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20 Bushes Lane
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Model PRS09i-P

In-Line Plastic Pressure Regulator



- Spring operated-diaphragm pressure-reducing valve
- 1/2"-2" NPT THD
- Normal Inlet pressures to 150 PSI
- Outlet pressures from 8 PSI to 80 PSI

Features

- **Liquid pressure regulator parts** made from solid bar stock materials.
- **Body:** PVC, CPVC, PVDF, PTFE (1/2"-2" sizes only). (Stainless Steel model is also available)
- **Trim:** Same as materials selected for the body.
- **Teflon-Viton composite reinforced diaphragm** is designed for optimal poppet travel. Teflon on the wetted side provides superior protection when used in a wide range of liquid applications. Viton is used on the non-wetted side of the diaphragm.
- **In-line valve ports:** Simplifies installation for new or existing piping.
- **Spring chamber:** Standard material is PVC, but can be upgraded when required to meet specific applications.

Applications

This is a direct-acting diaphragm pressure-reducing valve (most often referred to as a pressure regulator) with an adjustable spring operating against a flexible elastomeric diaphragm subjected to the reduced outlet pressure of the valve which is controlled through an internal sensing port. This makes the valve an accurate pressure-sensing valve, or **pressure control valve** used to control outlet pressures with a wide range of inlet pressures.

Unlike unbalanced diaphragm pressure-reducing valves, this pressure valve is a balanced inlet design and will work quite well on applications where the inlet pressure will fluctuate widely and will have little effect on outlet pressure. The valve will operate in a vertical orientation as illustrated, horizontal, or any other orientation.

This valve is designed for use with corrosive liquids, depending on the materials selected. See material display notes in pricing section to help select materials

When this pressure reducing valve is selected, it is **always recommended that a relief valve be installed on the downstream side of the valve** to protect the diaphragm and other equipment downstream of the valve in case of excessive pressure buildup. This is especially necessary when high inlet pressures are present. Therefore, do not attempt to use this as a shutoff valve. **For prolonged or even momentary periods of shutoff, install separate shutoff or isolation valves to keep the relief valve from tripping.** The standard construction for this pressure-reducing valve is with a soft seat which will provide class ANSI VI (Bubble tight) seal.

This in-line pressure regulator has fairly adequate Cv values for most applications. See below.

Options

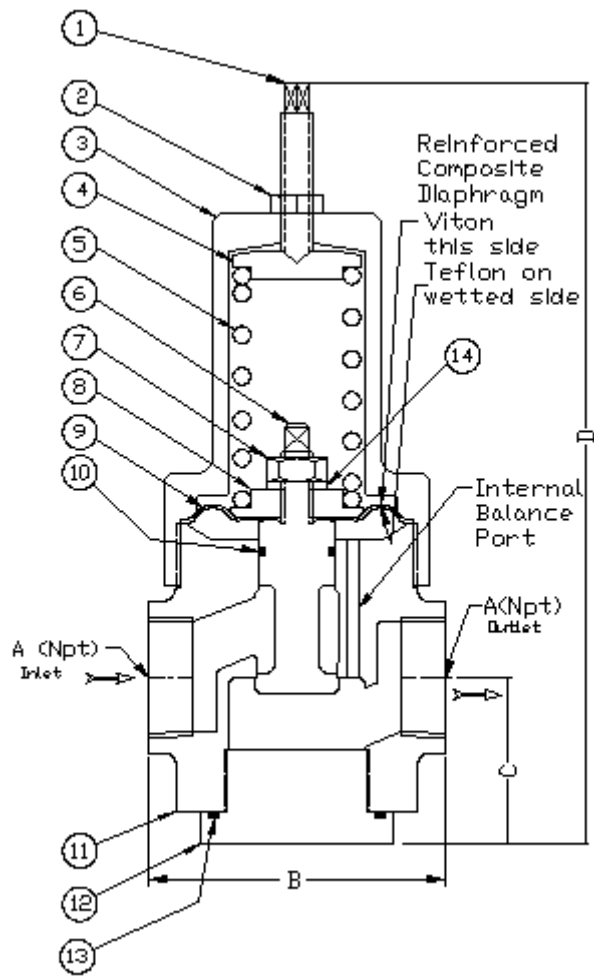
Select the valve size, spring range, material options in the customized pricing and ordering section indicated by the red arrows. You have the ability to customize your valve choices by selecting the wetted materials, and choice of seat materials to suit your requirements. The standard nonwetted materials are PVC and Stainless steel as indicated in the Material List. Once your selections are made a price quote can be generated and printed directly to your computer or immediately e-mailed to you. Or you may proceed to "Order and Checkout" to order online.

Principle of Operation

The valve operates on the principle of balancing the spring force that is set by the user against the outlet pressure acting under the diaphragm. There is an internal pressure balancing port that subjects the outlet pressure directly to the underside of the diaphragm. When the outlet pressure falls below the set pressure required by the system on the outlet side of the valve, the

spring force overcomes the force balance under the diaphragm causing the poppet and diaphragm assembly to drop down causing the valve to open and allow higher pressure at the valve inlet to pass through the valve. When the pressure rises to a sufficient level to restore the force balance against the spring, the valve will move toward the closed position. The valve is completely self-regulating and the poppet is constantly moving to respond to pressure changes on the outlet side of the valve, not the inlet. The only time the poppet closes completely is when the outlet pressure has been reached to its set point. As long as the valve is able to shut off properly without solids or other material build up in the seat or because of seat wear, the valve should be able to maintain and hold the outlet pressure and keep it from rising for brief periods of time. If the valve is set with no flow passing through the system, there will be some drop (drop in outlet pressure) caused by relaxation of the spring when the valve first has to open. This occurs with all direct spring operated valves and can be compensated by making a slight readjustment to the set pressure once the desired capacity has been achieved.

Plastic Pressure Regulator



PRS-09i-P Plastic Pressure Regulator

Material List and Specification

#	Item	Materials
1.	Adjusting screw	Stainless steel
2.	Lock nut	Stainless steel
3.	Spring chamber	PVC
4.	Spring Pusher	Stainless steel
5.	Adjusting Spring	Stainless steel
6.	Main Valve	PVC, CPVC, PTFE, PVDF
7.	Lock nut	Stainless steel
8.	Nut Diaphragm	Stainless steel
9.	Diaphragm	TFE/Viton
10.	Seal	Viton, EPDM, BUNA, Kalrez...etc

11.	Body	PVC, PVDF, CPVC, PTFE
12.	Bottom Plug	PVC, PVDF, CPVC, PTFE
13.	Seal	Viton, EPDM, BUNA, Kalrez....etc
14.	Lock Washer	Stainless Steel

Dimensions

Inches				Flow Data		
A NPT	B	C	D	Cv	Flow orifice inch	GPM*
						*5ft/sec (10ft/sec)
1/2	2.50	1.88	7.50	1.98	.375	3.2 (7)
3/4	3.00	1.88	7.75	3.53	.50	6.8 (13.6)
1	4.00	2.13	12.00	7.95	.75	10.6 (21.2)
1-1/2	5.50	2.63	13.50	14.9	1.00	26 (52)
2	5.75	3.25	13.75	23.3	1.25	45 (90)

*Max recommended flows for PVC is 5 ft/sec velocity. Flows for (10ft/sec) shown for reference only

Note: Dimensions are approximate and are subject to change without notice. Request certified dimensions before final product installation.

1/2" PRS09i-P-05T

Max inlet pressure 150 psi (10.3 barg)
Multiple Spring Ranges from:8- psig (0.552- barg) Select spring from pricing page

3/4" PRS09i-P-07T

Max inlet pressure 150 psi (10.3 barg)
Multiple Spring Ranges from:8- psig (0.552- barg) Select spring from pricing page

1" PRS09i-P-10T

Max inlet pressure 150 psi (10.3 barg)
Multiple Spring Ranges from:8- psig (0.552- barg) Select spring from pricing page

1-1/2" PRS09i-P-15T

Max inlet pressure 150 psi (10.3 barg)
Multiple Spring Ranges from:8- psig (0.552- barg) Select spring from pricing page

2" PRS09i-P-20T

Max inlet pressure 150 psi (10.3 barg)
Multiple Spring Ranges from:8- psig (0.552- barg) Select spring from pricing page

The spring ranges listed above are not achievable with one spring, but are compressed to show overall product capability. Select a specific spring range in the pricing pages or specify a set pressure when ordering.