



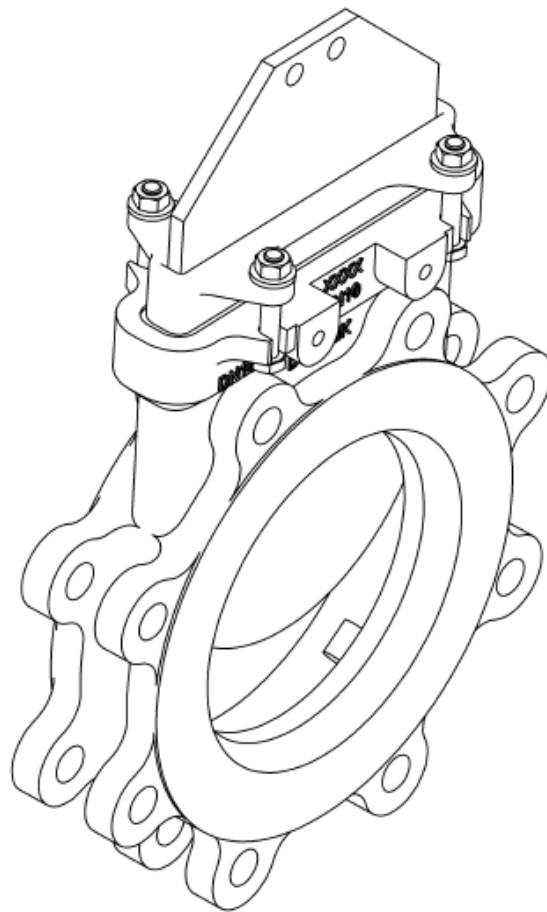
2-36" (50mm–900mm)

KGN-MSU

UNIDIRECTIONAL CAST

STAINLESS STEEL

KNIFE GATE VALVES



Instruction D11000

November 2016

DeZURIK

2-36" (50—900mm) KGN-MSU METAL SEATED KNIFE GATE VALVES

Instructions

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

Table of Contents

| | |
|-----------------------------------|---|
| Description | 3 |
| Installation | 3 |
| Operation | 3 |
| Lubrication | 3 |
| Packing | 3 |
| Adjustment | 3 |
| Drawings | 4 |
| Packing Replacement | 5 |
| <i>Removing the Old Packing</i> | 5 |
| <i>Installing the New Packing</i> | 5 |
| <i>Reassembling the Valve</i> | 6 |
| Gate Replacement | 6 |
| Troubleshooting | 7 |

DeZURIK

2-36" (50—900mm) KGN-MSU METAL SEATED KNIFE GATE VALVES

Description

The DeZURIK KGN-MSU knife gate valves are bonnetless valves with a stainless steel body and gate, and an all-metal seat. A choice of several actuators and accessories are available.

Installation

Install the valve between ASME Class 125 or 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. Refer to Table A for recommended flange bolt-stud torques.

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 open positions. Refer to the Actuator Instructions for adjustment and maintenance requirements for the actuator.

Lubrication

The valve does not require lubrication. If applicable, ensure that valve threaded stems are maintained with proper lubrication. Refer to the Actuator Instructions for lubrication requirements for the actuator.

Packing

The gate packing is contained and compressed by the packing gland. See Figure 1 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.

Note: Torque ranges are based on ASME Pressure Vessel Code Calculations and lab test data. These torques are only for the listed gasket types. For other gasket types listed in ASME, consult DeZURIK.

Table A: Recommended Flange Bolt/Stud Torque Range in ft-lbs (non-lubricated)

| Valve Size | ASME Gasket Types; Rubber, Soft Fabric Filler, or 1/8" Thick Hard |
|---------------------|---|
| <u>2"</u> 50mm | 26 - 29 |
| <u>3"</u> 80mm | 37 - 41 |
| <u>4"</u> 100mm | 26 - 29 |
| <u>6"</u> 150mm | 41 - 45 |
| <u>8"</u> 200mm | 55 - 61 |
| <u>10"</u> 250mm | 56 - 62 |
| <u>12"</u> 300mm | 80 - 88 |
| <u>14"</u> 350mm | 107 - 118 |
| <u>16"</u> 400mm | 103 - 114 |
| <u>18"</u> 450mm | 128 - 141 |
| <u>20"</u> 500mm | 123 - 136 |
| <u>24"</u> 600mm | 188 - 207 |
| <u>30"</u> 750mm | 198 - 218 |
| <u>36"</u> 900mm | 289 - 318 |

Drawings

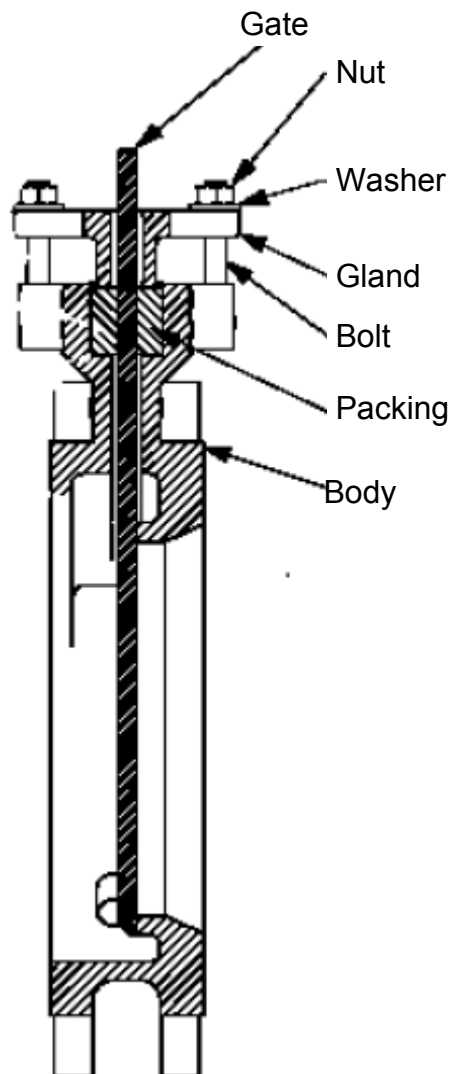


Figure 1—Component Identification

Packing Replacement

Removing the Old Packing


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.

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.
5. Remove the gland nuts, washers and the packing gland.
6. Remove the used packing from the packing chamber.

Installing the New Packing

It is recommended to use 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.

1. With the gate closed, center the gate in the body below the packing chamber.
2. Cut new packing rings to the length and quantity shown in Table B.
3. Install and pack the rings one at a time in the sequence shown in Figure 2.

Note: 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.

TABLE B: Packing Ring Lengths

| VALVE SIZE | | # LAYERS OF PACKING | PACKING SIZE [in] | LENGTH OF PACKING IN EACH LAYER [in] |
|------------|-----|---------------------|-------------------|--------------------------------------|
| in | mm | | | |
| 2 | 50 | 3 | 3/8 | 7.3 |
| 3 | 80 | 3 | 3/8 | 8.9 |
| 4 | 100 | 3 | 3/8 | 10.6 |
| 6 | 150 | 3 | 3/8 | 14.8 |
| 8 | 200 | 3 | 3/8 | 18.7 |
| 10 | 250 | 3 | 3/8 | 22.6 |
| 12 | 300 | 3 | 7/16 | 26.6 |
| 14 | 350 | 3 | 1/2 | 29.9 |
| 16 | 400 | 3 | 1/2 | 34.1 |
| 18 | 450 | 3 | 1/2 | 38.0 |
| 20 | 500 | 3 | 5/8 | 42.9 |
| 24 | 600 | 3 | 5/8 | 50.8 |
| 30 | 750 | 4 | 1/2 | 66.1 |
| 36 | 900 | 3 | 5/8 | 79.9 |

Packing Replacement continued

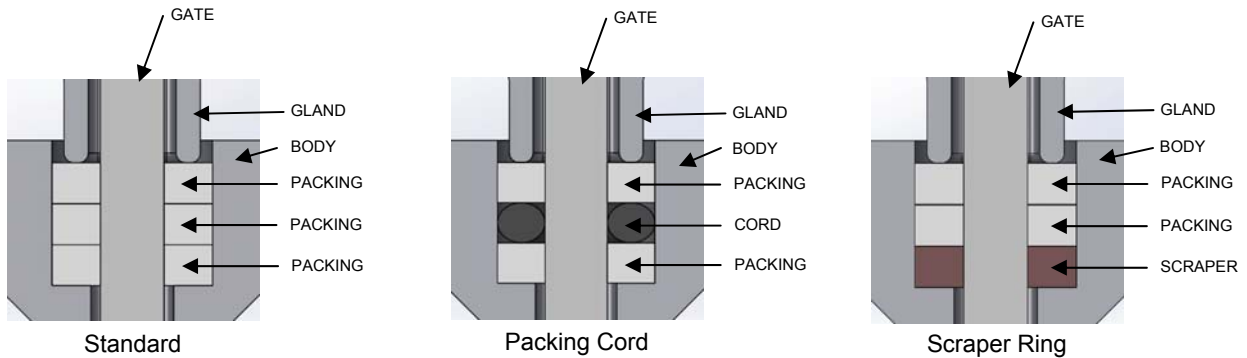


Figure 2—Packing Ring Sequence

With standard packing all the rings are the same material. With packing cord the packing cord ring is the second ring from the bottom. With the scraper ring option the scraper ring is the bottom ring.

Reassembling Valve

1. Replace the packing gland, washers, and nuts. Tighten the nuts evenly and finger tight, plus 1/2 turn.
2. Reconnect the stem to the gate with the two screws and nuts.
3. If the actuator is a powered actuator, reconnect power to the actuator.
4. Pressurize the pipeline and inspect packing for leakage.
5. 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.

Gate Replacement

See Figure 1 for component identification



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.

Gate Replacement continued

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 remove the valve from the pipeline.
4. Remove the actuator, actuator yoke, packing gland, and packing from the valve.
5. Remove and inspect the gate. If the gate appears to be scratched or galled due to too-long flange bolts in the chest area of the body, check for body damage in the tapped flange holes and within the chest cavity. Repair or replace the body, as appropriate.
6. Inspect the seat components.
7. Replace the body if the seat is worn or damaged.
8. Place the new gate in the body, in the fully closed position.
9. Replace the packing as described in "Packing Replacement".
10. Replace the yoke and actuator on the valve.
11. Adjust the actuator, yoke, and packing gland so that the valve actuates smoothly full stroke in both directions, and so that there is no evidence of binding or scratching on the gate when the gate is visible in the fully open position.
12. Replace the valve in the pipeline as described in the "Installation" section.
13. If the actuator is a powered actuator, reconnect power to the actuator.
14. Pressurize the pipeline and inspect the valve for leaks.
15. If the packing leaks, tighten the adjustment nuts 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

| Condition | Possible Causes | Corrective Action |
|--|-------------------------|--------------------------|
| 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 | Metal seat is worn | Replace valve |
| Valve leaks when fully closed and gate is galled | Metal seat is worn | Replace valve |

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.

THE FOREGOING REPAIR AND REPLACEMENT OBLIGATIONS ARE IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS AND LIABILITIES, INCLUDING ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR OF MERCHANTABILITY OR OTHERWISE, EXPRESSED OR IMPLIED IN FACT OR BY LAW, AND STATE DEZURIK, INC.'S ENTIRE AND EXCLUSIVE LIABILITY AND YOUR EXCLUSIVE REMEDY FOR ANY CLAIM IN CONNECTION WITH THE SALE AND FURNISHING OF SERVICES, GOODS OR PARTS, THEIR DESIGN, SUITABILITY FOR USE, INSTALLATION OR OPERATIONS.

Limitation of liability

LIMITATION OF LIABILITY: IN NO EVENT SHALL DEZURIK, INC. BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES WHATSOEVER, AND DEZURIK, INC.'S LIABILITY, UNDER NO CIRCUMSTANCES, WILL EXCEED THE CONTRACT PRICE FOR THE GOODS AND/OR SERVICES FOR WHICH LIABILITY IS CLAIMED. ANY ACTION BY YOU FOR BREACH OF CONTRACT MUST BE COMMENCED WITHIN 12 MONTHS AFTER THE DATE OF SALE.

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

DeZURIK, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this manual, are provided for your information only and should not be relied upon unless confirmed in writing by DeZURIK, Inc. Certified drawings are available upon request.