

Model PRS-05

Stainless Steel Low Flow In-Line Pressure Regulator



- Spring-diaphragm operated
- 1/4"-1" NPT Threaded in-line connections
- Inlet pressures to 300 PSI (~20 Bar) (Body rating to 600 psi min(~41 bar)
- Outlet pressures to 200 PSI (~13.8 Bar) sizes 1/4-1/2" (multiple spring ranges)
- Valve is customizable to suit customer's applications by choosing from a variety of materials and pressure ranges

Features

- **Pressure-containing parts** made from solid bar stock materials — unlike castings which have wall thickness variations.
- **Body:** Standard materials are carbon steel & stainless steel. Special alloys (e.g. Monel, titanium, Hastelloy, are available within reasonable lead times).
- **Trim: Stainless steel** for poppet, diaphragm, and internal valve spring is standard.
- **Seat:** is metal to metal or with choice of soft seats, e.g. PTFE (Teflon), Viton or Epdm for air or gas service for tighter shutoff. See Temperature limits shown with material listings
- **Metal diaphragm seal** permits valve to operate at cryogenic and elevated temperatures to 600 °F (315 °C). but only when selecting a metal seat
- **In-line porting** allows for simplified piping installation.

Applications

Valve can be used for non-corrosive or mildly corrosive fluids, depending on the materials selected (consult factory). When liquids or gases contain debris or other solid matter which might cause internal clogging or improper operation of the valve, a strainer with a fine wire mesh should be installed before the inlet of the valve. In-line strainer fittings STF-05 or basket strainer models SBS-10 or SBV-05 can be purchased from Straval to solve this problem.

This valve will work quite well on applications where the inlet pressure will not fluctuate widely. However, where this condition does exist and the outlet pressure needs to be controlled closely below 80 psi, a pressure-reducing valve with a balanced design is recommended such as the Straval model PRS-09i. Although the body has a high pressure rating, inlet pressures above 300 psi (~20 bar) are not recommended, especially when outlet pressures below 15 psi (~1 bar) need to be controlled. Even though the body is rated to pressures up to 1500 psi (~100 bar), permanent deformation to the diaphragm may occur if the seat is unable to shut off properly and will require replacement under these extreme conditions. For higher inlet pressures see our high pressure models PRH04 and PRH09.

The pressure regulator can be selected with a metal to metal seat and one should not expect to use this as a shut off valve. Use separate isolation valves for that purpose. Seat leakage criteria will be to ANSI class IV leakage standards, so a relief valve is always recommended on the outlet of the valve to at least handle any pressure buildup that may occur just from seat leakage that could occur from seat wear, corrosion, or just dirt contamination trapped in the seat. A relief valve would also compensate for pressure spikes in the piping system or some mechanical failure in the pressure regulator caused by external circumstances. Use one of the soft seat options listed in the pricing section for each valve size to help achieve a tighter shutoff especially on air or gas service. However, when selecting elastomers, temperature limitations must be observed for these materials which are listed in the priced option section for each valve size.

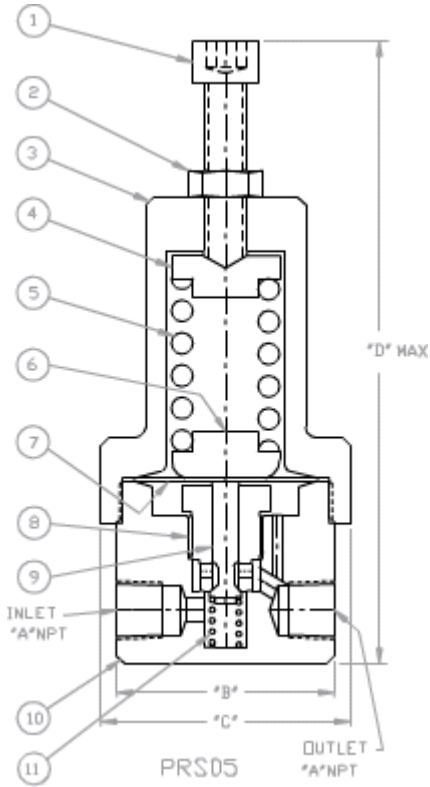
Options

Select the appropriate spring range and materials from the pricing/options table below. Both wetted and nonwetted parts can be selected. Choose a metal seat or soft elastomeric seats as shown below.

The features of the former model PRS05-1 have now been incorporated into this model by having added the soft seat options to this PRS05 valve series, so anyone having ordered the PRS05-1 model can reconstruct the identical valve through this webpage as this was the only difference between these two models.

Principle of Operation

This is a direct-acting pressure-reducing valve with an adjustable spring operating against a flexible stainless steel diaphragm subjected to the reduced outlet pressure of the valve. With the spring completely uncompressed and adjusting screw backed out, the inlet pressure will close the main valve and keep it shut as long as there is no external contamination in the valve and the valve seat is holding properly and deteriorated from corrosion or wear. This will shut off flow and reduce the outlet pressure to zero if the valve seat is sealing effectively. The only external possible leakage path is through the metal to metal seal created by the heavy duty metal diaphragm, body and spring chamber which makes this design suitable for severe and elevated temperature services. Because the diaphragm is metal, there is limited travel of the poppet and therefore the valve is suitable to very low flows only. If the valve is used on liquids that can solidify and the internal clearances and internal balancing port gets plugged up, the valve can no longer regulate properly. So use only clean, non solidifying liquids operating at liquified temperatures adding heat tracing to keep the product in a liquid, flowing form.



For steam, gas water, and oil service

Material List and Specification

#	Item	Materials
1.	Adjusting screw	Steel or SS
2.	Lock nut	Steel or SS
3.	Spring chamber	Steel or SS
4.	Spring pusher	Steel or SS
5.	Adjusting spring	Steel or SS
6.	Spring carrier	Steel or SS
7.	Diaphragm	Stainless steel
8.	Seat	Stainless steel or Elastomer
9.	Poppet	Stainless steel
10.	Body	Stainless steel
11.	Spring	Stainless steel

Dimensions (inch)

A(NPT)	B	C	D
1/4	2	3-1/4	7-3/8
3/8	3	3-1/4	7-3/8
1/2	3	3-1/4	7-1/2

3/4	3	3-1/4	7-5/8
1	4	4-3/8	8-7/8

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

1/4" PRS05-02T

Max inlet pressure 225 psig (~15.5 barg) Rated press 300 psi(~20 bar)

Multiple Spring Ranges from:2-200 psig (0.138-13.8 barg) Select spring from pricing page

3/8" PRS05-03T

Max inlet pressure 225 psig (~15.5 barg) Rated press 300 psi(~20 bar)

Multiple Spring Ranges from:2-200 psig (0.138-13.8 barg) Select spring from pricing page

1/2" PRS05-05T

Max inlet pressure 225 psig (~15.5 barg) Rated press 300 psi(~20 bar)

Multiple Spring Ranges from:2-200 psig (0.138-13.8 barg) Select spring from pricing page

3/4" PRS05-07T

Max inlet pressure 150 psi (10 barg) Rated press 300 psi(20 bar)

Multiple Spring Ranges from:2-145 psig (0.138-10 barg) Select spring from pricing page

1" PRS05-10T

Max recommended inlet pressure 150 psi (10 barg) Rated press 300 psi(20 bar)

Multiple Spring Ranges from:2-125 psig (0.138-8.62 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.