

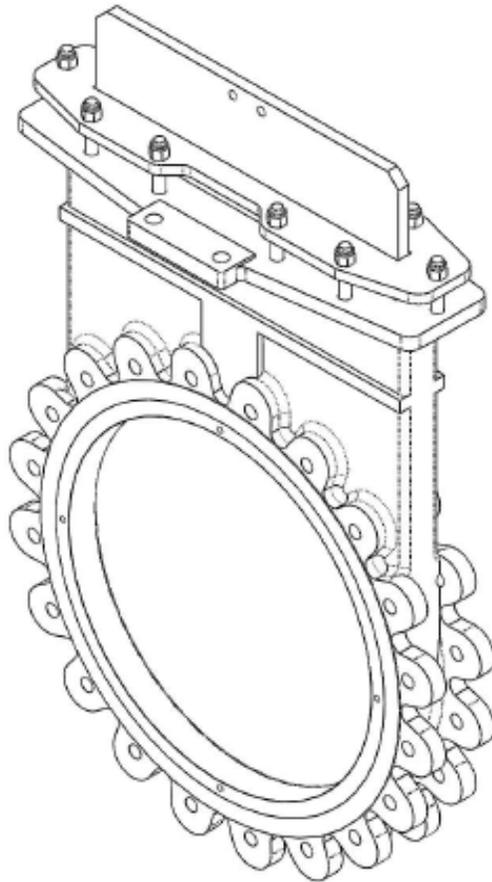


**DeZURIK**

**2-24" (50-600mm)**

**KGN-RSB**

**BI-DIRECTIONAL CAST  
STAINLESS STEEL  
KNIFE GATE VALVES**



Instruction D11023  
October 2016

## Instructions

These instructions are for use by personnel who are responsible for the installation, operation and maintenance of DeZURIK valves, actuators or accessories.

## Safety Messages

All safety messages in the instructions are identified by a general warning sign and the signal word CAUTION, WARNING or DANGER. These messages indicate procedures to avoid injury or death.

Safety label(s) on the product indicate hazards that can cause injury or death. If a safety label becomes difficult to see or read, 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 pipeline material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous pipeline materials. Handle valves which have been removed from service with suitable protection for any potential pipeline material in the valve.**

---

## Inspection

Your DeZURIK product has been packaged to provide protection during shipment; however, items can be damaged in transport. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

## Parts

Replaceable wear parts are listed on the assembly drawing. These parts can be stocked to minimize downtime. Order parts from your local DeZURIK sales representative or directly from DeZURIK. When ordering parts please provide the following information:

**If the valve has a data plate:** please include the 7-digit part number with either 4-digit revision number (example: 9999999R000) or 8-digit serial number (example: S1900001) whichever is applicable. The data plate will be 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.

**If there isn't any data plate visible on the valve:** please include valve model number, part name, and item number from the assembly drawing. You may contact your local DeZURIK Representative to help you identify your valve.

## DeZURIK Service

DeZURIK service personnel are available to maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services. For more information, contact your local DeZURIK sales representative or visit our website at [DeZURIK.com](http://DeZURIK.com).

### Table of Contents

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

---

## Description

The KGN-RSB is a bi-directional cast stainless steel, perimeter sealed knife gate valve. A choice of several actuators and accessories is available.

## Installation

Failure to install the valve properly can result in damage to the valve gate.

Install the valve to the mating pipe flange using proper size bolts. It is very important to choose the proper length of bolt for the bolt holes in the chest of the valve. These holes are bottom drilled and tapped holes.

Be careful not to bottom out bolts in the chest during installation. Table A gives recommended bolt torques to be used during installation, however, depending on the type of gaskets being used the required torques may be higher or lower. Use the cross torque pattern method for tightening the bolts. Mating flanges must be parallel and true with each other and the valve. Do not use the valve to pull together mating pipes.

After installation, open and close the valve once to assure smooth operation.

## Operation

The gate in the valve is positioned by the valve actuator. The actuator moves the gate over the valve port 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. 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.

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

| Valve Size  | ASME Gasket Types                                 |   |
|-------------|---|---|
|             | Rubber with Soft Fabric Filler, & 1/8" Thick Hard | Soft Elastomer Gasket Shore Durometer < 75A |
| 2" (50mm)   | 26 - 29   | 8 - 9                                       |
| 3" (80mm)   | 37 - 41   | 14 - 16                                     |
| 4" (100mm)  | 26 - 29   | 11 - 12                                     |
| 6" (150mm)  | 41 - 45   | 22 - 24                                     |
| 8" (200mm)  | 55 - 61   | 35 - 39                                     |
| 10" (250mm) | 56 - 62   | 40 - 44                                     |
| 12" (300mm) | 80 - 88   | 59 - 65                                     |
| 14" (350mm) | 107 - 118   | 81 - 89                                     |
| 16" (400mm) | 103 - 114   | 79 - 87                                     |
| 18" (450mm) | 128 - 141   | 102 - 112                                   |
| 20" (500mm) | 123 - 136   | 99 - 109                                    |
| 24" (600mm) | 188 - 207   | 155 - 171                                   |
| 30" (750mm) | 198 - 218   | 168 - 185                                   |
| 36" (900mm) | 289 - 318   | 248 - 273                                   |

**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.

Drawings

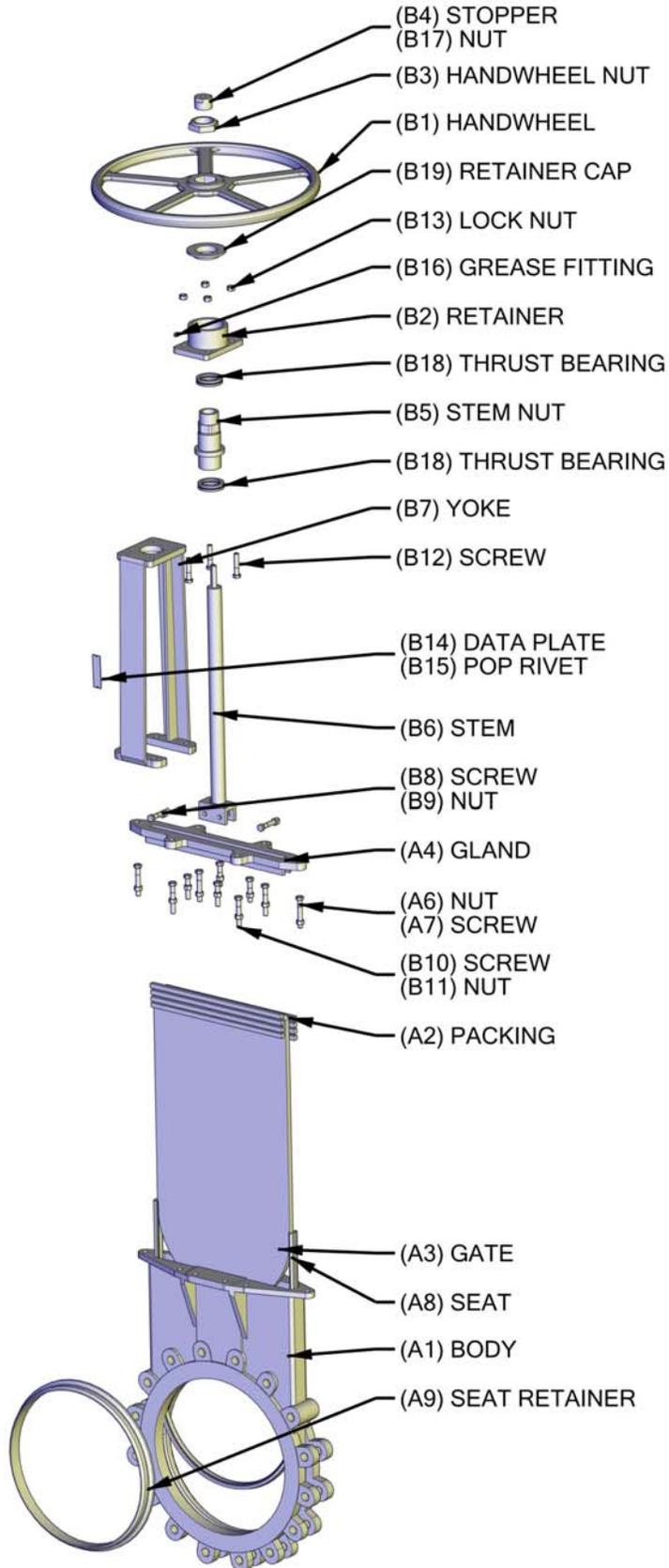


Figure 1: Component Identification

### Replacement of Resilient Seat

---



**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 valve from pipeline.
4. 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 actuator yoke and actuator from valve.
6. Remove the gland nuts, bolts and packing gland.
7. Remove the used packing from the packing chamber.
8. Remove the gate from the body. Inspect and replace galled or damaged gate as needed.
9. Remove valve seat retainer from valve body, as follows:
  - a. Insert two pins into pin holes on retainer,
  - b. Loosen retainer with bar inserting between two pins.
  - c. Remove old seat by pulling the resilient seat out of the valve body.
10. Install new resilient seat:
  - a. Clean the seat cavity in the valve body.
  - b. Insert new resilient seat into valve body seat cavity.
  - c. Trim off excess seat.
11. Assembly of valve:
  - a. Install seat retainer.
  - b. Install knife gate.
  - c. Install new packaging (see page 6).
  - d. Reassemble valve (see page 6).

## 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.
4. Remove the gland nuts, bolts and packing gland.
5. Remove the used packing from the packing chamber.

### Installing the New Packing

Packing strip length and quantity are shown in Table 2. Ensure the inside and outside edges of each strip are packed against the gate and packing chamber, so that each strip is compressed flat and evenly.

Do not compress the packing any more than needed to stop leaks.

1. Ensure the gate is fully closed and centered in the body before packing.
2. Assemble and pack the strips one at a time.

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

### Reassembling Valve

1. Replace the packing gland, bolts 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.

**TABLE 2: KGN-RSB PACKING SIZE**

| Valve Size   | Packing Size [in] | Packing Length per Layer |       | # of Layers |
|--------------|-------------------|--------------------------|-------|-------------|
|              |                   | [in]                     | [mm]  |             |
| 2"<br>50mm   | 3/8"              | 3.46                     | 87.9  | 4x2         |
| 3"<br>80mm   | 3/8"              | 4.41                     | 112.0 | 4x2         |
| 4"<br>100mm  | 3/8"              | 5.59                     | 142.0 | 4x2         |
| 6"<br>150mm  | 3/8"              | 7.87                     | 199.9 | 4x2         |
| 8"<br>200mm  | 3/8"              | 9.65                     | 245.1 | 4x2         |
| 10"<br>250mm | 3/8"              | 12.60                    | 320.0 | 4x2         |
| 12"<br>300mm | 1/2"              | 14.57                    | 370.1 | 4x2         |
| 14"<br>350mm | 1/2"              | 16.22                    | 412.0 | 4x2         |
| 16"<br>400mm | 1/2"              | 17.87                    | 453.9 | 4x2         |
| 18"<br>450mm | 1/2"              | 19.52                    | 495.8 | 4x2         |
| 20"<br>500mm | 1/2"              | 21.81                    | 554.0 | 4x2         |
| 24"<br>600mm | 1/2"              | 25.98                    | 659.9 | 4x2         |

Note: There are two lengths of packing per layer (one on each side of the gate)

**Reassembling Valve continued**

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 gently - just enough to stop the leak. Over tightening will cause excessive operating forces, and will decrease the life of the packing.

## Troubleshooting

| <b>Condition</b>   | <b>Possible Causes</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, check seat for damage |
| Valve leaks when fully closed, with no evidence of galling on gate | Seat is worn or torn    | Replace seat                                    |
| Valve leaks when fully closed and gate is galled                   | Seat is worn or torn    | Replace gate and seat                           |

## Limited Warranty

DeZURIK, Inc. ("Seller") manufactured products, auxiliaries and parts thereof that we manufacture for a period of twenty-four (24) months from date of shipment from Seller's factory, are warranted to the original purchaser only against defective workmanship and material, but only if properly stored, installed, operated, and serviced in accordance with Seller's recommendations and instructions.

For items proven to be defective within the warranty period, your exclusive remedy under this limited warranty is repair or replacement of the defective item, at Seller's option, FCA Incoterms 2020 Seller's facility with removal, transportation, and installation at your cost.

Products or parts manufactured by others but furnished by Seller are not covered by this limited warranty. Seller may provide repair or replacement for other's products or parts only to the extent provided in and honored by the original manufacturer's warranty to Seller, in each case subject to the limitations contained in the original manufacturer's warranty.

No claim for transportation, labor, or special or consequential damages or any other loss, cost or damage is being provided in this limited warranty. You shall be solely responsible for determining suitability for use and in no event shall Seller be liable in this respect.

This limited warranty does not warrant that any Seller product or part is resistant to corrosion, erosion, abrasion or other sources of failure, nor does Seller warrant 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 Seller 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 store, install, or operate said products and parts according to the recommendations and instructions furnished by Seller shall be a waiver by you of all rights under this limited warranty.

This limited warranty is voided by any misuse, modification, abuse or alteration of Seller's product or part, accident, fire, flood or other Act of God, or your failure to pay entire contract price when due.

The foregoing limited warranty 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 a Seller factory authorized 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 Seller, despite anything to the contrary contained in the purchase order or represented by any agent or employee of Seller in writing or otherwise, notwithstanding, including but not limited to implied warranties.

THE FOREGOING REPAIR AND REPLACEMENT LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS AND LIABILITIES, INCLUDING, BUT NOT LIMITED TO, ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR OF MERCHANTABILITY OR OTHERWISE, EXPRESSED OR IMPLIED IN FACT OR BY LAW, AND STATE SELLER'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. NEITHER ANY PERFORMANCE OR OTHER CONDUCT, NOR ANY ORAL OR WRITTEN INFORMATION, STATEMENT, OR ADVICE PREPARED BY SELLER OR ANY OF OUR EMPLOYEES OR AGENTS WILL CREATE A WARRANTY, OR IN ANY WAY INCREASE THE SCOPE OR DURATION OF THE LIMITED WARRANTY.

## Disclaimer

Metric fasteners should not be used with ASME Class 150/300 bolt holes and flange bolt patterns. If you use metric fasteners with ASME Class 150/300 bolt holes and flange bolt patterns, it may lead to product failure, injury, and loss of life. DeZURIK Inc. disclaims all liability associated with the use of metric fasteners with ASME Class 150/300 bolt holes and flange patterns, including but not limited to personal injury, loss of life, loss of product, production time, equipment, property damage, lost profits, consequential damages of any kind and environment damage and/or cleanup. Use of metric fasteners with ASME Class 150/300 bolt holes and flange bolt patterns is a misuse that voids all warranties and contractual assurances. If you use metric fasteners with ASME Class 150/300 bolt holes and flange bolt patterns, you do so at your sole risk and any liability associated with such use shall not be the responsibility of DeZURIK, Inc. In addition to the foregoing, DeZURIK's Manufacturer's Conditions apply.

## Limitation of Liability

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, PUNITIVE, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO; DAMAGE TO OR LOSS OF OTHER PROPERTY OR EQUIPMENT, BUSINESS INTERRUPTION, COST OF SUBSTITUTE PRODUCTS, LOSS OF TIME, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, LOSS OF USE, OR DIMINUTION IN VALUE) WHATSOEVER, AND SELLER'S LIABILITY, UNDER NO CIRCUMSTANCES, WILL EXCEED THE CONTRACT PRICE FOR THE GOODS AND/OR SERVICES FOR WHICH LIABILITY IS CLAIMED. ANY ACTION FOR BREACH OF CONTRACT BY YOU, OTHER THAN RIGHTS RESPECTING OUR LIMITED WARRANTY DESCRIBED ABOVE, 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](http://www.dezurik.com) E-Mail: [info@dezurik.com](mailto:info@dezurik.com)



250 Riverside Ave. N., Sartell, MN 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.*