange drilling meets ANSI B16.5-150 LB standards with all tapped holes and serrated gasket faces.
- Full port ID.
- MSS SP-81 Stainless Steel, Bonnetless, Flanged Knife Gate Valves.
- AWWA C520-10 Knife Gate Valves, 2in.—96in.



Figure F193 Fabricated Bonneted Knife Gate Valve

Features

- Fabricated heavy duty bonneted knife gate valves are ideally suited to reduce fugitive emissions and packing leakage.
- All stainless steel construction available.
- Wiper between body and bonnet prevents solids from entering bonnet.
- Fabricated bonnet design pressure same as valve pressure rating.
- Standard TFE lubricated synthetic packing (TLSP) rated for 500° F and a pH range of 3-11.
- Heavy duty body design resists deflection from line loads and internal pressure.
- Gate design withstands full rated pressure.
- Body cavity, seat configuration, and beveled gate design provide shut off capability in thick media such as pulp stock and slurries, or solid media like pellets and powders.
- Heavy fabricated steel yoke prevents bending or twisting under extreme loads.
- Easy conversion from gear operator to pneumatic or hydraulic cylinder, or electric motor operator using existing cast yoke.
- Hard faced seat available to prevent galling in high cycle and/or high end pressure or abrasive applications.
- V-Port or O-Ring resilient seats available to suit specific applications.
- Precision machined stainless steel gate provides superior seating capability.
- Stainless steel stem provides corrosion resistance.
- Flange drilling meets ANSI B16.47 CL150 series A standards with all tapped holes and serrated gasket faces.
- Full port ID.
- Designed in accordance with AWWA C520 Knife Gate Valves, 2" – 96".



Figure 82 Fabricated Slide Gate Valve

Features

- Fabricated stainless steel lined body ideally suited for wet or dry dense and abrasive media.
- Stainless steel stem, gate, seat, body liner, and raised face.
- Body cavity, seat configuration, and beveled gate designed to provide shut-off capability in thick media such as pulp stock and slurries, or with solid media like pellets and powders.
- Smooth flow non-clogging full port design.
- Heavy duty body design resists deflection from line loads and internal pressure.
- Gate design withstands full 150 PSI pressure as required by MSS SP-81.
- Valve seat face is protected by gate in both open and closed positions.
- Enclosed bronze stem bushing reduces operating torque and protects the stem bushing in harsh environments.
- Full range of operators available including handwheel, chainwheel, bevel gear, hydraulic or pneumatic cylinder, fail safe spring cylinder, or electric motor.
- Can be manufactured in special materials such as Alloy 20, Hastelloy, Titanium, and Monel for severe services. Coatings can be added to protect blade.
- Wiper available in packing to provide gate support and stabilize packing seal.
- Flanges meet ANSI B16.5-150 standards with all tapped holes and serrated gasket faces.
- Hard faced seat available to prevent galling in high cycle and/or high end pressure or abrasive applications.
- V-Port or O-Ring resilient seats available to suit specific applications.
- Standard TFE lubricated synthetic packing (TLSP) rated to 500°F and pH range of 3-11.
- Available in standard sizes 3 - 36".
- Custom designed sizes, pressures, and configurations available.

