

PRH-06-02T ECONOMY HIGH PRESSURE REGULATOR Operating Instructions



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APPLICATIONS:

Valve should only be used for non-corrosive fluids, or where the materials selected are compatible with the fluid and will not cause corrosive buildup, which could keep the main valve from opening. When liquids contain debris or other solid matter, internal clogging or improper operation of the valve is possible which is why a mesh strainer is present on the inlet side of the valve. To ensure proper operating conditions and maximum functionality of the valve, check periodically that the screen is clear of debris. If foreign particles are observed in the mesh, take it out and clean it. Replacement mesh is available for purchase in the event the mesh gets damaged.

PRINCIPLE OF OPERATION

Fluid passing through the valve enters through the inlet port through the valve seat formed by the main poppet and seat, and finally through the outlet port. Outlet pressure is sensed by the underside of the piston. The poppet has the ability to independently move vertically inside the channel the piston provides. The two components are separate and remain in contact with each other until the outlet pressure exceeds the set pressure. This is obtained by a possible increase in fluid pressure downstream due to external factors, or by decreasing the set pressure. Pressure regulation is achieved when a force balance is maintained between the pressure acting on the underside of the piston and the spring force, which is adjusted to hold a particular outlet pressure. If the outlet pressure is below the set point, which is preset by the adjusting spring, the spring force overcomes the pressure force acting on the underside of the piston. 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 main valve begins to close to limit the amount of higher inlet pressure fluid passing through the valve. A self-relieving version is available for purchase which instantly vents the excess outlet pressure to the atmosphere. This ensures the most control for adjusting outlet pressures instantaneously. If using a vented configuration, make sure that the media flowing through the valve is safe to vented to the ambient environment. Contact the factory if a discharge port is needed to safely pipe vented fluids that cannot be vented to the atmosphere.

MAINTENANCE & REPAIR

When the valve is shipped from the factory it is usually ready for operation. On larger valves, all that may be required is to install the adjusting screw if it is strapped to the spring chamber and make a final pressure adjustment at the final operating conditions. This step is not required if the valve is ordered preset for a specific pressure setting and so marked.

Check to make sure that the discharge piping is not blocked off and that the valve does not operate against a shut-off condition. Check to make sure there is no visible leakage coming from the spring chamber. Leakage would occur if the piston seal is worn or defective. In the self-venting configuration, continuous leakage from the spring chamber could be a sign of a defective seal between the piston and the poppet as well. If after extensive use the valve begins to lose its ability to regulate, or if there is excessive seat leakage due to wear, which would cause an excessive pressure rise on the outlet side of the valve, or if there is external seal leakage, the valve will require parts to be replaced and or the valve sent in for possible repair. Before removing the valve from service, make sure that the valve is isolated from the piping completely in order to avoid any personal injury.

Usually, the valve seat is the most likely component to fail due to corrosion or deformation due to pressure and or temperature. If there is excessive seat leakage, then the seat may require replacement. With the valve removed from service, a quick test for mechanical operation is to see if the piston and poppet are free to move by hand. This should be done with the spring chamber removed. If the piston and poppet are not free to move, the components are most likely seized in place, suggesting wear or improper lubrication, and will therefore need to be disassembled and repaired.

DISASSEMBLY / ASSEMBLY INSTRUCTIONS

To disassemble the valve, it is best to remove the valve from the piping, since it is more convenient to work on the valve on a bench with a vise. However, depending on the complexity of the repair, the valve can be serviced in line as long as the process environment is safe and all necessary precautions to service the valve are ensued. To change the valve seat, it is only necessary to remove the seat holder (17). Disassembly of the spring dependent components are as follows. Unscrew the spring chamber (3) using a wrench to grip the wrench flats machined into the spring chamber. With the spring chamber off, remove the adjustment spring (5), spring pusher (4) and spring follower (7). No mechanical action or tooling is required to remove these parts and this

step is intended to make the piston visible for removal. The piston (8) can be removed with a set of needle nose pliers or anything to grip the exposed part. Gently grip the piston and pull upward removing it. With the piston removed, it is possible to remove and replace the hydraulic piston seal (9). On the self-relieving configuration, the R-type piston seal (18) is also able to be removed and replaced by using a small hooked instrument. These steps are necessary to repair leakage from the spring chamber due to worn or damaged seals.

Excessive pressure rise in the outlet is usually an effect of premature seat leakage. To repair this, the bottom seat holder (17) can be removed by removing the four 1/4" low profile socket head screws with a 1/8" drive size hex head key. The bottom seat holder should be easily removed and expose the rest of the components including the seat holder O-ring (14), sealing spring (16), poppet (10) and seat (11).

The last component that could be removed is the standard #60 mesh strainer located at the end of the inlet port. The mesh is easily removed by pliers or a small tool. It is not held in place by anything and retained by a snug fit of the two components. Make sure the mesh is always clear of debris as a clogged mesh would result in decreased performance of the valve.

With all the components removed, inspect every part and look for noticeable wear or deformation of certain components. This could include rough surfaces that would cause increased friction, parts that look bent or cracked etc. Look for any obstructions in seals or for components that are dirty or contain any foreign objects. This could be a result of improper operation or a defective inlet mesh strainer. If any of these are present, replacement of parts or re-machining of components may be necessary to restore the valve to its original manufactured state and operating conditions.

** Replacement parts are available for purchase through the manufacturer and are readily available. Please contact the manufacturer for recommendations on troubleshooting for this specific valve. Contact information is on the cover page in the header. **

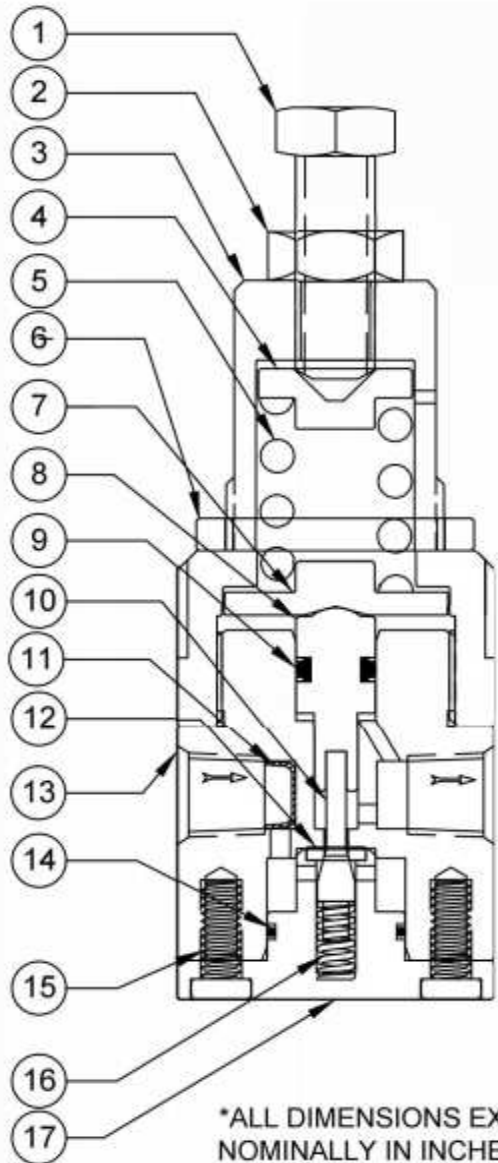
To reassemble the valves, reverse the steps for disassembling it. When reassembling the valve make sure the piston, its seal and O-rings are lubricated with an O-ring lubrication compound such as Parker O-Lube (official product of Parker Hannifin). Do not put any lubrication compound on the PTFE seat. It is not necessary. When assembling the components that are threaded into each other, line the threaded male components with an anti-seizing compound to ensure parts do not cross thread or seize. Do not put excess amounts on, this

could cause contamination of the internal components. A small amount of anti-seize will suffice for threaded parts including the adjusting screw and top of the spring pusher where the screw and it make contact. When assembling and disassembling the valve, it is highly recommended to utilize the provided schematics displayed on page 4.

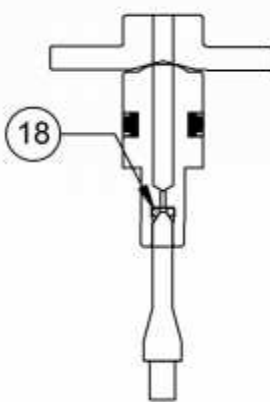
After the valve is properly assembled, reset the adjusting screw until the desired outlet pressure is achieved at the flow range the valve will be operating, then tighten the adjusting screw lock nut. Little or no adjustment is required to compensate for changes in inlet pressure, as this valve is a balanced design.

OPERATING INSTRUCTIONS

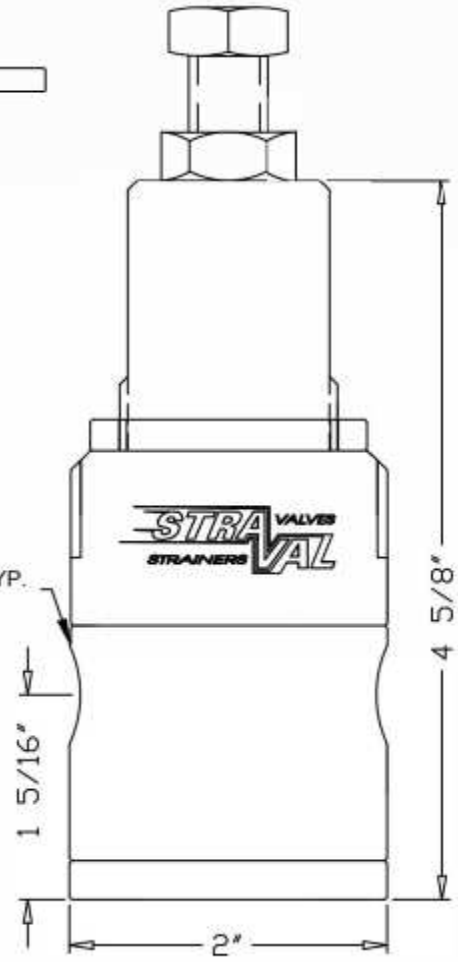
Increase the spring compression by loosening the lock nut and turn the adjusting screw clockwise; this will increase the outlet pressure. Similarly, turning the screw counterclockwise will reduce the spring compression and correspondingly reduce the outlet pressure. A slow buildup of pressure will take place if the outlet is completely blocked off which may take place over a period of time depending on how effective the valve seat is performing and the volume of the discharge piping. For this reason, **it is strongly recommended that a relief valve be installed on the outlet side of the valve to protect any equipment damage.** If the regulator fails to maintain the proper outlet pressure, there could be a number of probable causes as follows: Internal clogging due to foreign objects or materials, sediment, rust, etc. in the valve seat area. If disassembly is required make sure the valve piping is not under pressure and sufficiently cooled off for operating personnel to handle.



Self Relieving Piston

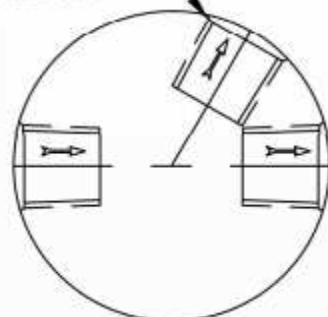


1/4" NPT TYP.



ALL DIMENSIONS EXPRESSED NOMINALLY IN INCHES

OUTLET SIDE GAUGE PORT



MATERIAL LIST & SPECIFICATION

PART		AVAILABLE MATERIALS
1	ADJUSTING SCREW	304, 316L STAINLESS STEEL
2	JAM NUT	304, 316L STAINLESS STEEL
3	SPRING CHAMBER	303, 316L STAINLESS STEEL
4	SPRING PUSHER	303, 316L STAINLESS STEEL
5	ADJUSTMENT SPRING	302 STAINLESS STEEL
6	MOUNTING NUT	303, 316L STAINLESS STEEL
7	SPRING FOLLOWER	303, 316L STAINLESS STEEL
8	PISTON	303, 316L STAINLESS STEEL
9	HYDRAULIC PISTON SEAL	BUNA
10	POPPET	303, 316L STAINLESS STEEL
11	#60 MESH FILTER	304, 316L STAINLESS STEEL
12	SEAT	PTFE
13	BODY	303, 316L STAINLESS STEEL
14	SEAT HOLDER ORING	BUNA
15	SEAT HOLDER SCREWS	304, 316L STAINLESS STEEL
16	SEALING SPRING	303, 316L STAINLESS STEEL
17	SEAT HOLDER	303, 316 STAINLESS STEEL
18	R-TYPE PISTON RELIEVING SEAL	BUNA

DIMENSIONAL SPECIFICATIONS REFER TO IMAGE ABOVE.

SIZE	CV
1/4" NPT	0.09

PH 973-340-3025
 FX 973-340-9933
 28 BUSINESS LANE
 ELMHURST PARK, NJ 07407



TYPE	Piston Acting High Pressure Regulator		REV
SCALE	1/4" NPT With Outlet Gauge Port		A
DATE	DWG NO	PRH06-02T-ECO	
DRAWN	A.S.		

MATERIAL LIST & SPECIFICATION

PART		AVAILABLE MATERIALS
1	ADJUSTING SCREW	304, 316L STAINLESS STEEL
2	JAM NUT	304, 316L STAINLESS STEEL
3	SPRING CHAMBER	303, 316L STAINLESS STEEL
4	SPRING PUSHER	303, 316L STAINLESS STEEL
5	ADJUSTMENT SPRING	302 STAINLESS STEEL
6	MOUNTING NUT	303, 316L STAINLESS STEEL
7	SPRING FOLLOWER	303, 316L STAINLESS STEEL
8	PISTON	303, 316L STAINLESS STEEL
9	HYDRAULIC PISTON SEAL	BUNA
10	POPPET	303, 316L STAINLESS STEEL
11	#60 MESH FILTER	304, 316L STAINLESS STEEL
12	SEAT	PTFE
13	BODY	303, 316L STAINLESS STEEL
14	SEAT HOLDER ORING	BUNA
15	SEAT HOLDER SCREWS	304, 316L STAINLESS STEEL
16	SEALING SPRING	303, 316L STAINLESS STEEL
17	SEAT HOLDER	303, 316 STAINLESS STEEL
18	R-TYPE PISTON RELIEVING SEAL	BUNA

DIMENSIONAL SPECIFICATIONS REFER TO IMAGE ABOVE	
SIZE	CV
1/4" NPT	0.09

SEAL KIT PARTS FOR PRH-06-02T-R (SELF RELIEVING)			
#9	#11	#14	#18
SEAL KIT PARTS FOR PRH-06-02T-NR (NON-RELIEVING)			
#9	#11	#14	

SEAL KITS ARE COMPRISED OF THE COMPONENTS USED TO SEAL NECESSARY PARTS ON THE PRODUCT. IT IS OPTIONAL AND PROVIDED AT AN ADDITIONAL COST.

Note: Dimensions are approximate and are subject to change without notice.