



## KEYSTONE FIGURE 87L RUBBER DISC CHECK VALVE INSTALLATION AND MAINTENANCE INSTRUCTIONS

Complete installation and maintenance instructions for F87L rubber disc check valves

### SAFETY PRECAUTIONS

*Hazard potentials:*

- *Disregarding of instructions.*
- *Improper use of product*
- *Insufficiently qualified personnel*

*Valve application to be within the pressure/temperature limits indicated in the sales literature.*

*Essential points and functions of the valve should be inspected on a regular basis.*

### STORAGE AND HANDLING

#### 1.1 Protection

Rubber-flap check valves are packaged to protect the valve bodies and rubber-flap from damage. Wrapping and/or covers should only be removed just prior to the valve being installed.

#### 1.2 Storage

When valves are to be stored for some time before being fitted, storage should be in the original delivery crates or cases. Storage should be off the ground in a clean, dry indoor area.

#### 1.3 Handling

##### a) Packed valves

The lifting and the handling of the packed valves in crates should be carried out using appropriate lifting equipment. If a fork lift truck is used, appropriate fork hitches are required. The lifting and handling of packed valves in cases should be carried out using the lifting points. The transportation of all packed material should be carried out safely and according to the local safety regulation.

##### b) Unpacked valves

The lifting and the handling of these valves should be carried out by using appropriate means and by respecting the carrying limits of any lifting equipment used. The handling should be carried out on pallets, protecting the machined surfaces and seat. When lifting the large dimension valves, the sling and the hooking of the load must be carried out by using the appropriate tools (brackets, hook, fasteners) and load balancing tools in order to prevent the valves from falling or moving during the lifting and handling.

The valve may only be lifted by the flange holes, body or other designated lifting point.

### INSTALLATION

#### 2.1 Valve inspection

- a) Carefully remove the valve from the shipping package (box or pallet) avoiding any damage to the valve.
- b) Confirm that the materials of construction listed on the valve nameplate are appropriate for the service intended and are as specified.
- c) It is not permitted to use non genuine spare parts. In the case of non genuine components being used, safe operation is not guaranteed and warranty will be void.

#### 2.2 Flange and pipe compatibility

Check matching of flange drilling pattern of valve and pipe before assembly. The face inside diameter should be equal to the inside diameter of standard pipe.

#### 2.3 Valve Installation

The direction indicated by the arrow on the valve body must be in the same direction as the fluid flow. This will ensure normal valve opening and backflow prevention. For optimum valve control and smooth performance, it is recommended to have a straight run of inlet piping to a length equal to 10 to 20 times the pipe diameter, and a straight run of outlet piping to a length equal to 3 to 5 times the pipe diameter.

The valve is no crow-bar. Do not use the valve to spread the flanges.

#### NOTES:

- Do not use the valve to support the pipe line construction.
- Adjacent piping must be positioned so that minimal piping stresses are transmitted to the valve flanges during or after installation.
- Handling and lifting of the valve during installation MUST be performed following the same instructions described in previous paragraph "1.3 Handling".



# KEYSTONE FIGURE 87L RUBBER DISC CHECK VALVE

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### IMPORTANT

Mating flange faces should be in good condition and free of dirt. Both pipe insides shall be well cleaned.

### 2.3.1 Installation

- a) Ensure that the distance between the pipe flanges meets the valve face-to-face dimensions. Spread (with adequate tooling) the flanges for easy insertion of the valve.
- b) Insert the valve between the flanges, center the valve body and insert all flange bolts. Tighten the flange-bolts to be hand tight.
- c) Maintain the valve flange alignment while gradually removing the flange-spreads.
- d) Cross-tighten all flangebolts. Do not over tighten.

### 2.4 Sources of possible danger

This section contains some examples of possible foreseen danger sources.

- a) Electrical  
If static charges can initiate explosions, the valve should be grounded.
- b) Thermal  
If the valve is used in applications with a fluid temperature above 40°C, the outside of the body may be hot. Sufficient measurements should be taken to avoid burning.

### Maintenance

The rubber-flap check valves are designed to require a minimum of maintenance.

### 3.1 Routine maintenance

Routine maintenance or lubrication is not required other than periodic inspection to ensure satisfactory operation and sealing.

### SAFETY PRECAUTIONS

For safety reasons, it is important to take the following precautions before you start work on the valve:

- Depressurize and, if necessary in case of dangerous fluid, drain the line and flush with appropriate cleaning fluid before starting any maintenance. Failure to do so may cause serious personal injury and/or equipment damage.
- Before disassembling the valve, ensure the valve has been decontaminated correctly from any harmful gasses or liquids and that it is within a safe temperature range for handling.
- Personnel making any adjustments to the valves should utilize suitable equipment. All required personal protection equipment should be worn.
- Only personnel trained in all aspects of manual and mechanical handling techniques may carry out valve handling.

### TROUBLESHOOTING

| Symptom                 | Probable cause  | Solution   |
|-------------------------|---|--|
| Valve body leaks        | 1. Bonnet bolts are not tight<br>2. O-Ring is damaged   | 1. Tighten bonnet bolts<br>2. Replace O-Ring(s)  |
| Valve does not shut off | 1. Valve can not close fully<br>2. Debris could be caught between the flap and the seat<br>3. Rubber encapsulated flap could be damaged | 1. Tighten bonnet bolts<br>2. Replace O-Ring(s)<br>3. Replace rubber encapsulated flap |

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