



**Engineered Valves**

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**INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS  
FIGURE C45  
FABRI-VALVE® BONNETLESS KNIFE GATE VALVE**

**CAUTION: IF THE VALVE IS TO BE STORED FOR A LONG PERIOD OF TIME BEFORE INSTALLATION IT SHOULD BE STORED IN A VERTICAL POSITION AND IN A COOL, CLEAN AREA TO PREVENT DAMAGING EFFECTS ON THE PACKING.**

**INSTALLATION:**

**CAUTION: A SINGLE SEATED KNIFE GATE VALVE IS DESIGNED TO SEAL IN ONE DIRECTION ONLY. IF REVERSE PRESSURE IS EXPECTED CONTACT THE FACTORY FOR TECHNICAL ADVICE.**

Inspect the valve and identify the seat side. The word "SEAT" is cast on the valve body in the chest area on the seat side. Install the valve in the line with the seat side downstream or making sure the flow and pressure is in the direction tending to push the gate against the seat when closed.

If the valve is a double seated, bi-directional valve, the valve can be installed in either orientation.

Use a gasket material suitable for the pressure, temperature, and media and cut to fit face of the valve. If the valve is supplied with a non-metallic replaceable seal, no gasket should be used on the replaceable seal side.

It is recommended that studs be used in the tapped holes in the chest area. If bolts are used select length that will not cause bolt to bottom out in flange hole before sealing gasket.

When tightening flange bolts, work from side to side to ensure even compression of the gasket. The amount of torque required is determined by the type of gasket, line pressure, type of bolt and bolt lubrication.

**WARNING: VALVES WITH REPLACEABLE URETHANE, METAL, TFE, OR UHMW, SEATS. THESE SEATS ARE LOOSE PIECES AND NOT ATTACHED TO THE VALVE BODY. THE VALVE MUST BE INSTALLED BETWEEN TWO MATING FLANGES BEFORE PRESSURIZING. FAILURE TO DO THIS MAY CAUSE**

**DAMAGE OR INJURY. IF THE VALVE IS INSTALLED ON THE DISCHARGE END OF A PIPELINE A COMPANION FLANGE MUST BE BOLTED TO THE OUTLET FLANGE OF THE VALVE TO RETAIN THE REPLACEABLE SEAT. THE GATE MUST BE SLIGHTLY OPEN WHEN INSTALLING.**

All single seated valves are pressure and seat tested before shipment. The packing gland may require some adjustment after line pressure is up to normal. Tighten just enough to stop leakage. Overtightening may cause undue pressure against the gate making the valve difficult to operate and cause rapid packing wear. If possible, stroke the valve a few times before setting packing bolts. Single resilient seated valves are seat tested at 15 psi and 150 psi for seat leakage. Single metal seated valves are seat tested at 40 psi and 150 psi. Metal seated valves will not leak more than 40cc/in/min and resilient seated valves will be drip tight at these conditions. Extremely low pressures across a closed gate, below 5 psi, may result in higher leakage rates. If this is the normal working condition. See the Fabri-Valve® catalog or consult the factory.

All double metal, UHMW, TFE, and urethane seated valves are body pressure tested only. These valves are not seat tested and leakage will exceed the 40cc/in/min rates. Double seated valves with "D" ring are body pressure and seat tested and will be drip tight across the gate in both directions.

Double seated valves may require special flushports if solids materials are present in the pipeline and can collect between the seats. Consult the factory for technical advice.

If the valve is installed in horizontal position and a heavy, powered actuator is included with the valve, support of the actuator may be required. Consult the factory for technical advice.

Air operated valves must be supplied with clean, dry, regulated air.

**CAUTION: THE VALVES ARE SUPPLIED WITH CYLINDERS SIZED FOR A SPECIFIED AIR PRESSURE AND PRESSURES EXCEEDING THIS MAY CAUSE DAMAGE TO THE VALVE. AIR REGULATORS AND AIR FILTERS ARE AVAILABLE FROM YOUR ITT SALES REPRESENTATIVE.**

## **MAINTENANCE:**

### **TO REPACK STUFFING BOX:**

#### **DANGER: DO NOT REPACK VALVE UNDER PRESSURE**

1. Disconnect stem from gate. Raise stem.
2. Remove gland nuts and raise the packing gland.
3. Remove old packing and clean the packing chamber.
4. Install new packing per table below. Cut to fit around the gate, cutting each end of the packing at a 45 degree bevel. Stagger the joints on opposite sides of the gate.

Valve Size	Number Rows	Packing Size	Packing Length
2	3	1/4	6 3/4
3	3	1/4	8 3/4
4	3	1/4	10 3/4

6	3	3/8	15 7/8
8	3	3/8	20 1/2
10	3	3/8	25 1/8
12	3	3/8	30 3/8
14	3	1/2	32 3/4
16	3	1/2	37 1/2
18	3	1/2	41 1/2
20	3	1/2	45
24	3	1/2	53 1/4

5. Reseat the packing gland and replace the packing nuts, making sure the gate is centered and against the valve body seat. Tighten nuts just to the point that the gland contacts and sets the packing. Do not tighten completely.
6. Lower the stem and reconnect to the gate.
7. Pressurize the valve to the working pressure and tighten the gland nuts evenly from side to side until leakage is stopped. Do not over tighten.

The stem and stemnut are lubricated at the factory before shipment. However, these parts should be lubricated periodically to prevent wear and to minimize operating forces. Some recommended lubricants are:

CHEVRON INDUSTRIAL GREASE-MEDIUM  
 TEXACO MOLYTEX GREASE #2  
 MOLY XL 47-F2-75  
 FEL-PRO C5-A COMPOUND

## **VALVES WITH REPLACEABLE SEATS:**

### **REPLACEABLE SEATS-RP, RH, RT, RW**

1. Remove the valve from the pipeline and open gate.
2. Seat ring is loose and may be removed from outlet flange of valve. If necessary, it may be driven out with a piece of wood from the inlet side.
3. Inspect the seat surface of the ring. If wear appears on only a small area the seat ring may be rotated to put wear point towards the top of the port and further service obtained.
4. Clean the recess where the seat ring fits.
5. If the seat ring is nonmetallic install new or rotated ring. If seat ring is metallic install the new or rotated ring with a new, 1/16" thick gasket between the body and seat ring.

### **D-RING SEALS**

1. Remove valve from line and disassemble.
2. Remove old seal from groove. The groove must be clean and dry before installing new seal.
3. Roughen the flat, bottom surface of the new seal ring and clean.
4. Lay seal ring on flat surface with flat side up. Apply a thin layer of adhesive to the flat surface(.003 to .005 thick or like a sheet of paper).  
 Note: Black Max adhesive #38050 is available from factory under part no. 137-900.
5. Install the ring in the body groove flat side down. Press seal into the groove starting at the top and then move to the bottom, and then to the sides as illustrated in fig 1. All rings must be stretched slightly to fit and care must be taken to keep ring smooth and flat.
6. Wipe off any excess adhesive.
7. Allow adhesive to dry for a minimum of 8 hours for full bond strength.
8. Reassemble valve and repack per instructions above.

Maintenance manuals for cylinders, electric motors, and other accessories are available from the factory.

## **VALVES WITH ELECTRIC ACTUATORS**

Valves with electric motors should be set up torque closed, position open if valve is single seated and position closed, position open if valve is double seated.

### **WARNING:**

Valves and valve actuators supplied by Engineered Valves are designed and manufactured using good workmanship and materials, and they meet the applicable industry standards. These valves are available with components of various materials, and they should be used only in services recommended herein or by a company valve engineer. Misapplication of the product may result in injuries or property damage. A selection of valve components of the proper material consistent with the particular performance requirement is important for proper application.

Examples of the misapplication or misuse of a valve or valve actuator includes use in an application that exceeds the pressure / temperature rating, or failure to maintain the equipment as recommended.