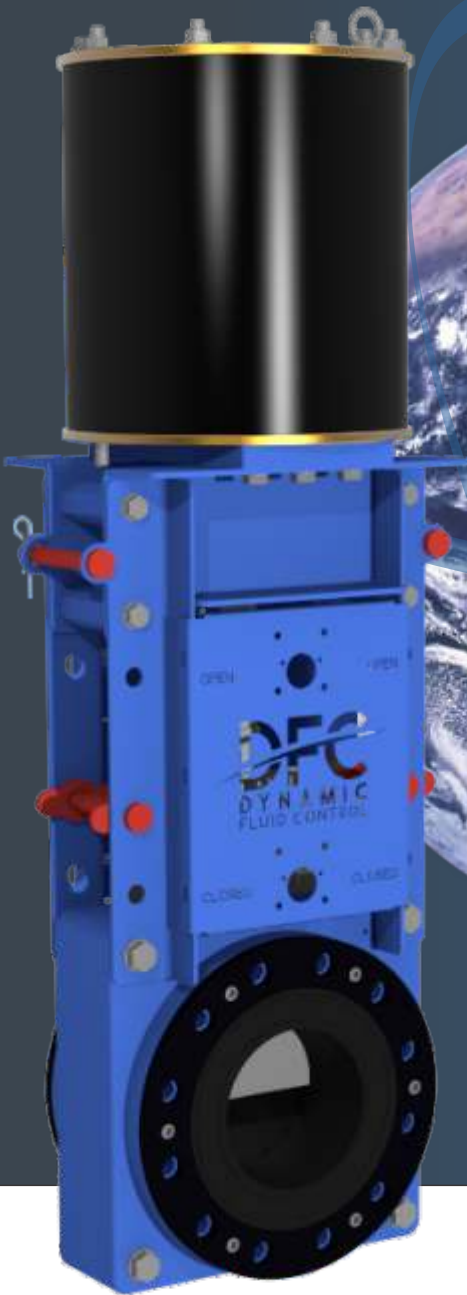




SKG

World Class Performance
in Abrasive, Scaling and
Corrosive Slurries, Sludge,
Liquids, and Bulk Solids



SKG-HP

High Pressure Slurry Knife Gate Valves



SKG-HP Front View



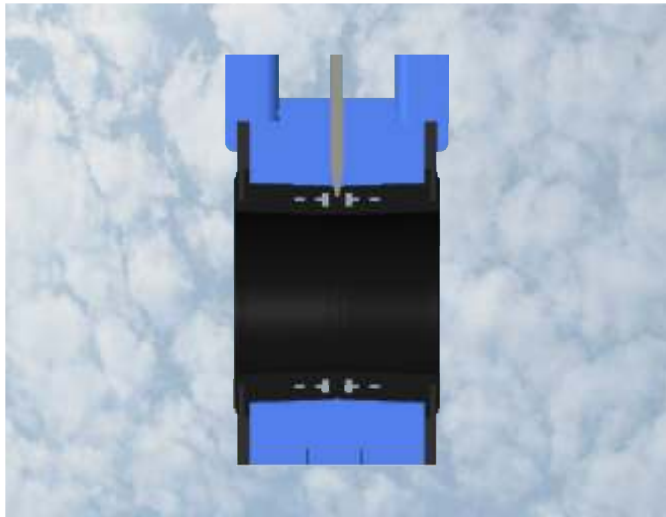
SKG-HP Side View

SKG-HP's purpose is to solve typical and perennial valve problems. We achieve this by providing quality valves that provide the lowest cost of ownership and operation, highest reliability and minimum lifetime maintenance.

The SKG-HP range of high pressure knife gate valves features a packingless design, replaceable elastomer sleeves and is enclosed for severe slurry applications.

Design Features and Advantages

- 740 psi CWP (51 bar) pressure rating for all sizes
- Bi-directional flow and shut-off resulting in zero downstream leakage
- No metal parts in contact with the flowing media when the valve is in the fully open position
- No seat cavity for unwanted solids to build-up and prevent full gate closure
- Field replaceable heavy duty elastomer sleeves
- Suitable for wet or dry service
- A heavy duty frame design which consists of two cover plates that fully enclose the gate, spindle and clevis. The cover plates protect these components from slurry splatter that can harden and affect the operation of the valve. The cover plates are light weight for easy removal upon servicing and maintenance. The cover plates allow for easy mounting of proximity switch sizes. Proximity switches are protected by robust covers to prevent damage during transport and operation.
- Standard open and closed indicators
- Standard provision for lockouts in the open and closed position.
- The top bracket is designed to accept manual, pneumatic, electric or hydraulic actuation for easy conversion in the field.



SKG-HP in Open Position



SKG-HP in Closed Position

Sealing Principle

When the valve is fully opened the two identical elastomer sleeves push against each other to form a cavity free, bubble tight seal to contain the line pressure.

When the gate moves from the open to closed position, the gate separates the facing sleeves until it completely closes and seals the bore from both directions.

As the gate strokes, the gate tip creates a gap between the facing sleeves allowing media that could potentially clog or jam the valve to be purged to atmosphere.

The SKG-HP valve utilizes an integrally moulded encapsulated stiffener ring to maintain the rounded shape of the sleeves under heavy shearing forces associated with high pressure applications.

Specifications

| SKG-HP | |
|------------------------|---|
| Size Range | 3" - 24" (DN80-DN600) |
| Pressure | 740psi CWP (51bar) |
| Test Pressure | Body & Seat tested to 1.1 x CWP |
| Body | Fusion Bonded Epoxy Ductile Iron (ASTMA536-84 Gr 60-42-10) body with Fusion Bonded Epoxy coated angular support and cover |
| Sleeves | Natural Rubber - Standard |
| Gate | SAF 2205 |
| Retainer Flange | Natural Rubber Encapsulated Mild Steel |
| Flange Drilling | ANSI B16.5 Class 300 AS 2129 Table F & G EN 1092 PN40 |

Optional

Sleeves

EPDM

Gate

Different gate materials available on request

Actuators

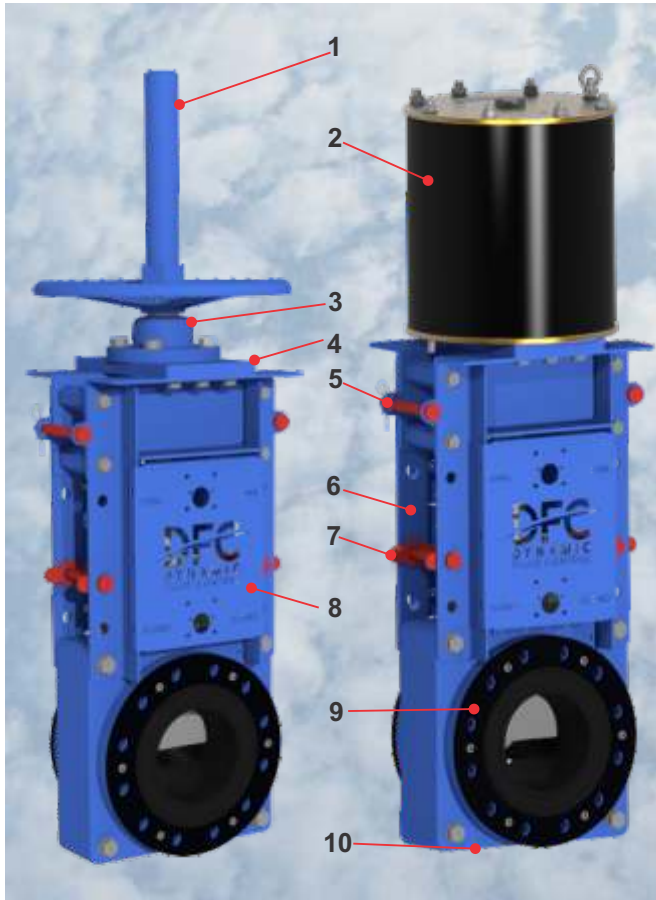
Manual (80-200mm/3"- 8" only), Manual bevel gear, pneumatic, electro-mechanical and hydraulic

Purge Ports

Removable bottom cover with flush-out connections



Features



1. **Spindle Cover** - to protect the spindle against slurry splatter.
2. **Actuators** - pneumatic, electric and hydraulic cylinder, manual bevel gear and hand wheel with rising stem
3. **Thrust housing assembly** - generous oversizing of the thread length of the gunmetal (LG2) thrust nut ensures lowest possible thread loading for longevity. Sizes 12"(DN300) to 16"(DN400) comes standard with thrust bearings and smaller sizes are fitted with vesconite thrust pads.
4. **Top bracket** - designed to accept manual, pneumatic or electric actuation without any modification.
5. **Lockout** - provision for lockouts in the open and closed position (available on sizes 3" - 24")
6. **Heavy Duty Frame** - heavy duty frame to handle higher thrust associated with high pressure installations.
7. **Indicator** - open and close indicators (standard)
8. **Cover plate** - design consists of two cover plates that enclose the gate, spindle and clevis. Light weight for easy removal upon servicing and maintenance.
9. **Retainer flange** - standard on the SKG HP range
10. **Flush out connection** - closure plate with flush-out connection (optional)

SKG-HP Specification

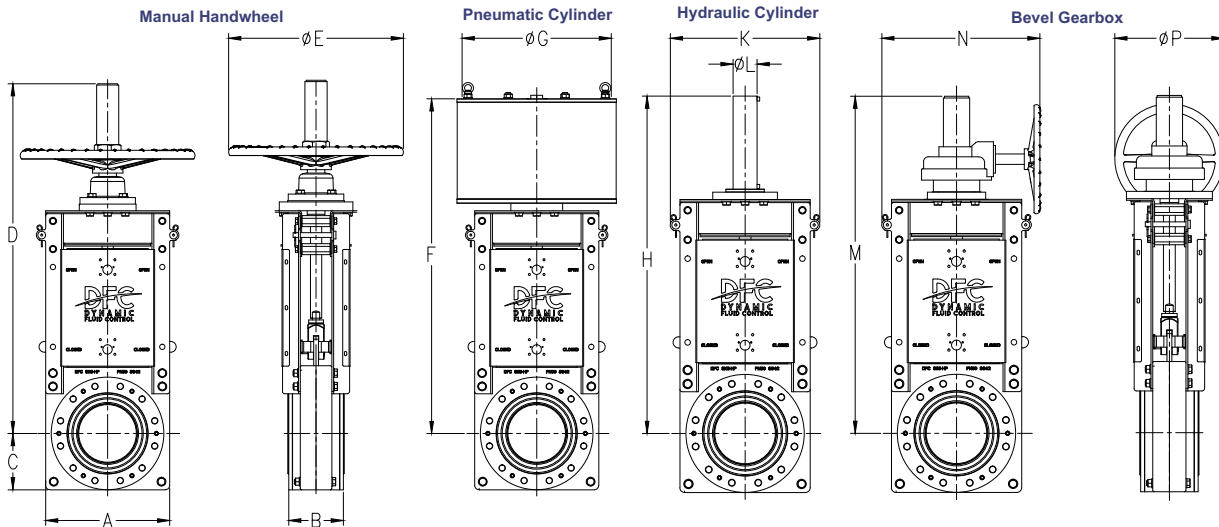
The heavy duty slurry knife gate valve shall be a flanged, bi-directional valve with a packingless design. The full port bore shall be formed by two heavy duty elastomer sleeves, one on either side of the gate. The roundness of the sleeve shall be maintained by an embedded stiffener ring near the sealing face. Upon closing, the gate will progressively separate the sleeves and once fully closed, will form a bubble tight seal with the upstream sleeve. The top assembly shall consist of a heavy duty frame and two cover plates that enclose the gate, spindle and clevis to protect these components from slurry splatter. The cover plate design will allow for easy mounting of proximity or limit switches. Steel proximity switch covers must be provided to prevent damage during transport and operation. Provision must be made for lockouts in the open and closed position with open and closed indicators. The top bracket must accept manual, pneumatic or electric actuation for easy conversion in the field.

Optional Coating for Advanced Service Life

ZIROFLEX coating is a hard chromium coating that improves wear and acid resistance, has superior corrosion and heat resistance and has a high lubricity because of its lower coefficient of friction. It has a higher galling resistance and enhanced abrasion resistance and can easily be applied to any of the SKG HP blade material options.

| ZIROFLEX - PERFORMANCE TABLE | |
|------------------------------|------------------|
| Coefficient of Friction | 0.1 STATIC |
| Temperature | 200 °C |
| Thickness | 10 to 50 microns |
| PH Range | 0 to 14 |
| Abrasion Resistance | EXCELLENT |
| Anti-Stick (Lubricity) | EXCELLENT |
| Chemical Resistance | EXCELLENT |

Dimensions of SKG-HP (High Pressure)



Dimensions - Metric (mm)

| Size DN | A | B | C | D | ØE | F | ØG | H | K | ØL | M | N | P | STROKE | WEIGHT (kg) BARESHAFT |
|---------|------|-----|-------|------|-----|------|-----|------|------|-----|------|------|-----|--------|--------------------------|
| 80 | 267 | 176 | 125 | 689 | 400 | 602 | 200 | 672 | 310 | 50 | - | - | - | 115 | 85 |
| 100 | 300 | 176 | 150 | 790 | 400 | 703 | 250 | 773 | 347 | 50 | - | - | - | 145 | 105 |
| 150 | 340 | 185 | 159 | 973 | 500 | 886 | 350 | 956 | 393 | 80 | 967 | 425 | 315 | 195 | 140 |
| 200 | 420 | 185 | 190.5 | 1225 | 500 | 1135 | 450 | 1205 | 482 | 100 | 1150 | 510 | 630 | 270 | 235 |
| 250 | 480 | 226 | 222.5 | - | - | 1283 | 550 | 1353 | 540 | 125 | 1340 | 665 | 630 | 315 | 330 |
| 300 | 521 | 258 | 260.5 | - | - | 1475 | 750 | 1546 | 601 | 125 | 1570 | 710 | 630 | 390 | 430 |
| 350 | 600 | 260 | 292 | - | - | 1688 | 750 | 1758 | 680 | 150 | 1750 | 745 | 630 | 420 | 590 |
| 400 | 680 | 279 | 324 | - | - | - | - | 2024 | 767 | 200 | 2030 | 885 | 630 | 530 | 775 |
| 450 | 740 | 321 | 355.5 | - | - | - | - | 2205 | 840 | 200 | 2235 | 945 | 630 | 580 | 1100 |
| 500 | 820 | 367 | 417.5 | - | - | - | - | 2480 | 920 | 250 | 2510 | 973 | 630 | 630 | 1450 |
| 600 | 1010 | 370 | 507.5 | - | - | - | - | 2825 | 1120 | 250 | 2785 | 1145 | 630 | 760 | 1950 |

Dimensions - Imperial (inches)

| Size NPS | A | B | C | D | ØE | F | ØG | H | K | ØL | M | N | P | STROKE | WEIGHT (lbs) BARESHAFT |
|-------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|------|--------|--------|-------|--------|---------------------------|
| 3 | 10.51 | 6.93 | 4.92 | 27.13 | 15.75 | 23.70 | 7.87 | 26.46 | 12.20 | 1.97 | - | - | - | 4.53 | 187.4 |
| 4 | 11.81 | 6.93 | 5.91 | 31.10 | 15.75 | 27.68 | 9.84 | 30.43 | 13.66 | 1.97 | - | - | - | 5.71 | 231.5 |
| 6 | 13.39 | 7.28 | 6.26 | 38.31 | 19.69 | 34.88 | 13.78 | 37.64 | 15.47 | 3.15 | 38.07 | 16.73 | 12.40 | 7.68 | 308.6 |
| 8 | 16.54 | 7.28 | 7.50 | 48.23 | 19.69 | 44.69 | 17.72 | 47.44 | 18.98 | 3.94 | 45.28 | 20.08 | 24.80 | 10.63 | 518.1 |
| 10 | 18.90 | 8.90 | 8.76 | - | - | 50.51 | 21.65 | 53.27 | 21.26 | 4.92 | 52.76 | 26.18 | 24.80 | 12.40 | 727.5 |
| 12 | 20.51 | 10.16 | 10.26 | - | - | 58.07 | 29.53 | 60.87 | 23.66 | 4.92 | 61.81 | 27.95 | 24.80 | 15.35 | 948.0 |
| 14 | 23.62 | 10.24 | 11.50 | - | - | 66.46 | 29.53 | 69.21 | 26.77 | 5.91 | 68.90 | 29.33 | 24.80 | 16.54 | 1300.7 |
| 16 | 26.77 | 10.98 | 12.76 | - | - | - | - | 79.69 | 30.20 | 7.87 | 79.92 | 79.92 | 24.80 | 20.87 | 1708.6 |
| 18 | 29.13 | 12.64 | 14.00 | - | - | - | - | 86.81 | 33.07 | 7.87 | 87.99 | 87.99 | 24.80 | 22.83 | 2425.1 |
| 20 | 32.28 | 14.45 | 16.44 | - | - | - | - | 97.64 | 36.22 | 9.84 | 98.82 | 98.82 | 24.80 | 24.80 | 3196.7 |
| 24 | 39.76 | 14.57 | 19.98 | - | - | - | - | 2824.5 | 44.09 | 9.84 | 109.65 | 109.65 | 24.80 | 29.92 | 4299.0 |

B = Installed face-to-face dimension

Face to Face dimensions (B) includes the counter / retainer flanges



Thrust & Torque Figures for SKG-HP

| Working Pressure | 5 Bar | 10 Bar | 15 Bar | 20 Bar | 25 Bar | 30 Bar | 35 Bar | 40 Bar | 45 Bar | 50 Bar | 51 Bar |
|--------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Valve Size | SKG HP Range - Minimum Required Thrust [kN] * | | | | | | | | | | |
| DN80 (3") | 1.8 | 2.8 | 3.7 | 4.7 | 5.7 | 6.6 | 7.6 | 8.6 | 9.5 | 10.5 | 10.7 |
| DN100 (4") | 2.6 | 4.1 | 5.7 | 7.2 | 8.7 | 10.2 | 11.7 | 13.2 | 14.7 | 16.2 | 16.5 |
| DN150 (6") | 5.1 | 8.5 | 11.9 | 15.3 | 18.7 | 22.1 | 25.5 | 28.9 | 32.3 | 35.7 | 36.4 |
| DN200 (8") | 8.4 | 14.5 | 20.5 | 26.6 | 32.6 | 38.7 | 44.7 | 50.8 | 56.8 | 62.8 | 64.1 |
| DN250 (10") | 12.5 | 22.0 | 31.4 | 40.9 | 50.3 | 59.8 | 69.2 | 78.7 | 88.1 | 97.6 | 99.5 |
| DN300 (12") | 16.9 | 30.5 | 44.1 | 57.7 | 71.3 | 84.9 | 98.5 | 112.1 | 125.7 | 139.3 | 142.0 |
| DN350 (14") | 22.8 | 41.3 | 59.8 | 78.3 | 96.9 | 115.4 | 133.9 | 152.4 | 170.9 | 189.5 | 193.2 |
| DN400 (16") | 29.6 | 53.8 | 78.0 | 102.1 | 126.3 | 150.5 | 174.7 | 198.9 | 223.1 | 247.3 | 252.1 |
| DN450 (18") | 37.3 | 67.9 | 98.5 | 129.1 | 159.8 | 190.4 | 221.0 | 251.6 | 282.2 | 312.8 | 319.0 |
| DN500 (20") | 44.9 | 82.7 | 120.5 | 158.3 | 196.1 | 233.9 | 271.7 | 309.5 | 347.3 | 385.1 | 392.7 |
| DN600 (24") | 63.8 | 118.2 | 172.6 | 227.0 | 281.5 | 335.9 | 390.3 | 444.8 | 499.2 | 553.6 | 564.5 |

| Working Pressure | 5 Bar | 10 Bar | 15 Bar | 20 Bar | 25 Bar | 30 Bar | 35 Bar | 40 Bar | 45 Bar | 50 Bar | 51 Bar |
|--------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Valve Size | SKG HP Range - Minimum Required Torque [Nm] * | | | | | | | | | | |
| DN80 (3") | 7.2 | 11.1 | 15.0 | 18.9 | 22.7 | 26.6 | 30.5 | 34.3 | 38.2 | 42.1 | 42.9 |
| DN100 (4") | 10.6 | 16.6 | 22.7 | 28.7 | 34.8 | 40.8 | 46.8 | 52.9 | 58.9 | 65.0 | 66.2 |
| DN150 (6") | 20.5 | 34.1 | 47.7 | 61.3 | 74.9 | 88.5 | 102.2 | 115.8 | 129.4 | 143.0 | 145.7 |
| DN200 (8") | 42.1 | 72.3 | 102.6 | 132.8 | 163.1 | 193.3 | 223.5 | 253.8 | 284.0 | 314.3 | 320.3 |
| DN250 (10") | 75.2 | 131.9 | 188.6 | 245.3 | 302.0 | 358.7 | 415.4 | 472.1 | 528.8 | 585.5 | 596.8 |
| DN300 (12") | 119.3 | 215.7 | 312.1 | 408.4 | 504.8 | 601.2 | 697.5 | 793.9 | 890.3 | 986.6 | 1005.9 |
| DN350 (14") | 180.0 | 326.3 | 472.7 | 619.0 | 765.3 | 911.7 | 1058.0 | 1204.4 | 1350.7 | 1497.1 | 1526.3 |
| DN400 (16") | 255.0 | 463.6 | 672.2 | 880.9 | 1089.5 | 1298.1 | 1506.7 | 1715.3 | 1923.9 | 2132.5 | 2174.2 |
| DN450 (18") | 365.6 | 665.7 | 965.9 | 1266.0 | 1566.2 | 1866.3 | 2166.5 | 2466.6 | 2766.8 | 3066.9 | 3127.0 |
| DN500 (20") | 485.4 | 893.8 | 1302.1 | 1710.5 | 2118.8 | 2527.2 | 2935.5 | 3343.9 | 3752.2 | 4160.6 | 4242.2 |
| DN600 (24") | 810.1 | 1501.7 | 2193.2 | 2884.8 | 3576.4 | 4267.9 | 4959.5 | 5651.1 | 6342.7 | 7034.2 | 7172.6 |

Thrust and Torque figures based on safety factor 1.1 (Dependent on Friction Coefficients and Shaft Size)

To convert thrust in kN to lbf use: 1 kN = 224.8 lbf

To convert torque in Nm to lbf.ft use: 1 Nm = 0.737 lbf.ft

Subject to Change Without Notice

Applications

In-house developed and manufactured sleeves and elastomers, coupled with more than 40 years experience in polymer and rubber technology, ensure consistent quality and superior abrasion resistance in a wide range of mineral processing applications.

SKG's range of elastomers have a proven track record and were developed to maximize rebound resilience and elastic recovery to improve abrasion resistance and sealing performance in mineral processing slurries.

The SKG valve was developed and refined in conjunction with mineral processing end-users to solve the problems typically experienced in harsh mining conditions.

DFC has one of the largest installed bases of mineral processing valves in the world and manufacturing facilities in South Africa, Finland and the USA. With sales and support facilities in Australia, North and South America, Europe, Asia, the Middle East and Africa, DFC's staff and agents are readily available and committed to solving your problems and providing you with the best possible service wherever your business is located.

SKG-HP's are used in a wide array of industries and applications.

Examples include:

Mining Industry

- Grinding
- Size separation – hydro cyclones
- Process water
- Flotation
- Thickening
- Tailings discharge
- Water reclamation

Coal Fired Power Plants

- Lime slurry
- Fly ash slurry
- Scrubber slurry
- Bottom ash
- FGD systems

Other industries

- Coal washing
- Steel
- Cement
- Chemical
- Phosphates



Platinum Slurry



IsaMill™ Inlet



Uranium Slurry



Coal Washing Plant

ELASTOMER QUALITIES SELECTION

| Elastomer Type Abbreviaton | Natural Rubber NR | Ethylene Propylene Diene Monomer EPDM |
|-------------------------------------|--|--|
| Max continuous operating temp. (°F) | 190 | 300 |
| Max continuous operating temp. (°C) | 88 | 149 |
| Abrasion resistance | Excellent | Very Good |
| Generally resistant to | Moderate Chemicals, Organic Acids, Alcohols, Ketones, Aldehydes | Animal and Vegetable Oils, Ozone, Strong & Oxidizing Chemicals |
| Generally attacked by | Ozone, Strong Acids, Fats, Oils, Greases, Most Hydrocarbons | Mineral Oils & Solvents, Aromatc Hydrocarbons |

World Class Performance Slurry Valves

RF Valve® and aiRFlex® pinch valves

The world's most complete line of pinch valves in standard ASME/ANSI B16, DIN and ISO face-to-face dimensions from 1" to 60" (DN25 to DN1500).

- Patented non-stretch, antitress folds in all elastomer tubes
- In-line elastomer tube change capability without removing the valve from the pipeline
- Most advanced wear sensing technology for preventative maintenance alert



Insamcor® MH and MLB slurry valves

Bi-directional wafer mono-flange knife gate valves suitable for end-of-line installation.

- Combination primary transverse seal and secondary stuffing box seal for severe applications
- Mechanically retained moulded seat with no seat pockets
- MH sizes 2" to 24" (DN50 to DN600)
- MLB sizes 28" to 48" (DN700 to DN1200)



Insamcor® LW semi-lugged slurry valves

Bi-directional wafer semi-lugged knife gate valve designed for slurry applications.

- Stuffing box seal to atmosphere
- Mechanically retained moulded seat with no seat pockets
- Self-cleaning flush out corners prevent slurry build-up in sealing area
- Easy mounting of proximity or limit switches
- Sizes 2" to 24" (DN50 to DN600)



Saunders® A Type and KB Type diaphragm valves

Simplicity in design coupled with more than 75 years of cutting edge innovavon has resulted in the Saunders diaphragm's ability to handle a wider range of fluids than any other valve type.

- Available in weir and straight through type
- Available in either flanged or screwed ends
- Various lining and diaphragm material options

DFC manufactures this range under license from CPFT Ltd and is only available in selected African countries.



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