



PCV Series Pressure Regulating Valves Instructions



Valution Inc.

Tel. 82-43-877-7798, Fax. 82-43-877-8821, www.valution1.com

670, Chogeu-ro, Geumwang-eup, Eumseong-gun, Chungcheongbuk-do, Korea #27639

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1. Introduction

Valution's PCV series regulators are valves that adjust the variable pressure of fluid such as gas and liquid used as an energy source by self acting without external power.

PCV series are divided into a Pressure Reducing Valve (secondary pressure reducing valve, Seat normal open) that decompresses and keeps the secondary pressure constant, and a Pressure Relief Valve (primary pressure regulating valve, Seat normal close) that opens and starts discharging when overpressure (set pressure) occurs.

It can be applied to the pressure adjustment of compressed air, gas, liquids (water, chemical liquids) in boilers, heat exchangers, fire prevention lines, industrial ovens or process engineering.

The sensing structure is generally integral, and external type is also possible depending on the requirements.

2. Numbering System

Model : PCV
RV-11 : Pressure Reducing Valves, for 2" or Lager Sizes, Casting Body
RV-12 : Pressure Relief Valves, for 2" or Lager Sizes, Casting Body
RV-21 : Pressure Reducing Valves, for 1/2" to 2" Sizes
RV-22 : Pressure Relief Valves, for 1/2" to 2" Sizes
RV-31 : Micro Pressure Reducing Valves
RV-32 : Micro Pressure Relief Valves
Actuator Type : Spring Diaphragm or Spring Cylinder, Installed on the body
Body Pattern : Straight Globe Pattern

3. Principle of Operation

The valve is operated directly by the downstream pressure acting on the underside of the diaphragm through a port in the body. Increased downstream pressure above the set point overcomes the resistance of the range spring and forces the diaphragm up to allow the plug spring to close the valve; decreased downstream pressure permits the range spring to open the valve.

4. Installation

Thoroughly clean and blow out the pipe line before installing the regulator to remove all dirt, chips other foreign matter. To ensure continued protection against foreign matter, install a pipe strainer and upstream of the regulator. The regulator may be installed in any position with flow in the direction indicated by the arrow cast on the body. Care should be taken to ensure that the vent hole in the spring case is unobstructed at all times.

5. Adjustment

PCV Series reducing regulators are shipped with a pressure setting at the low end of the adjustable range unless otherwise specified by the customer.

The pressure setting can be changed to any value within the adjustable range by loosening the adjusting bolt clockwise to increase the pressure setting or coun- terclockwise to decrease the pressure setting.

6. Maintenance

Prior to disassembly remove all system pressure from the regulator.

To Clean Seating Surfaces:

PCV trim is hardened stainless steel (cast iron, carbon steel bodies) or 316 stainless steel (316 stainless steel body) minimizing difficulties due to corrosion and steam cutting.

It should be necessary only to keep the seating surfaces free of dirt and accumulated deposits of chemical impurities in order to secure accurate control.

Remove the body plug and plug spring. The plug is not attached to the plunger sub-assembly and should easily drop out.

Clean the seat ring and plug with a clean soft cloth.

The soft trim has a Buna-N or teflon insert which may be replaced if it becomes damaged.

Remove the body plug, plug spring and plug assembly.

Remove the nut from the insert disc holder and the bottom spring.

Remove the old seat and replace with a new seat.

Clean the seat ring and plug assembly thoroughly.

Replace the disc holder and nut.

To Replace Diaphragm:

Relieve the compression on the range spring by loosening the adjusting bolt counterclockwise.

Remove the bonnet from the valve body by removing the cap.

Remove the top spring seat, top spring, and bottom spring seat.

Lift out the diaphragm.

Tighten the cap screw.

Adjust and set for the pressure as specified in data sheet requirement.

If the regulator is a Model PCV RV-21, 22, 31, 32 also replace the diaphragm.

Reassemble with a new diaphragm.

Replace the bottom spring seat, spring, top spring spring and bonnet.

Insert and tighten the cap.

Adjust and set for the pressure as specified in data sheet requirement.

To Change Spring Range:

The adjustable pressure range would be changing by springs, if the desired pressure range is not able to set.

Relieve the compression on the range spring by loosening the adjusting bolt counterclockwise.

Remove the bonnet from the valve body by removing the cap.

Remove the top spring seat and spring.

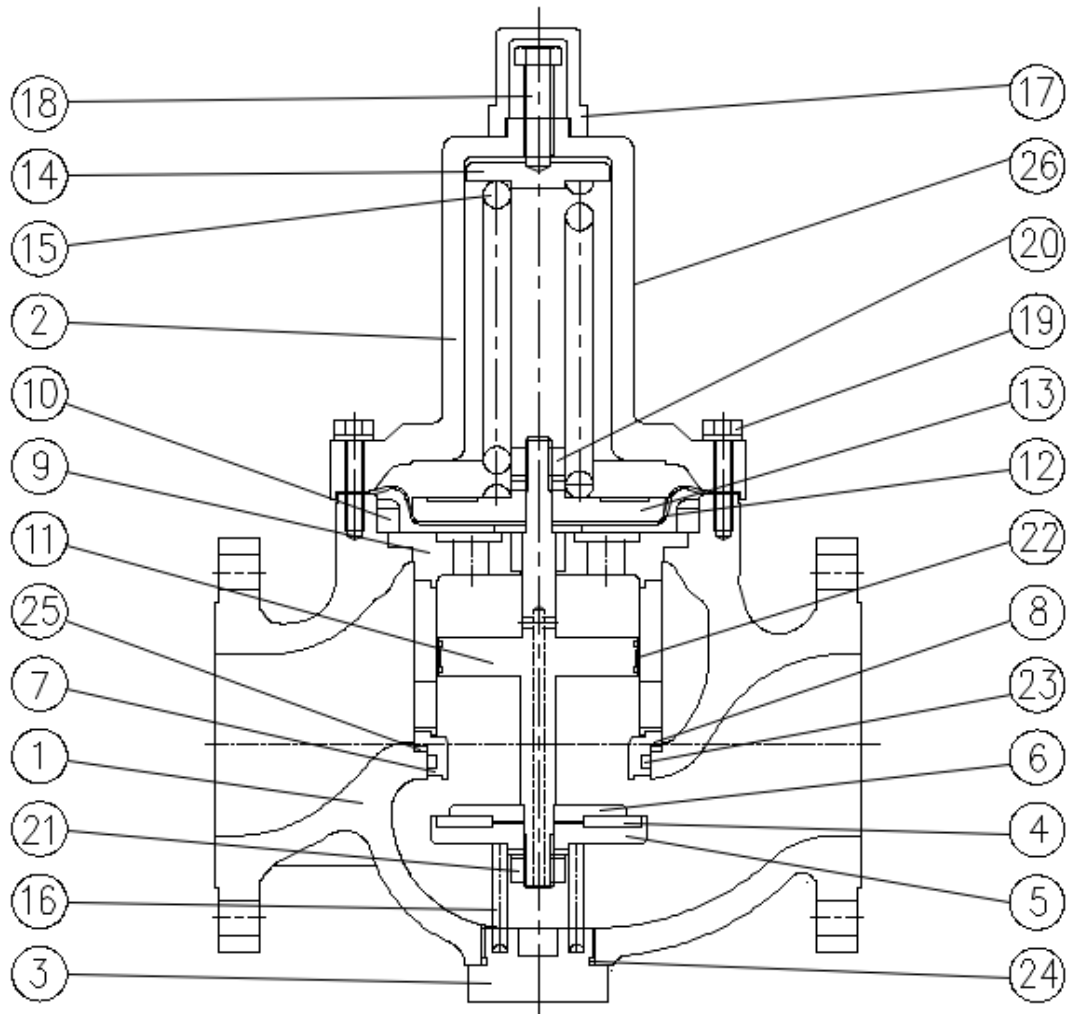
Insert a new spring of the desired range and reassemble.

Adjust and set for the pressure as specified in data sheet requirement.

※. Part List

Pressure Regulating Valves

1) Model PCV, RV-11 & 12 Series

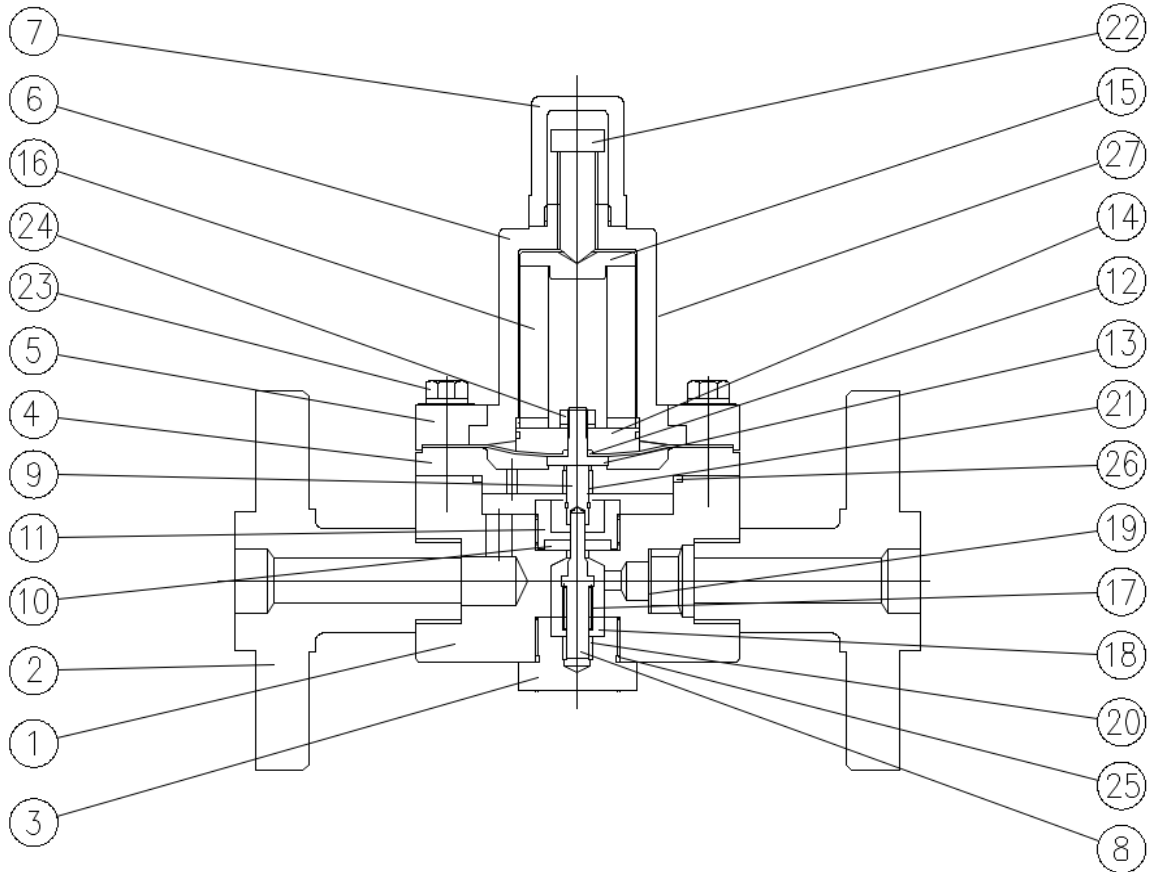


No.	Part Name	No.	Part Name
1	Body	14	Top Spring Seat
2	Bonnet	15	Top Spring
3	Bottom Plug	16	Bottom Spring
4	Disc	17	Cap
5	Disc Holder	18	Adjusting Bolt
6	Disc Washer	19	Bonnet Bolt
7	Seat	20	Top Stem Nut
8	Cage	21	Bottom Stem Nut
9	Top Guide	22	Piston Seal
10	Retainer	23	Seat Seal
11	Piston Stem	24	Bottom Plug Seal
12	Diaphragm	25	Seat Gasket
13	Diaphragm Holder	26	Name Plate(unshown)

※. Part List

Pressure Regulating Valves

2) Model PCV, RV-21 & 22 Series

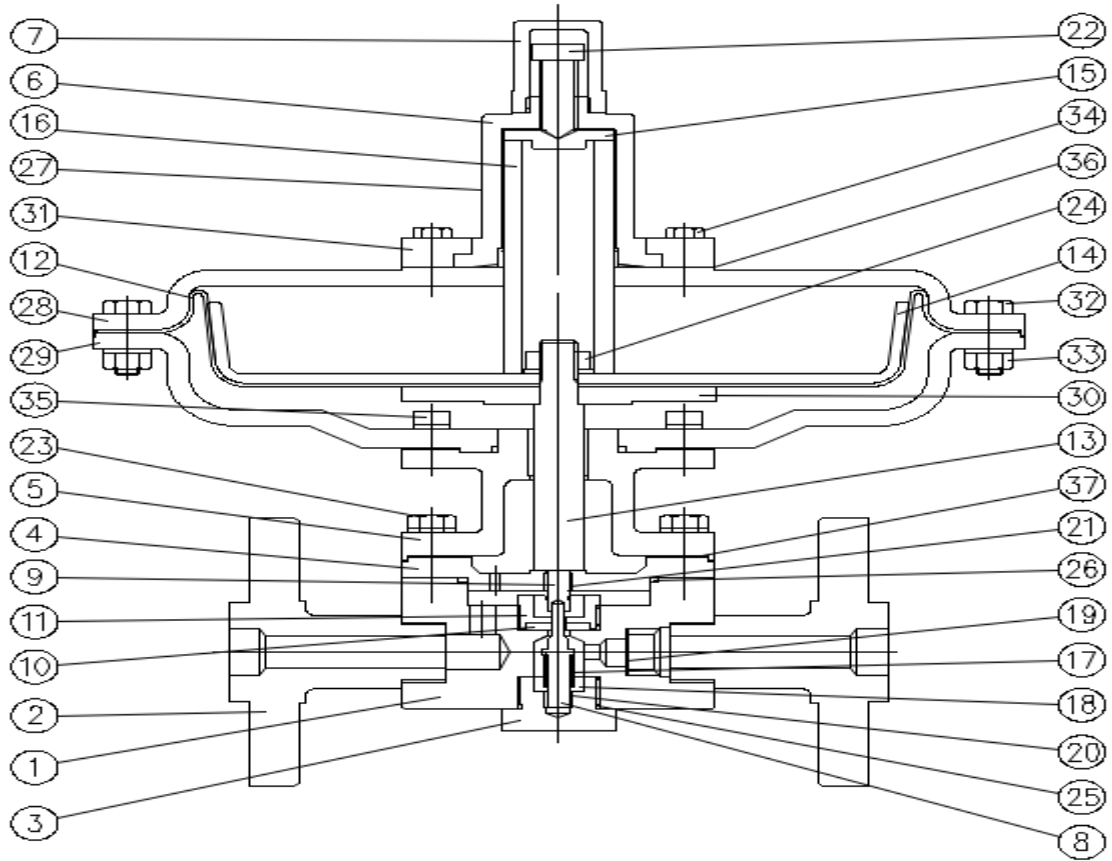


No.	Part Name	No.	Part Name
1	Body	15	Top Spring Seat
2	Body Flange	16	Top Spring
3	Bottom Plug	17	Bottom Spring
4	Middle Cover	18	Bottom Spring Seat
5	Top Cover	19	Screen
6	Spring Case	20	Bottom Guide
7	Cap	21	Top Guide
8	Valve Plug	22	Adjusting Bolt
9	Top Stem	23	Bonnet Bolt
10	Seat	24	Lock Nut
11	Seat Holder	25	Bottom Plug Seal
12	Diaphragm	26	Bonnet Seal
13	Diaphragm Bolt	27	Name Plate(unshown)
14	Diaphragm Holder		

※. Part List

Pressure Regulating Valves

3) Model PCV, RV-31 & 32 Series



No.	Part Name	No.	Part Name
1	Body	20	Bottom Guide
2	Body Flange	21	Top Guide
3	Bottom Plug	22	Adjusting Bolt
4	Middle Cover	23	Bonnet Bolt
5	Top Cover	24	Lock Nut
6	Spring Case	25	Bottom Plug Seal
7	Cap	26	Bonnet Seal
8	Valve Plug	27	Name Plate(unshown)
9	Top Stem	28	Top Diaphragm Case
10	Seat	29	Bottom Diaphragm Case
11	Seat Holder	30	Diaphragm Plate
12	Diaphragm	31	Top Cover
13	Diaphragm Bolt	32	Case Bolt
14	Diaphragm Holder	33	Case Nut
15	Top Spring Seat	34	Top Cover Bolt
16	Top Spring	35	Case Inner Bolt
17	Bottom Spring	36	Case Gasket
18	Bottom Spring Seat	37	Bonnet Gasket
19	Screen		