DSS®
VALVES

SEVERE SERVICE KNIFE GATE VALVE

Installation, Operation and Maintenance Manual

AIS
AMERICAN IRON & STEEL
COMPLIANT

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COMPLIANT

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Thank You for Choosing DSS Valves

At DSS Valves we have mastered the design and manufacture of the preeminent Severe Service Knife Gate Valves on the market. We're excited that you've decided to put your trust in our product.

To make sure you achieve maximum service life and trouble free operation from your investment, we've put together this **installation, operation and maintenance manual** that highlights the key features and benefits of your valve, as well as important information for valve upkeep.

Should you have any questions, please feel free to contact us directly.

Sincerely,

The Team at DSS Valves

DSS Valves
1800 Mayflower Road
Niles, MI 49120
USA

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

Working with industrial valves is inherently dangerous, and appropriate precautions should be taken at all times. Only skilled professionals with qualified experience using the tools and equipment required should be involved.

Proper understanding of the system and application the valve is being inserted into is a must.

Safety equipment should always be worn during the process, and should include but is not limited to steel toed boots, hard hats, ear and eye protection, and high visibility clothing.

Any alteration or modification to the valve supplied by DSS Valves must receive written approval. DSS Valves is not responsible for consequential damages should this written approval not be obtained.

Flange Bolts and Studs

ASME B16.5 AND B16.47 SERIES A

The bolt and stud quantities below are per flange.
For non-dead-end service, double the quantities for installation.

DSS STANDARD THREAD PITCH

CLASS 150		
NPS	Hex Head Flange Bolt	Flange Stud
2	⅝"-11 x 1.50" Long (Qty. 4)	N/A
3	⅝"-11 x 1.75" Long (Qty. 4)	N/A
4	⅝"-11 x 1.75" Long (Qty. 6)	⅝"-11 x 3.00" Long (Qty. 2)
5	¾"-10 x 1.75" Long (Qty. 2)	¾"-10 x 2.75" Long (Qty. 6)
6	¾"-10 x 2.00" Long (Qty. 6)	¾"-10 x 3.00" Long (Qty. 2)
8	¾"-10 x 2.25" Long (Qty. 4)	¾"-10 x 3.25" Long (Qty. 4)
10	⅞"-9 x 2.25" Long (Qty. 8)	⅞"-9 x 3.25" Long (Qty. 4)
12	⅞"-9 x 2.25" Long (Qty. 8)	⅞"-9 x 3.50" Long (Qty. 4)
14	1"-8 x 2.25" Long (Qty. 8)	1"-8 x 3.75" Long (Qty. 4)
16	1"-8" x 2.50" Long (Qty. 10)	1"-8 x 4.00" Long (Qty. 6)
18	1 ⅛"-8 x 2.75" Long (Qty. 10)	1 ⅛"-8 x 4.25" Long (Qty. 6)
20	1 ⅛"-8 x 3.00" Long (Qty. 12)	1 ⅛"-8 x 4.75" Long (Qty. 8)
22	1 ¼"-8 x 3.00" Long (Qty. 12)	1 ¼"-8 x 4.75" Long (Qty. 8)
24	1 ¼"-8 x 3.25" Long (Qty. 12)	1 ¼"-8 x 5.00" Long (Qty. 8)
26	1 ¼"-8 x 4.25" Long (Qty. 14)	1 ¼"-8 x 6.25" Long (Qty. 10)
28	1 ¼"-8 x 4.50" Long (Qty. 18)	1 ¼"-8 x 6.25" Long (Qty. 10)
30	1 ¼"-8 x 4.50" Long (Qty. 18)	1 ¼"-8 x 6.50" Long (Qty. 10)
32	1 ½"-8 x 4.75" Long (Qty. 16)	1 ½"-8 x 7.00" Long (Qty. 12)
36	1 ½"-8 x 5.00" Long (Qty. 18)	1 ½"-8 x 7.25" Long (Qty. 14)
42	1 ½"-8 x 6.25" Long (Qty. 22)	1 ½"-8 x 8.50" Long (Qty. 14)
48	1 ½"-8 x 6.50" Long (Qty. 28)	1 ½"-8 x 8.75" Long (Qty. 16)

CLASS 300		
NPS	Hex Head Flange Bolt	Flange Stud
3	¾"-10 x 2.00" Long (Qty. 6)	¾"-10 x 3.00" Long (Qty. 2)
4	¾"-10 x 2.25" Long (Qty. 6)	¾"-10 x 3.50" Long (Qty. 2)
6	¾"-10 x 2.50" Long (Qty. 8)	¾"-10 x 3.75" Long (Qty. 4)
8	⅞"-9 x 2.75" Long (Qty.8)	⅞"-9 x 4.25" Long (Qty. 4)
10	1"-8 x 3.50" Long (Qty. 10)	1"-8 x 4.75" Long (Qty. 6)
12	1 ⅛"-8 x 3.50" Long (Qty. 10)	1 ⅛"-8 x 5.25" Long (Qty. 6)
14	1 ⅛"-8 x 3.50" Long (Qty. 14)	1 ⅛"-8 x 5.50" Long (Qty. 6)
16	1 ¼"-8 x 4.25" Long (Qty. 14)	1 ¼"-8 x 5.75" Long (Qty. 6)
18	1 ¼"-8 x 4.25" Long (Qty. 16)	1 ¼"-8 x 6.25" Long (Qty. 8)
20	1 ¼"-8 x 4.50" Long (Qty. 16)	1 ¼"-8 x 6.25" Long (Qty. 8)
24	1 ½"-8 x 5.00" Long (Qty. 16)	1 ½"-8 x 7.25" Long (Qty. 8)
26	1 ⅝"-8 x 5.50" Long (Qty. 18)	1 ⅝"-8 x 8.00" Long (Qty. 10)
28	1 ⅝"-8 x 5.75" Long (Qty. 18)	1 ⅝"-8 x 8.25" Long (Qty. 10)
30	1 ¾"-8 x 6.25" Long (Qty. 18)	1 ¾"-8 x 8.75" Long (Qty. 10)
32	1 ⅞"-8 x 6.75" Long (Qty. 20)	1 ⅞"-8 x 9.00" Long (Qty. 8)
36	2"-8 x 7.50" Long (Qty. 22)	2"-8 x 9.75" Long (Qty. 10)
42	1 ⅝"-8 x 7.50" Long (Qty. 18)	1 ⅝"-8 x 9.75" Long (Qty. 14)
48	1 ⅞"-8 X 8.25" Long (Qty. 18)	1 ⅞"-8 X 10.00" Long (Qty. 14)

UNIFIED COARSE THREAD SERIES (UNC)

CLASS 150		
NPS	Hex Head Flange Bolt	Flange Stud
2	⅝"-11 x 1.50" Long (Qty. 4)	N/A
3	⅝"-11 x 1.75" Long (Qty. 4)	N/A
4	⅝"-11 x 1.75" Long (Qty. 6)	⅝"-11 x 3.00" Long (Qty. 2)
5	¾"-10 x 1.75" Long (Qty. 2)	¾"-10 x 2.75" Long (Qty. 6)
6	¾"-10 x 2.00" Long (Qty. 6)	¾"-10 x 3.00" Long (Qty. 2)
8	¾"-10 x 2.25" Long (Qty. 4)	¾"-10 x 3.25" Long (Qty. 4)
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12	⅞"-9 x 2.25" Long (Qty. 8)	⅞"-9 x 3.50" Long (Qty. 4)
14	1"-8 x 2.25" Long (Qty. 8)	"-8 x 3.75" Long (Qty. 4)
16	1"-8 x 2.50" Long (Qty. 10)	1"-8 x 4.00" Long (Qty. 6)
18	1 ⅛"-7 x 2.75" Long (Qty. 10)	1 ⅛"-7 x 4.25" Long (Qty. 6)
20	1 ⅛"-7 x 3.00" Long (Qty. 12)	1 ⅛"-7 x 4.75" Long (Qty. 8)
22	1 ¼"-7 x 3.00" Long (Qty. 12)	1 ¼"-7 X 4.75" Long (Qty. 8)
24	1 ¼"-7 x 3.25" Long (Qty. 12)	1 ¼"-7 X 5.00" Long (Qty. 8)
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28	1 ¼"-7 x 4.50" Long (Qty. 18)	1 ¼"-7 X 6.50" Long (Qty. 10)
30	1 ¼"-7 x 4.50" Long (Qty. 18)	1 ¼"-7 x 6.75" Long (Qty. 10)
32	1 ½"-6 x 4.75" Long (Qty. 16)	1 ½"-6 x 7.00" Long (Qty. 12)
36	1 ½"-6 x 5.00" Long (Qty. 18)	1 ½"-6 x 7.25" Long (Qty. 14)
42	1 ½"-6 x 6.25" Long (Qty. 22)	1 ½"-6 x 8.50" Long (Qty. 14)
48	1 ½"-6 x 6.50" Long (Qty. 28)	1 ½"-6 x 8.75" Long (Qty. 16)

CLASS 300		
NPS	Hex Head Flange Bolt	Flange Stud
3	¾"-10 x 2.00" Long (Qty. 6)	¾"-10 x 3.00" Long (Qty. 2)
4	¾"-10 x 2.25" Long (Qty. 6)	¾"-10 x 3.50" Long (Qty. 2)
6	¾"-10 x 2.50" Long (Qty. 8)	¾"-10 x 3.75" Long (Qty. 4)
8	⅞"-9 x 2.75" Long (Qty. 8)	⅞"-9 x 4.25" Long (Qty. 4)
10	1"-8 x 3.50" Long (Qty. 10)	1"-8 x 4.75" Long (Qty. 6)
12	1 ⅛"-7 x 3.50" Long (Qty. 10)	1 ⅛"-7 x 5.25" Long (Qty. 6)
14	1 ⅛"-7 x 3.50" Long (Qty. 14)	1 ⅛"-7 x 5.50" Long (Qty. 6)
16	1 ¼"-7 x 4.25" Long (Qty. 14)	1 ¼"-7 x 5.75" Long (Qty. 6)
18	1 ¼"-7 x 4.25" Long (Qty. 16)	1 ¼"-7 x 6.25" Long (Qty. 8)
20	1 ¼"-7 x 4.50" Long (Qty. 16)	1 ¼"-7 x 6.25" Long (Qty. 8)
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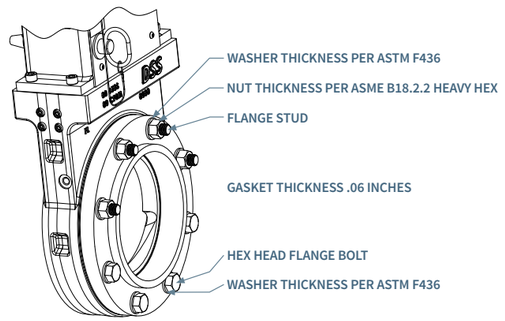
26	1 ⅝"-6 x 5.50" Long (Qty. 18)	1 ⅝"-6 x 8.00" Long (Qty. 10)
28	1 ⅝"-6 x 5.75" Long (Qty. 18)	1 ⅝"-6 x 8.25" Long (Qty. 10)
30	1 ¾"-5 x 6.25" Long (Qty. 18)	1 ¾"-5 x 8.75" Long (Qty. 10)
32	1 ⅞"-8 x 6.75" Long (Qty. 20)	1 ⅞"-8 x 9.00" Long (Qty. 8)
36	2-4 ½"x 7.50" Long (Qty. 22)	2-4 1/2 x 9.75" Long (Qty. 10)
42	1 ⅝"-6 x 7.50" Long (Qty. 18)	1 ⅝"-6 x 9.75" Long (Qty. 14)
48	1 ⅞"-8 x 8.25" Long (Qty. 18)	1 ⅞"-8 x 10.00" Long (Qty. 14)

Hex screws and studs sized according to the use of the following hardware:

- Nuts per ASME B18.2.2 dimensions.
- Gasket thickness of .06 of an inch.
- Washers per ASTM F436 dimensions.
- Flange fitting per ASME B16.5 and B16.47 series A.

End user to assure that any deviation from these components is accounted for when selecting screw and bolt length.



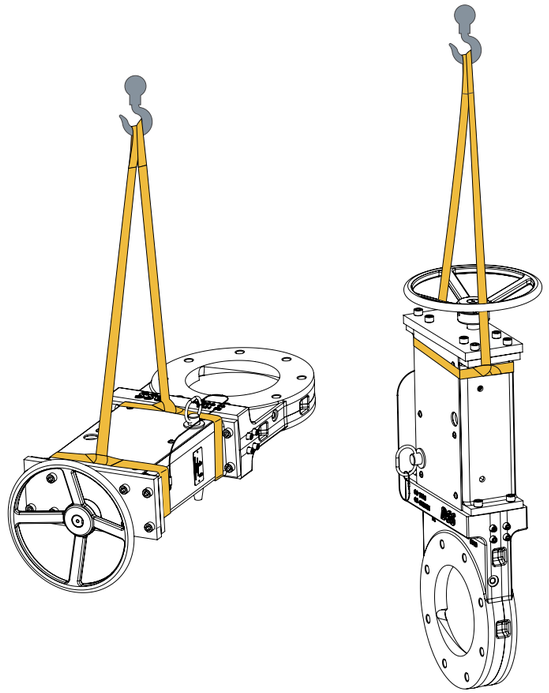
Installation Guidelines

STORAGE

Prior to installation, keep this valve in the factory applied shrink wrapping and store in a dry environment.

TRANSPORTATION

The safest and easiest way to move this valve is to leave it in the supplied shipping crate and use a forklift and/or pallet jack as appropriate. When the time comes to unpack and move it without the crate, be sure to **attach proper lifting straps or covered chains** in the following positions:



CLEANING THE INSTALLATION SITE

Remove dust, dirt, debris, and any applied corrosion protection from pipeline and flanges before installing the valve.

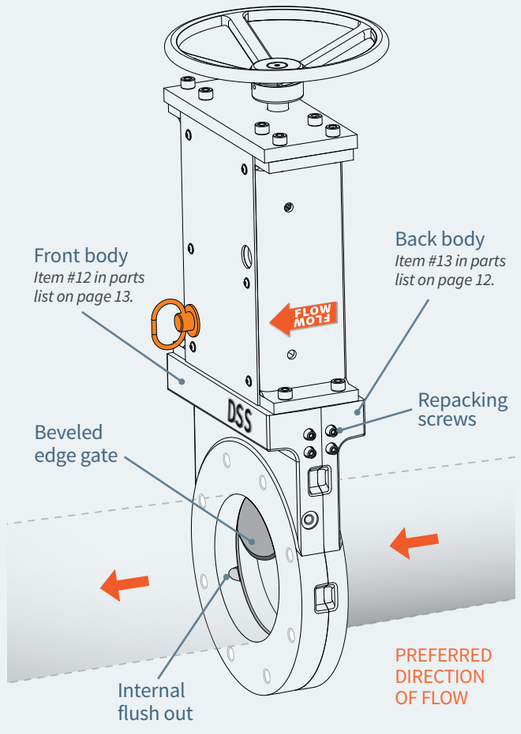
FLOW DIRECTION AND INSTALLATION POSITION

This valve can be installed in any required position, and comes factory tested for zero leakage isolation from either flow direction. It is preferred that the back body is facing upstream, while the front body is facing downstream. *See pages 12-15 for parts diagram and list*.

For valves supplied with Ni-Hard wear rings, bore reducers, or other body inserts the flow direction is more critical. Ensure that the inserts are on the upstream side of the valve, and that the orange arrow points in the direction of the flow.

Orange preferred flow sticker

When installing, remember to make sure at least one side of the valve body is accessible so that the packing screws can be adjusted.



PIPELINE ALIGNMENT

Inaccurately aligned pipelines can cause stress to the valve body. Be sure to have any misalignments corrected before installation of the valve.

MATING FLANGES

Always check to make sure the mating flanges have a proper seal — the bolts used in the blind flange holes in the valve's chest area should not touch the bottom of the holes. DSS valves come standard with tapped flange holes, however through bolts are available upon request.

INSTALLING INTO A PIPELINE:

When installed in any orientation, this valve ensures zero-leakage. Its performance remains unaffected even without external support for the valve or its attached actuator.

1. Bolt the valve to the mating flange using the proper size fasteners. DSS recommends the use of studs to ensure the full thread engagement of tapped holes. If using stainless steel fasteners, lubricate to prevent galling.
2. Adjust fastener length for mating flange thickness, gaskets, and support rings.
3. Tighten the flange bolts in an alternating sequence.
4. Prepare the valve for hydro testing.

   Handwheel-operated or Bevel Gear-operated valves: no action required.

   Air Cylinder-operated valves — connect the control air supply to the air cylinder. Standard configured valve required pressure is 50–100 psi.

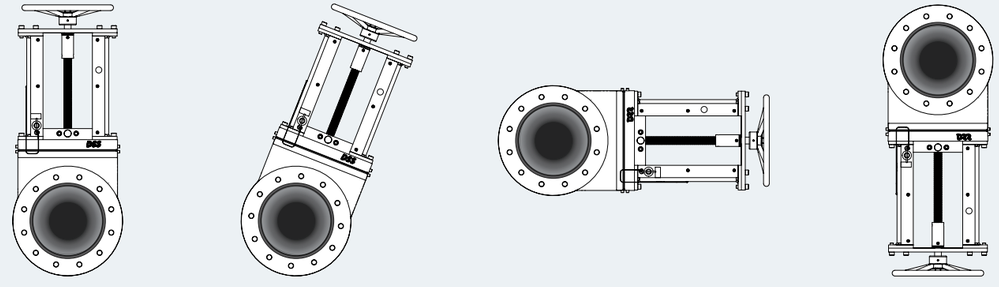
   Hydraulic Cylinder-operated valves — connect control hydraulic supply to the hydraulic cylinder. Standard configured valve required pressure is 500–1000 psi.

   Electric-operated valves — connect electric supply according to instructions.
5. Hydro test the system. For more information, see the *repacking the primary and secondary seals* section in the maintenance portion of this manual.

Note: After the valve is installed and is under pressure, be sure to observe closely for the first 24 hours. Occasionally a small leak may occur if the gate seal integrity was impacted by rough transport, lengthy storage, or extreme temperature variations. This can be remedied by tightening the packing screws accordingly.

If further technical advice is required, feel free to consult DSS Valves directly: **info@dssvalves.com**

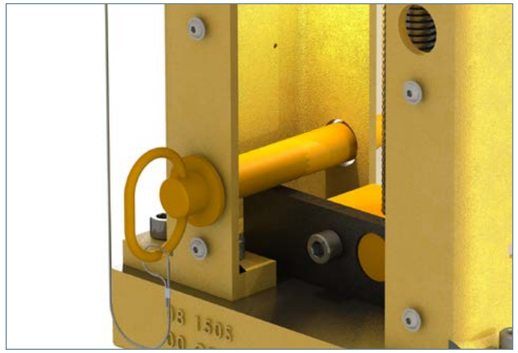
Repacking Procedures (page 9) ›



When installed in any orientation, this valve ensures zero-leakage.

Operation Guidelines

LOCKOUT-TAGOUT INSTRUCTIONS



Closed lockout-tagout procedure:

1. Actuate the valve to the fully closed position isolating upstream flow from downstream piping.
2. Insert the orange lockout-tagout pin through the bottom hole of the left combo yoke from the front body side. Lockout-tagout pin must pass through the yoke over the top of the gate and then through the other side of the yoke.
3. A hole is provided on the back body side of the pin for attaching lockout-tagout hasps, padlocks or other similar items.
4. The Severe Service Knife Gate Valve is now fully locked out in the closed position. Do not attempt to open the valve as this may compromise the seal and damage the pin.
5. To actuate the valve after lock and tag condition is no longer required, completely remove the pin from yoke.
6. The valve can now be actuated when needed.

CAUTION

Pressure must be maintained on the closed side of the cylinder to maintain zero-leakage capability. The lockout-tagout pin will not ensure zero leakage performance and may not withstand the forces of the cylinder. We recommend locking out the power source during lockout-tagout procedures.

Open lockout-tagout procedure:

1. Actuate the valve to the fully open position allowing upstream flow to downstream piping.
2. Insert the orange lockout-tagout pin through the top hole of the right yoke from the front body side. Lockout-tagout pin must pass through the first wall of the yoke then into the gate and through the other side of the yoke.
3. A hole is provided on the back body side of the pin for attaching lockout-tagout hasps, padlocks or other similar items.
4. The Severe Service Knife Gate Valve is now fully locked out in the open position.
5. To actuate the valve after lock and tag condition is no longer required, completely remove the pin from yoke.
6. The valve can now be actuated when needed.

CAUTION

Do not manually operate the actuator with devices other than the installed handwheel or operator. Using additive force devices such as cheater bars, wheel wrenches, pipe wrenches, or other devices on the handwheel or operator may cause serious personal injury and/or damage the valve operator.

Maintenance Guidelines

REPACKING THE VALVE

Required Tools and Parts

Energizing the cavity seal only requires the following Allen wrench (based on size and class).

Additional packing pellets (available from local distributors) and a handled dowel (to push the packing into the Allen screw holes) may also be needed if the screws have reached the end of travel and more packing is required.

CAUTION

Valves made by DSS are designed to be repacked while in service, under full line pressure. However, it is always recommended that the proper precautions are taken when working on a valve in service. These include, but are not limited to:

- Wearing the correct personal protective equipment (i.e. safety glass, safety gloves)
- Avoiding potential pinch points

By Size Range / Class	Allen Wrench (Hex Key)
Class 150 2"–5" & 6" Cast	3/16
Class 150 6" Wrought	1/4
Class 150 8"–12" & 14" Cast	1/4
Class 150 14" Wrought	5/16
Class 150 16"–36"	5/16

By Size Range / Class	Allen Wrench (Hex Key)
Class 300 3"–4"	3/16
Class 300 6" Cast	3/16
Class 300 6" Wrought	1/4
Class 300 8"–16"	1/4
Class 300 16"–36"	5/16

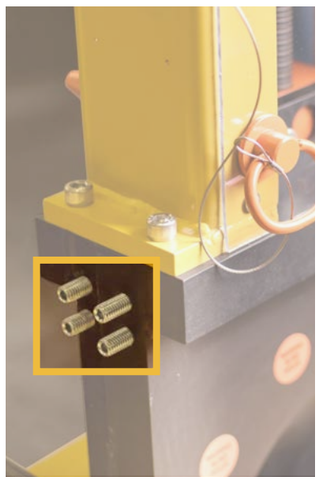


Figure 1:
SSKGV
(4) packing screws per side.

Figure 2:
DBB
(8) packing screws per side.

Maintenance Guidelines

WHEN TO REPACK THE VALVE

The required frequency to repack a DSS valve is dependent on the application and maintenance practices.

Trigger	Procedure	Frequency
Installation	The cavity seal should be checked for signs of leakage. If any leakage is seen use the procedure below. If no leakage is seen, we recommend a quarter turn per packing screw or half a turn for applications where the process temperature is 25°C above ambient temperature.	24 Hours after Start-up.
Signs of leakage.	As described above.	As required
High cycle applications: 1 cycle per hour or more.	Inspect valve for signs of leakage. If leakage is observed, follow the procedures as described above.	Monthly
Elevated temperatures: Above 80% of elastomers rated.	Inspect valve for signs of leakage. If leakage is observed, follow the procedures as described above.	Monthly
Scaling applications.	Inspect valve for signs of leakage. If leakage is observed, follow the procedures as described above.	When lines are “Weak Washed” or “Flushed” with a solution designed to break down the scale lining the walls of the pipe.

PROCEDURE

All DSS valves can be repacked while installed in line, under full pressure. Simply tighten the packing screws on each side of the SSKGV or the DBB (*see page 9*) using the following guidelines:

- The amount of revolutions required of each screw to fully repack a valve will vary.
- Start by turning each screw a half turn and observe if the leakage stops. If the valve continues to leak, adjust each screw a quarter turn at a time, until the leakage stops. If possible, and safe to do so, cycle the valve partially to help distribute the packing after every 1–2 adjustments.
- Ensure that each screw is adjusted equally to evenly distribute the packing and reduce the risk of over loading one area of the cavity seal against the gate.
- If one of the packing screws has reached the end of its travel, the screw can be safely removed, and additional packing pellets inserted. A round 1/8” diameter handled dowel (cut off screw driver or welding rod will also work) can be used to press the pellets into hole until enough threads are exposed to reinstall the screw. Ensure that the threads are not damaged in the process. Depending on the size, normally one or two additional pellets is all that is required.

CAUTION

Overpacking or adding an excessive number of pellets can affect the actuation. Repack only until the valve seals completely or for preventative maintenance a quarter turn for each screw.

Maintenance Guidelines

REPLACING THE PRIMARY AND SECONDARY SEAL

Attention: Damaged or worn primary and secondary seals need to be replaced. Seal kits can be purchased separately if this is being done on site. Alternatively, the valve can be sent back to the DSS factory for maintenance.

If you choose to do this yourself, replacement kits include a resilient seal, primary and secondary seals, TFE packing pellets, and scraper blades (**see parts lists on pages 12 & 15**).

Warning: This is a labor-intensive operation, which should be conducted by a qualified valve technician using the appropriate safety equipment.

1. Remove the dust covers, actuator, and top structure from the valve bodies.
2. Remove the body screws, and then separate the bodies.
3. Note the position of the existing seals, and then gently pry out the old seals.
4. Remove any debris around the sealing area on the interior of the valve body.
5. Prep the replacement resilient primary or secondary seal by removing any packaging material.
6. The stranded green packing material must remain in the pocket of the primary resilient or secondary seal. If stranded material falls out, simply push it back into place.
7. Place the resilient seals in the machined seal groove on the body half by starting at one end of the groove.
8. Once the new primary or secondary seal is installed in the groove, insert the scrapers between the seal and the side of the machined groove. This process should be repeated for each seal in each body.
9. On the front body half (with the gate pocket), insert the end of the resilient seal into the tuck hole below in the gate pocket. The seal should seat securely on the bottom of the tuck hole.
10. Install the gate in the body half. Push the resilient seal into the machined groove all the way around the gate. Insert the end of the resilient seal into the other tuck hole. Any excess seal material should be cut so that the seal seats securely on the bottom of the tuck hole.
11. If installing a replacement secondary seal, use the steps as listed above.
12. Close the valve by sliding the gate until it fully seats.
13. Install the Teflon corner seals on both sides of the gate where the seal enters the tuck hole.
14. Push packing pellets into the area between the resilient seal and the Teflon corner seal. An Allen wrench or other blunt ended tool to will aid in this operation.
15. Gently place the back body half on the front body half, and reinstall all body screws that were previously removed.
16. Proper sealing of the primary resilient and secondary seals can be maintained during operation by further packing through the external holes on each side of the valve bodies.

Severe Service Knife Gate Valve

Parts Diagram and List

SSKGV ASME Class 150, 300, 600, 900 and 1500—Handwheel

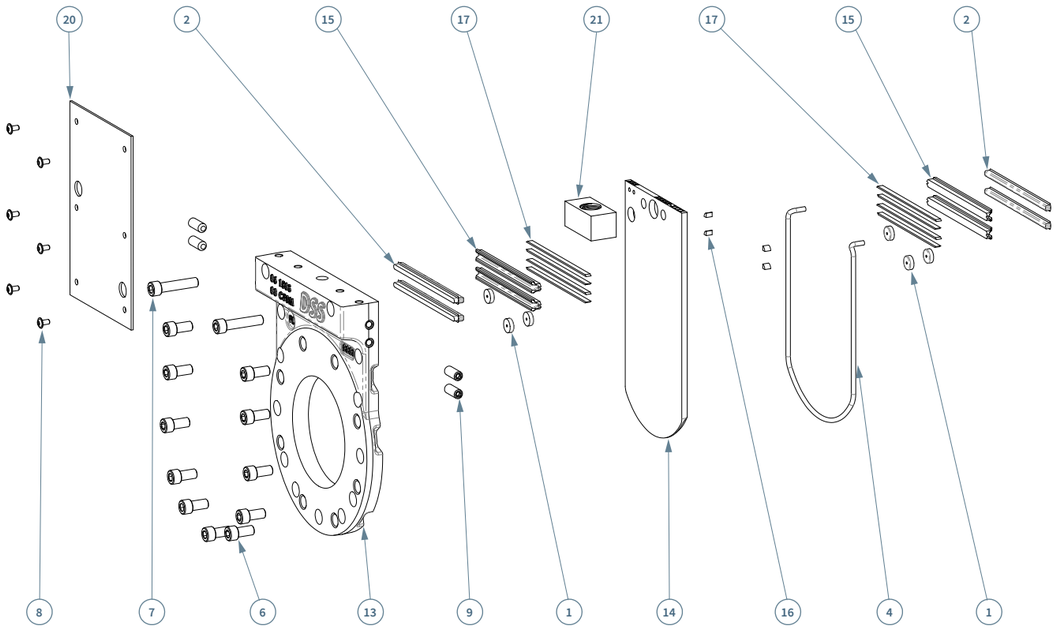
ITEM #	QTY	DESCRIPTION
1*	6	Disc, Gate Glide
2*	4	Packing
3*	1	Seal, Primary
4*	1	Seal, Secondary
5	8	Yoke Cap Screws
6	13	Body Bolts
7	2	Body Bolts, Rib
8	12	Dust Cover Screws
9	8	Packing Screws

ITEM #	QTY	DESCRIPTION
10	1	Lockout-Tagout Pin
11	1	Tag, Identification
12	1	Front Body
13	1	Back Body
14	1	Gate
15*	4	Cavity Seal
16*	4	Quarter Rounds
17	8	Scrapers
18	1	Left Yoke

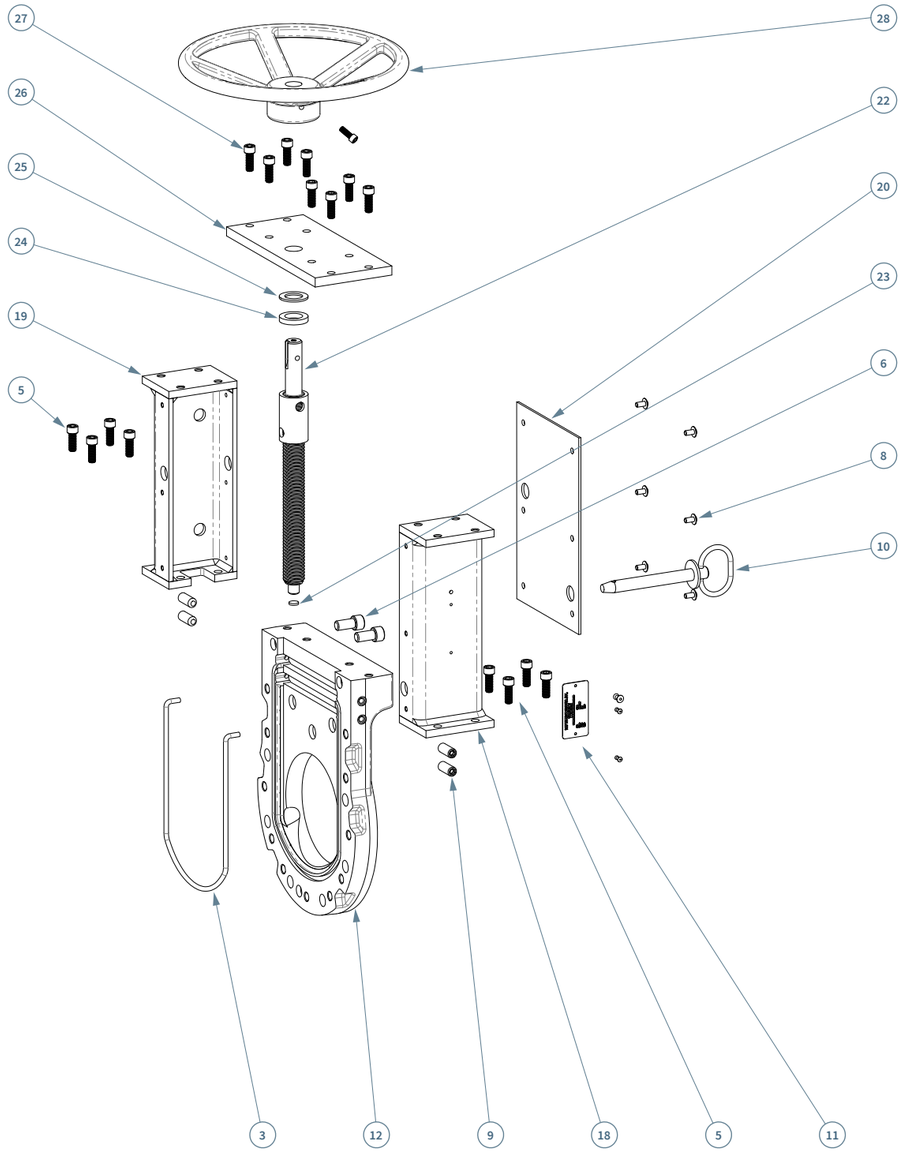
ITEM #	QTY	DESCRIPTION
19	1	Right Yoke
20	2	Dust Cover
21	1	Stem Nut
22	1	Stem
23	1	Thrust Disc
24	1	Thrust Washer
25	1	Thrust Bearing
26	1	Top Plate
27	8	Top Plate Screws
28	1	Handwheel

* Recommended spare parts. Available in standard repair kit. Valve Serial Number required for parts supply.

ITEM #



Parts in this diagram and list represent a 6" ASME Class 150. Parts may vary slightly depending on order placed.



Severe Service Knife Gate Valve

Parts Diagram and List

SSKGV ASME Class 150, 300, 600, 900 and 1500—Pneumatic Cylinder

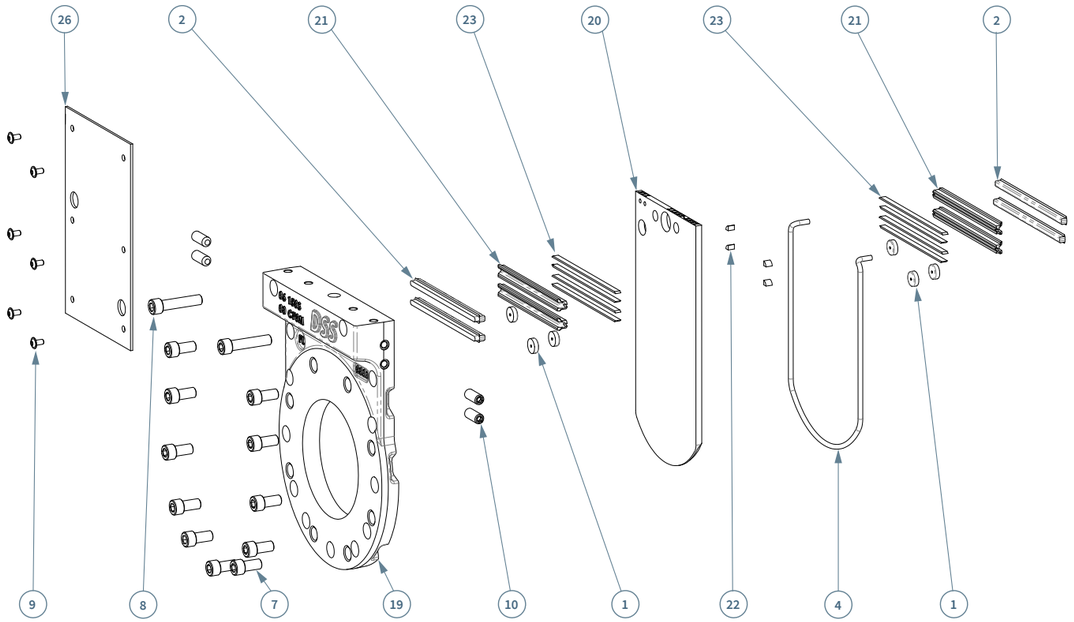
ITEM #	QTY	DESCRIPTION
1*	6	Disc, Gate Glide
2*	4	Packing
3*	1	Seal, Primary
4*	1	Seal, Secondary
5	8	Top Plate Screws
6	8	Yoke Cap Screws
7	11	Body Bolts
8	2	Body Bolts, Rib
9	12	Dust Cover Screws

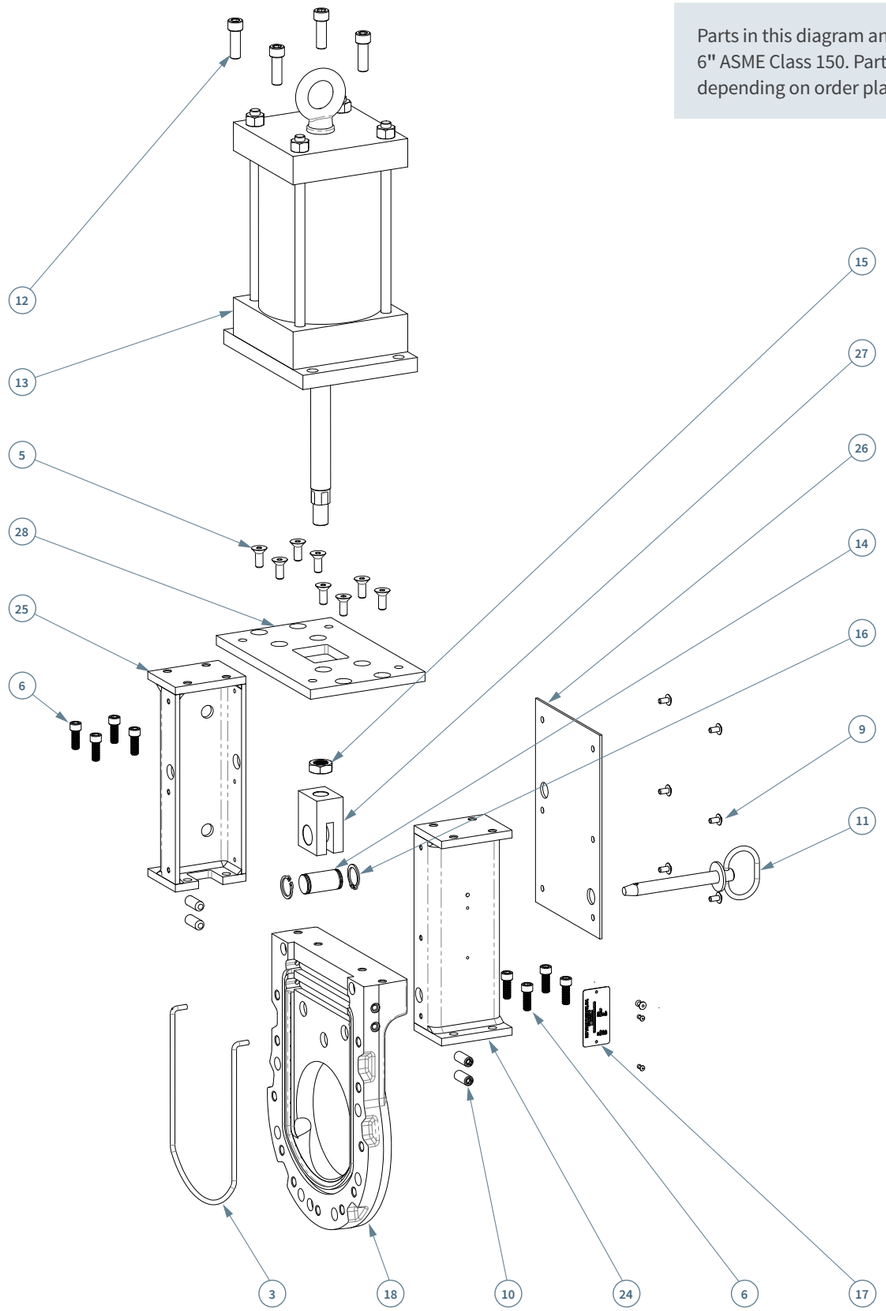
ITEM #	QTY	DESCRIPTION
10	8	Packing Screws
11	1	Lockout-Tagout Pin
12	4	Cylinder Screws
13	1	Cylinder
14	1	Clevis Pin
15	1	Jam Nut
16	2	Retaining Ring
17	1	Tag, Identification
18	1	Front Body

ITEM #	QTY	DESCRIPTION
19	1	Back Body
20	1	Gate
21*	4	Cavity Seal
22*	4	Quarter Rounds
23	8	Scrapers
24	1	Left Yoke
25	1	Right Yoke
26	2	Dust Cover
27	1	Clevis
28	1	Top Plate

* Recommended spare parts. Available in standard repair kit. Valve Serial Number required for parts supply.

ITEM #





Parts in this diagram and list represent a 6" ASME Class 150. Parts may vary slightly depending on order placed.

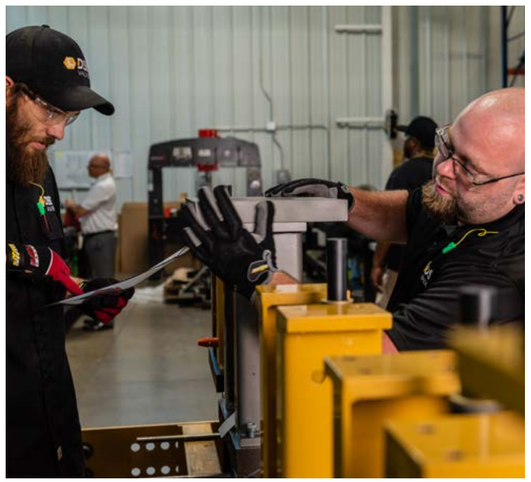
Troubleshooting

PROBLEM	STEPS	POSSIBLE CAUSE	SPARE PARTS	RECOMMENDATIONS
Fugitive emissions leak (Bonnet area or between body halves)	1	Insufficient packing pressure on primary and secondary seals	Packing	Follow Repacking the Valve *guidelines on page 9*.
	2	Primary or secondary seals are damaged	Seal Kit	Follow primary and secondary seals *replacement guide on page 11*. A repair kit is required.
Leaking past gate	1	Improper seating in closed position	None	If manual operator, cycle the valve full closed; lockout-tagout pin should slide through left yoke over the gate. Caution: ensure the pin is removed before further cycling is attempted.
	2	Insufficient packing pressure on primary and secondary seals	Packing	Follow Repacking the Valve *guidelines on page 9*.
	3	Improper limit switch adjustment	None	Consult factory, or limit switch manufacturer for adjustment procedures.
	4	Build-up on seat seal	None	Consult factory.
	5	Compromised primary gate seal	Seal Kit	Remove valve from pipe, with gate fully open, visually inspect primary seal for signs of damage. Follow primary and secondary seals *replacement guide on page 11*. A repair kit is required.
	6	Pressure source to the cylinder has been reduced	None	Energy source on cylinders needs to be consistent to always maintain either pneumatic or hydraulic pressure on the cylinder. Check to see if pressure source to the cylinder has been removed or is turned off, and/or pressure has dropped.
Open lockout-tagout pin will not engage	1	Various	None	Consult factory.
Valve will not cycle, moves slowly or erratically	1	Lockout-tagout pin left in	None	Ensure safe work practices are followed, remove Lockout-Tagout Pin if easy to do so. If the pin is pinched between the gate and yoke, stroke the valve open or close to alleviate force on the pin and remove it. Visually inspect the pin and yokes; consult factory if bent or damaged.
	2a	Hex Head Flange bolts in chest/blind holes	None	Consult *Installation Guidelines on page 6.*
	2b	Flange bolts are over-tightened	None	Loosen flange bolting and re-torque the bolts after consulting the gasket manufacturers' torque specification. All DSS valve flanges have a max torque that should not be exceeded, see: *dssvalves.com/resources Tech Bulletin #0003: Flange Bolt Torque Standard Practices*
	3	Overpacked primary and secondary seals	Packing	Remove packing screws and attempt to actuate valve. If the valve is over-packed, once the valve begins to cycle, excess packing will extrude from the packing screw holes. Consult *When to Repack the Valve on page 10*.
	4a	Underpowered air supply to the pneumatic cylinder	None	Increase air pressure supply. Do not exceed maximum rating of the cylinder.
	4b	Insufficient supply volume to the pneumatic cylinder	None	Confirm air lines feeding the cylinder and accessories such as solenoids and filter regulators are sized sufficiently for the actuator ports. If determined to be too small, increase the Cv by increasing the line size or accessory size.

WARNING
It's highly recommended that persons working with DSS Valves products are factory trained or approved to complete teardown, reassembly and testing.

IMPORTANT
Please ensure recommended spares are on hand in the event the product needs to be overhauled.

ADDITIONAL GUIDELINES
Please consult your designated distributor for current Technical Bulletins and additional troubleshooting guidelines.



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