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

RF VALVES® SKG F & SKG W
Flanged and Wafer Slurry Knife Gate Valves
RF Valves’ 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.

RF VALVES® SKG range of wafer and flanged knife gate valves features a packingless design, replaceable elastomer sleeves and a fully enclosed yoke for severe slurry applications.

Design Features and Advantages

- 150 psi CWP (10 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 yoke design which consists of two yoke plates that fully encloses the gate, spindle and clevis. The yoke protects these components from slurry splatter that can harden and affect the operation of the valve. The yoke allows for easy mounting of proximity or limit switches and accommodates all proximity switch sizes. Proximity switches are protected by robust covers to prevent damage during transport and operation
- Standard bellows provide additional protection for the spindle against scoring from abrasive particles
- Standard open and closed indicators
- Standard provision for lockouts in the open and closed position
- The top bracket is designed to accept manual, pneumatic or electric actuation for easy conversion in the field
SKG F in Open and 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.

The RF SKG F valve utilizes a J-ring design with stiffener lugs to maintain the rounded shape of the sleeves during opening and closing.

The round shape of the RF SKG W sleeve is maintained by an embedded stiffener ring located near the sealing face and a steel disc on the mating face. Flexibility in the axial direction is achieved through the provision of a 360° groove located along the inner surface of the sleeve, which allows the rubber displaced by the closing gate to move axially.

Specifications

Size Range
2” – 48” (DN80 – DN1200)

Pressure rating
150 psi CWP (10 bar)

Body & Yoke
Fusion bonded epoxy ductile iron body with fusion bonded epoxy mild steel yoke plates

Sleeves
Natural rubber standard

Gate
316L stainless steel

Retainer/Counter flanges
Natural rubber encapsulated mild steel

Flange Drilling
ANSI B16.5 Class 150
AS 2129 Table D & E
PN10 & PN16

Optional

Pressure rating
Optional gate materials can be used to increase the pressure rating of the RF SKG F and RF SKG W to 200psi (14bar) depending on the valve size and application – please consult the factory

Sleeves
EPDM, FKM/FPM or NBR

Gate
Different gate materials available on request

Actuators
Manual, manual bevel gear, pneumatic, electro-mechanical and hydraulic

Retainer flanges
Standard on the SKG F for 10” (DN250) and larger sizes

Purge Ports
Removable bottom cover with flush-out connections
RF VALVES® SKG F 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. Each sleeve shall have a J-ring design stiffener to maintain the shape of the sleeve. Upon closing, the gate will progressively separate the sleeves and once fully closed, will form a bubble tight seal with the upstream sleeve. The yoke shall consist of two yoke plates that fully enclose the gate, spindle and clevis to protect these components from slurry splatter. The yoke 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.

RF VALVES® SKG W Specification

The heavy duty slurry knife gate valve shall be a wafer style, 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 and a steel disc on the mating 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 yoke shall consist of two yoke plates that fully enclose the gate, spindle and clevis to protect these components from slurry splatter. The yoke 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.
### Dimensions and Weights of the SKG F (Flanged)

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#### BG (BEVEL GEAR)

#### AC (AIR CYLINDER)

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Face to face dimensions (B) includes the counter / retainer flanges. Counter / retainer flanges are optional on sizes 8" (DN200) and smaller.
### Dimensions and Weights of the SKG W (Wafer)

#### MH (Manual Handwheel)

- **Entry Diameter (K):**
- **Bore Diameter (L):**

#### BG (Bevel Gear)

#### AC (Air Cylinder)

### Dimensions (mm) and Weights (kg)

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<td>-</td>
<td>-</td>
<td>25.20</td>
<td>23.43</td>
<td>23.19</td>
<td>-</td>
<td>-</td>
<td>1324</td>
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</tr>
</tbody>
</table>

*B1 = installed face-to-face dimension, B2 = recommended installation allowance*
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.

RF VALVES’ 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 RF VALVES SKG 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.

RF Valves SKGs 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
ELASTOMER QUALITIES SELECTION

<table>
<thead>
<tr>
<th>Elastomer Type</th>
<th>Abbreviation</th>
<th>Natural Rubber (NR)</th>
<th>Ethylene Propylene (EPDM)</th>
<th>Fluorocarbon (FKM/FPM)</th>
<th>Nitrile (NBR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max continuous operating temp. (°F)</td>
<td></td>
<td>190</td>
<td>300</td>
<td>390</td>
<td>200</td>
</tr>
<tr>
<td>Max continuous operating temp. (°C)</td>
<td></td>
<td>88</td>
<td>149</td>
<td>199</td>
<td>93</td>
</tr>
<tr>
<td>Abrasion resistance</td>
<td></td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Generally attacked by</td>
<td></td>
<td>Ozone, Strong Acids, Fats, Oils, Greases, Most Hydrocarbons</td>
<td>Mineral Oils &amp; Solvents, Aromatic Hydrocarbons</td>
<td>Ketones, Esters &amp; Nitro containing compounds</td>
<td>Ozone, Ketones, Esters, Aldehydes, Chlorinated and Nitro Hydrocarbons</td>
</tr>
</tbody>
</table>

Other 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, anti-stress 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)

**Insamcor® PB ported blade slurry valves**
Bi-directional ported blade valve suitable for slurries containing large particles.

- Two heavy duty elastomer sleeves are compressed against a ported blade through its entire travel
- The ported blade allows granular slurries of size similar to the blade thickness to be drawn through the seals and flushed out of the valve
- Sizes 2” to 24” (DN50 to DN600)