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BPS09i-TC
Stainless Steel In-Line Back Pressure Regulator Operating Instructions

- Applications
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- Maintenance and Repair
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- Reassembly and Testing Instructions
- Schematics

APPLICATIONS

This product is used for sanitary backpressure regulation. A few typical applications include maintaining constant pump discharge pressures, bypassing excessive pressures from various types of process equipment, and any application where a constant pressure must be maintained in a sanitary process or piping system. This product is designed for clean, filtered or strained, non-abrasive, liquids and gases including but not limited to: water, steam, non-fluorinated chemicals, inert gases and fluids compatible with the selected elastomers and valve materials. A strainer or filter with the appropriate material and pressure rating can be purchased from STRAVAL. High temperature applications can be satisfied with careful selection of materials (contact factory).

PRINCIPLE OF OPERATION

This is a direct acting valve with an adjustable spring operating against a diaphragm or piston subjected to the inlet pressure of the valve. Increasing the spring compression by turning the adjusting screw clockwise, increases the system or line pressure to be maintained. Reducing the spring compression by turning the adjusting screw counter-clockwise will reduce the system or line pressure to be maintained. An increase in line pressure beyond the set point (inlet pressure that exceeds the compressive force of the spring) will cause the seat or diaphragm to open permitting flow to the outlet. This bypasses any excess line pressure through the outlet of the valve.

MAINTENANCE & REPAIR

When the valve is shipped from the factory it is usually ready for operation. The valve can be preset to any set pressure within the specific valves spring range. If no set pressure was predetermined at the time of purchasing, it will have to be set by the receiver.

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. This is an indication of diaphragm or piston seal failure. 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 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 diaphragm or seat may require replacement or reworking. Removal of the spring chamber will expose the moving parts and seals of the valve so they can be visually inspected and replaced if necessary. It is more convenient to remove the valve from the piping to do maintenance however this valve is easy to repair in-line as long as all necessary precautions are taken to ensure the safety of the technician.

DISASSEMBLY INSTRUCTIONS

Before disassembling the valve, make sure that the process line is depressurized and securely isolated upstream and downstream to avoid any injury to the technician. Begin by relieving the compressive force of the spring used to adjust the set pressure. Turn the (Jam Nut) counterclockwise to unlock the (Adjusting Screw). Then turn the (Adjusting Screw) counter-clockwise until it is backed out entirely. Remove the (V-Band Clamp) to access the valve trim.

Remove all the components and inspect them 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 happen as a result of improper operation. 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.

Excessive pressure rise in the outlet is usually an effect of premature seat leakage or inadequate spring compression for the required pressure. To repair this, remove and replace the (Diaphragm). On the piston sealing designs, the O-ring seat can be replaced by turning the (Nut) counterclockwise loosening it and pulling the (Seat Holder) out of the (Spring Follower). Refer to figure on page 5.

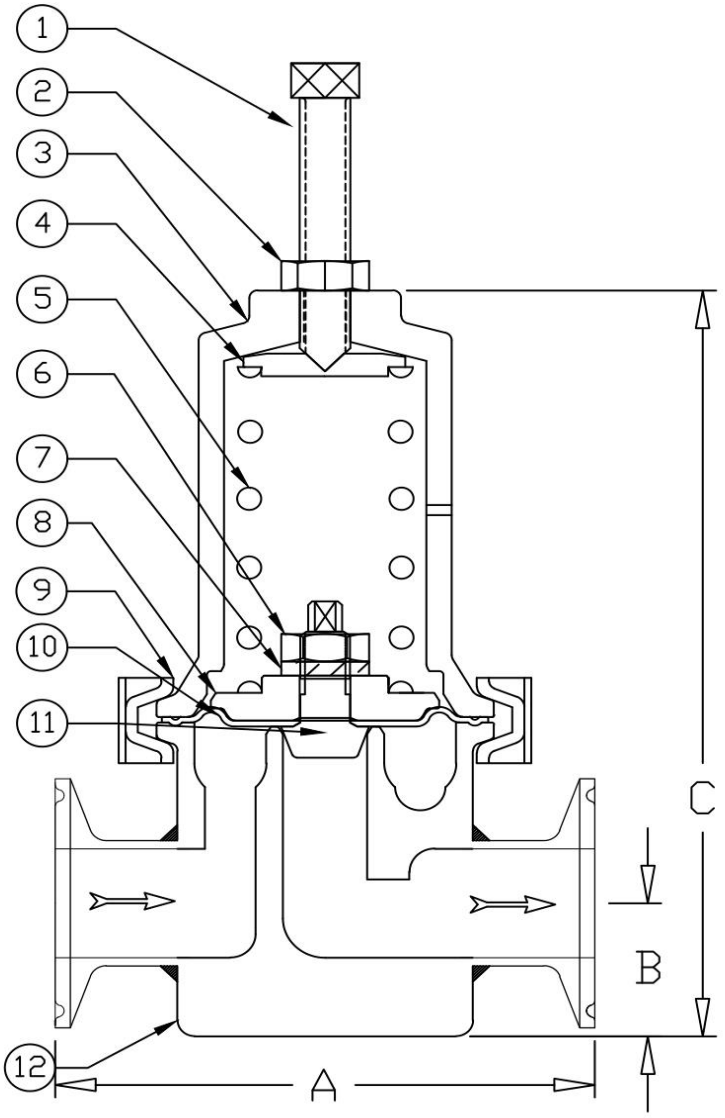
** Replacement parts are usually available for purchase through Straval and are readily

available. Please contact Straval for recommendations on troubleshooting for this specific valve. Contact information is on the cover page in the header. **

REASSEMBLY AND TESTING

When all the valve parts are cleaned and inspected, the valve can be reassembled in reverse order. Make sure a valve seal lubricant is used to lubricate the seal and is compatible with the elastomer used. Do not lubricate the elastomers that come in contact with the valve seat, it could cause potential leakage from the valve seat. Make sure no dirt or foreign particles are embedded in the valve seat, which might cause the valve seat to stay partially open and cause unwanted leakage. Any threaded parts as well as the contact surface of the adjustment screw and spring pusher should be lubricated with an application compatible anti-seize compound. When the spring and spring hardware is assembled and the spring chamber clamped back onto the body, the valve is ready for final installation and test. Testing should be done with the valve completely installed into the process line with the discharge piped safely away. At the proper system over pressure (set pressure), turn the adjusting screw until the valve begins to open. Next reduce the system pressure to the normal operating pressure and check to see if the valve reseats properly and shuts off. If it is not possible to change the system pressure to an overpressure condition, at which point the valve must open, then the valve must be tested and set off-line using a hydrostatic testing device. Finally, when installing the valve, makes sure there is minimal piping misalignment to keep distortion of the precision machined internal body seat to a minimum. If severe misalignment exists, consider installing expansion fittings to absorb any piping strain that may also be caused by temperature changes in the piping. When assembling and disassembling the valve, it is highly recommended to utilize the provided schematics displayed on page 4 and 5.

DIAPHRAGM SENSED



ALL DIMENSIONS NOMINAL AND SUBJECT TO CHANGE WITHOUT NOTICE
CONTACT FACTORY FOR CERTIFIED DIMENSIONAL DRAWINGS
**DIMENSION C IS DEPENDANT ON SPRING RANGE, CONTACT PLANT

MATERIAL LIST & SPECIFICATION

	PART	MATERIAL
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	SPRING	304, 316L STAINLESS STEEL
6	NUT	304, 316L STAINLESS STEEL
7	LOCK WASHER	304, 316L STAINLESS STEEL
8	SPRING FOLLOWER	303, 316L STAINLESS STEEL
9	V-BAND CLAMP	304 STAINLESS STEEL
10	DIAPHRAGM	TFE/Viton,TFE/Buna,Buna,Viton
11	DIAPHRAGM SCREW	303, 316L STAINLESS STEEL
12	BODY	303, 316L STAINLESS STEEL

DIMENSIONS (inches)

SIZE	CV	A	B	C
1/2	1.85	4"	13/16"	**
3/4	3.1	4"	15/16"	**
1	3.1	4"	1 1/16"	**
1	10.3	6"	1"	**
1-1/2	12.2	6"	1 1/4"	**
2	12.2	6"	1 1/2"	**

PH 973-340-9955
FX 973-340-9933
20 BUSHES LANE
ELMWOOD PARK, NJ 07407

STRAVAL VALVES STRAINERS

MATL: TO SPECIFICATION
SCALE: None
DATE: 08/15/2018
DRWN: AS

TITLE: Back Pressure/Bypass Valve
IN-LINE SANITARY TRI-CLAMP

DWG NO: BPS09i-TC-D

REV: A