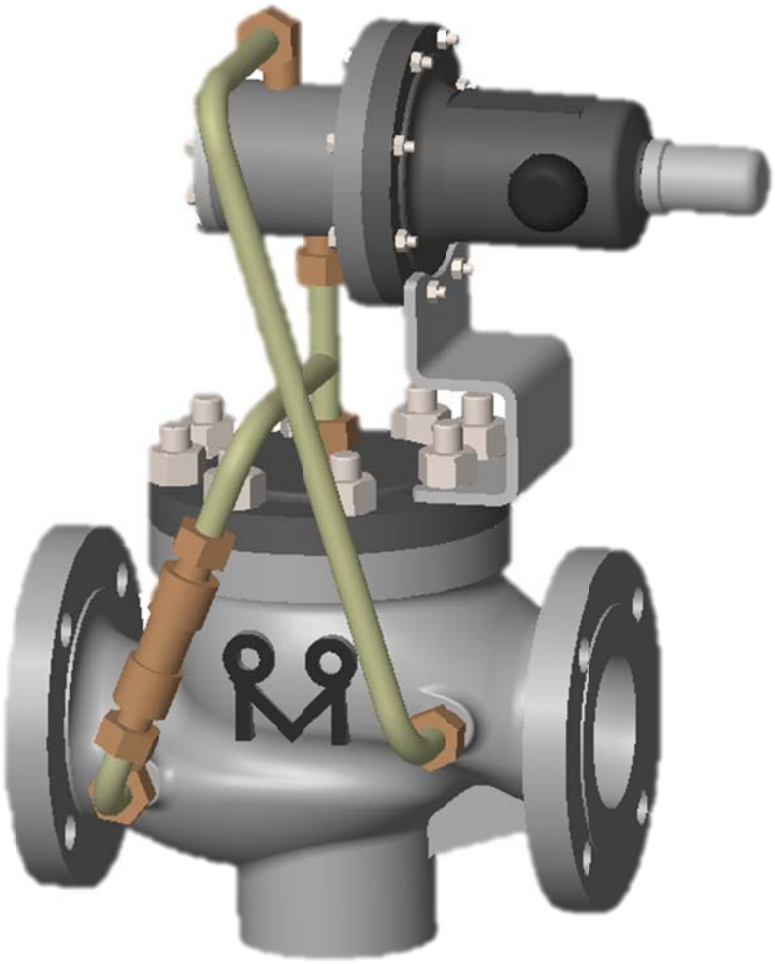
OPERATION, INSTALLATION, MAINTENANCE MANUAL

General Pressure PRV



Contents

1. Operation

General Pressure PRV regulators maintain a differential pressure between the loading supply pressure and the downstream pressure of the regulator. The design of the regulator isolates the diaphragm and pressure response chamber from the main flow stream. The downstream pressure (outlet pressure) is registered under the diaphragm through the pilot tube or registration hole. If the downstream pressure increases, pressure under the diaphragm also increases. This force overcomes the spring compression and loading supply pressure, allowing the stem to rise. The bottom spring forces the port closer. Flow through the regulator is reduced so that downstream pressure returns to the desired differential level. When the downstream pressure decreases, the opposite action takes place. Pressure under the diaphragm decreases. The valve stem pushes the port downward, opening the flow stream and increasing the fluid flow through regulator. Downstream pressure rises back to the desired differential level.

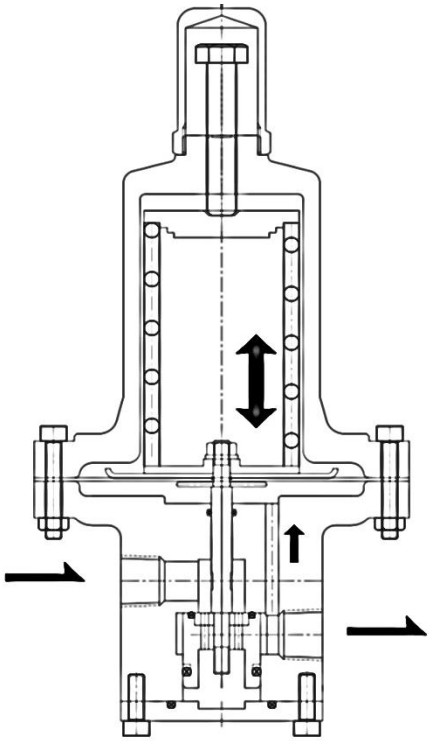


Figure 1-1. PRV Operation principle

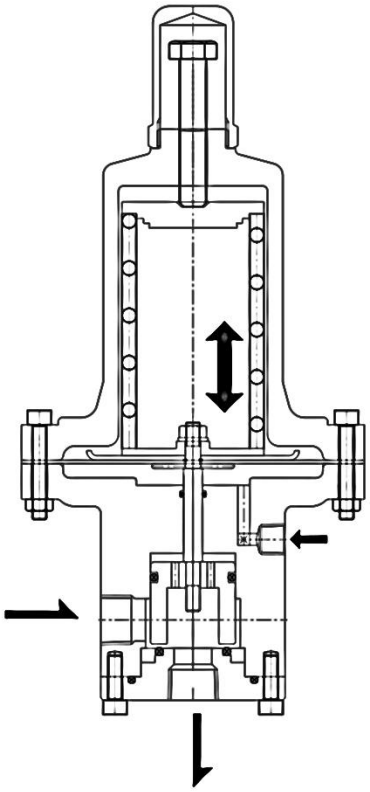


Figure 1-2. Back PRV Operation principle

2. Installation

WARNING

Personal injury or system damage may result if this regulator is installed, without appropriate overpressure protection, where service conditions could exceed the limits given in the Specif cations section and/or regulator nameplate. Refer to Overpressure Protection section for recommendations on how to prevent service conditions from exceeding those limits.Additionally, physical damage to the regulator may result in personal injury or property damage due to escaping of accumulated gas. To avoid such injury and damage, install the regulator in a safe location.Under enclosed conditions or indoors, escaping gas may accumulate and be an explosion hazard. In this case, the vent should be piped outdoors.For regulator constructions with a spring case vent, the vent should be kept open to permit free f ow of gas to the atmosphere. Protect openings against entrance of rain, snow, insects or any other foreign material that may plug the spring case vent or vent line.

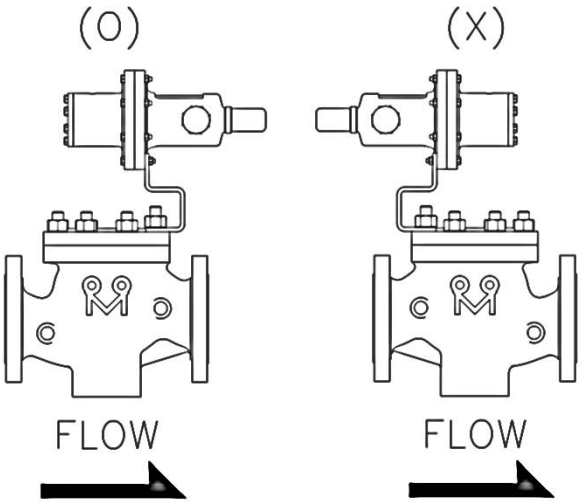


Figure 2. Installation PRV

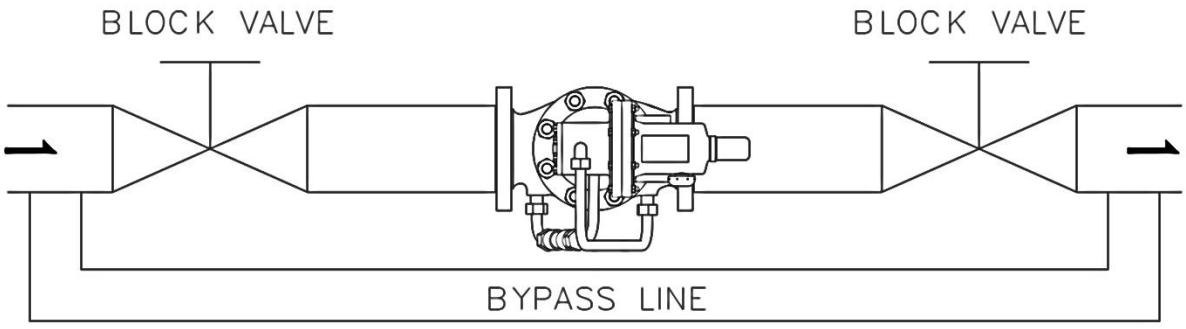


Figure3. PRV *Installation Schematic*

Startup and Adjustment

Note

Use pressure gauges to monitor inlet pressure, outlet pressure, and any intermediate pressure during startup.

Startup

1. Make sure all block and vent valves are closed.
2. Back out the pilot adjusting screw.
3. Set the restrictor to the “4” position.
4. SLOWLY OPEN the valves in the following order:

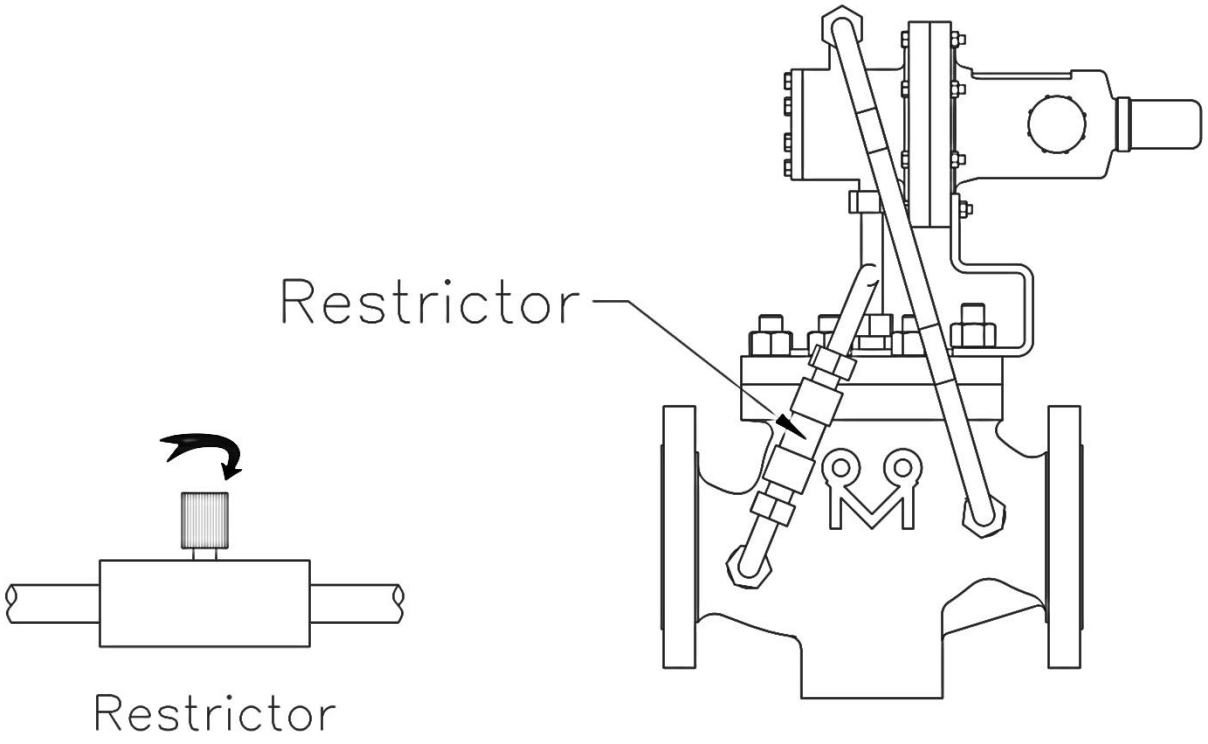
a. Pilot supply and control line valve(s), if used

b. Inlet block valve

c. Outlet block valve

5. Set the pilot to the desired outlet

(control) pressure according to the pilot adjustment procedure. Pilot Adjustment The factory setting of the regulator can be varied within the pressure range stamped on the nameplate. To change the outlet pressure, loosen the lock nut and turn the adjusting screw clockwise to increase outlet pressure, or counterclockwise to decrease it. Monitor the outlet pressure with a test gauge during the adjustment. Tighten the lock nut to maintain the desired setting. All regulator springs can be backed off to provide zero outlet



←Open Close→

REGULATOR PERFORMANCE	2	4	6	8
Accuracy				
Hysteresis				
Stability				
Speed of Response (Demand Decrease)				
Speed of Response (Demand Increase)				

Increased Performance

Decreased Performance

The restrictor controls the regulator's accuracy and speed of response. A restrictor setting of 4 is recommended to optimize accuracy, speed of response and stability. However, the restrictor can be used to fine tune the regulator for maximum performance by decreasing the restrictor setting for tighter control (increased opening speed, decreased closing speed); or increasing the restrictor setting for maximum stability (decreased opening speed, increased closing speed). A lower setting also provides a narrower proportional band for better accuracy. The "8" position has the largest flow, is most stable, and easiest for startup, however, using the "8" position is not necessary. The "0" setting has the smallest (minimum) flow passage; at no point of rotation will the restrictor be completely shut off. After initial adjustment, the restrictor does not need to be adjusted for maintenance or startup.

Note

Mineral, dirt, and sediments may gradually deposit and build up inside the spaces of the restrictor. This may cause the unit response to get slower and unit performance to decrease. If clogging of the restrictor is suspected, immediately check and clean the restrictor. Regular inspection of the restrictor is recommended to ensure optimum performance. Likewise, debris in the process fluid may clog the restrictor. Install strainer upstream of the regulator to prevent debris from clogging the restrictor. Regular inspection, maintenance, and cleaning of the strainer is recommended to ensure optimum performance.

Overpressure Protection

Personal injury, equipment damage, or leakage due to escaping accumulated gas or bursting of pressure-containing parts may result if this regulator is:

- Over pressured;
- Used with incompatible process fluid • Installed where service conditions could exceed the limits given in the Specifications section and on the appropriate nameplate; or
- Where conditions exceed any ratings of adjacent piping or piping connections.

To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices to prevent service conditions from exceeding those limits.

3. Maintenance

WARNING

To avoid personal injury, property damage or equipment damage caused by sudden release of pressure or explosion of accumulated gas, do not attempt any maintenance or disassembly without first isolating the regulator from syste pressure and relieving all internal pressure from the regulator.

.To avoid possible personal injury from spring or pressure-loaded actuator, make certain the adjusting screw is completely backed off and the spring case pressure is vented prior to disassembly. Otherwise, the spring load or loading pressure could forcefully eject the spring case.

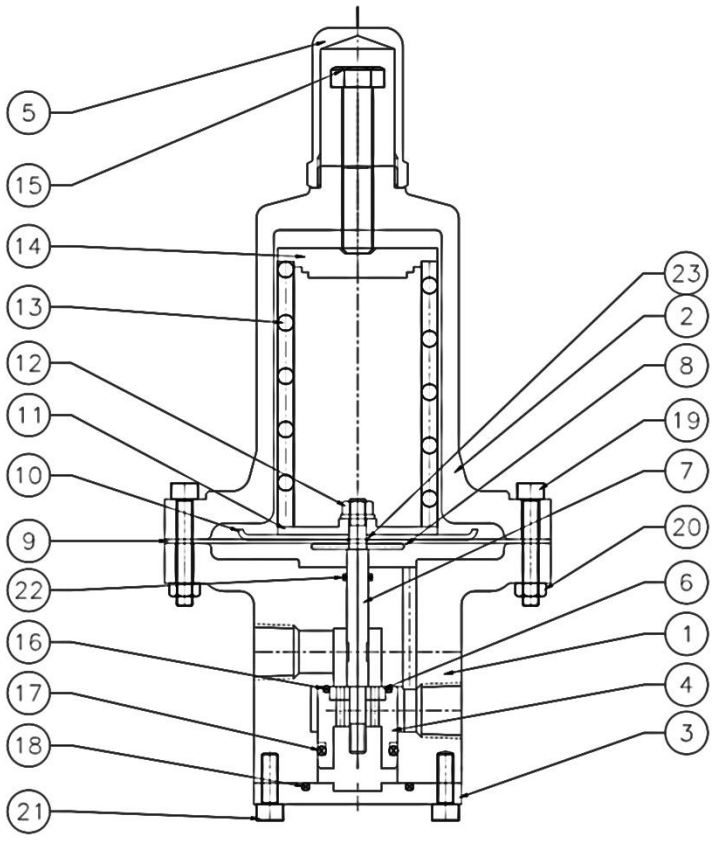
Regulators that have been disassembled for repair must be tested for proper operation before being returned to service. Only parts manufactured by Regulator Technologies should be used for repairing Fisher® regulators.

Due to normal wear or damage that may occur from external sources, this regulator should be inspected and maintained periodically. The frequency of inspection and replacement of parts depends upon the severity of service conditions or the requirement of local, state and federal rules and regulations.

Due to normal wear that may occur, inspect the parts periodically and replace if necessary. The frequency of inspection depends on the severity of service conditions or the requirements of state and federal laws. Replace parts such as the O-rings, gaskets, diaphragm and packing as necessary. The regulator does not have to be taken out of the pipeline to be disassembled.

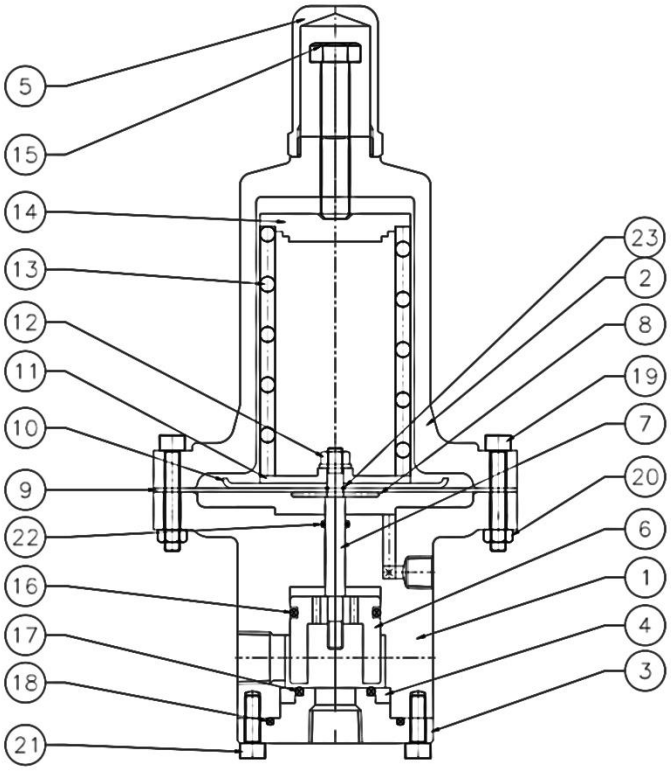
3-1.General Maintenance

1. Visually inspect the regulator and its parts for any damage.
2. Ensure tight connections, tight seals, and safe operation. If there is evidence of leakage or unstable internal motion, a rebuild with seal replacement and relubrication may be necessary.
3. Observe the blanketing pressure.
4. Inspect the inlet pressure for the proper pressure (stamped on the regulator nameplate).



No.	NAME OF PARTS	MATERIALS	Q'TY
23	O-RING	NBR	1
22	O-RING	NBR	1
21	HEX BOLT	-	8
20	HEX NUT	-	8
19	HEX BOLT	-	8
18	O-RING	NBR	1
17	O-RING	NBR	1
16	O-RING	NBR	1
15	HEX BOLT	-	1
14	BACK PLATE	SUS316	1
13	SPRING	-	1
12	HEX NUT	-	1
11	SPRING PLATE	SUS304	1
10	DIAPHRAGM PLATE	SUS304	1
9	DIAPHRAGM RUBBER	NBR	1
8	PLATE	SUS304	1
7	STEM	SUS316	1
6	PORT RING	SUS316	1
5	SPRING CASE CAP	SUS316	1
4	PORT	SUS316	1
3	BODY COVER	SUS316	1
2	SPRING CASE	SUS316	1
1	BODY	SUS316	1

Figure 4-1. General Pressure PRV BOM



No.	NAME OF PARTS	MATERIALS	Q'TY
23	O-RING	NBR	1
22	O-RING	NBR	1
21	HEX BOLT	-	8
20	HEX NUT	-	8
19	HEX BOLT	-	8
18	O-RING	NBR	1
17	O-RING	NBR	1
16	O-RING	NBR	1
15	HEX BOLT	-	1
14	BACK PLATE	SUS304	1
13	SPRING	-	1
12	HEX NUT	-	1
11	SPRING PLATE	SUS304	1
10	DIAPHRAGM PLATE	SUS304	1
9	DIAPHRAGM RUBBER	NBR	1
8	PLATE	SUS316	1
7	STEM	SUS316	1
6	PORT	SUS316	1
5	SPRING CASE CAP	SUS316	1
4	BODY COVER RING	SUS316	1
3	BODY COVER	SUS316	1
2	SPRING CASE	SUS316	1
1	BODY	SUS316	1

Figure 4-2. General Pressure Back PRV BOM

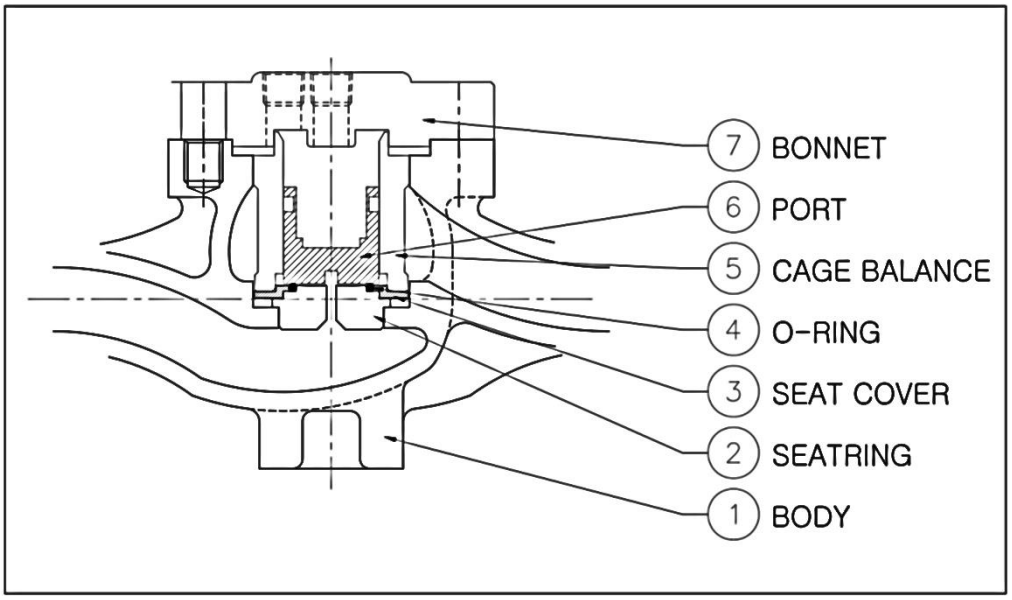


Figure 5. Globe body Assembly

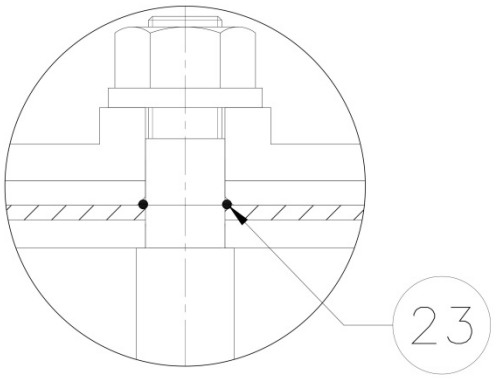


Figure6. Rubber O-ring Placement

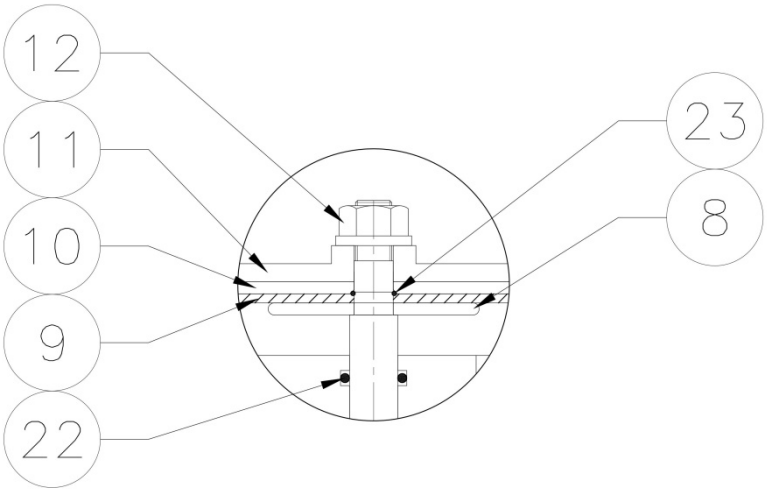


Figure7. Diaphragm Assembly

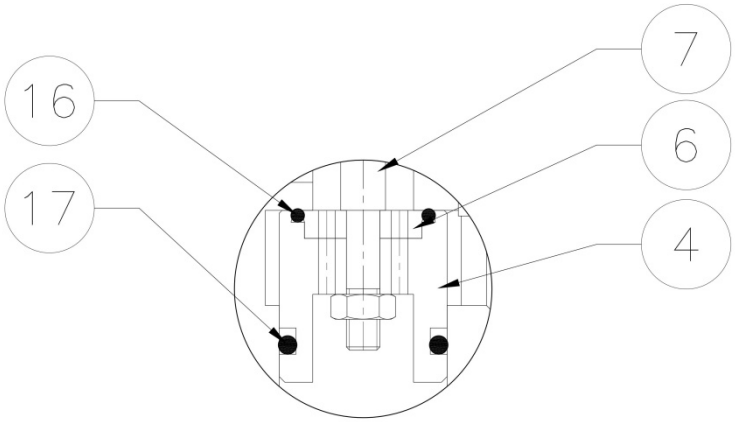


Figure8. Cage O-ring and Assembly

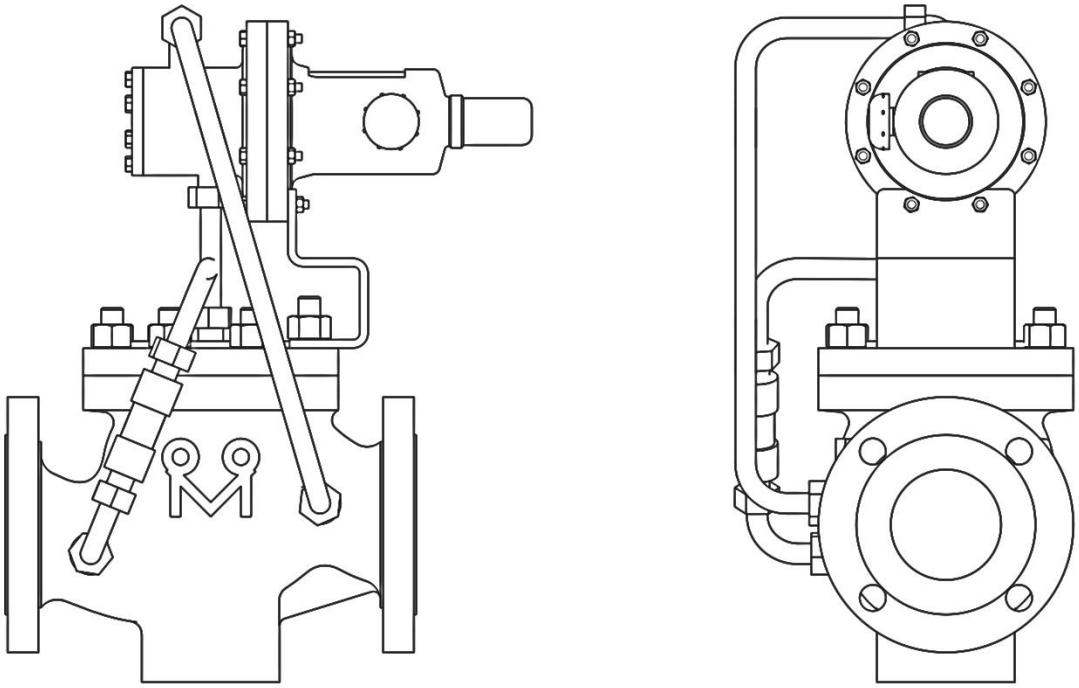


Figure9. General Pressure Type PRV View

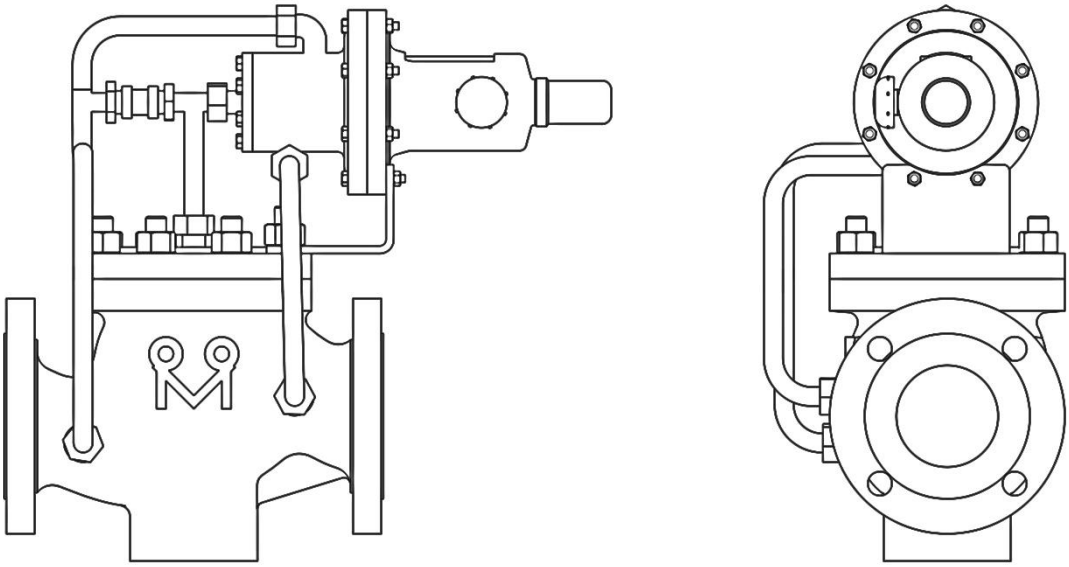


Figure10. General Pressure Type Back PRV View