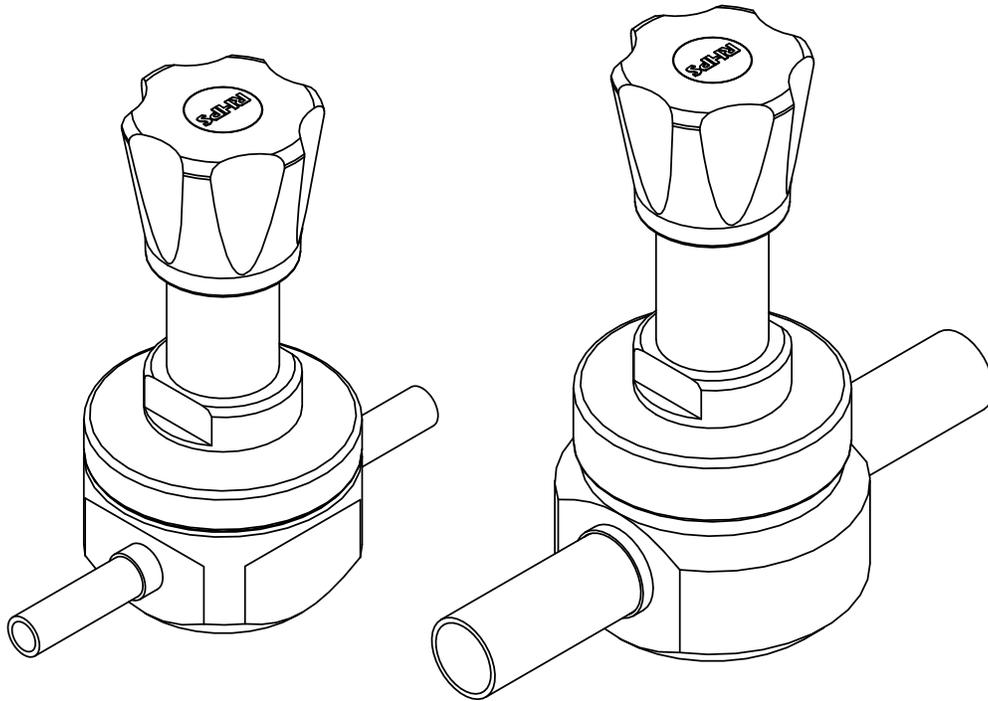


**RHPS Series
HPRSS4, 8
User Manual**

Swagelok



Read the complete manual before installing and using the regulator.



WARNING

Before removing a regulator from the system for service, you must

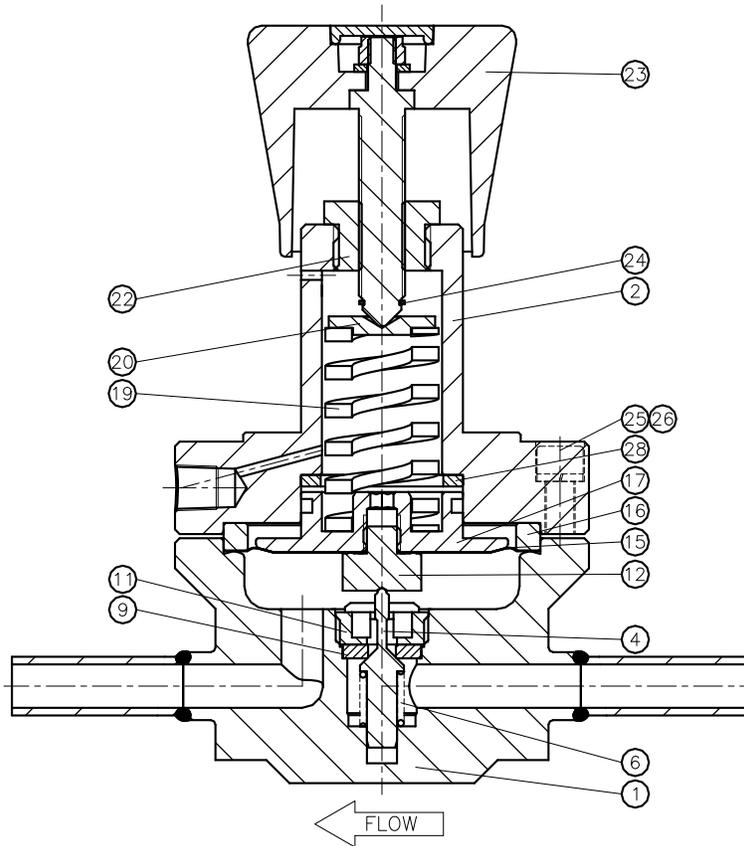
- **Depressurize system**
- **Purge the system to remove any residual system media left in the regulator.**

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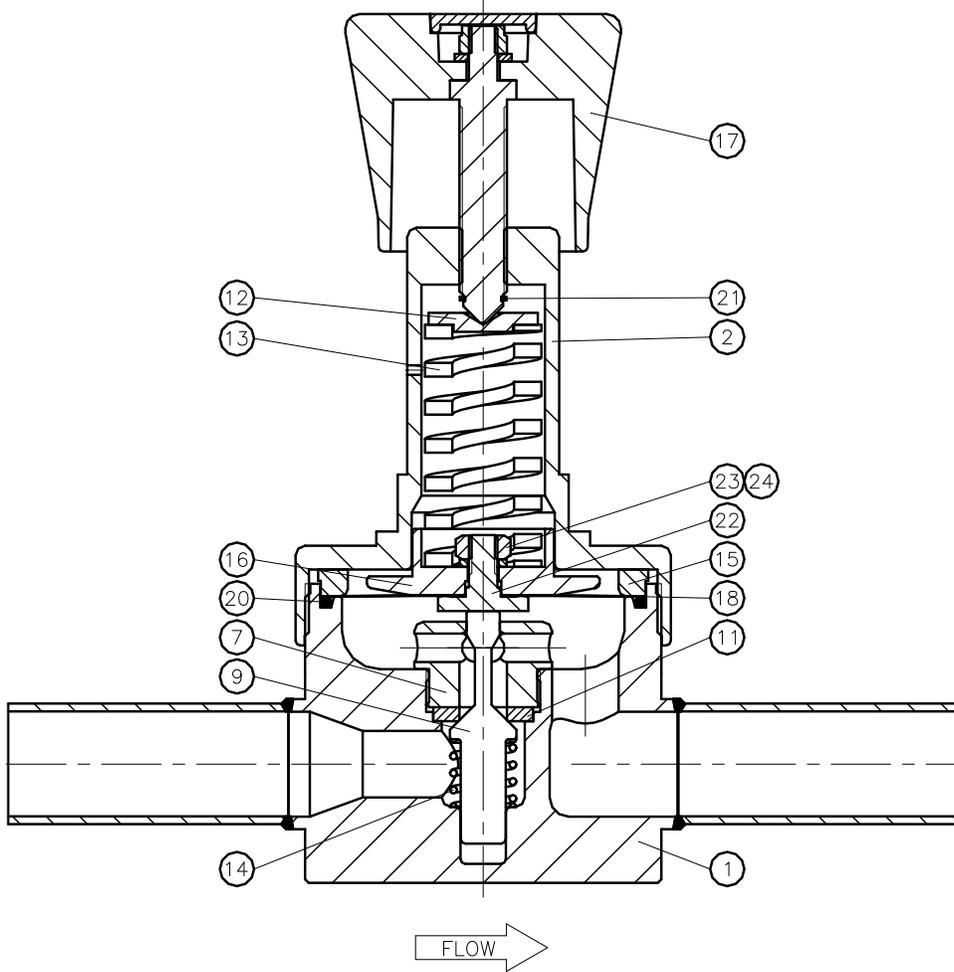
Introduction

Representative drawings of the standard HPRSS4



1	body assembly	17	bottom springguide
2	spring housing	19	set spring
4	valve	20	springguide
6	valve spring	22	springhousing cover
9	seat	23	knob assembly
11	seat retainer	24	retaining ring
12	diaphragm screw	25	socket head cap screw
15	diaphragm	26	ring
16	clamp ring	28	stroke limiting ring

Representative drawings of the standard HPRSS8



1	body assembly	16	bottom springguide
2	spring housing	17	knob assembly
7	seat retainer	18	diaphragm
9	valve	20	O-ring
11	seat	21	retaining ring
12	springguide	22	diaphragm screw
13	set spring	23	ring
14	valve spring	24	nut
15	clamp ring		

Installation



WARNING

When installing a Swagelok self-venting regulator, position the vent connection or line away from operating personnel. Operating personnel must protect themselves from exposure to system fluids



CAUTION

Do not use the regulators as a shutoff device.

The preferred mounting position of the regulator is horizontal with the adjustment knob facing upwards.

If earthing is required, connect an earth wire under a spring housing bolt or in a bottom-mounting hole.

Operation

Note: All handle directions are when viewed from above.

- Outlet and control pressure settings are obtained by adjusting the handle (or adjusting screw).
 - To increase the outlet or control pressure, rotate the handle *clockwise*.
 - To decrease the outlet or control pressure, rotate the handle *counter-clockwise* and vent the downstream side of the regulator.
 - Make the final setting in the direction of increasing pressure to obtain the most accurate set points.
- Once fluid is flowing through the system, fine tuning may be required.
- Icing of the regulator at high flow rates or high pressure drops may occur if the gaseous media or atmosphere contains moisture.
- An auxiliary upstream filter is recommended for use in all but the cleanest of media.
- Installation of a downstream pressure relief is recommended for regulator and system protection.
- If the shut-off valve at the outlet side is closed after changing the set pressure, the outlet pressure will rise a little because of the closing force required for bubble-tight closing of the regulator. This phenomenon is usually referred to as the “**lock-up**” and does not indicate a problem with the regulator.
- A decrease in the flow will result in a rise of the outlet pressure.
An increase in the flow will result in a fall of the outlet pressure and is usually referred to as the “**droop**”.
- This phenomenon does not indicate a problem with the regulator.
- A decrease of the inlet pressure will result in a rise of the outlet pressure.
An increase of the inlet pressure will result in a fall of the outlet pressure.
This phenomenon is usually referred to as the “**dependency**” and does not indicate a problem with the regulator.

Maintenance

Required tools for maintenance

- a vice to fasten the regulator
- pincers to take out the O-rings
- a pair of tongs for a retaining ring 8 mm
- a torque wrench
- a torque wrench hexagon head key 5 HPRSS4 only
- a torque wrench socket 10 HPRSS8 only
- a “seat retainer” removing tool. (OT-xxxx-02) HPRSS4 only
- an “open end insert tool”, 13 mm HPRSS4 only
- an “open end insert tool”, 25 mm HPRSS4 only
- an “open end insert tool”, 19 mm HPRSS8 only
- an “open end insert tool”, 36 mm HPRSS8 only
- an “open end insert tool”, 25 mm HPRSS8 only
- media and temperature compatible lubricant for reassembling threaded parts
- media and temperature compatible lubricant for O-rings
- Snoop® liquid leak detector

Disassembly

- HPRSS4: Loosen the hexagon socket head screws and remove the spring housing, spring and bottom spring guide.
- HPRSS8: Loosen the spring housing and remove the spring housing, spring and bottom spring guide.
- Loosen the seat retainer to remove the valve assembly, seat and valve spring.
- Push the valve down when loosening the seat-retainer.
- The force of the valve spring may cause galling of the threads.

Inspection of disassembled parts

- Check all parts for abnormal wear. Replace all parts in case of doubt.

Points of attention before assembly

- All parts must be clean and undamaged before starting assembly.
- Swagelok recommends replacing all o-rings and the diaphragm before assembly.
- All threaded parts must be lightly lubricated before assembly, this to avoid galling of threads.
- All o-rings need to be lightly lubricated to improve the lifetime of the o-ring and the performance of the regulator.

Assembly

Follow the points for disassembly in reverse order to assemble the regulator.

Recommended torques

▪ Hexagon socket head screws	10 N·m (88 in. ·lb)	HPRSS4 only
▪ Diaphragm screw	5 N·m (44 in. ·lb)	
▪ Seat retainer	15 N·m (132 in. ·lb)	
▪ Spring housing	30 N·m (265 in. ·lb)	HPRSS8 only

Testing

Check the regulator for leakage across the seat, with low- and high inlet pressure.

Check the regulator for leakage across the diaphragm, with low- and high outlet pressure.

Check the required outlet pressure range.

A well performing regulator is 100% bubble tight.

If there is a leakage across the seat or the diaphragm, the damaged parts must be replaced.

Troubleshooting

Problem:	The outlet pressure creeps up, without turning the adjustment knob.
Cause:	A damaged valve assembly and/or seat.
Solution:	Replace the valve assembly and/or the seat.
Problem:	Constant leak through the relief hole at the side of the spring housing.
Cause:	A damaged diaphragm.
Solution:	Assemble a new diaphragm.
Problem:	The required outlet pressure can not be reached.
Cause:	The inlet pressure is not high enough.
Solution:	Make sure that the inlet pressure is sufficient.
Problem:	The outlet pressure rises too much when going from a dynamic to a static situation.
Cause:	There is too much flow in the dynamic situation.
Solution:	Check the specific application data with the flow curves in our product literature.
Problem:	The outlet pressure does not drop if the adjustment knob is turned counterclockwise.
Cause:	The regulator is non-venting.
Solution:	A shut-off valve in the outlet line must be opened to reduce the outlet pressure.
Problem:	The outlet pressure has changed without turning the adjustment knob.
Cause:	Changes to the inlet pressure will result in changes to the outlet pressure. A decrease of the inlet pressure will result in a rise of the outlet pressure. An increase of the inlet pressure will result in a fall of the outlet pressure.
Solution:	Maintain a constant inlet pressure to the regulator. See section "operation" about dependency.
Problem:	Controlled pressure drops off sharply even when the flow is within regulator capabilities.
Cause:	The filter element in the systems filter is clogged.
Solution:	Replace the filter element.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty.

For a copy, visit swagelok.com or contact your authorized Swagelok representative.

For additional information, see www.swagelok.com.

WARNING:

Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.

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