
S16

Urethane Lined Knife Gate Valve

Instruction Manual

This manual provides installation, operation and maintenance instructions. If additional information is required, please contact:

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WARNING

Valves and related products are designed and manufactured using good workmanship and materials, and they meet all applicable industry standards. These valves are manufactured with various materials, and they should be used only in services recommended by a company engineer.

Misapplication of the product may result in injuries or property damage. A selection of valve and valve components of the proper material and consistent with the particular performance requirement is important for proper application.

Examples of misapplication or misuse of any products include use in an application in which the pressure/temperature rating is exceeded or failure to maintain valve or related product as recommended and use of products to handle caustic and/or hazardous substances when not designed for that purpose.

If valve exhibits any indication of leakage, do not operate. Isolate valve and either repair or replace.

0.0 GENERAL

The latest edition of this manual can be found on :
<http://www.engvalves.com>

0.1 Safety

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|  | The safety precautions in these operating instructions are specially marked with the standard symbol for danger when non-observance could result in personal injury, loss of life or property damage. |
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| CAUTION! | Non-observance of these safety precautions can endanger the product and its functions. |
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0.1.1 Qualifications and training of personnel

The personnel responsible for operation, maintenance, inspection and assembly must be appropriately qualified.

The operating company must precisely define the responsibilities, competence and supervision of the personnel. If the personnel lack the necessary knowledge, they are to be trained and instructed. If required this can be carried out by the manufacturer/supplier of the product by order of the operating company. Furthermore, the operating company is to ensure that the contents of the operating instructions have been fully understood by the personnel.

0.1.2 Dangers through non-observance of the safety precautions

The non-observance of the safety precautions can result in the endangering of lives as well as the environment and the product. The non-observance of the safety precautions can lead to the loss of all claims for damages.

Non-observance can result in the following:

- Failure of important functions of the product/plant.
- Endangering of lives by electrical, mechanical and chemical influences.
- Endangering the environment through leakage of dangerous materials.
- Personal injury or property damage.

0.1.3 Safety awareness at work

Attention must be paid to the safety precautions in these operating instructions, the current national regulations concerning the prevention of accidents as well as any labor, company and safety-regulations of the operating company.

0.1.4 Safety precautions for the operating company/individual operator

- If hot or cold components of the product are a source of danger, these components must be secured against contact by operating company.
- Contact guard for moving parts may not be removed when product is in operation.

- Do not hang items off the product. Any accessories must be firmly or permanently attached.
- Do not use the product as a step or hand hold.
- Do not paint over identification tag, warnings, notices or other identification marks associated with the product.
- Plastic and elastomeric components may emit toxic fumes due to thermal decomposition at temperatures of 716°F (380°C) or greater.

0.1.5 Safety precautions for maintenance, inspection and assembly

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|  | Power actuated valves must be isolated from their power source prior to initiating any inspection or maintenance functions. |
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Work on externally actuated valves should only be carried out when the valve is removed from service. Products that have been exposed to harmful media such as caustic chemicals must be decontaminated.

On completion of work, all safety and protective equipment must immediately be fitted again or reactivated.

Before the re-operation, attention should be paid to the points in the following sections.

0.1.6 Unauthorized reconstruction, manufacture and use of spare parts

Reconstruction or modification of the product is only admissible after consultation with the manufacturer.

Genuine spare parts and accessories authorized by the manufacturer serve to maintain safety. The use of other parts can annul all liability for the consequences.

Manufacturer's parts are not to be used in conjunction with products not supplied by the manufacturer. The use of manufacturer's parts with products not supplied by the manufacturer can annul all liability for the consequences.

0.1.7 Inadmissible modes of operation

The operational reliability of the product supplied is only guaranteed when used as designated.

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|  | Operating limits given on identification tag and data sheet must not be exceeded under any circumstances. |
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If the product label is missing or worn, contact manufacturer at the address listed within this manual for specific instructions.

0.2 Transport and storage

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|  | The universally recognized technical standards and the regulations regarding prevention of accidents must be observed at all times when handling. |
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0.2.1 Transport

The goods have to be carefully handled in order to prevent damage.

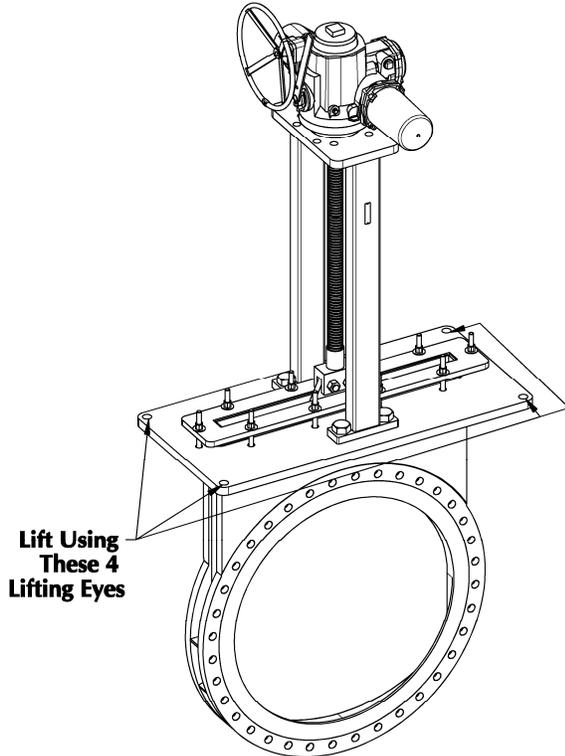
The end flange caps supplied are to be fitted to the valve as applicable.

0.2.2 Unpacking

Unpack the shipment, check to make sure that all contents are present and undamaged.

0.2.2.1 Lifting Points

Figure 1 - Lifting Points



0.2.3 Storage

If the product is not to be installed immediately following delivery, it must be properly stored.

Valve should be stored with the gate 0.5" from the full-close position.

Storage should be in a dry room at a temperature as constant as possible. Product should not be stacked on top of one another.

Storage over a longer period may necessitate individual moisture proof packing. This is dependent on the local conditions.

0.2.4 Disposal, Recycle or Return shipment

The personnel responsible for disposal of the product or associated components are to comply with federal, state and local requirements.

If the return shipment is required, contact manufacturer at the address listed within this manual for specific instructions.

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| | The operator of products used for aggressive or toxic media such as caustic chemicals must ensure that these are decontaminated before being handed to the maintenance personnel. This is particularly important when returning to the product manufacturer, disposing of or recycling the product or its component parts. MSDS are required for authorization to return a product to the manufacturer. |
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1.0 INSTALLATION

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| CAUTION! | Valve is designed for use with fiberglass or metal mating flanges meeting ANSI B16.1 or ANSI B16.47, either flat faced or raised face. |
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| CAUTION! | Any flange or pipeline welding should be done prior to valve installation. If this is not possible, protective coverings or shields must be placed in the pipeline between the valve and area being welded prior to welding. Not only must the valve be protected against weld slag but also against any excessive heat which could cause damage. All weld slag, rods, debris, tools, etc. must be removed from the pipeline before valves are installed or cycled. |
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| CAUTION! | Metal mating flanges require a gasket. |
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1.1 The valve should be tightened between flanges using appropriate fasteners for the service, in compliance with applicable piping codes and standards. Mating flange gaskets are required.

1.2 Bolt the valve to the mating flange using proper size bolts and/or studs. If stainless bolts or studs are used, lubricate threads to prevent galling.

Recommended fasteners are listed in Section 4.1

NOTE 1: The bolt and stud lengths in Section 4.1 assume that the mating flange thickness meets ANSI B16.47 for flat-faced, class-150 flanges.

If raised face flanges, load distribution rings, or support rings utilized, the fastener **lengths MUST be adjusted** to maintain the desired thread engagement. Increase or decrease fastener lengths as necessary to ensure proper thread engagement.

NOTE 2: Stud bolts should be used with the tapped holes in the valve's chest. The use of machine bolts with the tapped holes in the valve's chest is **NOT recommended**. Tolerance variations in machine bolt length, flange thickness or gasket thickness could result in:

- insufficient machine bolt thread engagement *or*
- The machine bolt could “bottom out” before full gasket compression.

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| CAUTION! | Damage to the valve body may occur if a flange bolt is “bottomed out” in a tapped hole. Use of studs is highly recommended in tapped holes. |
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1.4 When tightening flange bolts, work from side to side in an alternating sequence to ensure even compression of the gasket. The type of gasket, line pressure, type of bolt and bolt lubrication, determines the torque required. See Figure 1

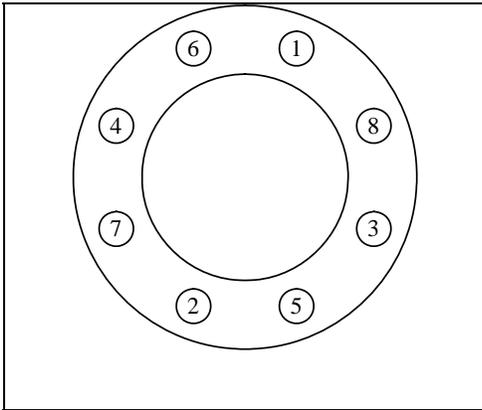


Figure 2- Flange Bolting Sequence

1.5 If there is seepage past the packing upon installation, the valve may have been subject to wide temperature variations during shipment. Leak tight performance can be restored by the simple packing adjustment procedure in the Maintenance Section 3-4.

NOTE: All valves are pressure and seat tested before shipment.

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

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

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| | WARNING: Mating pipe flanges should be tight against the valve flanges to properly energize the flange seal. Process pressure should be brought up slowly to check for leaks between the valve and pipe flanges. Serious injury or death could result from media leakage between the pipe flanges and the valve. |
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| | WARNING: Valves that are supplied with cylinders are sized for a specified pressure. Excessive pressure could result in serious personal injury or may cause damage to the valve and/or cylinder. Air regulators and air filters are available from your ITT distributor. |
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2.0 OPERATION & ADJUSTMENT

2.1 All valves are pressure and seat tested before shipment and an inspection tag is attached.

The Packing may require some adjusting after line pressure is up to normal.

Tighten the packing gland bolts just enough to stop leakage. Over tightening 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 gland bolts.

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| | Never use unapproved means of actuating the valve. The use of a “cheater bar” to operate manually operated valves could lead to serious injury and property damage. |
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3.0 MAINTENANCE

ALL MAINTENANCE PROCEDURES MUST BE PERFORMED BY QUALIFIED PERSONNEL. MAINTENANCE DONE BY PERSONNEL NOT QUALIFIED TO PERFORM IT COULD RESULT IN PERSONAL INJURY, DEATH OR PROPERTY DAMAGE.

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| | Remove all line pressure before servicing valve. |
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| | Remove electrical, pneumatic or hydraulic power before servicing actuator or automation components. |
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3.1 Periodic inspection

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| | When the process fluid is hazardous or corrosive, extra precautions should be taken. The user should employ appropriate safety devices and should be prepared to control a leak of the process fluid. Failure to follow these instructions could result in serious personal injury or death, and property damage. |
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Periodically inspect condition of external parts. Replace all parts showing excessive wear or corrosion. Contact manufacturer at the address listed within this manual in order to obtain replacement parts or for specific instructions.

3.2 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 packing length 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.

Table 1 - Packing Row Lengths

| Valve Size | Number Rows | Packing Size | Packing Length |
|------------|-------------|--------------|----------------|
| 68.625 | 4 | 3/4 | 67 1/8 |
| 82.125 | 4 | 3/4 | 80 5/8 |
| 93.5 | 4 | 3/4 | 92 |
| 107.625 | 4 | 3/4 | 106 1/8 |
| 119.125 | 4 | 3/4 | 117 5/8 |
| 131.625 | 4 | 3/4 | 130 1/8 |

Table 2 - Recommended Fasteners

| Dia. Inches | Fastener Diameter & Thread | Total No. of Fasteners | Stud Bolt Length (min) |
|-------------|----------------------------|------------------------|------------------------|
| 30 | 1.25 | 28 | 6 |
| 36 | 1.5 | 32 | 7.25 |
| 42 | 1.5 | 36 | 7.5 |
| 48 | 1.5 | 44 | 7.75 |
| 54 | 1.75 | 44 | 8.75 |
| 60 | 1.75 | 52 | 9.25 |

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.

3.2 LUBRICATION of STEM & STEM NUT (for manually operated valves)

3.2.1 The stem and stem nut 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

NOTES

OFFICE LOCATIONS

For more information, please contact:

ITT Engineered Valves
1110 Hatley Road
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Or call: (800) 366-1111
(662) 256-7185
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