

STAINLESS VALVE CO.

Division of B+E Mfg. Co., Inc.
4811 Persimmon Ct.
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Phone 1-704-231-4148, al@stainlessvalveco.com

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Tuesday, March 25, 2008



Our production is certified ISO9001:2000 / Certificate No.: QEC16133

STAINLESS VALVE CO., INC.

COMPLETE SOLUTIONS THAT MEET YOUR NEEDS



SVC History

Stainless Valve Co. was founded on March 1, 1973. Stainless Valve Company first developed a valve called Big Blow. A pulp mill had a severe problem using ball valves as blow valves on batch digesters. The life of the ball valves were between two weeks and two months. This unacceptable performance of the ball valves called for the development of a valve that today usually has a service life between refurbishments of 3-5 years, depending on the piping system.

The application today in blow lines is not less violent. Shockwaves of over 10 000 psi have been measured in the blow line application. The Big Blow valve performs very well.

In 1990 Stainless Valve Co. joined B+E as a sales company for specialty valves and is now a division of B+E.

SVC Profile

Stainless Valve Co. is a specialty valve manufacturer that engineers valve products for the specific applications. We are mainly replacing ball valves with our products, but also knife gate or wedge gate, butterfly, and others for applications where those valves do not perform or fail in a period of less than one year. We produce relatively large size valves between 4" and 72" diameter, 150#, 600# 900# and 1500# service, ANSI, JIS and Metric. Most of the valves are automated; pneumatic, hydraulic or electric, but are also available in manually operated versions.

SVC manufactures products in stainless steels, Hastelloy, Inconel, titanium, carbon steel, or any other material available in a plate form.

SVC is not a manufacturer of cheap, off-the-shelf type of valves but gets involved when such valves do not perform or fail prior to one year of service.

SVC Market

After serving pulp manufacturers very successfully for 17 years SVC accepted in 1990 a first order from outside the pulp and paper industry. Since 1995 this trend has intensified and in 2002 for the first time more valves were supplied to the industries other than pulp and paper. In 1990 SVC has also for the first time supplied valves outside the USA, initially to Norway, then Canada, Indonesia, India, Taiwan, Venezuela, Mexico, Switzerland, and since 2003 also France and Australia.

Stainless Valve Co. now serves the mining, power generation, chemical, petro-chemical, refineries and food Industries. There are many more applications in other industries where SVC valves can offer a distinct advantage over standard ball, knife gate and butterfly valves.

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SVC Products

Stargate O-Port[®], Big Blow, Big Cap, Big Knife, Big Screen and Big Wafer are our trade names. The valves are used specially in applications where other valves do not perform, have a life span of less than a year, or cause high maintenance cost/cost of ownership.

We offer complete solutions that meet your needs.

We supply different industries: **Pulp and Paper, Mining, Chemical, Petro-Chemical, Food, Power Generation.**

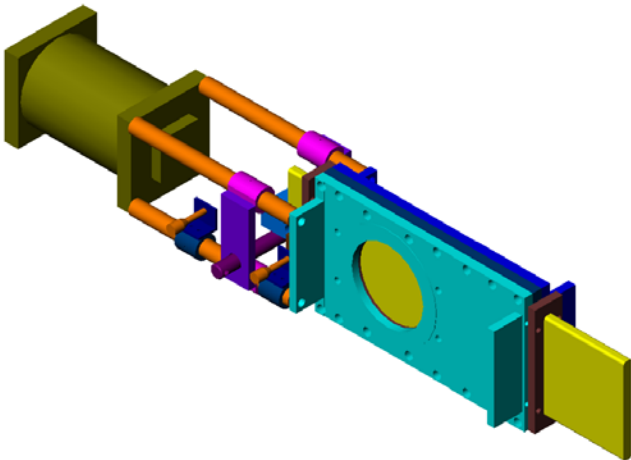
We offer quality products.

We offer engineering and design for your valves and applications.

We offer repair and maintenance.

We are your partner in manufacturing valves

For almost 30 years, STAINLESS VALVE CO. has supplied through port valves of simple design yet made to very tight tolerance requirements resulting in very reliable valves. Using one of the industry's most severe environments as our testing grounds, the resulting developments offered in our SVC Valves are most impressive.



The *Star of the Valves*, the **Stargate-O-Port[®]** valve.

It is not a knife-gate valve!



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Applications:

The SVC Stargate-O-Port[®] valves can be used in a variety of applications where standard valves do not perform or cause operational issues. SVC Stargate-O-Port[®] valves are used as isolation valves on process gas in PTA manufacturing, mixing pumps, bleaching towers, batch digesters, continuous digesters, blow tanks, washers, stock pumps, liquor heaters, liquor supply lines, lime storage bins, recovery boiler, green liquor, pulp storage tanks, manifolds for high consistency stock, fly ash bins, filling valves on reactors, catalyst recycling reactors, etc. SVC Stargate-O-Port[®] valves are best suited in applications where solid matter can be trapped in the seat area or the bottom of the valve, the process fluid is abrasive or corrosive, and where the process material can adhere to valve parts. This is where the advantages of the SVC Stargate-O-Port[®] valves become very apparent. Since the blade passes through the valve body at both ends, no material can get trapped between the blade and seat so that the valve always seats and seals well. Stargate-O-Port[®] valves offer safe sealing and long service life which keeps maintenance and replacement costs down.

What Is A SVC Stargate-O-Port[®] Valve? What Are The Advantages?

The main characteristic of this type of valve, also called slide-gate valve or through-port valve is the well-guided blade passing through both ends of the valve body, having an orifice in the middle of the blade. This basic concept has a series of advantages:

- The valves are the superior choice for handling solids in flow media. Liquid, gas and solid flow media or combinations thereof are all handled well by the Stargate O-Port[®] valve.
- Proper actuation of the valve is guaranteed. No material gets trapped in the bottom of the valve, thus there is no opportunity for accumulated solid material to hinder actuation.
- The valves have a drip-tight shut-off, independent of the pressure differential between upstream and downstream side of the valve.
- The valves do not require maintenance of any kind including lubrication.
- The valves can be used as shut-off valves, flow control valves and line blinds.
- Even in a partially open position the valves have a straight flow direction, different from ball valves where the flow is re-directed twice.
- Short face to face dimension, a fraction of the space requirement of a ball valves in the flow direction.
- Foreign matter does not get jammed between the gate and the body. This prevents seat damage so that the valves always seat and seals well.
- Long leak free operation, through the valve and the valve body.
- Pressure shock waves, aggressive flow media are well handled by these valves.
- The valves can be installed in any position in the pipe; they do not have a preferential flow direction.
- Over 97% of the body thickness is solid material, resulting in a very stiff valve body. 3% or less are the gaps between the blade and the side plates.

Characteristics of the SVC Stargate-O-Port[®] Design

- Very rugged design manufactured to tight tolerances for many years of trouble free service.
- No metal-to-metal contact. Blades move in PTFE, PEEK, or Graphite guides, depending on the application. The seats in the valves are protected and away from the flow area. They are spring-loaded for tight shut-off, independent of the pressure differential between upstream and downstream side.

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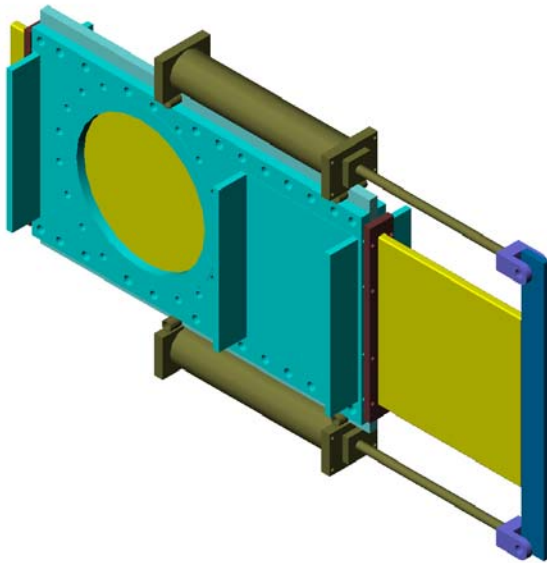
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- The blades are sealed by a rope/chevron/u-seal combination. There is a minimum gap between the gate and the body, which prevents foreign matter from getting jammed between the gate and the body.
- Locking mechanism locks blade in open and/or closed position for greater safety.



24" Stargate O-Port[®] Valve with Tandem Actuators

- The flanges of the piping are directly bolted onto the side plates of the valves with a total of four bolts reaching through the valve body and through both flanges for improved strength of the assembly.
- Full port (discharge area equal to pipe area) is standard even at takeout dimensions of reduced port ball valves or shorter. No flow restrictions exist due to smooth unobstructed discharge area. This assures maximum production throughput.

Materials

- The valves are made in 300 series Stainless Steel, Duplex Stainless Steel, Hastelloy, titanium, carbon steel, or any other material available in plate form.
- Seats and blade guides can be specified in PTFE, PEEK, and Graphite. Typically this material is 25% glass filled. Food grade materials are also available.

Valve Actuators

Most valves are actuated by type "A" pneumatic actuators, i.e., the top quality cylinders for longest life even at high cycle rates. The actuators are epoxy-painted; cylinder rods are stainless steel for corrosion resistance. The opening and closing speed can be varied with the airflow between typically 1"/s and 10"/s seconds. Higher speeds can be provided. The actuators on valves up to 18" are mounted in-line with the blade. For valves of 20" and above the actuators are mounted in tandem on the small sides of the valves, acting through crossbars attached to the blades. Hydraulic and electric actuators are available, as well as manual hand-wheel and gear operators.

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Locking Devices

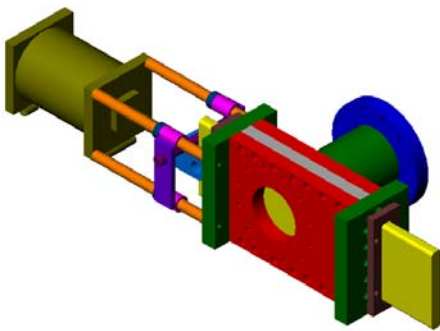
Pneumatic actuated valves are supplied with LO locking devices, for mechanically locking the valves in the closed position. This allows work behind the locked valve without the necessity of setting a line blind. The pin of the locking device is heavy enough to allow the valve actuators to be charged with 125 psi air pressure without damage to the locking device. The LO locking device for locking in the open position is available as an option.

Control Options

- Micro limit switches, Go proximity switches or any other limit switches based on customer preference indicating open or closed position are provided.
- An option is the supply of solenoid valves to activate the cylinders. They are mounted on the valve actuators and connected to the actuator ports. The solenoid valves and limit-switches are directly wired to the customers control station. No control panel is required at the valves.
- SVC valves are suitable for throttling services. Different port shapes in the body and the blade allow different flow and regulating characteristics.

Further Options

- Take-out dimensions larger than the MSS standard are possible; for example by the manufacture of an asymmetric valve. Spool pieces can thus be avoided.



8" Asymmetric Stargate O-Port[®] valve

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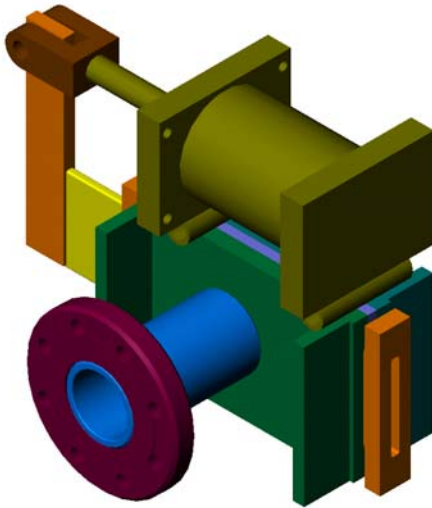
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- If space constraints exist it is possible to supply also the smaller valves with the tandem actuators, mounted on the both sides or a single side mounted actuator.



4" Stargate O-Port[®] Valve with Long Face to Face and Side Mounted Actuator

- For very abrasive applications a design-option is to exchange the seats without taking the valve out of the line.
- Covers over the ends of the valves can be provided, which prevent persons to be in the way of the valve blade when it is actuated.

Refurbishment

After many years of service, SVC valves may require repacking or replacement seats. Stainless Valve Co. has the necessary technical expertise, the personnel, spare parts, and equipment to perform this service fast and economically. Whenever possible, products are updated to the latest state of art. Do not trust your valuable investment to anyone else.

Dimensions

The valves are typically made in dimensions ranging from 6" to 36" diameter for the Stargate-O-Port[®] valves and 6" to 48" for knife gate valves. Presently the existing equipment allows manufacture of the Stargate-O-Port[®] up to 72" diameter and the Big Knife valves up to 120" diameter. For special applications valves have been made down to 1 1/2" diameter. The valve dimensions are based on ANSI, DIN and JIS standards or any other special dimensions required.

Temperatures

The low temperature range for Stargate-O-Port[®] valves is up to 450F(230C). Medium temperature is 450F(230C) to 1000F(540C). High temperature is anything above 1000F(540C).

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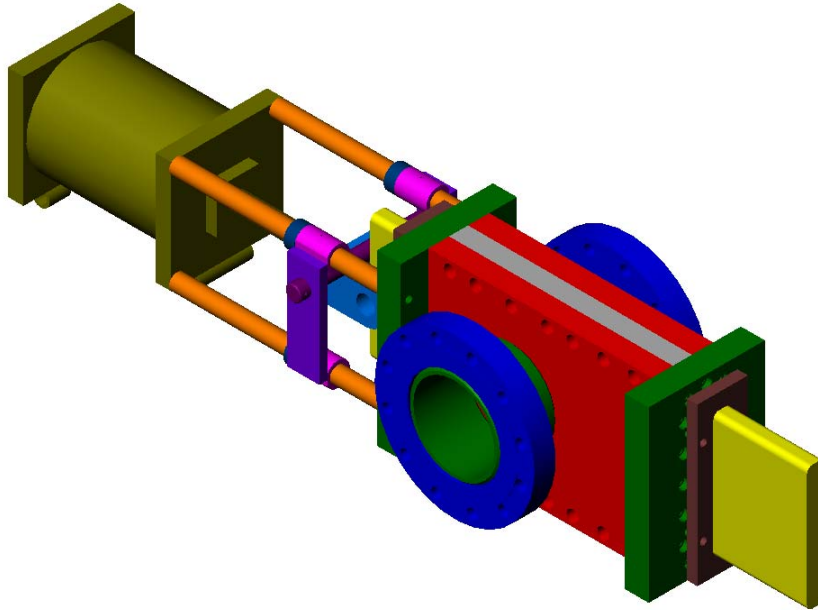
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The Big Blow™ Valve



Major factors making use of Big Blow™ Valve the first choice:

- Excellent performance with an absolute minimum of maintenance. This valve is built rugged enough to withstand almost any problem related to the batch pulp digesters.
- The Big Blow™ is almost indestructible. It has tremendous resistance to abrasion, corrosion, shock waves, system vibration, and sudden changes in temperature.
- The wear areas are the PTFE seats and packing. They have a normal life of three years. Longer life is common. The seats are not exposed. They are inset from the bore and cannot be directly hit by the flow of steam or the flow of media, not even in the partially open position at the beginning of the blow down.
- Even if the seats are worn or destroyed, little leakage can flow through the valve due to the small clearance between the blade and side plates. There is no danger of dewatering.
- Built in safety factors allow maintenance work behind the valve when the LC locking device is engaged. The blade position is always visible even from a distance. Two inches of stainless steel in a 10" Big Blow™ block the port, and cannot be blown to the open position. Only one Big Blow™ valve per digester is required.
- Big Blow™ valves of 10" and 12" size use 12" air cylinders, which generate over 9,000 lbs., thrust at 80 psi air pressure. This assures that the valves will not stick or hang during actuation. Big Blow™ Valves have the capability to shear foreign matter between the blade and side plate.
- Big Blow™ valves open slowly and consistently. The opening time can be controlled from approximately 10 to 60 seconds.

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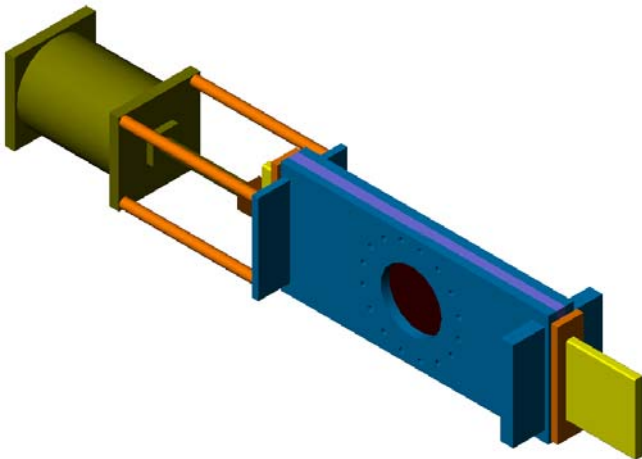
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Stargate O-Port[®] AS Valve The Solution to the Sticky, Scaling Problem



10" 300# Stargate O-Port[®] AS valve

When scale is formed on the moving elements of ball valves or gate valves the consequence is either blocking of the valve movement or damage to the valve seats and consequent leaking through the valves. Since its development in 1995 the Stargate O-Port[®] AS valve has eliminated scaling issues in valve applications.

The special aspect of the AS-Stargate-O-Port[®] valve is the combination of coatings and seats in order to eliminate the negative aspects of scale formation or sticky flow media. There are a variety of different coatings, which can be applied to the blade. We found the best coating to be used for low temperature applications to be the "High-Build", which creates a barrier between the blade and the flow media. The "High-Build" has a good adhesion to the blade but the flow media, respectively the scale, does not stick to the "High-Build". This makes it possible for the seats to wipe the blade clean when the valve is actuated. For high temperature applications mostly a Nickel-based coating is used. Again the desired property is a low coefficient of friction between the coating and the flow media.

The Stargate O-Port[®] AS valve has been used in a variety of applications including mining, food processing, and liquor heaters, lime storage, and fly ash bins in the pulp and paper industry with great success. One application in a hydrometallurgy autoclave for a gold mine 12" knife gate valves were used that had to be replaced every two weeks. The customer has installed Stargate O-Port[®] AS valves that have now been in service for 6 years without refurbishment. The Stargate O-Port[®] AS valve has exhibited similar results in other applications involving sticky or scaling materials.

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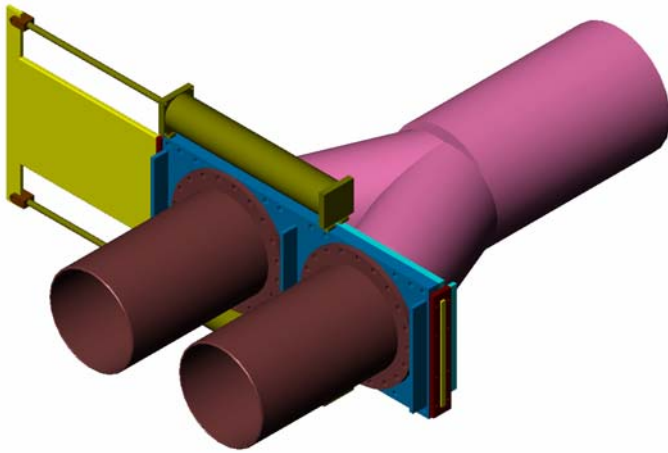
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Stargate-O-Port™ Diverter Valve The Three-Way-Valve

The Stargate O-Port® Diverter valve can be applied to a variety of applications where flow of material has to be diverted from one line to another. The Stargate O-Port® Diverter valve has been used in chip feed applications to divert chip flow from one digester to another. The Stargate O-Port® Diverter valve can also be use in place of two single valves around a positive displacement pump. This valve guarantees uninterrupted media flow when the flow of a positive displacement pump is redirected to a different pipe. This valve can also be supplied with an additional position for complete shut-off, replacing two single valves.



A recently developed special application for the Stargate O-Port® Diverter valve is in common header systems. The Stargate O-Port® Diverter valve can be used to convert a common header system into a system where each vessel has an individual flow path to the next step in the process. Based on the application this can prevent damage to other components in the system and increase flow speed.

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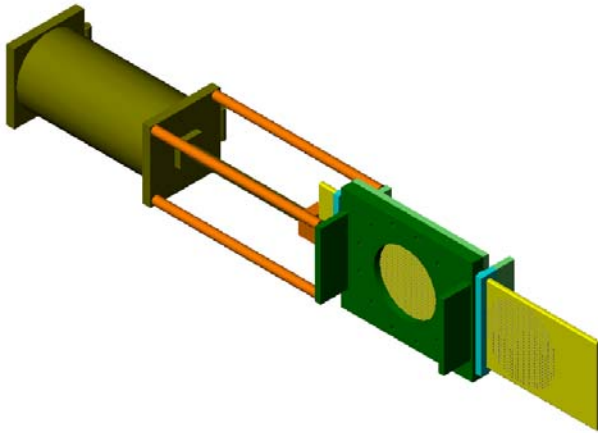
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Stargate O-Port[®] Big Screen[™] The Automatically Exchangeable Screen



12" Stargate O-Port[®] Big Screen Valve

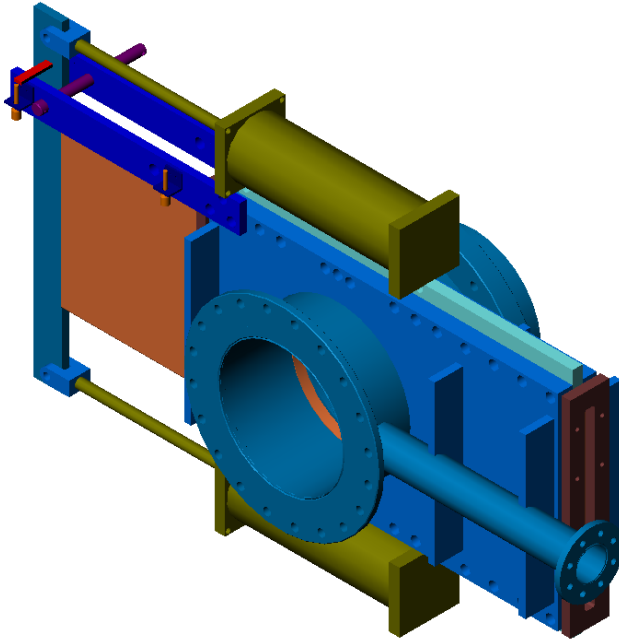
Stop production, take flanges loose, drop pipes and replace screens is a frequent task. Big Screen[™] will reduce the down time for maintenance purposes. An example for the application of such a Big Screen[™] is the vent on a steaming vessel. There are other possible applications like a back up screen behind the rotary screen for the recovery boiler, reducing possible plugging of the heat exchangers and burners.

The advantages of Big Screen[™]

- Big Screen[™] replaces screens without stopping production.
- The actuator moves the screens, bringing the one, which is to be exchanged outside the body and at the same time the clean one into the flow area.
- While the one screen is outside the body it can be cleaned and prepared for the next exchange while production continues.
- Cut rings shear the protruding matter from the screen surface, protecting the seats and ensuring a tight seal.



Stargate-O-Port[®] Capping Valves



20" Stargate O-Port[®] Capping Valve with Steaming and Evacuation

For full automation of the filling of the digesters, capping valves are used instead of manually installed blanks.

The advantages of the SVC Stargate-O-Port[®] Capping valves over ball valves are:

- Very rugged design for long life.
- Safe operation without hang-ups.
- No material can be trapped between the blade and seat. This guarantees tight shut-off.
- The SVC Stargate-O-Port[™] valves have very short takeout dimensions. Installation requires only a minimum of changes to the conveyer system and building. It is not necessary to raise the roof of the building!!
- Generally Stargate-O-Port[™] valves have lower prices than ball valves of the same size.
- The bottom side of the valve has a 300 psi flange with a bolt hole pattern to fit the top flange of the digester.
- On the top side, the hopper or a spool piece can be directly bolted against the side plate of the valve body, thus entering the digesters for service without removal of the valve is possible.
- The SVC Stargate-O-Port[®] allows adaptation to the special needs of the application, like pressure switches, automatic locking devices, face to face dimensions, etc.
- SVC Stargate-O-Port[®] handles overfilling of a digester without seat damage by moving overfilled chips into the valve body - pressure free - and bringing back the overfilled material for the next cycle.

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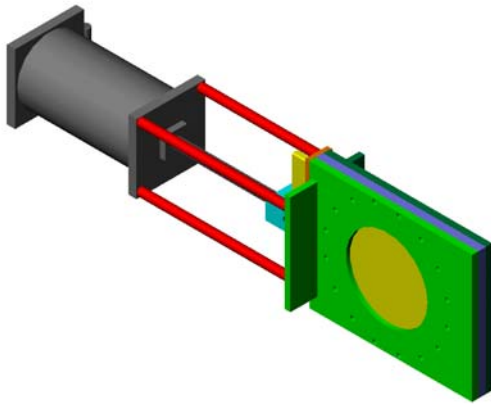
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Big Knife™



16" Big Knife™ Valve

Big Knife™ valves are a development to bridge the gap between the typical knife-gate valves, which are often called throw-away valves with all their many technical disadvantages, and the more expensive Stargate-O-Port® valves.

- When knife-gate valves are used in applications with solids in the flow media, these valves tend to compress the solids into the seat area, over time preventing the valve from closing properly. The SVC Big Knife™ valves are designed for applications with low percentage of solids.
- For higher percentage of solids, frequent actuation of the valves or for valves where the drip tight shutoff is required, the Stargate-O-Port® valves are the technically and economically better solution in spite of the higher initial purchase price.
- SVC Big Knife™ valve are designed to allow solids to accumulate in the bottom of the valve, to a certain extent, as the valve is being closed. The bottom of the valve can be flushed out in order to prevent compaction of material in that area. The amount of accumulated solids depends on valve size, particle size and percentage of solids in the flow. The other advantage of SVC Big Knife™ design over other knife gate valves is the possibility to clean out the valve bottom if material cannot be flushed out and to do this while the valve is in line. The bottom lid is opened for clean-out.
- When the SVC Big Knife™ valves are used together with a locking device for blanking off purposes without setting blanks, often a small drainage valve is installed downstream from an isolation valve in order to monitor possible leakage through the isolation valve. With the SVC Big Knife™ valve this installation of a drainage valve not necessary. Opening the bottom of the valve allows the monitoring of the leak proof ness of the Big Knife™ valve. Also there is no pressure build up inside the valve which can give a force component towards the opening direction of the blade; an added benefit for safety.
- SVC Big Knife™ valves still retain the bi-directional shut-off feature of our other valve designs. The gate is being guided between spring loaded seats through its entire travel.
- There are no bent gates at high pressure on reverse flow because of the heavy-built design of the valve.

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The SVC Advantage

SVC manufactures valves specific to the customer application. With a wide range of products and custom design, SVC can design a valve to perform to customer expectations in most applications where standard valves will not. The basic design principle allows SVC engineers to design an application specific product that will alleviate the customer's most difficult valve issues.