

Valves for Tailing Systems



C.G. Industrial Specialties Ltd.





*ACCEPTABLE ALLOWABLE LEAKAGE?
The allowable leakage for a 16 inch (400 mm) metal seated Knife Gate Valve is 922 Litres/Day at the factory. Over time, abrasion, erosion and corrosion will cause leakage to increase. We just don't think that's good enough.*

Zero Leakage

Isolating valves should isolate, right?

We think so. Unfortunately, a universally accepted standard of isolation is both variable and widely misunderstood. For example, a block valve should block, but to what agreed upon standard or specification? The vast majority of valve designs are only manufactured and tested to standards with an “allowable leakage rate.”

CG Industrial Specialties Ltd (CGIS), provides the “world’s best valves” to mining companies around the globe

These valves are designed for on/off applications processing high pressure and abrasive slurry. We’ve teamed up with some of the world’s best valve manufacturers to provide a wide range of valves suited for severe service applications. For example, Delta’s Industrial knife gate valves have been used in some of the largest and most challenging tailings systems on the planet, including the Canadian Oil Sands.

Valvtechnologies (another leading manufacturer represented by CGIS) is an established company with a worldwide reputation for superior quality and dependability. Valvtechnologies’ carbide coated metal seated ball and check valves are built to withstand the most severe applications.

CGIS also represents Elasto-Valve Rubber Products (EVR) which provides a full range of elastomeric piping products featuring the latest in innovative design and materials to meet the varied needs of mining companies.

The Best Valve is the Correct Valve

CGIS has the knowledge and experience to match the correct valve to your application

Delta Industrial's line of ASME Class 150 and 300 slurry knife gate valves offer true **ZERO LEAKAGE** isolation. The unique bubble tight bi-directional shutoff exceeds ANSI class VI and seals independent of line pressure, providing **ZERO LEAKAGE**.

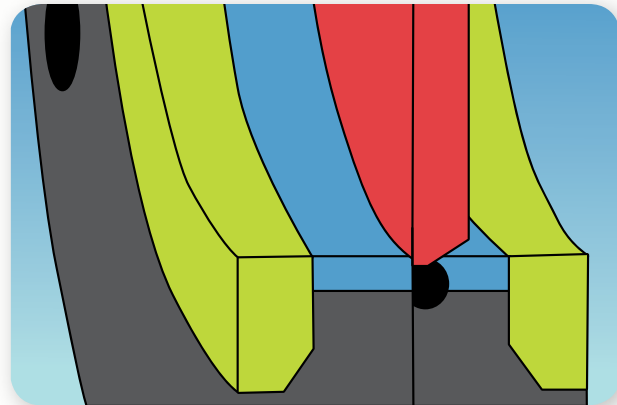


Figure 1

Figure 1:

The valves ni-hard wear rings are counter bored into the upstream and downstream bodies to reduce valve body wear while the bevelled-edged gate cuts through tough solids.

Chrome carbide overlays protect the valve body while in the "open" position.

The bottom of the port has no cavity for material build-up while the smooth bore design provides a more laminar flow and thus minimizes seal wear at high velocities.

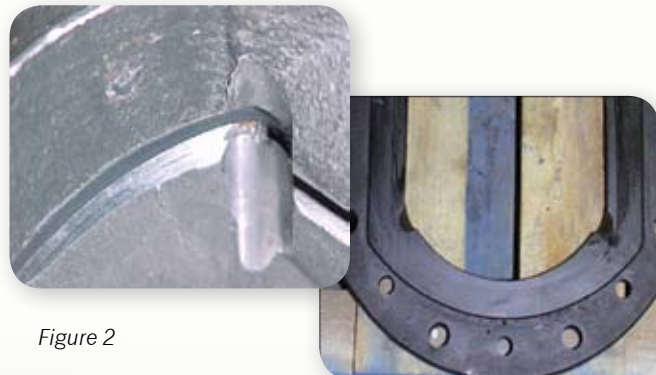


Figure 2

Figure 2:

Flush-out areas at the bottom of the port clean the seating area during actuation so there is no need for external flushing ports.

Figure 3:

The gate eliminates gate deflection and is guided through entire stroke.

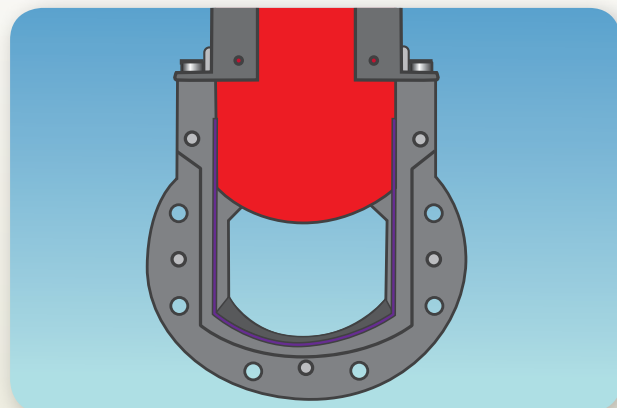


Figure 3



Mining is an area where critical valve failure can create expensive shut-downs

Valvtechnologies' ABRASOTECH™ valve is the result of 20 years of experience in providing reliable valves for the transportation of slurries in cross country pipelines. With an installed base of over 3,000 slurry service valves throughout the world, Valvtechnologies is the established leader in these applications. The ABRASOTECH™ valve is offered in carbon and stainless steel materials. The valves' internals can be protected against abrasion, erosion and corrosion, which can occur either independently or concurrently, with the use of RAM® coatings as well as the use of metallic or urethane liners.

The Valvtechnologies ABRASOCHECK™ Slurry Check Valves is specifically designed to handle abrasion as well as corrosive slurry. Valvtechnologies has re-engineered and improved the design of this product to be in-line with their own technology for materials, coatings and manufacturing improvements. The combination of the Valvtechnologies ABRASOCHECK™ Slurry Check Valve and the Valvtechnologies ABRASOTECH™ Slurry Ball Valve provides **ZERO LEAKAGE** isolation for maintenance of positive displacement pumps.

Piping arrangements of all types are subject to vibration from pumps and equipment and stress created by vibration as well as thermal expansion and contraction. EVR's elastomeric flexible connectors can provide for controlled movement, while reducing noise and vibration. Available in an array of materials and configurations, Elasto-flex engineered flexible connectors are suited to almost any piping system and process fluid (figures 1 & 2).



Figure 1:
Station isolation valves – where the pipeline needs zero leakage to isolate long portions of piping & pressure reducing stations.



Figure 2:
Main-line pump isolation valves – where zero leakage is required to isolate operating from non-operating pumps.

- ANSI/ASME Class 600-1500
- 4-24 inch
- ZERO LEAKAGE isolation



Our Expertise

With businesses feeling the pressure to do more with less, valve experts are a rare breed. As a result, the world's leading EPCs and largest valve end-users have turned to CGIS for their valve expertise and consulting services.

Choosing the valve that is appropriate for your application will ensure reduced maintenance, the lowest cost of ownership and highest reliability.

CGIS works with engineering companies to determine which valve is most suitable for an application. A detailed process review is completed to determine exactly what type of valve will best suit the job.

In 2002, CGIS was hired as an expert witness on Knife Gate valves in scaling applications in the Minara versus Fluor lawsuit. Our team of experts have the knowledge and experience required to understand an application's needs and complexities, and to deliver the most reliable valve for the system.

Our expertise also allows us to offer customized consulting services in key areas such as valve specifications for new projects, valve specification review, expert witness testimony, valve failure analysis, and valve cost comparison and cost of ownership analysis.



The World's first true ASME Class 300 Knife Gate Valve



Figure 3

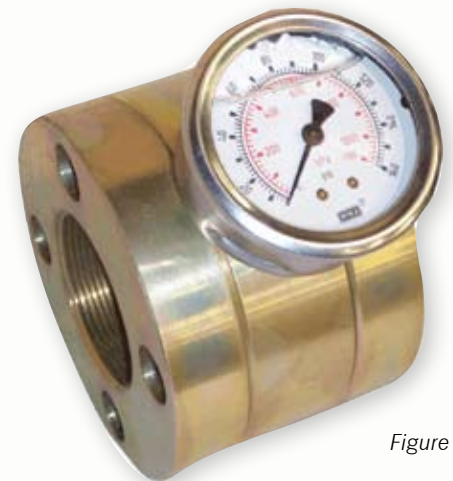


Figure 4

Figure 3:

The SJ-21 joint (shown here) can be fabricated from any of the materials in EVR's comprehensive inventory to suit the requirements of the process system.

The SJ-21 can be engineered and manufactured to withstand extreme temperature ranges, and can function under high pressures or strong vacuums.

Figure 4:

The EVR Elasto-flex pressure sensors provide the ideal method of isolating pressure measurement devices from pressure fluids.

The 360 degree design is self cleaning, eliminating the problem of seal cavity blockage that is common with diaphragm type pressure sensors.

Because of the high volume of sensing fluid used compared to other pressure sensor types multiple instrument arrangements are possible.

Application

Mining experts agree that the Oil Sands slurry is the most abrasive slurry in the world because of larger particle size and higher content of quartz. CGIS is a leader in providing ZERO Leakage valves for the tailings systems with an undeniable success rate.

"A typical Oil Sands tailing line handles 39.4 million mtpy, density 1.45 - 1.50 S.G. slurry with particle size D50 = 160 - 200 micron. Top size is 2-½" with velocity 3.5 - 4 m/sec.

"CGIS' Delta knife gate valves are specifically designed to deal with tailings, a composition of solids, process waste and water. Tailings represent external costs of mining and their disposal are mandatory.

Success Stories

In 2004, a large oil sands company in Alberta purchased 156 Delta knife gate valves sizes ranging from 4 through 30 inches in classes 150 & 300. The valves were used in their tailings system for coarse tailings. To date, the valves are still in use at the plant without any leakage incidents.

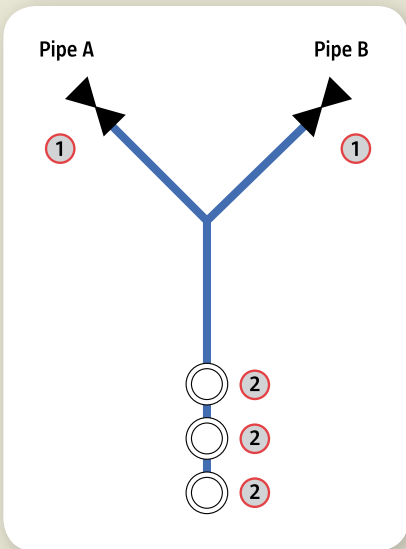
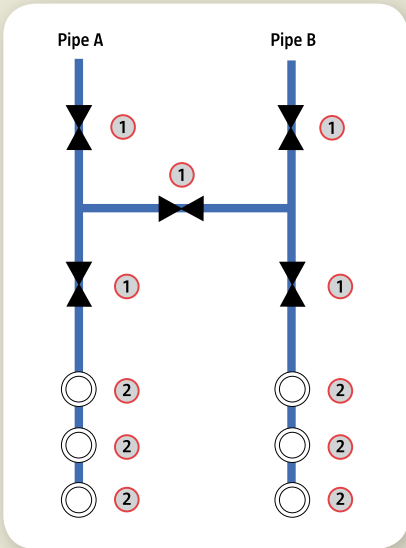
In 2001 a large gold mining site in north western British Columbia purchased 8 Valvtechnologies metal seated ball valves for high pressure tailings applications. At the time of the site's closing in 2008, the valves were still in use, working at their maximum potential with no leakage, failure or complaints.

In 1999 a large oil sands company in Alberta purchased 183 of Valvtechnologies' 2 inch through 24 inch ANSI 150 class valves. The valves have been performing extremely well with minimum maintenance required.

In 2004, a large oil sands company in Alberta purchased 52 Delta knife gate valves sizes ranging from 12 through 30 inches in classes 150 & 300. The valves were used in their tailings system for coarse tailings. To date, the valves are still in use at the plant with without any leakage incident.

These are just a few examples of how successful our valves have been in isolating tailings. We have sold thousands of valves to the mining industry with an exceptional success rate.

Our track record proves that our valves are the most reliable in the business.



- List of components:**
1 - Isolation valve
2 -Pumps



Benefits

Benefits of Delta

- Designed for high pressure & abrasive slurry on/off applications
- Ni-hard wear rings are counter-bored into upstream port to reduce valve wear
- Gate precision ground on all four sides to reduce adhesion of flow media & lengthen seal life
- Flush-out areas in bottom of port cleans the seating area during actuation
- Beveled-edged gate cuts through tough solids
- Bottom of port has no cavity for material build up and produces laminar flow
- "In service" repackable seal allows seal adjustments under full line pressure
- Valve sizes 2" through 72"
- Solid stainless steel actuator stems stay rust and corrosion free
- Reduced maintenance
- Lowest cost of ownership
- Highest reliability

Benefits of Valvtechnologies

- ABRASOTECH™ & ABRASOCHECK™ built specifically for high pressure (Class 600 & higher)
- VTI's ABRASOTECH™ is erosion & corrosion resistant and produces laminar flow
- RAM™ coating and metallic urethane liners
- Reduced maintenance
- Lowest cost of ownership
- Highest reliability
- Highly resistant to wear caused by continuous operation with abrasive slurry

Benefits of EVR

- Available in array of materials and configurations
- Designed to eliminate build-up of suspended materials and reduce vibrations
- Highly flexible
- Available in sizes up to 144 inches
- Series CJ-31, EJ-41 & OJ-61 are designed for situations where piping diameters are of different sizes
- Suitable for highly corrosive materials
- Easy installation
- Reduced maintenance
- Lowest cost of ownership
- Highest reliability

Our Locations

- ★ Offices
- CG sold valves





Our Guarantee

We believe in our products enough to provide a solid incentive to customers

All valves have a specific lifetime beyond which they need to be repaired or replaced. At the time of replacing the valve, we will not only repair the valve for you so that it is essentially brand new, we will also sell it back to you at a fraction of the original cost. Post repair these valves have the capacity to work for an additional number of years equal to or exceeding the original duration.

Loss of production, time spent on repairing damaged or leaking valves and collateral damage all add to excess cost. By choosing the CGIS range of high class valves specific to your application, you are ensured the lowest cost of ownership and less maintenance on your valves.

No worries, no constant repair and most importantly no loss of production.



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