Tyco Knife Gate and Slurry Valves

The combining of Clarkson, L&M Valve and Rovalve products under Tyco Valves & Controls gives you the widest selection of knife gate and slurry valves to choose from, all available from a single source. With roots reaching back over 60 years, the Clarkson, L&M Valve and Rovalve brands have served the needs of many diverse industries with a wide variety of standard and custom valves. Our application experience covers the entire spectrum - Mining, Pulp and Paper, Power, Chemical and Petro-Chem, Waste Treatment, Steel, Food and Beverage, Powder and Bulk and other process industries.

The widest range of products.

Through the years we have developed the most complete line of all metal valves, state-of-the-art polymer lined composite valves and slurry valve products for use in varying applications. Cast or fabricated, standard or custom, Tyco Valves and Controls, with The Clarkson, Rovalve and L&M Valve line of products has more to offer you than any other manufacturer;

- Knife gates (all metal or polymer lined)
- Slide gates (all metal or polymer lined)
- Slurry valve
- Cast stainless or fabricated wedge and check valves
- Custom design valve products

What Can We Do For You?

Our unequaled application knowledge coupled with the widest product range gives Tyco a solid background for solving your unique and troublesome valve application problems. The ability to choose from a standard valve, a modified standard, or a “from scratch” custom design fabricated valve for your application is not found with many other manufacturers.

Custom Design

Our fabrication and custom design capability means you can get:

- Large diameter valves, 96” and larger
- Square or rectangular ports
- Multi-Port mixer or diverters
- High-Temperature
- High Pressure

Special alloys including:

- Titanium
- 310 SS
- Monel®
- Hastelloy®
- 254SMO
- Alloy 20
- AR400 Hardened Steel
- 410 Induction Hardened Stainless Steel

Other special materials or combinations of materials are available, including a wide range of polymers such as UHMWPE Teflon® and Polypropylene, to suit your application.

At Tyco Valve & Controls, the commitment to our customers is stronger than ever before. We are a forward-looking company, willing and able to work with you to fill your particular valve needs. Challenge us, we look forward to serving your valve needs.
Tyco offers three basic configurations of knife gate valve seating arrangements: metal-to-metal, perimeter resilient and polymer lined designs. This allows you to select the best performance range suited for your applications, no matter how demanding.

**Metal-to-Metal seat:** The S20, Figures 1 and 220 are standard with unidirectional metal-to-metal seats. All are tested to MSS-SP81 and have an allowable leak rate of 40cc per inch of diameter per minute at 40 psi. Line pressure pushing the gate against the seat assists the shut-off performance of unidirectional knife gate valves.

**Perimeter resilient seat:** The S17D and SB1700 are bidirectional, perimeter seated valves. With a perimeter seat, pressure against the gate is not required to create a seal so ZERO leakage of water is achieved at any line pressure up to the 150 psi design rating, in both directions.

**Polymer lined valve:** The M145 and M345 have bidirectional, pressure assisted seals. Because of this, they are tested in both directions with pressure pushing the gate against the seat.

**Slurry Valves:**

Matching sleeves are placed in the valve housing to seal against the gate when the valve is closed and seal against each other when the valve is open. As the gate moves from open to closed position, it separates the facing sleeves. The unique slurry valve sleeve assembly provides positive sealing action when the valve gate is closed. When the gate is open, the sleeves provide an unobstructed port.

**Open position:**
- Gate positioned above seals
- Tight fit between sleeves contains internal pressure
- Metal parts not in contact with slurry
- Unobstructed port area eliminates turbulence, minimizes pressure drop across valve
- No seat cavity where solids can collect and prevent full gate closure

**Closed position:**
- Gate travels completely through sleeves to provide blind flange shut off and expel solids.
- 100% Isolation-bubble tight shut-off results in absolutely zero downstream leakage
- Double-seated design provides bi-directional flow and shut-off
- Tight fit between sleeves and gate contains internal pressure

**Knife Gate Valves:**

Tyco has the broadest product offering of knife gate and slurry valves for service and process applications.
Slurry Valves

Field proven, heavy duty, trouble-free slurry valves for abrasive, corrosive and coarse slurries. The original KGA slurry knife gate valve features full port elastomer lining offering the ultimate in protection against heavy slurries and may be used in wet or dry services. The KGD wafer style slurry knife gate valve offers value and high performance in a compact package. The KGF slurry knife gate valve offers the same features and performance found in the KGD, but 300 psi design and the C-Valve is a true slurry throttling valve that provides both high performance and long life in the toughest of environments. Clarkson slurry valves from Tyco are in more applications around the world than any other manufacturer in a broad range of applications.

KGA Slurry Valve

- 100% full port
- Double seated, bidirectional shut-off design
- Heavy duty elastomer sleeves
- No seat cavity
- Packingless design
- Operating pressures up to 100 psi
- Temperatures to 400°F
- Sizes 2” thru 54”
- Manual bevel gear
- Air or hydraulic cylinder actuators
- Electric motor operators

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KGD Slurry Valve

- 100% full port
- Double seated, bidirectional shut-off design
- Exclusive, dynamic self-adjusting sleeve design
- Positive splash containment
- MSS face-to-face dimension
- Sizes 2” thru 24”
- Operating pressures up to 150 psi
- Temperatures to 300°F
- Manual bevel gear
- Air or hydraulic cylinder actuators
- Electric motor operators

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Clarkson slurry valves offer the greatest choice in design, elastomers and size range

**KGF Slurry Valve**
- 300 psi CWP Design
- 100% full port
- Double seated, bidirectional shut-off design
- Exclusive, dynamic self-adjusting sleeve design
- Positive splash containment
- Operating pressures up to 300 psi
- Temperatures to 300°F
- Manual bevel gear
- Air or hydraulic cylinder actuators
- Electric motor operators

Request Data Sheet: CLKMC-0110-US

**KLB Line Blind**
- Man-safe line blind
- No down stream leakage even with sleeve failure
- 100% full port
- Double seated, bidirectional shut-off design
- Exclusive, dynamic self-adjusting sleeve design
- Positive splash containment
- MSS face-to-face dimension
- Sizes 2” thru 24”
- Operating pressures up to 150 psi
- Temperatures to 300°F
- Manual bevel gear
- Air or hydraulic cylinder actuators
- Electric motor operators

Request Data Sheet: CLKMC-0142-US

**C-Valve for Throttling**
- No metal parts in contact with the flowing slurry
- Molded elastomer sleeve
- Sleeve maintains perfect round and concentric aperture across the full throttling range.
- Throttling range from wide open to up to a 90% reduction of maximum flow.
- Automated or manual valve actuation
- Valve sizing and applications assistance available
- Sizes 1” thru 8”
- Operating pressure 100 psi
- Temperatures to 400°F

Request Data Sheet: CLKMC-0109-US
Polymer Lined Knife and Slide Gate Valves

Unique in the industry, the Performance Plus L&M Valve knife gate and slide gate products offer superior shut-off, full port and positive seal packing. The M145 is a 150 psi CWP design while the standard M345 is 300 psi CWP design and it is available as high as 900 psi design! Both provide unequaled performance in a variety of applications. Available liners include Polypropylene, UHMW, Teflon® and others.

L&MValve

M145

• 100% full port
• Bidirectional shut-off
• Positive seal packing
• 2” thru 24” 150 psi CWP
• Larger sizes designed to suit application
• Three-piece replaceable liner available in UHMW, Polypropylene, Teflon® or other materials.

Request Data Sheet: LMVMC-0108-US
The three-piece liner of the M145 with the T-Lock insert provides you excellent performance, long service life and ease of maintenance. The liners are precision cut, placed into the valve frame and sealed with a silicone compound to assure perfect alignment and a superior seal. Available in different materials to suit many applications.

The T-Lock insert of the M145 and M345 is designed for the most demanding services. The inverted T-Shape of the insert assures it will not pull out or extrude into the flow area. The front and back liner pieces overlap the insert, locking it in place. This assures maximum liner and seat performance in heavy solids.

The L&M Valve polymer lined valves are truly "Performance Plus" knife gate valves.

M345
- 100% full port
- 300 psi CWP design or higher
- Bidirectional shut-off
- Positive seal packing
- 2" thru 60" 300 psi CWP
- Three-piece replaceable liner available in UHMW, Polypropylene, Teflon® or other materials.

Request Data Sheet: LMVMC-0399-US

M202
- 100% full port
- Bidirectional shut-off
- Positive seal packing
- 2" thru 24" 150 psi CWP
- Larger sizes designed to suit application
- Four-piece replaceable liner available in UHMW, Polypropylene, Teflon® or other materials.

Request Data Sheet: LMVMC-0107-US

The three-piece liner of the M145 with the T-Lock insert provides you excellent performance, long service life and ease of maintenance. The liners are precision cut, placed into the valve frame and sealed with a silicone compound to assure perfect alignment and a superior seal. Available in different materials to suit many applications.

The T-Lock insert of the M145 and M345 is designed for the most demanding services. The inverted T-Shape of the insert assures it will not pull out or extrude into the flow area. The front and back liner pieces overlap the insert, locking it in place. This assures maximum liner and seat performance in heavy solids.
Rovalve Special Application
Knife Gate Valves

Rovalve products include the all new high performance SB1700 bolted body knife gate, the solid cast S20 metal-to-metal seated knife gate, the Figure 215 slide gate valves, the Figure 220 bonneted knife gate and other special application valves each with its own unique performance and design features. This assures you the right valve for your application.

SB1700 Resilient Seat

- Bolted body retains seat
- Bidirectional, perimeter seat, ZERO leakage
- All-around the gate packing
- Cast 316 and 317 stainless body
- 2” thru 24” standard 150 psi CWP
- Standard with solid cast carbon steel or 304 SUPERYOKE

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S20 Metal-to-Metal Seat Knife Gate

- Solid cast 316 and 317 stainless body 2” thru 24”
- Tight one-way shut-off
- Tested per MSS-SP81
- 2” thru 24” standard 150 psi CWP
- Standard with solid cast carbon steel, 304 stainless steel SUPERYOKE

Request Data Sheet: ROVMC-0083-US

Please contact Tyco Valves & Controls for more specific information on the full line of Rovalve brand products
The Rovalve line of knife and slide gates offers answers to most any application.

**Figure 215 Slide Gate**
- Through port design
- Cuts through static column
- Seat protected when full-open
- Made from any weldable alloy
- 2" thru 24" standard 150 psi CWP
- Above 24" built to application
- Can be modified for secondary fiber service

*Request Data Sheet: ROVMC-0399-US*

**Figure 220 Bonneted Knife Gate**
- Easy to maintain stem packed design, longer packing life
- Can be adapted for buried service
- Fully rated bonnet
- Made from any weldable alloy
- 2" thru 24" standard 150 psi CWP
- Above 24” or custom design built to your specifications

*Request Data Sheet: ROVMC-0088-US*

**Figure TIV Transmitter Isolation Valve**
- Solid cast 317 stainless body
- Special flange drilling
- Ratchet or lever operator
- 1¾" face-to-face
- Can be fabricated out of special alloys

*Request Data Sheet: ROVMC-0105-US*

**Figure 415 Double Gate Valve**
- Designed for secondary fiber service
- Available with hardened gate, hardened seat and inlet port
- ANSI or DIN drilling
Custom Designs

Tyco Valves & Controls, with the Rovalve, L&M Valve and Clarkson product lines, has served the Custom Design valve needs of many diverse industries including power, pulp and paper, mining, chemical/petro-chem, waste treatment, steel, food, powder and bulk. We offer to you unequaled experience in the design and manufacture of custom design valve products. We have the fabricators, equipment and engineering capability, including state-of-the-art 3-D modeling and Finite Elemental Analysis (FEA). This experience level, together with the most complete line of all metal, elastomer lined and state-of-the-art polymer lined composite valve products, means Tyco has more to offer you than any other manufacturer.

Unique Configurations

The fabrication capabilities of Tyco means you can get the exact valve you need for your application. Each custom valve is designed and manufactured to your specific requirements. Possible configurations include:

- Square port
- Rectangular port
- Tear drop
- Diamond port
- Round inlet-square outlet
- Reducing ports
- Multiple port “Y” or lateral bodies

With our design and manufacturing experience, the possibilities are wide ranging.

Special Materials

Tyco has the equipment and experience to handle your next special material valve requirement, metal or polymer.

- Titanium
- Monel®
- Hastelloy® G
- Aluminum
- Ferralium
- Teflon®
- Polypropylene
- 310 SS
- Hastelloy® C
- 254SMO
- Alloy 20
- Inconel®
- UHMW

Specially constructed inert gas welding chamber for welding of titanium and other specialty metal pressure vessels

Unique design and construction techniques are used to assure a cost effective Titanium lined Rovalve F17
Tyco Custom Design valve experience assures you the right valve for your application.

**High Pressure, High Temperature**

Tyco has designed and built valves for temperatures up to 2000 degrees F, and pressures exceeding 1000 psi. Because we fabricate, we are not restricted and can make the body, gate, flanges and other body parts from the correct material and of sufficient strength to assure the valve is right for your application.

**Large Diameter**

When you need a large diameter knife gate valve turn to Tyco for high quality, cost effective, fabricated designs with quick delivery. Sizes include 30” through 144”, or larger. Available in metal-to-metal, elastomer sleeves or resilient seats, bonneted or bonnetless designs made from stainless steel, carbon steel, or other materials with pressure ratings of 25 psi, 50 psi, 150 psi or higher.

Pages 9 and 10 product information request Data Sheet: RENMC-0135-US