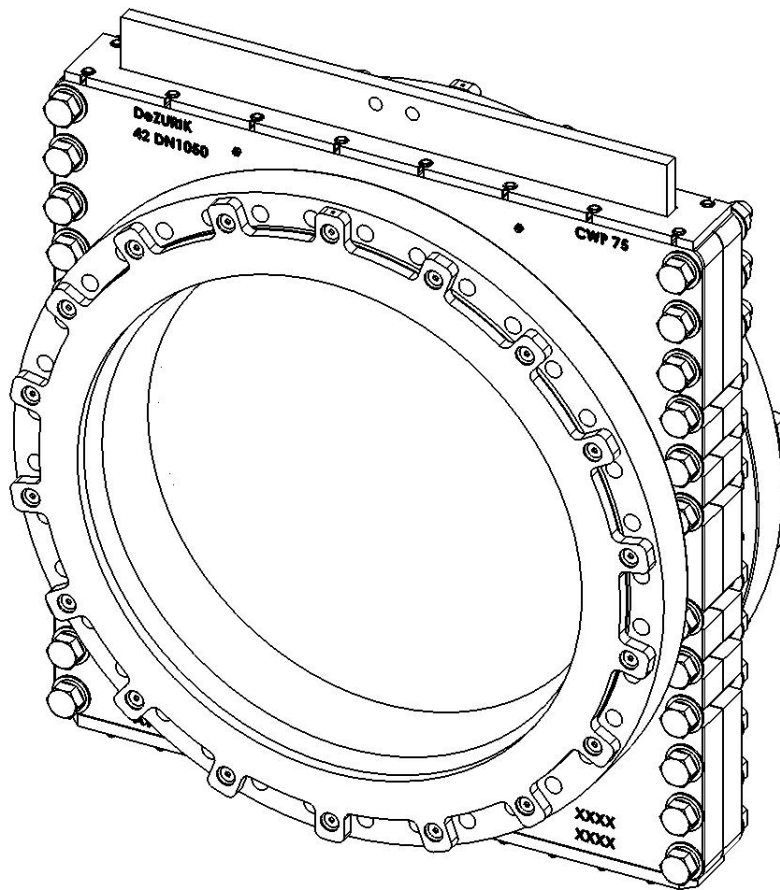




DeZURIK
28" & LARGER
KSL-LA LONG BODY SLURRY
KNIFE GATE VALVES



Instruction D11054
January 2018

Instructions

These instructions are intended for personnel who are responsible for the installation, operation and maintenance of your KSL-LA knife gate valve.

Safety Messages

All safety messages in the instructions are flagged with the word Caution, Warning or Danger. These messages must be followed exactly to avoid equipment damage, personal injury or death.

Safety label(s) on the product indicate hazards that can cause equipment damage, personal injury or death. If a safety label becomes difficult to see, or if a label has been removed, please contact DeZURIK for replacement.



WARNING

Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of process material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous process materials. Handle valves which have been removed from service with the assumption of process material within the valve.

Inspection

Your KSL-LA knife gate valve has been packaged to provide protection during shipment. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

Parts

Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime.

Order parts from your DeZURIK sales representative, or directly from DeZURIK. When ordering parts, please include the serial number or the 7-digit part number and 4-digit revision number (example: **9999999R000**) located on the data plate attached to the valve assembly. Also include the part name, the assembly drawing number, the balloon number and the quantity stated on the assembly drawing.

DeZURIK Service

DeZURIK Service personnel are available to install, maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services. For more information, contact your local DeZURIK representative or visit our website at www.dezurik.com.

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Description

KSL-LA knife gate valves have ductile iron bodies, stainless steel gates, resilient top seals and resilient matching sleeve and retainer flange sets. The KSL-LA is available in sizes up to 60", with a choice of several actuators and accessories.

Installation

Install the valve between ASME Class 125 or Class 150 pipeline flanges or other flanges that match the valve end connection. The included resilient sleeve retainer flanges seal against pipe flanges, and thus no flange gaskets are required. Before installation, remove foreign material such as weld spatter, oil, grease, and dirt from the valve and pipeline.



WARNING

Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of process material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous process materials. Handle valves which have been removed from service with the assumption of process material within the valve.

Observe the following points to prevent distortion of the valve body and gate when the flange fasteners are tightened.

1. Align the mating pipe flanges.
2. If using bolts, select the bolt length so that they do not extend through the flange so far as to interfere with the valve body.
3. Tighten the fasteners evenly, in a criss-cross pattern. Refer to Table 1 for recommended flange torque ranges. The torques listed are for non-lubricated bolts/studs.

Valve Size	Torque Range (ft-lbs)
28" (700 mm)	132-165
30" (750 mm)	148-185
36" (900 mm)	217-274
42" (1050 mm)	264-330
48" (1200 mm)	278-348
Larger than 48" contact Factory	

Note: Torque ranges are based on ASME Pressure Vessel Code Calculations and lab test data.

Normal Installation

The valve is bi-directional, it can be installed in either direction.

After installation, pressurize the pipeline and ensure the valve does not leak in the full open and full closed positions. The valve is fitted with a self-adjusting top seal and therefore, no tightening is required.



CAUTION

The KSL-LA knife gate valve is designed to discharge media to atmosphere when stroking to prevent solid build-up that may cause leakage. If installing over walkways, electrical equipment or other equipment, ensure that proper precautions (such as the installation and plumbing of the optional drain plate) are taken.



WARNING

Do not plug all ports on the drain plate. This can cause top seal failure.

Installation continued

Gravity (Dry) Service Installation

As the valve is bi-directional, it can be installed in either direction in a vertical pipeline.

Before installation, ensure that the sleeves and gate are free from any grease or liquid type lubricants that might contaminate the media. If applicable, ensure that valve threaded stems are maintained with proper lubrication. Refer to the Actuator Instructions for lubrication requirements for the actuator.

Operation

The valve gate (A2) is positioned by the valve actuator. The actuator strokes the gate through the sleeves to the closed position, flushing the valve in the process. In the closed position, the sleeves press up against the gate, preventing flow and providing a drip-tight seal. In the open position, the sleeves press against each other to seal to provide a drip-tight seal and allow the process media to flow with minimal disturbance. The top seal is designed to prevent leakage from the top of the valve body during stroking.

Even in dry service, ensure that any valve threaded stems are maintained with proper lubrication. Refer to the Actuator Instructions document for adjustment and maintenance requirements for the actuator.

Outdoor/Cold Service (below freezing)

For applications where the valve will be closed for an extended period of time in freezing conditions, we recommend heat tracing or blankets to ensure proper sleeve operation when the valve is opened.

Lubrication (for Non-Dry Service Installations)

Lubrication is provided to the top seal and sleeves by four grease fittings in the body of the valve. See

Table 2 for a list of approved silicone based lubricants. These large valves should be lubricated every 50 strokes. If a valve cycle is less than once per month, lubrication prior to each stroke is recommended. If applicable, ensure that valve threaded stems are maintained with proper lubrication.

- The top seal and sleeves should be lubricated during inspection. Apply a thin coat of lubricant to the top seal and sleeves before installation. See the *Top Seal Replacement* and *Sleeve Replacement* sections of this manual for instructions.
- In between inspections, lubricate the valve using the grease fittings on the body. If applicable, ensure that valve threaded stems are maintained with proper lubrication. Refer to the Actuator Instructions for lubrication requirements for the actuator.
- Wipe the gate clean at regular intervals to prolong the life of the top seal and sleeves.

Adjustment

The valve is fitted with a self-adjusting top seal and therefore, no tightening is required.

Table 2: Approved Lubricants

<i>Silicone-Based Lubricant</i>	<i>Manufacturer</i>
<i>Recommended:</i>	
MOLYKOTE 111	Dow Corning
<i>Approved Alternatives:</i>	
MOLYKOTE 44	Dow Corning
Sil Glyde	AGS Company
Chemplex 825	FUCHS
7 Release Compound	Dow Corning
G661	Novagard

DeZURIK
 28" & LARGER KSL-LA LONG BODY SLURRY KNIFE GATE VALVES

Drawings

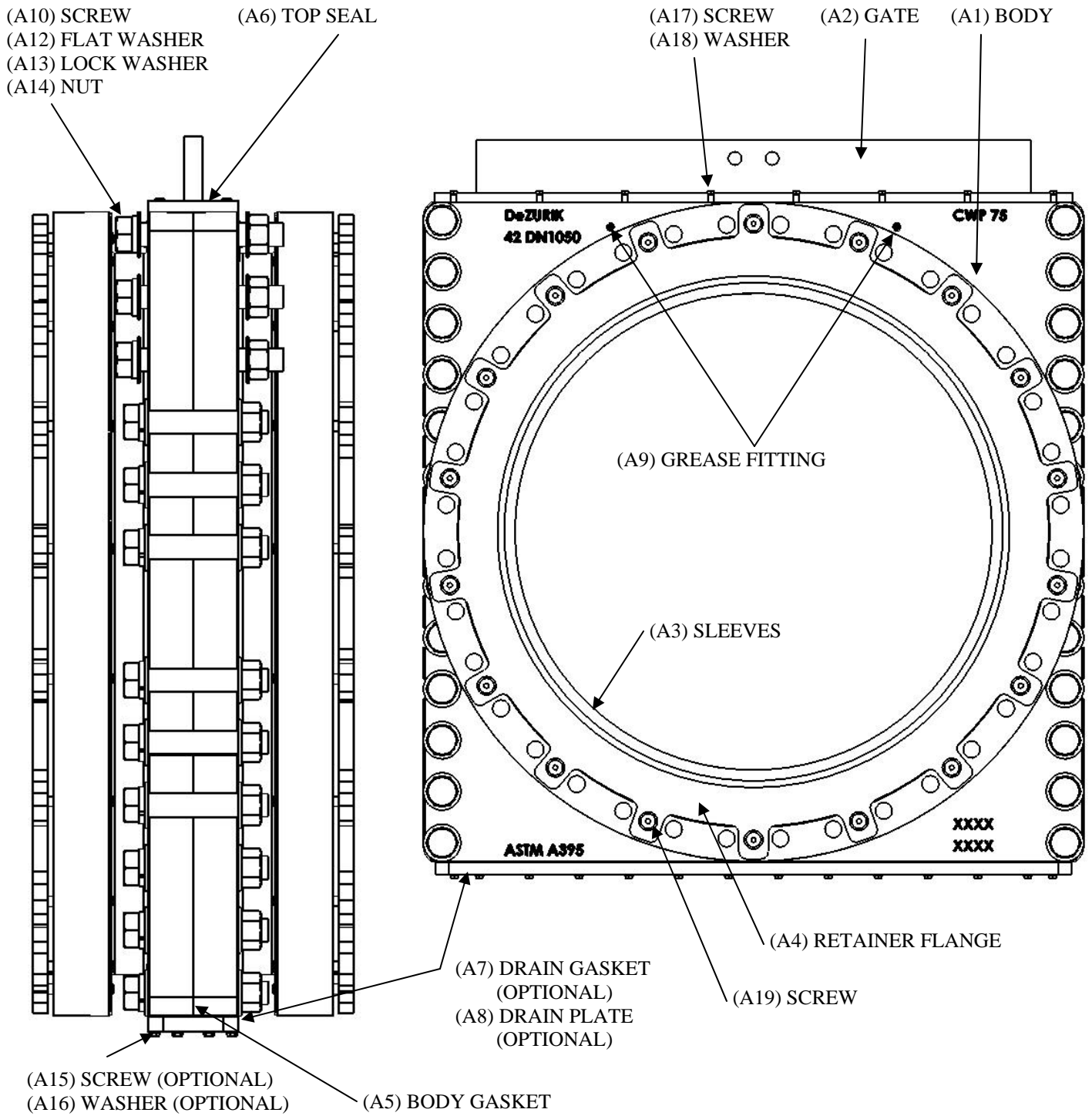


Figure 1—Component Identification

Top Seal Replacement

The resilient molded top seal with encapsulated plate is designed to apply even sealing force to the top of the valve. The seal must be replaced if it has been damaged or if it still leaks after it is fully tightened.

Removing the Top Seal



WARNING!

Pipeline pressure can cause personal injury or equipment damage. Relieve pipeline pressure before servicing.

1. Ensure the gate (A2) is fully open.



WARNING!

Accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.

2. If the actuator is powered, disconnect the power source or ensure that it is properly locked out.
3. Remove the fasteners connecting the actuator clip to the gate.
4. Ensure the actuator frame is supported and remove all frame mounting fasteners (A10, A12, A13, A14). Lift off the actuator and frame assembly and set it aside.
5. On the gate, mark the position of the gate (A2) relative to the top surface of the top seal (A6). Otherwise, measure the position of the top surface of the gate to the top surface of the valve body (A1) in the open position. This will allow for easier installation of the gate after the seal has been replaced.
6. Loosen the top seal retaining fasteners (A17, A18).
7. Pull the gate (A2) straight out until it clears the top seal (A6). Some force may be necessary.
8. Remove the seal retaining fasteners (A17, A18) and place aside for reuse. The top seal (A6) is now free to remove.

Installing the New Top Seal

1. Apply a liberal amount of approved lubricant (see Table 2: Approved Lubricants) to the inside ribbed surfaces of the top seal (A6). For dry service application, no lubricant can be used.
2. Place the top seal (A6) so that the bottom surface (rounded edges) is in contact with the top of the valve body (A1) and the TOP marking is visible when assembled. For dry service application, a top seal is not required.
3. Hand-tighten all fasteners (A17, A18) to ensure that the seal is aligned properly. Evenly tighten only the fasteners at the corners of the seal. Do not over-tighten.
4. Apply silicone lubricant to the leading edge faces of the gate (A2). For dry service application, no lubricant can be used.
5. Place the gate (A2) into the top seal (A6) and push it down until it reaches the mark made in *Top Seal Removal* step 7. If a mark was not made, push it down until it just contacts the top of the sleeves.
6. Evenly tighten the remaining top seal fasteners (A17, A18). Do not over tighten.
7. Replace the actuator and frame assembly and tighten all fasteners (A10, A12, A13, A14).
8. Reattach the actuator clip and tighten the fasteners.

Sleeve and Retainer Flange Replacement

The sleeves provide a drip-tight seal when the valve is closed. If either sleeve is to be replaced, the valve must be removed from service.

Removing the Sleeves and Retainer Flange



WARNING!

Pipeline pressure can cause personal injury or equipment damage. Relieve pipeline pressure before removing gate stem and top seal.

-
1. Relieve the pressure in the pipeline.



WARNING!

Accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.

-
2. Ensure the gate (A2) is fully open.
 3. If the actuator is powered, ensure the actuator is properly locked out.
 4. Remove the valve from the pipeline.
 5. Remove the sleeve retainer screws (A19) and the retainer flanges (A4).
 6. Pull the sleeves (A3) out of the body (A1).

Inspect the sleeves (A3) and retainer flanges (A4) for damage or excessive wear. If either is present, replace these components.

Installing the New Sleeves and Retainer Flanges

NOTE: DeZURIK installs plugs into any cavities that are in the sleeve outer surface which are a result of moulding process locating pins. Although unlikely, if any sleeve plugs have fallen out, the resulting cavity should be filled with silicone prior to sleeve installation into the valve.

1. Apply approved lubricant to the surfaces of each sleeve (A3) that will contact each other after they are installed into the body. Also apply a thin coating of the same lubricant to the outside diameters that will contact the valve body (A1) bores. For dry service application, no lubricant can be used.
2. With the gate in the open position (fully retracted), place the sleeves (A3) into the valve body bore and press into place from each side. It is recommended the valve be placed in a stand so that the two sleeves are equally inserted into the body (A1).
3. Align the sleeve retainer (A4) mounting holes with the matching mounting holes on each flange.
4. Install all retainer screws (A19) so that the screws only engage a few threads into the body (both sides of the valve).
5. Evenly tighten the retainer flange screws in a cross pattern until there is less than an 1/8" gap between the retainer flange and the valve body.
6. Some large flange retainers have 1/4"-20 female tapped holes so that eye-bolts can be inserted for lifting/handling purposes of the flange retainers. Once installed on the valve, remove any used eye-bolt and fill hole with silicone. Do not lift valve with these flange retainer holes.
7. Do not cycle valve with only one sleeve in place.
8. Reinstall the valve into the pipeline following the specifications of the *Installation* section.
9. If the actuator is powered, remove lock out or reconnect the power, reversing the measures taken in *Sleeve Removal* step 3.

Storage and Shipping of Assembled Valves

All KSL-LA valves are shipped in the gate in the open position. It is also the recommended to store and install the valves with the gate in the open position.

Shelf life of rubber components is up to 7 years from date of delivery, but this requires proper storage of the valves and their rubber spare parts.

Valves must be stored on a skid or in a crate, and protected from light and ultraviolet damage. Storage conditions must be less than 120°F (49°C) and 70% humidity.

Valves must not be stored near welding or electric motors or other equipment which may emit Ozone that can cause deterioration of elastomers within the valves.

It is preferable to store assembled valves in the vertical position. If not possible, ensure that any blocking to support the actuator is maintained.

It is recommended to inspect the valve at least every six months while in storage to ensure the packaging and valve components have not deteriorated.

Always inspect the valve after being removed from storage for damage to the flanged surfaces, sealing sleeves, gate, sleeve retainer flange, top seal, or actuator.

Prior to installation, remove any accumulated dust/debris from the gate, flanged surfaces, and threaded stems or cylinder rods. Re-apply lubrication to the threaded stems if necessary.

Storage and Shipping of Spare Part Rubber Components

For KSL-LA valves, the rubber sleeves, retainer flanges and top seal are recommended spare parts.

Shelf life of rubber components is up to 7 years from date of delivery, but this requires proper storage of the valves and their rubber spare parts.

Rubber components must be stored on a skid or in a crate, and protected from light and ultraviolet damage. Storage conditions must be less than 120°F (49°C) and 70% humidity.

Rubber components must not be stored near welding or electric motors or other equipment which may emit Ozone that can cause deterioration. It is recommended to inspect the rubber components at least every six months while in storage to ensure the packaging and rubber components have not deteriorated.

Troubleshooting

Condition	Possible Causes	Corrective Action
Top seal leaks during gate closing or opening	Top seal is worn or torn	Replace top seal
	Gate is galled	Replace gate and top seal, check sleeves for damage
Valve continues to discharge media when gate is fully closed	Gate closed position is not correct	Check actuator for correct function Set stop for inserted gate dimension as per installation drawing
	Sleeves are worn or torn	Replace sleeves
	Gate is galled	Replace gate and sleeves, check top seal for damage
Valve continues to discharge media when gate is fully open	Gate open position is not correct	Check actuator for correct function Set stop for retracted gate dimension as per installation drawing
	Sleeves are worn or torn	Replace sleeves
Valve allows media flow when gate is fully closed	Gate closed position is not correct	Check actuator for correct function
		Set stop for inserted gate dimension as per installation drawing

Guarantee

Products, auxiliaries and parts thereof of DeZURIK, Inc. manufacture are warranted to the original purchaser for a period of twenty-four (24) months from date of shipment from factory, against defective workmanship and material, but only if properly installed, operated and serviced in accordance with DeZURIK, Inc. recommendations. Repair or replacement, at our option, for items of DeZURIK, Inc. manufacture will be made free of charge, (FOB) our facility with removal, transportation and installation at your cost, if proved to be defective within such time, and this is your sole remedy with respect to such products. Equipment or parts manufactured by others but furnished by DeZURIK, Inc. will be repaired or replaced, but only to the extent provided in and honored by the original manufacturers warranty to DeZURIK, Inc., in each case subject to the limitations contained therein. No claim for transportation, labor or special or consequential damages or any other loss, cost or damage shall be allowed. You shall be solely responsible for determining suitability for use and in no event shall DeZURIK, Inc. be liable in this respect. DeZURIK, Inc. does not guarantee resistance to corrosion, erosion, abrasion or other sources of failure, nor does DeZURIK, Inc. guarantee a minimum length of service. Your failure to give written notice to us of any alleged defect under this warranty within twenty (20) days of its discovery, or attempts by someone other than DeZURIK, Inc. or its authorized representatives to remedy the alleged defects therein, or failure to return product or parts for repair or replacement as herein provided, or failure to install and operate said products and parts according to instructions furnished by DeZURIK, Inc., or misuse, modification, abuse or alteration of such product, accident, fire, flood or other Act of God, or failure to pay entire contract price when due shall be a waiver by you of all rights under this warranty.

The foregoing guarantee shall be null and void if, after shipment from our factory, the item is modified in any way or a component of another manufacturer, such as but not limited to, an actuator is attached to the item by anyone other than DeZURIK, Inc. Factory Service personnel. All orders accepted shall be deemed accepted subject to this limited warranty, which shall be exclusive of any other or previous Warranty, and this shall be the only effective guarantee or warranty binding on DeZURIK, Inc., despite anything to the contrary contained in the purchase order or represented by any agent or employee of DeZURIK, Inc., in writing or otherwise, notwithstanding, including but not limited to implied warranties.

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Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web site: www.dezurik.com E-Mail: info@dezurik.com



250 Riverside Ave. N. Sartell, Minnesota 56377 • Phone: 320-259-2000 • Fax: 320-259-2227

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