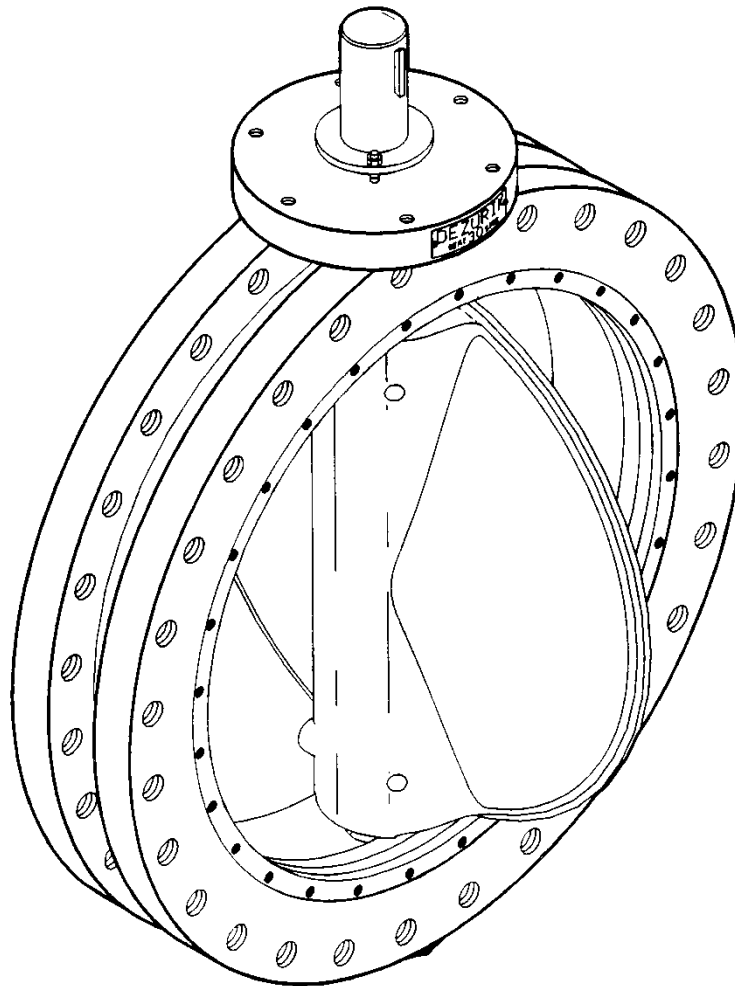


# DEZURIK 24" THRU 36" RESILIENT BUTTERFLY VALVES



Instruction **D10348**

April 2015

## 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).

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### **⚠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.**

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## 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).

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### Description

The DeZURIK 24" thru 36" Resilient Butterfly Valve is a resilient-seated bi-directional valve for general industrial applications. Lugged or wafer end connections are offered, with a choice of disc and seat materials. Pressure and temperature ratings are shown on the valve data plate.

### Handling

Lifting the valve improperly may damage it. Do not fasten lifting devices to the actuator, disc or through the seat opening in the body. Lift the valve with slings, chains or cables fastened around the valve body, or fastened to bolts or rods through bolt holes in the flanges.

### Fusion/Powder Coated Valves

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#### CAUTION!

**Valves with fusion/powder coated exterior paint require flat washers to be installed under the flange nuts when installing the valve to the pipeline flange to prevent the paint from cracking or chipping.**

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### Installation

Installation requirements are shown below. Refer to the Installation Drawing for dimensional information.

- Lift the valve with slings, chains, or cables fastened around the valve body, or fastened to bolts or rods through bolt holes in the flanges. Do not fasten lifting devices to the actuator or disc, or through the seat opening in the body. Failure to lift the valve properly may cause damage during handling and installation.
- Mount the actuator on the valve if the valve has been ordered without an actuator. For a DeZURIK actuator, refer to the Actuator Instructions. For an actuator other than DeZURIK, the dimensional requirements for the actuator interface are shown on the Installation Drawing for the valve.
- Before installation, remove all foreign material such as weld spatter, oil, grease, and dirt from the valve, flanges, and pipeline. Open the valve, and clean the seat and the sealing edge of the disc. Apply a light coating of silicone lubricant to the seat, and close the valve.
- To minimize the possibility of excessive dynamic torque in the valve, select a pipeline location which is at least 8 pipe diameters downstream from the nearest pump or elbow. The valve is bi-directional, and may be installed in any position; if possible, however, install the valve with the shaft horizontal to provide a self cleaning action on the seat.
- Use mating flanges that comply with ASME/ANSI B16.1 Class 125 or ASME/ANSI B16.5 Class 150. Flange gaskets are required.
- Place the valve in the pipeline with the valve closed. Ensure that the valve, the pipeline, and the mating connections are concentric before tightening the pipeline bolts. Tighten the bolts evenly, in a crisscross pattern.
- Due to varying conditions during shipment, storage, handling, and installation, valve testing is recommended while the valve is fully accessible in the pipeline.

## **Operation**

Clockwise rotation of the valve shaft closes the disc in the seat. The valve is fully closed when the flat side of the disc is parallel with the flange sealing surface on the body; the valve is fully open when the disc is 90 degrees counterclockwise from the closed position. A line located on the top of the valve shaft may be used to determine the approximate position of the disc when the disc is not visible.

The valve actuator is connected to the valve shaft, and positions the disc at the open, closed, or intermediate positions. The adjustable open and closed position stops in the valve actuator are set to match the open and closed positions of the valve. Refer to the Actuator Instructions for actuator stop adjustment information.

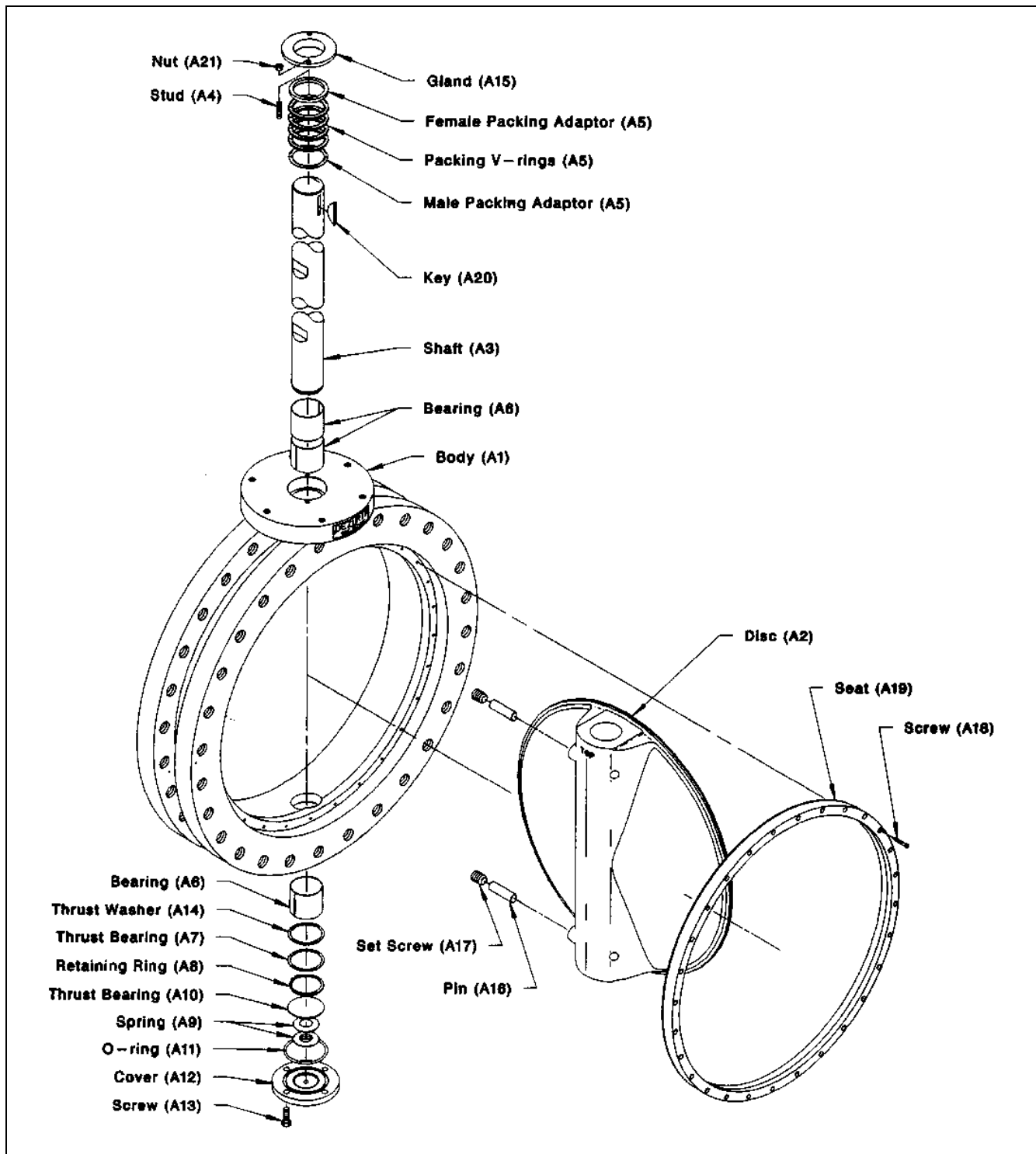


Figure 1 - Component Identification - Disassembled

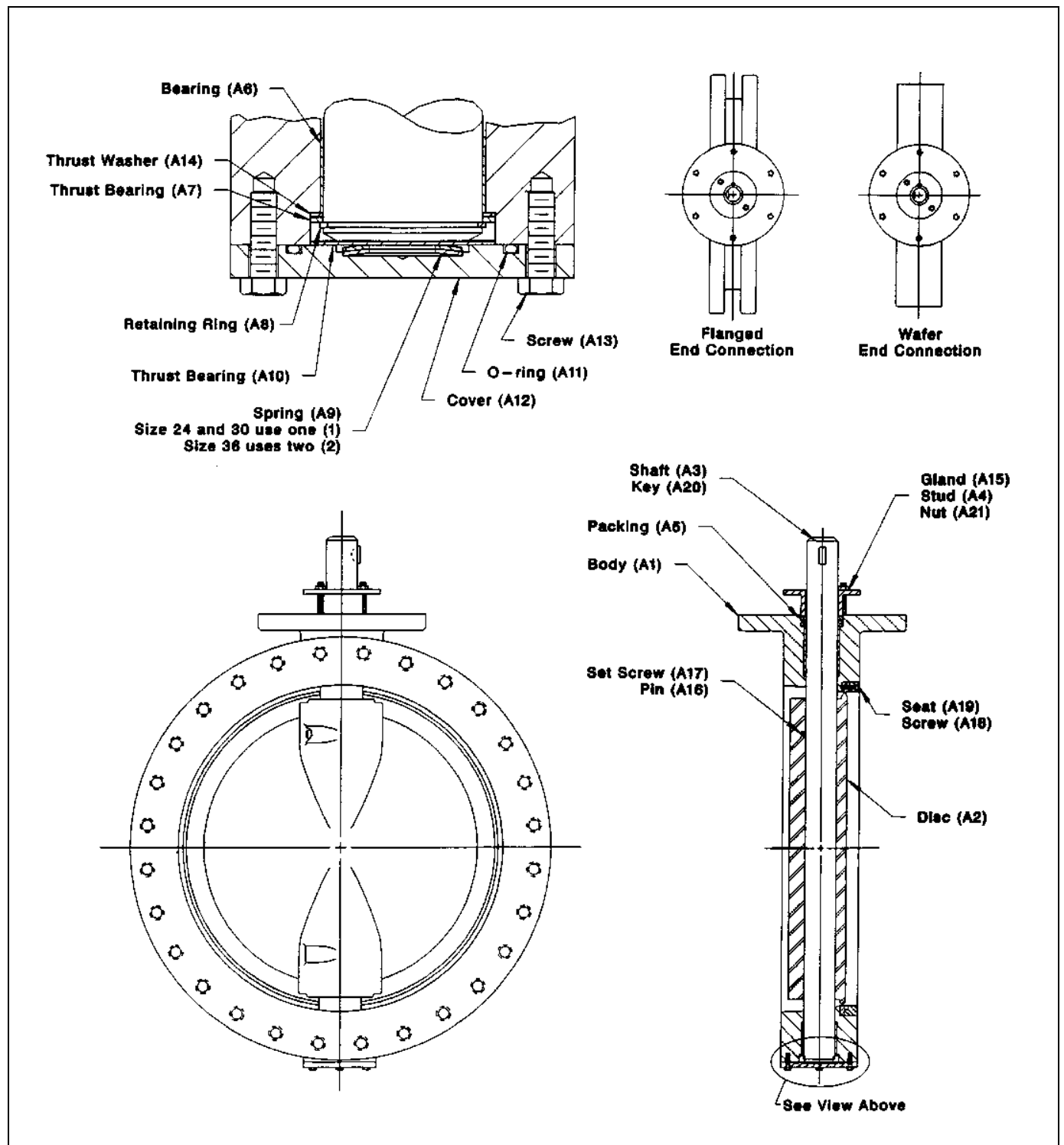


Figure 2 - Component Identification - Assembled

### Lubrication

When the valve is installed, apply a light coating of silicone lubricant to the seat using one of these lubricants:

- Dow Corning Molykote No. 44 (recommended)
- Shell Retinax AM (alternate)
- Shell Lithall MDS (alternate)

Other lubrication requirements are described in the *Packing Replacement* and *Seat Replacement* sections

### Packing Adjustment

The packing is contained and compressed by the packing gland (A15). If packing leakage occurs, tighten the two adjustment nuts (A21) on the packing gland. Tighten the nuts evenly and gently—just enough to stop the leakage. Over-tightening will cause excessive operating torque, and will decrease the life of the packing. If leakage persists, replace the packing as described in the *Packing Replacement* section.

### Removing Valve from Pipeline

Follow the steps below to remove the entire valve assembly from the pipeline.

1. Relieve the pressure in the pipeline, and drain the sections of the pipeline on both sides of the valve.



#### **WARNING!**

**Loosening the flange bolts on a pressurized valve can allow the valve to suddenly shift position and release uncontrolled pipeline fluid. To avoid personal injury or pipeline damage, relieve the pressure in the pipeline before loosening the pipeline flange bolts.**

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2. Close the valve.
3. If the valve has a powered actuator, turn off and disconnect the air pressure and/or electricity to the valve.



#### **WARNING!**

**Moving parts from accidental operation of a powered actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.**

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4. While supporting the valve, remove the bolts from the pipeline flanges.
5. Remove the valve from the pipeline. Refer to the lifting requirements in the *Installation* section.



## Packing Replacement

Refer to Figures 1 and 2 for component identification.

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



### WARNING!

**Relieve the pipeline pressure before removing the actuator. Pipeline pressure can propel the loose actuator and/or the packing, and can cause personal injury or equipment damage.**

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2. If the actuator is powered, disconnect and lock out the pneumatic, hydraulic, or electrical power to prevent accidental operation of the actuator.



### WARNING!

**Moving parts from accidental operation of a powered actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.**

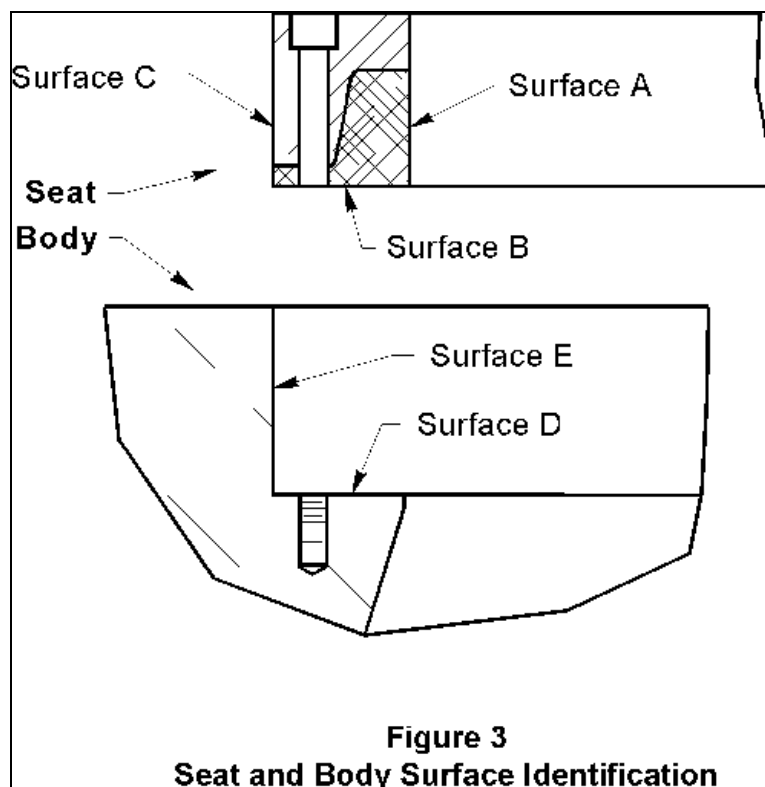
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3. Remove the actuator from the valve as described in the Actuator Instructions.
4. Remove the two nuts (A21) and the gland (A15).
5. Use a hooked tool to remove all of the packing rings (A5) from the packing chamber. Remove all residue and debris so that the sealing surfaces are clean.
6. If the new packing ring material is rubber, apply a light film of silicone grease such as Dow Corning 44 to the inside and outside diameters of each of the packing rings. **Do not lubricate PTFE packing rings.** Slide the rings, one ring at a time, over the valve shaft and into the packing chamber as shown in Figure 2. Push the rings firmly in place. Do not use a sharp or pointed tool.
7. Replace the gland (A15) and the two nuts (A21). Tighten the nuts evenly and finger tight, plus ½ turn.
8. Replace the actuator as described in the Actuator Instructions.
9. Pressurize the valve and check for packing leakage. If leakage occurs, tighten the two nuts (A21) on the gland (A15). Tighten the nuts evenly and gently —just enough to stop the leakage. Over-tightening will cause excessive operating torque, and will decrease the life of the packing.

### Seat Replacement

The resilient seat may be replaced by following the steps below. Refer to Figures 1, 2 and 3 for parts identification.

1. Remove the valve from the pipeline as described in the *Removing Valve From Pipeline* section.
2. Support the valve in a horizontal position with the seat side up. Open the valve.
3. Remove all of the seat screws (A18) with a 3/16" hex driver.
4. Note that several of the screw holes in the seat (A19) are threaded with 5/16-24 UNF threads. Screw eyebolts into three or four of the threaded holes, approximately equally spaced, and fasten a lifting device to each of the eyebolts. Lift the seat slowly and evenly from the body. As an alternative to the eyebolts, hex head screws may be used. Then remove the seat slowly and evenly with a pry bar or claw hammer on each of the screws.
5. Use a trichlorethane solvent such as Chlorothene to clean surfaces E and D on the body, and surfaces B and C on the new seat as shown in Figure 3.
6. Apply a light film of silicone lubricant such as Dow Corning 44 to seat surface C. **Do not get lubricant on seat surface B.**
7. Apply one thin, even, paint-like coat of Permatex Hi-Tack 99MA to seat surface B.
8. Align the holes in the seat (A19) with the holes in the body, place the seat in the body, and fasten the seat with seat screws (A18). Tighten the seat screws in a crisscross pattern to  $30 \pm 2$  inch pounds. Tighten each screw three times, or until the torque stabilizes at  $30 \pm 2$  inch pounds.



### Seat Replacement (*continued*)

9. Use a trichlorethane solvent such as Chlorothane to clean seat surface A.
10. Wipe seat surface A with a silicone fluid such as Slipmore 71751, manufactured by Pulmore, applied to a clean wiping cloth. **Do not spray directly on the seat.**
11. Replace the valve in the pipeline as described in the *Installation* section.

### Valve Disassembly

The valve is disassembled and reassembled by following the steps in the next two sections. Inspect all parts for wear, and replace worn parts. Refer to Figures 1 and 2 for parts identification.

1. Remove the valve from the pipeline as described in the *Removing Valve From Pipeline* section.
2. Remove the actuator from the valve as described in the Actuator Instructions.
3. Remove the seat from the valve as described in steps 2 thru 4 in the *Seat Replacement* section.
4. Turn the valve over so that the seat side of the valve is down.
5. Remove the two disc set screws (A17) with a large slotted screw driver. Remove the two disc pins (A16) by driving each pin on the end opposite the set screw.
6. Remove the four bottom cover screws (A13), the bottom cover (A12), the spring washer(s) (A9), the thrust bearing (A10), and the O-ring (A11).
7. To protect the machined edge of the disc (A2), place a small wooden block or several thick cloths between the disc and the body at the 12 o'clock and 6 o'clock positions of the opened disc.
8. Remove the two gland nuts (A21) and the gland (A15). Remove all of the packing rings (A5) with a hooked tool.
9. Support the disc (A2) securely with wooden blocks so that the disc does not drop and become damaged during the next step.
10. Push on the top end of the shaft (A3), and slide the shaft out of the bottom of the body. The shaft may instead be removed from the top of the body by first pushing the shaft down far enough to remove the parts in step 11.
11. Remove the retaining ring (A8), the thrust washer (A14), and the thrust bearing (A7) from the shaft.
12. Remove the three bearings (A6) from the body.

### Valve Reassembly

Clean and inspect all parts, and replace worn parts before reassembly. Refer to Figures 1 and 2 for parts identification.

1. Support the valve body (A1) in a horizontal position with the seat side down.
2. Place two bearings (A6) in the upper body area with the joints opposed —towards the 3 o'clock and 9 o'clock positions of the body. Place one bearing (A6) in the lower body area with the joint aligned with the joint in either of the upper bearings. **Do not lubricate the bearings.**
3. If the packing (A5) material is rubber, apply a light film of light grease such as Dow Corning 44 to the inside and outside diameters of each of the packing rings. Do not lubricate PTFE packing rings. Slide the rings one ring at a time into position in the body (A1) as shown in Figure 2.
4. Note the word "top" cast in the disc (A2). With "top" towards the top (or neck) of the body, place and hold the disc in position in the body. **Handle the disc carefully so that the edge of the disc does not get scratched or damaged.**
5. Slide the top end of the shaft (A3) thru the lower body bearing (A6), thru the disc (A2), and partially thru the upper body bearings. The bottom end of the shaft must extend an inch or two out the bottom of the body so that the groove near the lower end of the shaft is accessible for the next step.
6. Place the thrust washer (A14) and upper thrust bearing (A7) on the bottom of the shaft (A3) with the burr side of the thrust washer towards the body, and the fiber side of the upper thrust bearing towards the thrust washer. Place the retaining ring (A8) in the groove in the shaft, and push the bottom end of the shaft into position in the body so that the retaining ring is bottomed out against the upper thrust bearing, the thrust washer, and the body.
7. Place the fiber side of the lower thrust bearing (A10) against the bottom of the shaft (A3), and place the (A9) spring washer(s)—the 24" and 30" valve have **one** spring washer, and the 36" valve has **two**—against the lower thrust bearing. The spring washer(s) may be adhered in position with a small amount of light grease such as Dow Corning 44. **Do not get grease on the thrust bearings.**
8. Apply a light film of light grease such as Dow Corning 44 to the O-ring (A11), and place the O-ring in the groove of the bottom cover (A12). Mount the cover to the body (A1) with the four screws (A13). Tighten the screws to  $40 \pm 3$  foot pounds.
9. Place the two disc pins (A16) in the disc (A2) and rotate the disc so that the flats on the pins are against the flats on the shaft. **Do not drive the pins until step 11.**
10. Open the disc (A2) and slide the disc on the shaft (A3) so that the disc is approximately centered in the body. Measure the disc-to-body clearance with a feeler gauge at both the 12 o'clock and 6 o'clock positions of the body. Slide the disc on the shaft so that the two measured clearances are equal within .002", and lock the disc in position with two feeler gauges.
11. With the feeler gauges in place, tap the two disc pins (A16) lightly, and secure the pins with the set screws (A17). Tighten the set screws to  $100 \pm 5$  foot pounds, and remove the feeler gauges.
12. Replace the gland (A15) and the two nuts (A21). Tighten the nuts evenly and finger tight, plus  $\frac{1}{2}$  turn.
13. Turn the valve over so that the seat side of the valve is up.
14. Install the seat as described in steps 5 thru 10 of the *Seat Replacement* section.
15. Replace the actuator as described in the Actuator Instructions.

### Valve Reassembly (*continued*)

16. Install the valve in the pipeline as described in the *Installation* section. Re-connect any pneumatic and electrical lines to the valve actuator and accessories.
17. The pipeline may now be pressurized. If packing leakage occurs, tighten the two nuts (A21) on the gland (A15). Tighten the nuts evenly and gently—just enough to stop the leakage. Over-tightening will cause excessive operating torque, and will decrease the life of the packing.

## Troubleshooting

Condition	Possible Cause	Corrective Action
Packing leaks.	Packing is loose.	Adjust packing. See <i>Packing Adjustment</i> section.
	Packing is worn.	Replace packing. See <i>Packing Replacement</i> section.
Valve does not close.	Object is wedged between disc and seat.	Open valve and allow flushing action to remove object.
	Closed position stop is not adjusted correctly.	Adjust stop. See Actuator Instructions.
Valve leaks when closed.	Seat is worn or damaged.	Replace seat. See <i>Seat Replacement</i> section.
	Disc is worn or damaged.	Replace disc. See <i>Valve Disassembly</i> and <i>Valve Reassembly</i> sections.
	Closed position stop is not adjusted correctly.	Adjust stop. See Actuator Instructions.

## 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.

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## 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)



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*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.*