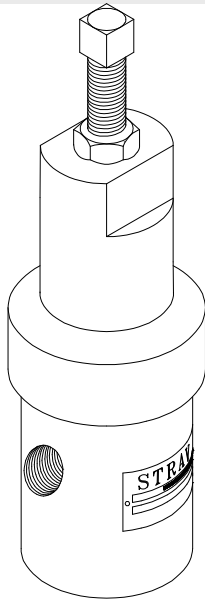


STRA VALVES STRAINERS VAL



PRINCIPLE OF OPERATION

Steam or other fluid passing through the valve enters through the inlet port, through the valve seat formed by main valve and seat, and finally through the outlet port. Outlet pressure is sensed by the underside of the diaphragm through a vertical port, which connects with the outlet port. Pressure regulation is achieved when a force balance is maintained between the pressure acting on the underside of the diaphragm and the spring force, which is adjusted to hold a particular outlet pressure. If the outlet pressure is below the set point as preset by the adjusting spring, the spring force overcomes the pressure force acting on the underside of the diaphragm. This causes the main valve to open, thereby admitting higher inlet pressure fluid to raise the outlet pressure until the force balance is restored. As soon as the outlet pressure is restored, the poppet begins to close and limit the amount of higher inlet pressure fluid passing through the valve.

Do not apply the valve on shut-off or dead ended service, especially with a metal seated valve as the valve may not be able to maintain a tight shutoff due to wear or contaminants that may be lodged in the seat. Therefore, always install a relief valve on the outlet side of the valve to overcome this condition.

NOTE: When the outlet pressure must be maintained at a specific value, and where excessive pressure may damage equipment, a **relief valve must be installed** on the outlet side of the regulator.

This valve model has a balanced inlet design which means variations in inlet pressure should have little or no effect on

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OPERATING INSTRUCTIONS

MODEL PRS-09iT

Pressure Reducing Valve

the outlet pressure. Orientation of the valve has no effect on performance. The valve need only be positioned so it is easily accessible

OPERATING INSTRUCTIONS

If the valve has not been ordered preset to a specific outlet pressure, simply adjust the spring (5) compression by loosening the lock nut (2) and turn the adjusting screw (1) clockwise to increase the spring compression. This will increase the outlet pressure. Similarly, turning the screw counterclockwise will reduce the spring compression and correspondingly reduce the outlet pressure.

MATERIAL LIST & SPECIFICATION	
1	ADJUSTING SCREW STEEL
2	LOCK NUT STEEL
3	SPRING CHAMBER STEEL
4	SPRING PUSHER STEEL
5	ADJUSTING SPRING STEEL
6	MAIN VALVE ST. STEEL
7	LOCK NUT STEEL
8	NUT, DIAPHRAGM STEEL
9	DIAPHRAGM TFE/VITON
10	SEAL VITON
11	BODY ST. STEEL
12	BOTTOM PLUG ST. STEEL
13	SEAL VITON
14	LOCK WASHER STEEL

DIMENSIONS (inch)				
NPT	A	B	C	D
1/2	2.50	1.88	7.50	
3/4	3.00	1.88	7.75	
1	4.00	2.13	12.00	
1 1/4	4.00	2.38	12.50	
1 1/2	5.50	2.63	13.50	
2	5.75	3.25	13.75	

Max rated inlet press 275 psi
Outlet press 5-80 psi

PH 973-340-9955 FX 973-340-9933 21 COLUMBUS AVE GARFIELD, NJ, 07034	
MAT. STEEL SCALE 1/8"=1"	TITLE PRESSURE REDUCING VALVE-NPT
DATE 3-3-98	Model PRS09I IN-LINE
DRAWN EDS	DWG NO PRS09I-THD
	REV

Metal seated illustrated
Also available with soft seat

Repair Instructions:

If fluid was or gas is leaking from the adjusting screw or through the small weep hole through the spring chamber, the diaphragm (9) is suspect. In order to do so, the valve needs to be either completely isolated from the piping system, with all pressure removed from the valve, or removed from the piping system. First the spring needs to be decompressed by loosening the lock nut 2, and then backing out the adjusting screw. Next the spring chamber needs to be unscrewed and

STRA VALVES STRAINERS VAL

then removed. At this time the poppet (main valve assembly) needs to be checked if it is free to travel up or down. Only a slight resistance from the piston seal (10) should be felt. If there is much the resistance, the valve will not regulate properly. Next, inspect the diaphragm (9), replace if torn, abraded, or delaminated or otherwise damaged or cut. Sealing area of the diaphragm should be free from tears or cuts, otherwise external leakage will also occur. Examine to see if there are signs the diaphragm pulled away from the outer clamped seating area. This could occur if the spring chamber (3) is not tightened properly to hold the diaphragm in place, or if the diaphragm is not properly clamped or seated. If so, realign diaphragm and make sure the spring chamber is tightened properly, and checked again for tightening after full temperature is reached after installation. Also, check to make sure the locknut (7) is tight which clamps down on the metal plate to the diaphragm (8). Although diaphragms are usually kept in stock at Straval, a spare diaphragm (10) should always be kept on hand to keep down time to a minimum.

Examine the main valve (poppet) (6) and seat area for excessive wear particularly in the valve seat area. If excessive, replace with new parts. Otherwise, parts may be restored by remachining and re-lapping with a fine lapping compound, such as a #600 or #800 grit. Replace external valve spring (5) if worn or damaged. This rarely, if ever happens and would need to be checked if the spring were to be exposed to a very corrosive environment.

Reassemble valve in the same sequence as disassembled making sure the diaphragm lock nut (7) and lock washer (14) and spring chamber (3) are tight so that no leakage can take place in these areas. Apply approximately 45 ft-lbs of torque to tighten the diaphragm lock nut (7) when the nut size is 1/2-13 and approximately 25 ft lbs if the nut size is a 3/8-16 thread. Also examine the O-ring seal (13) for the bottom plug to make sure it is not damaged or shows signs of deterioration. Replace if necessary. Keep spares on hand.

It is often easier to assemble the spring chamber assembly upside down by dropping the spring and spring hardware into the spring chamber in their proper order as illustrated. Then the body (11) subassembly with the poppet (6) and diaphragm (10) can now be positioned over the spring chamber (3) and clamping the assembly together with the V-band clamp (9) making sure the diaphragm (9) is clamped sufficiently tight. After the valve is properly assembled, reset the spring adjusting screw (1) until the desired outlet pressure is achieved at the flow range the valve will be operating. Then tighten the adjusting screw lock nut (2).

Note that all spring operated regulating valves have some droop characteristic. This is simply a drop off in pressure

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OPERATING INSTRUCTIONS MODEL PRS-09iT Pressure Reducing Valve

when the valve poppet opens and relaxes the spring from its original set pressure, which is usually performed with the valve in a closed or shut-off condition. Therefore, some minor readjustment of the pressure setting may be required depending on how far the poppet travels from its closed shut off condition to its actual operating position which depends on the valve capacity.

If the valve is unable to reach its intended pressure adjustment, and there are no obstructions within the valve, the spring may be sized inadequately and a different spring may be required with a higher pressure range. Consult our website www.straval.com, or contact factory for application assistance if a different spring or if a different valve is required.

Repair kits.

When a Seal repair kit is ordered it will include the following items: Refer to the illustration above.

Item #9 diaphragm

Item #10 piston seal

Item #13 plug seal

Make sure you specify the correct diaphragm material for your valve, making sure it is compatible for the service intended and to make sure it is rated for the proper temperature. Refer to the serial number of the valve before contacting the factory to order the correct diaphragm. Typically the materials will be as listed in the material table in the illustration above. Available diaphragm materials can be checked on our website at www.straval.com

Other parts may be ordered as needed by referring to the item numbers in the illustration.

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**OPERATING
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Pressure Reducing Valve**

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