

# OPERATING INSTRUCTIONS

## MODEL BPS05-TC

### SANITARY BACKPRESSURE/BYPASS VALVE



#### APPLICATIONS:

This valve is used for back pressure control applications such as maintaining constant pump discharge pressures, bypassing excessive pressures from various types of process equipment, and where ever a constant pressure must be maintained in a process or piping system. Valve should only be used selectively where the materials chosen are compatible with the fluid used and will not cause corrosive buildup or crystallization in the close clearances between the piston and body bore, which could keep the poppet from opening freely. Use only clean, strained or filtered liquids or gases so that the valve can operate without buildup of debris or solid matter, which can cause the valve to malfunction. A strainer or filter with the appropriate material and pressure rating can be purchased from STRAVAL. These valves do not carry the ASME approval stamp and should not be applied where this requirement must be met. The valves however, generally meet or exceed their design criteria. When used as a restricting device such as on compressor start up service, please specify the minimum opening pressure and also the maximum pressure the discharge of the valve will see so that the proper valve piston and pressure rating can be selected for the application. When used on bypass service specify if the discharge is acting against any head pressure or just to an open reservoir .

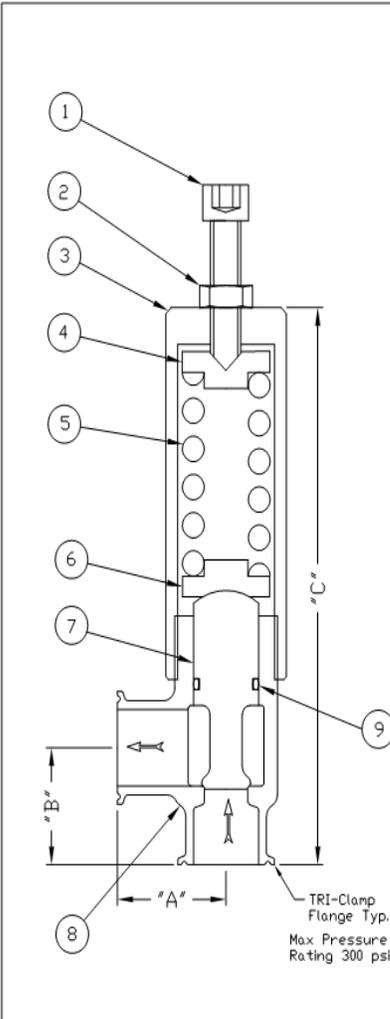
#### PRINCIPLE OF OPERATION

This is a direct acting valve with an adjustable spring operating against a piston subjected to the inlet pressure of the valve. Increasing the spring compression will increase the system or line pressure to be maintained.. Reducing the spring compression will reduce the system or line pressure to be maintained. An increase in system pressure beyond the set point will caused the main valve to open and relieve the excess pressure through the outlet port .

#### MAINTENANCE & REPAIR

The valve should be periodically checked for proper operation. This can be easily done by reducing the spring compression from its current pressure setting. Eventually the poppet should open and begin to discharge liquid or gas under pressure. **Make sure that**

**the discharge is properly piped to a safe area in order avoid any personal injury.** If the poppet fails to open with the adjusting screw sufficiently backed out and the valve is under pressure, the poppet is probably frozen or corroded in place. If this condition exists, the valve must be **immediately removed from service** and replaced or repaired. Another reason for replacing or repairing a valve is if there is excessive leakage from the valve seat. If this happens even with the spring compressed to the maximum (this should only be temporarily done for test purposes), this is an indication the poppet and or valve seat on the body is worn, damaged, corroded, or a particle lodged in the seat causing the valve to constantly leak. If leakage is observed through the spring adjusting screw, this indicates there is leakage in the piston seal, which requires replacement. This would be observed only while the valve is discharging and there is some pressure on the outlet side of the valve.



MATERIAL LIST & SPECIFICATION			
1	ADJUSTING SCREW	ST. STL	
2	LOCK NUT	ST. STL	
3	SPRING CHAMBER	ST. STL	
4	SPRING PUSHER	ST. STL	
5	ADJUSTING SPRING	ST. STL	
6	SPRING CARRIER	ST. STL	
7	POPPET	316 ST. STL	
8	BODY	316 ST. STL	
9	SEAL	VITON	

DIMENSIONS			
SIZE	"A" (IN)	"B" (IN)	"C" (IN)
1/2	1 1/4	1 1/8	6 7/8
3/4	1 1/4	1 1/8	7 1/8
1	1 3/8	1 3/4	8 3/8
1 1/2	2	2	10 1/2
2	2 1/4	2 1/4	11
3	4	3 5/8	12 1/2

\* OPTIONAL AVAILABLE ELASTOMERS  
BUNA, EPDM, TEFLON

PH 973-340-9955  
FX 973-340-9933  
21 COLUMBUS AVE  
GARFIELD, N.J. 07834

**STRA VALVES**  
**STRAINERS VAL**

DATE	REV	TITLE
07/08/2015	LP	BACK PRESSURE VALVE
		1/2"-3" MODEL BPS05-TC
		BPS05-TC

TRI-Clamp Flange Typ.  
Max Pressure Rating 300 psi



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### PROCEDURE FOR DISASSEMBLY

Make sure the valve is isolated and is not under pressure. Next remove the valve from the system. Back out the spring adjusting screw until there is no longer any spring compression. It may also be removed completely if desired. Unscrew the spring chamber using the flats provided on top of the spring chamber. Now the top of the poppet is exposed. While still assembled, test to see if the poppet is free to move by hand. There should only be a slight resistance to movement resulting from the O-ring friction between the piston and the body. The piston can now be pulled out through the top of the body. Examine the O-ring seal to see if any deterioration has taken place and replace if necessary. Next examine the poppet seating surface where it contacts the body and the mating surface on the body. Usually if there is severe leakage, the condition of these seating surfaces will indicate a worn or deteriorated surface finish. If the seat leakage is only minor, a re-lapping procedure using a #600 lapping compound will usually solve the problem. Any trace of lapping needs to be removed after lapping to avoid contamination the process fluid, steam or gas. Examine the body bore where the piston or poppet is housed. If the surface is not smooth, the bore should be polished with a very fine abrasive paper or fine scotch brite. The same should be done with the poppet outside diameter. If the valve is severely damaged and if it is not practical to correct by re-polishing or re-lapping, then a new valve should be purchased, or the valve shipped to STRAVAL for a repair evaluation and possible repair or replacement. Don't forget to examine the adjusting spring to look for signs of corrosion or outright failure. Replace if necessary. Springs are usually always in stock at STRAVAL and can be shipped readily.

### REASSEMBLY & TEST

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. 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. When the spring and spring hardware is assembled and the spring chamber threaded on to the body tightly, the valve is ready for final installation and test. Testing should be done with the valve completely piped up with the discharged piped safely away. At the proper system over 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 no 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.