

# OPERATING INSTRUCTIONS

## MODEL RVC05-TC

### SANITARY PRESSURE RELIEF VALVE



#### APPLICATIONS:

This valve is used for safety relief applications, bypassing excessive pressures from various types of process equipment, and wherever a excess pressures must be relieved in a sanitary process or piping system. For use with liquids, clean steam, and gases to 350 deg F depending on elastomer used for the piston seal. Standard piston seal material is Viton, EPDM or Teflon, etc.

When used on relief or bypass service, specify if the discharge is acting against any head pressure or if just draining to an open reservoir at near atmospheric pressure.

Standard wetted materials are type 316SS for sanitary applications. However, this valve is also available in type 304/303SS materials, for non-food, non-sanitary applications where there is an advantage of using the Tri-clamp flanges for quick disassembly of the valve from the piping system for cleaning and service.

#### PRINCIPLE OF OPERATION

This is a poppet and spring type relief valve where the spring constantly opposes the pressure acting against the poppet, which seals of the inlet port from the outlet port at the valve seat. The desired set pressure or relief is achieved by compressing the spring until the spring force is adequate to balance the pressure force acting against the poppet. When the inlet pressure exceeds the set pressure, the poppet will open to relieve the excess pressure.

#### 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, NJ, 07826

STRA VALVES  
STRAINERS VAL

UNIT: SEE ABOVE	TITLE: BACK PRESSURE VALVE
SCALE: NONE	1/2"-3" MODEL RVC05-TC
DATE: 03/08/2015	DWG NO: RVC05-TC
DRWN: LP	REV:

#### 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.



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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 sanitary 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 over-pressure 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, correct, or consider installing expansion fittings to absorb any piping strain that may also be caused by temperature changes in the piping.