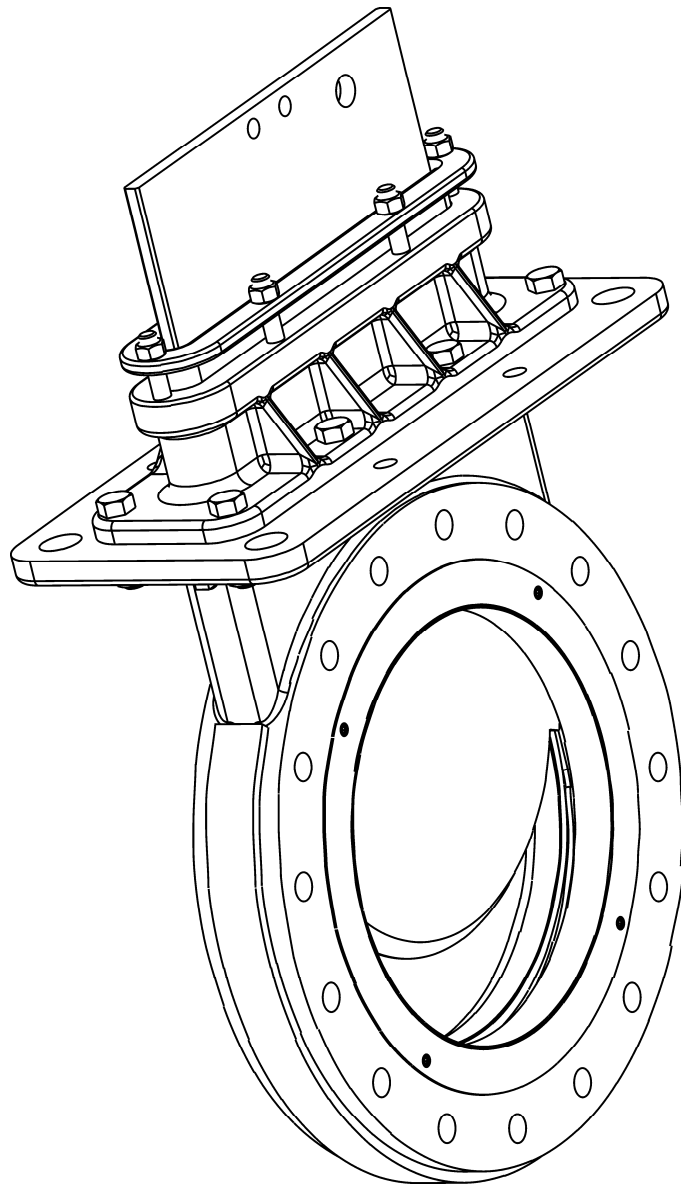




# 6-48" Class 150 KHP Knife Gate Valves



# DeZURIK

## 6-48" Class 150 KHP KNIFE GATE VALVES

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### Instructions

These instructions provide information about DeZURIK KHP knife gate valves. They are intended for personnel who are responsible for the installation, operation and maintenance of KHP knife gate valves.

### 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 label(s).



#### **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 KHP 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 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](http://www.dezurik.com).

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## 6-48" Class 150 KHP KNIFE GATE VALVES

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### Description

The DeZURIK KHP knife gate valves are bonnetless valves with a one piece cast body, gate, packing chamber and an all-metal seat. A choice of several actuators and accessories are available.

### Installation

Install the valve between ANSI Class 150 pipeline flanges. Flange gaskets are required. Before installation, remove foreign material such as weld spatter, oil, grease, and dirt from the valve and pipeline.

Install the valve so that the side marked "SEAT" is on the lower pressure side of the valve when the valve is closed; the pipeline pressure will then help seal the valve in the closed position.

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

- Align the mating pipeline flanges.
- Select the length of the flange bolts so that the bolts used in the blind holes do not bottom out when tightened.
- Tighten the flange bolts evenly, in a crisscross pattern.

### Operation

The gate in the valve is positioned by the valve actuator. The actuator moves the gate over the valve seat in the closed position, and withdraws the gate from the seat in the throttling and open positions. Refer to the Actuator Instructions for adjustment and maintenance requirements for the actuator.

### Lubrication

The valve does not require lubrication. Refer to the Actuator Instructions for lubrication requirements for the actuator.

### Purging

Purge connections allow for optional pressurized purging fluid to be circulated through the valve to clear out sedimentation or other material buildup. Purge lines should be the same size as the purge ports. The recommended purge pressure is 25 psi to 50 psi maximum above the pipeline pressure.

### Packing

The gate packing is contained and compressed by the packing gland. See Figure 1 (Page 2) and Figure 2 (Page 4) for component identification.

### Adjustment

If packing leaks, tighten the adjustment nuts on top of the packing gland. Tighten the nuts evenly and gently—just enough to stop the leak. Over tightening will cause excessive operating forces, and will decrease the life of the packing.

Drawings

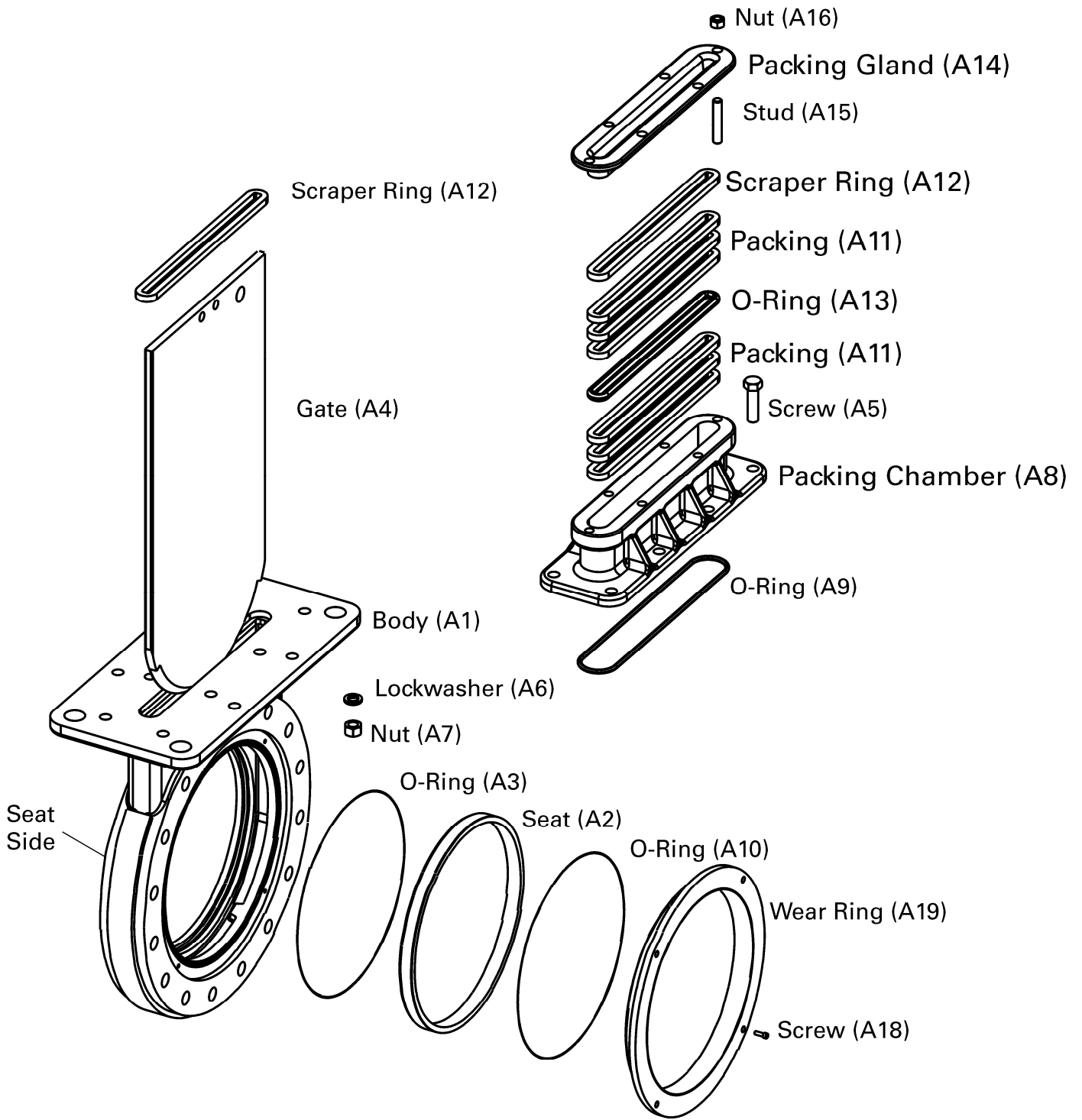


Figure 1—Component Identification

## Packing Replacement

### Removing the Old Packing

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**WARNING!**

**Pipeline pressure can cause personal injury or equipment damage. Relieve pipeline pressure before removing gate stem and packing gland nuts.**

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1. Relieve the pressure in the pipeline and close the valve.
- 



**WARNING!**

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

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2. If the actuator is powered, disconnect and lock out power to prevent accidental operation of the actuator.
3. Remove the two screws and nuts near the top of the gate and disengage the stem from the gate by stroking the actuator (not the valve) to the open position.
4. Remove both lockout brackets to allow gland to be lifted off the gate.
5. Remove the gland nuts (A16), washers (A20) and the packing gland (A14).
6. Remove the used packing (A11), scraper ring (A12) and o-ring (A13) from the packing chamber (A8).

### Replacing the Scraper Ring in the Body

If the scraper ring (A12) in the body (A1) needs to be replaced, the actuator must be removed. Use the following steps:

- a. Remove the screws (P8) and nuts (P9) from the stem (P7) at the top of the gate (A4).
- b. Remove the screws (P10), nuts (P12) and lockwashers (P11) from the bottom of the legs (P4) and remove the connecting parts assembly.
- c. Remove the screws (A5), nuts (A7) and lockwashers (A6) and remove the packing chamber (A8) from the body.
- d. Remove the used o-ring (A9) from the packing chamber (A8) and remove the used scraper ring (A12) from the body (A1).

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## 6-48" Class 150 KHP KNIFE GATE VALVES

### Installing the New Packing

DeZURIK recommends using a square-ended wood or plastic tool, driven by a hammer or mallet for packing rings.

**Note:** DO NOT USE ANY SHARP TOOLS TO PACK THE RINGS.

If the scraper ring (A12) in the body (A1) is being replaced, use steps 1 and 2. If not, go to step 3.

1. With the gate (A4) closed, center the gate in the body (A1) and place the scraper ring (A12) into the top of the body (A1).
2. Place the o-ring (A9) into the groove in the bottom of the packing chamber (A8).
3. With the gate closed, center the gate (A4) in the body (A1) and attach the packing chamber (A8) to the body (A1) using the screws (A5), nuts (A7) and lockwashers (A6).
4. Cut new packing rings (A11) to the length and quantity shown in Table A (page 4).
5. Install and pack the scraper rings (A12), packing rings (A11) and o-ring (A13) one at a time in the sequence shown in Figure 2 (Page 4).

**Table A Packing Ring Lengths**

**Note:** Install the packing with the ends together, but not overlapped. Stagger the packing joints on the long sides of the packing chamber. Make sure the inside and outside edges of each ring are tightly packed against the gate and packing chamber, especially in the corner areas. Pack each ring until it is flat and even.

Valve Size	Size Sq. Inches	Length Inches	# O-Rings	# Scraper Rings	# Packing Rings
6	3/8	15 1/8	1	2	6
8		21 1/2			
10		24 1/2			
12	1/2	28 1/4			
14		31 1/4			
16		35 1/8			
18	5/8	39 5/8			
20		44 1/2			
24	3/4	53			
26		59 5/8			
28		69 1/4			
30		65 1/2			
32		72 3/8			
36		78 5/8			
42		NA			
48		103 3/4			

## Installing the New Packing continued

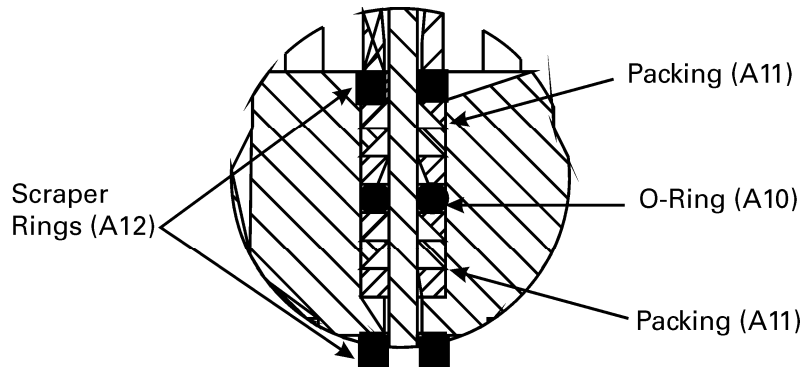


Figure 2—Packing Ring Sequence

With type TFE and GFO packing, all rings (A11) are the same material.

## Reassembling the Valve

**WARNING!**

The lockout brackets are designed to be used only on one side. If the bolt holes do not align properly, flip the bracket over and use it on the opposite side. Never use the brackets without all the screws installed.

1. Replace the packing gland (A14), washers (A20) and nuts (A16). Tighten the nuts evenly and finger tight, plus 1/2 turn.
2. If the scraper ring (A12) in the body (A1) was replaced, the actuator assembly must be attached using the screws (P10), nuts (P12) and lockwashers (P11) at the bottom of the legs (P4).
3. Reinstall the lockout brackets in their original locations.
4. Reconnect the stem (P7) to the gate (A4) with the screws (P8) and nuts (P9).
5. If the actuator is a powered actuator, reconnect power to the actuator.
6. Pressurize the pipeline and inspect packing for leakage.
7. If packing leaks, tighten the adjustment nuts on top of the packing gland. Tighten the nuts evenly and slowly, just enough to stop the leak. Over tightening will cause excessive operating forces, and will decrease the life of the packing.

## Seat Replacement

See Figure 1 (Page 4) for component identification.

### Disassemble the Valve

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**WARNING!**

**Pipeline pressure can cause personal injury or equipment damage. Relieve pipeline pressure before removing gate stem and packing gland nuts.**

---

1. Relieve the pressure in the pipeline and close the valve.
- 



**WARNING!**

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

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2. If the actuator is powered, disconnect and lock out power to prevent accidental operation of the actuator.
3. Remove the pipeline flange bolts and flange from the side of the valve body opposite the word "seat". As an alternative, remove both flanges, and remove the valve from the pipeline.
4. Remove the screws and nuts near the top of the gate and disengage the stem from the gate (A4).
5. Remove the actuator yoke and actuator from the valve.
6. Remove the gland nuts (A16), washers (A20) and the gland (A14).
7. Remove the packing chamber screws (A5), lockwashers (A6), nuts (A7) and the packing chamber (A8).
8. Remove the scraper ring (A12) from the top of the body (A1).
9. Remove the gate (A4) from the body (A1).
10. Remove the screws (A18), o-ring (A10) and wear ring (A19) from the body.
11. Lightly grind the tack welds holding the seat (A2) and remove the seat (A2), o-ring (A3) and rubber seat (A21) from the body (A1).
12. Install the new seat:
  - a. Note the gate side and body side of the seat as shown in Figure 1 (Page 2).
  - b. Coat o-ring (A3) with anti seize compound or heavy grease and install the o-ring (A3) into the body (A1).
  - c. Install rubber seat (A21) into the groove on the outside diameter of seat ring (A2)
  - d. Insert the new seat (A2) into the body (A1) with the chamfered side toward the body. Press the seat (A2) into the body (A1) until the seat (A2) rests against the shoulder in the body.
  - e. Tack weld the seat (A2) in the same location 1 place to hold it. Make sure the seat is tight to the bottom of it's pocket before welding.

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### Reassembling the Valve

1. Replace the gate (A4) in the body (A1), with the beveled edge facing away from the seat (A2)
2. Place the gate (A4) in the fully closed position.
3. Replace the o-ring (A10) into the groove on the wear ring side of the body.
4. Coat the wear ring (A19) with anti seize compound or heavy grease and reinstall the screws (A18).
5. Replace the packing as described in "Installing New Packing".
6. Replace the packing gland (A14), washers (A20) and nuts (A16). Tighten the nuts evenly and finger tight, plus 1/2 turn.
7. Replace the yoke and actuator on the valve.
8. Reconnect the stem to the gate with the two screws and locknuts.
9. Replace the pipeline flange and flange bolts, or replace the valve in the pipeline if the valve was removed. Refer to the requirements in the "Installation" section.
10. If the actuator is a powered actuator, reconnect power to the actuator.
11. Pressurize the pipeline and inspect the valve for leaks.
12. If the packing leaks, tighten the adjustment nuts (A7) on top of the packing gland. Tighten the nuts evenly and slowly, just enough to stop the leakage. Over tightening will cause excessive operating forces, and will decrease the life of the packing.

### Troubleshooting

<b>Condition</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Packing leaks, with no evidence of galling on gate.	Packing is loose.	Adjust packing gland.
	Packing is worn or torn.	Replace packing.
Packing leaks and gate is galled	Packing is worn or torn.	Replace packing and gate.
Valve leaks when fully closed, with no evidence of galling on gate.	Seats are work or torn.	Replace seats.
Valve leaks when fully closed, and gate is galled.	Seats are work or torn.	Replace seats and gate.

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