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VALVES

Designed for Severe Service™

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DSS VALVES

Designed for Severe Service™

As industrial processes continue to increase in complexity and risk, valve design and performance is crucial to maintaining consistent plant operation and maintaining your bottom line. Valves are critical to protecting your workers and the environment; they need to be reliable in the harshest of conditions.

DSS Valves is known for creating dependable Severe Service Valves that outlast the competition in any scenario. Investing in a premium product pays dividends through increased service life and reduced downtime, making the overall cost of ownership much less in the long run.

The **Severe Service Knife Gate Valve (SSKGV)** is our flagship valve. The bi-directional zero-leakage design exceeds API, ASME, and MSS specifications all the way up to ASME Class 1500/PN 250 pressures (3750 psig/250 barg).

The **Double Block and Bleed (DBB)** is designed for Severe Service and can handle Class 150, 300, and 600 pressures. The DBB eliminates the need for complicated, costly multi-valve systems. A variety of actuation options are available.

The **General Service Knife Gate Valve (GSKGV)** is a cost-effective alternative to our existing line of Severe Service Valves. The lightweight and simplified design of this valve makes it an appropriate choice for low pressure applications.

The **Severe Service Check Valve (SSCKV)** is the premier check valve on the market today and is engineered to perform where conventional check valves fail. A retainerless body eliminates fugitive emissions and the one-piece disc/shaft/hinge prevents disc breakage.

The **Transmitter Isolation Valve (TIV)** provides zero-leakage isolation and trouble free operation that ensure worker safety when instrumentation is being calibrated, maintained, or replaced.

The **Control Valve (CV)** is built for severe service control applications. They resist erosion and wear that these high velocity applications often see by taking energy out of the system and utilizing their hardening trim and process coating.

The **Scavenger Valve**, also referred to as a junk trap, trash extractor, or reject valve, is built to separate the waste from the valuable material in all forms of pulp manufacturing and re-manufacturing.

Our **SSKGV and SSCKV Tandem** provides isolation and non-return function all within the takeout profile of other larger valves currently in service. If an application requires zero-leakage isolation and a unidirectional flow, these two valves operate seamlessly together.

Our **Soft Start Paste Valve (SSPV)** slows the flow velocity and amount of paste in the pipeline, removing the chance for catastrophic impact caused when paste descends vertically and reaches elbows, valves, or other instruments.

Originally designed for the pulp & paper industry for heavier stock percentages, the **Severe Service Through Gate Valve (SSTGV)** suits a variety of unique applications such as steel industry coke drum deheading.

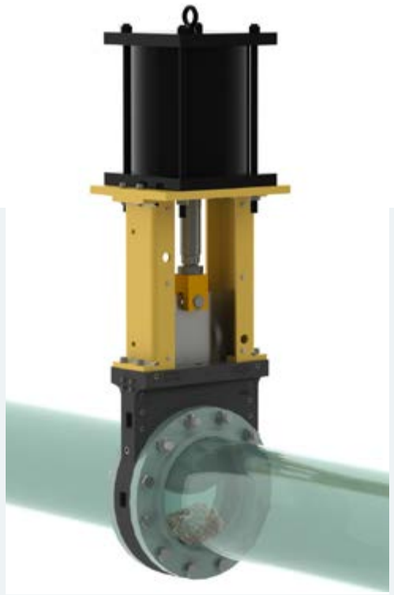
The **Torque-Tek Actuation Gun** provides quick and easy actuation for large diameter valves that can take hours to operate, projects with many small valves, and/or remote locations with few human operators. With no retrofitting required, it works with all DSS Knife Gate Valves with handwheels or gear operators.

This **Severe Service Iso-Check (SSIC)** combination is built for water flush applications in paste backfill systems that require absolute zero-leakage, emissions, or discharges. This tandem unit with hub ends outperforms standard ball, plug, or wedge gate options, but has the same face-to-face dimensions.

Key Industries

MINING · OIL & GAS · POWER · CHEMICAL · MUNICIPAL · PULP & PAPER · STEEL · WASTE WATER

What Makes a **Severe Service** Knife Gate Valve?



Severe service applications require valves that can handle any combination of pressure differentials, extreme temperature, frequent (or infrequent) cycling, corrosive materials and solids in the pipeline.

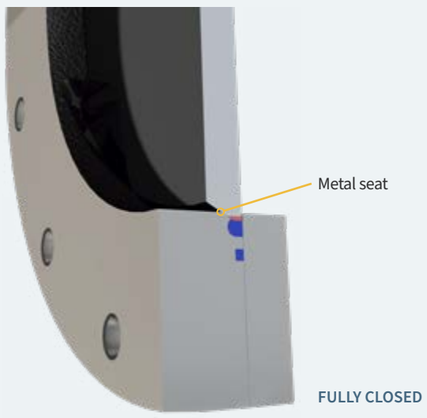
Our revolutionary Guided Shear Gate design achieves sustainable zero leakage in these conditions. This is the reason we're confident in calling our product a true Severe Service Knife Gate Valve (SSKGV).

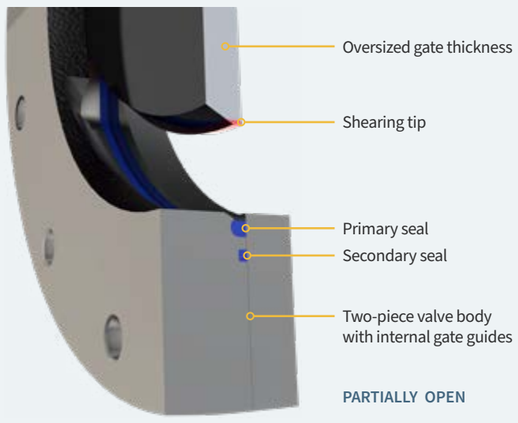
A Knife Gate That Can Actually Cut

As odd as it sounds, traditional knife gate valves cannot actually cut through material on a repeatable basis. Solids in the pipeline cause traditional gates to deflect, warp and leak to atmosphere.

Our Guided Shear Gate design consists of two key elements: a shearing tip and internal gate guides. From open to close the gate is guided the entire way removing any option to deflect when solids are encountered. When the material is struck by the shearing tip it is fractured and angled away, enabling zero leakage where the gate meets the primary seal. A secondary seal further eliminates any possible leakage to atmosphere.

GUIDED SHEAR GATE





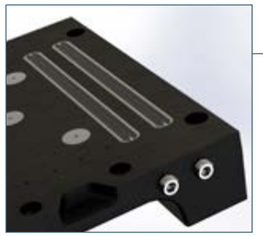
Other Problems We Solve

PROBLEM: Pipe Turbulence and Erosion

SOLUTION:

- Full round bore
- Wider gate and internal gate guides

A round port that matches the pipe ID minimizes turbulence and the resulting erosion. Using wider gates eliminates the flat sides on other designs.

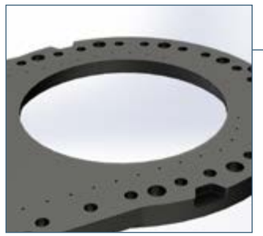


PROBLEM: Leakage to Atmosphere

SOLUTION:

- Dual transverse seals
- Primary and secondary body seals

Ensuring process is contained within the pipeline envelope is the target of operating sites. Using dual transverse seals with a larger packing well ensures zero leakage to atmosphere.

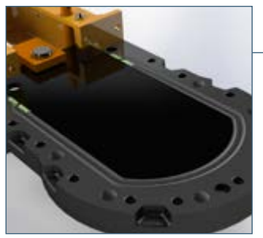


PROBLEM: True Isolation During Cycling

SOLUTION:

- Seal retention holes drilled in both body halves

Seal integrity is paramount in order to achieve isolation. Seal retention holes in both body halves eliminate stretching, tearing and deformation by mechanically retaining the seal. This ensures repeatable zero leakage.



PROBLEM: Pipe Stress

SOLUTION:

- Primary and secondary body seals
- Greater number of body bolts

Some degree of pipe stress is unavoidable in large diameter piping systems. Using a greater number of body bolts ensures the body halves maintain the valves integrity under stress, while the primary and secondary body seals combine to provide the highest level of assurance against leakage.

PROBLEM: Topworks Structure Failures

SOLUTION:

- Heavy duty yokes

Other designs on the market often fail at the connection between the topworks structure and the valve. We've remedied this issue by performing FEA on these parts to ensure this critical, but often overlooked area is enforced with heavy duty components along with the right number and size of bolts that attach the topworks to the valve. This means greater safety for operators and a superior thrust platform for pneumatic, hydraulic, electric and electro-hydraulic actuators.

Actuation Options

Our Severe Service Knife Gate Valves are compatible with a wide range of actuation options and accessories including low profile arrangements, stem extensions and gear operators. Whether you are working with pneumatic, hydraulic, electric or electro-hydraulic systems, we have a solution readily available to suit your needs. See a few of our designs below.

Low Profile Design

Pneumatic Cylinder

Hydraulic Cylinder

Pneumatic Cylinder Rod Boot

Electric Actuator

Handwheel

Bevel Gear

Planetary Gear Box with 2” Operator Nut

American Made

We’ve found a simple solution to make sure our valves exceed the highest global industry standards and it’s pretty darn simple —we don’t take chances and we don’t cut corners. Our valves are made from start to finish entirely in the US and that’s something we’re very proud of.

Designed for Severe Service™

Our design excellence didn’t happen overnight. Our team of engineers spent decades improving and perfecting the finest details of our product line. We cut our teeth creating valves able to withstand the harshest severe service applications where leakage is not an option and unexpected valve failure simply cannot happen.

The Lowest Cost of Ownership

Shutting down operations to replace a faulty valve is expensive, time consuming and detrimental to your bottom line. While no valve lasts forever, we guarantee our revolutionary Guided Shear Gate design will outperform the competition while being easier and less costly to maintain.

Bidirectional Zero-Leakage

Our Severe Service Knife Gate Valves come in a variety of configurations. All models offer zero-leakage, bidirectional isolation that reliably meets or exceeds API, ASME and MSS specifications.

We produce valves that can isolate from full vacuum to ASME Class 1500/PN 250 pressures (3750 psig/250 barg). Don’t let that stop you though—we’re eager to shoot for even higher pressure—we just haven’t met a customer who’s needed it yet. If you have a special request please let us know.

Ready When You Are

Located in Niles, Michigan, our manufacturing facility is primed and ready to serve your severe service needs. With over 90,000 square feet of manufacturing space and a dedicated crew in operation around the clock, we take pride in our ability to deliver a *cutting edge* valve at an industry leading pace.

To learn more, contact us at **info@dssvalves.com** directly. We look forward to working with you.

Contact Us

DSS Valves
1800 Mayflower Road
Niles, MI 49120
USA

TEL: 269-409-6080
FAX: 269-409-6099
info@dssvalves.com
DSSVALVES.COM

DSS® VALVES

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