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# High Flow Series Instruction Manual

## Back Pressure Valves Pressure Relief Valves

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Call: 1 - 800 - GRIFFCO

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## INTRODUCTION



**GRIFFCO** diaphragm back pressure valves are used to enhance the performance of chemical feed pumps and systems by providing a constant discharge head pressure. These valves also function as an anti-siphon valve. The diaphragm is held against the seat by the internal spring. Back pressure is adjustable from 10 - 150 psi via the adjustment screw. When the inlet pressure exceeds the preset pressure the diaphragm lifts off the seat and the chemical flows to the injection point. After each discharge stroke of the pump, as the pressure drops, the diaphragm reseats itself.

**GRIFFCO** diaphragm pressure relief valves are designed to protect chemical feed pumps and systems from overpressure caused by defective equipment or blockages in the chemical line. The 3 port design allows chemical to flow through the valve via an internal chamber. When the pressure in the chemical line exceeds the preset pressure of the valve the diaphragm lifts off the seat and the chemical then flows out the bottom port back to the chemical tank. Relief pressure is adjustable via the adjustment screw in the top of the valve.

### **Back Pressure Valve:**

Generally, the back pressure valve can be installed anywhere in the discharge line, provided there is some downstream pressure at the dosage point. If there is no downstream pressure the back pressure valve should be installed at the dosage point to prevent siphoning and drainage of the chemical line. The valve can be installed either vertically or horizontally. All **GRIFFCO** valves are factory set at 50 psi, unless otherwise specified. Field adjustment is possible with the adjustment screw.

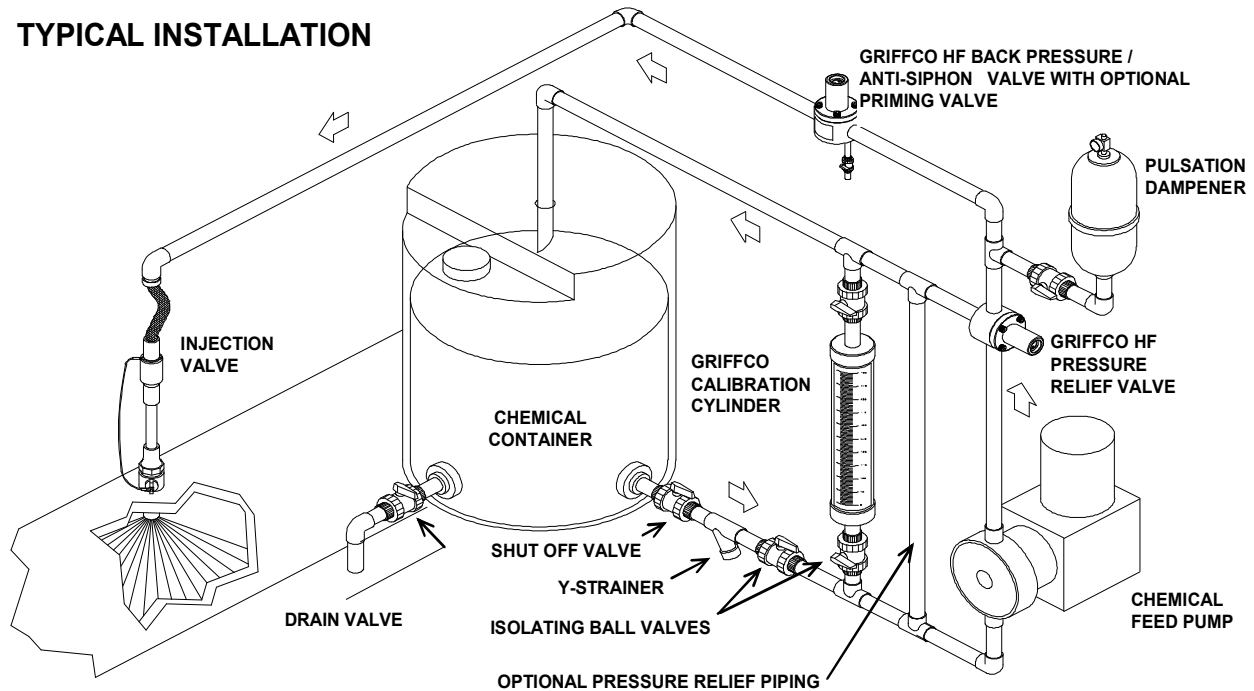
Back pressure valve performance will be enhanced with the installation of a pulsation dampener to smooth out the discharge / suction cycles of the pump. Thus, the diaphragm is free to float inside the valve chamber, minimizing the wear on the stress points of the diaphragm. Pulsation dampeners will also reduce the pressure drop across the valve by reducing peak flows. Backpressure valves should be installed downstream of the dampener. For most applications diaphragm type dampeners are required. Generally speaking 5 to 10% dampening is sufficient. Consult with your pump manufacturer to get his recommendations.

### **Pressure Relief Valve:**

Installation should be made as close to the chemical pump discharge valve as possible, without any equipment, especially shut-off valves, between the valve and the pump. Direction of flow must be across the valve, however the side of entry is not important. The valve can be installed either vertically or horizontally. All **GRIFFCO** valves are factory set at 50 psi, however field adjustment is possible with the adjustment screw.

The optimum installation for the relief valve is to vent the relief port back to the chemical tank, or directly to a containment area. However if this is not possible, the relief port can be piped back into the suction side of the pump. This will apply the suction head to the relief port. To compensate, divide the NPSH by 4 and add this pressure to the relief valve setting. Do not put a shut off valve in the relief line.

## TYPICAL INSTALLATION



## MAINTENANCE:

The pressure relief and back pressure valves were designed with minimizing the amount of maintenance required to keep the valves in operation. However, periodic replacement of the diaphragm is required. A parts kit can be purchased from your local Griffco Valve distributor. To facilitate inspection and replacement, the valve layout is such that removal of the diaphragm can be done without taking the valve out of the chemical line.

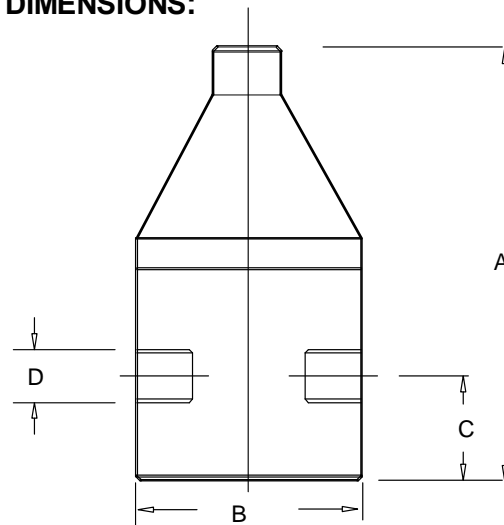
**Caution: Ensure the system is not under pressure and that the chemical lines are flushed with water before disassembly.**

Unscrew the pressure adjustment screw to remove the pressure from the diaphragm. Remove the 4 bolts and lift off the valve top.

After the diaphragm and the valve seat have been inspected and replaced if necessary, (White PTFE side down), check the adjustment spring. Make sure there is no rust or corrosion. Place the support disc the spring onto the valve body and slide the top back over the four bolts.

Tighten the 4 bolts, and then replace the adjustment screw. Turn the adjustment screw clockwise to approximately the same position as it was prior to disassembly. If an exact pressure setting is required or a different pressure is desired a pressure gauge should be used to verify the setting. Turning the adjustment screw clockwise will increase pressure.

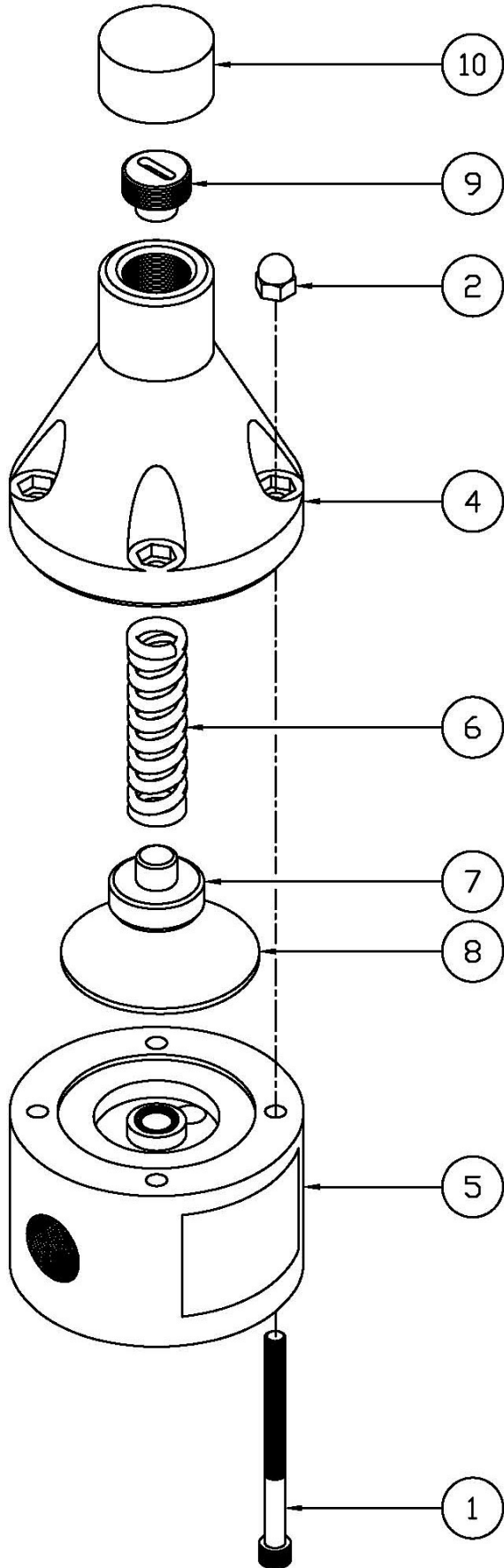
## DIMENSIONS:



D	A (in)	B (in)	C (in)
1/2"	5.90	3.50	1.25
3/4"	5.90	3.50	1.25
1" (4.5")	7.56	4.50	1.28
1" (5")	7.56	4.90	1.28

**Warranty:** GRIFFCO Valve, Inc. warrants its products against defects in workmanship and materials for one year under normal use or 18 months from date of shipment whichever occurs first. All obligations and liabilities under this warranty are limited to repair or replacement (at our option), FOB our plant such allegedly defective units as are returned to our factory transport prepaid. Repairs or replacements are made subject to inspection of returned items. This warranty does not extend to damage by corrosion or erosion. The materials of construction offered are recommendations subject in all cases to acceptance by the customer. These recommendations, based on previous experience and best available information, do not constitute guarantees against wear or chemical action. Expressly excluded from this warranty are defects caused by misuse, abuse or improper application, installation or operation of the unit. No liability for consequential damages or reinstallation labor is accepted. GRIFFCO Valve, Inc. will not assume responsibility for contingent liability for alleged failure of its products.

# PARTS LIST



ITEM	DESCRIPTION	PART #	
1	1/4 - 20 X 2 3/4" Bolt - 1/2 . 3/4" Plastic Valves	PV-00101	
	5/16 - 18 X 1 1/2+Bolt - 1+Metal Valves	PV-00102	
	1/4 - 20 X 5+Bolt - 1+Plastic Valves (4.5+& 5+OD)	PV-00105	
	1/4 - 20 X 1 1/4" Bolt - 1/2 - 1" Metal Valves	PV-00108	
2	1/4 - 20 Cap hex nut	PV-00202	
3	1/4 Flat Washer (Required with 316 SS Top 1/2" . 3/4")	PV-00302	
	5/16 Flat washer (Required with 316 SS Top 1+)	PV-00303	
4	1/2" . 3/4" Valve Top . Noryl, Black	PV-004451	
	1/2" . 3/4" Valve Top . Noryl, Orange	PV-004452	
	1/2" . 3/4" Valve Top . Noryl, Yellow	PV-004053	
	1/2" . 3/4" Valve Top . Noryl, Green	PV-004054	
	1/2" . 3/4" Valve Top - 316 SS	PV-00407	
	1+Valve Top . PVC, Black (For 4.5+OBS Body)	PV-00411	
1+Valve Top . Noryl, Black (for Plastic 5+Body)	PV-004175		
1+Valve Top . Noryl, Black (for Metal 5+Body)	PV-004171		
		<b>BPV #</b>	<b>PRV #</b>
5	1/2" Valve Body High Flow, PVC	BPV-00511HF	TWO PORT CONFIGURED HIGH FLOW VALVE USES BPV BODY
	1/2" Valve Body High Flow, PP	BPV-00512HF	
	1/2" Valve Body High Flow, PTFE	BPV-00513HF	
	1/2" Valve Body High Flow, PVDF	BPV-00514HF	
	1/2" Valve Body High Flow, 316 SS	BPV-00515HF	
	1/2" Valve Body High Flow, Alloy 20	BPV-00516HF	
	1/2" Valve Body High Flow, Hast C	BPV-00517HF	
	1/2" Valve Body High Flow, CPVC	BPV-00518HF	
	3/4" Valve Body High Flow, PVC	BPV-00521HF	
	3/4" Valve Body High Flow, PP	BPV-00522HF	
	3/4" Valve Body High Flow, PTFE	BPV-00523HF	
	3/4" Valve Body High Flow, PVDF	BPV-00524HF	
	3/4" Valve Body High Flow, 316 SS	BPV-00525HF	
	3/4" Valve Body High Flow, Alloy 20	BPV-00526HF	
	3/4" Valve Body High Flow, Hast C	BPV-00527HF	
	3/4" Valve Body High Flow, CPVC	BPV-00528HF	
	1" Valve Body High Flow, PVC (4.5+OBS)	BPV00531HF	
	1" Valve Body High Flow, PP(4.5+OBS)	BPV00532HF	
	1" Valve Body High Flow, PTFE(4.5+OBS)	BPV00533HF	
	1" Valve Body High Flow, PVDF(4.5+OBS)	BPV00534HF	
	1" Valve Body High Flow, 316 SS(4.5+OBS)	BPV00535HF	
	1" Valve Body High Flow, Alloy 20 (4.5+OBS)	BPV00536HF	
	1" Valve Body High Flow, Hast C(4.55+OBS)	BPV00537HF	
	1" Valve Body High Flow, CPVC(4.55+OBS)	BPV00538HF	
1" Valve Body High Flow, PVC (5+OD)	BPV-50531HF		
1" Valve Body High Flow, PP(5+OD)	BPV-50532HF		
1" Valve Body High Flow, PTFE(5+OD)	BPV-50533HF		
1" Valve Body High Flow, PVDF(5+OD)	BPV-50534HF		
1" Valve Body High Flow, 316 SS(5+OD)	BPV-50535HF		
1" Valve Body High Flow, Alloy 20 (5+OD)	BPV-50536HF		
1" Valve Body High Flow, Hast C(5+OD)	BPV-50537HF		
1" Valve Body High Flow, CPVC(5+OD)	BPV-50538HF		
6	Pressure Spring - 1/2" . 3/4" Valve; 150 psi	PV-00602	
	Pressure Spring - 1/2" . 3/4" Valve; 50 psi	PV-006021	
	Pressure Spring - 1/2" . 3/4" Valve; 250 psi	PV-006023	
	Pressure Spring - 1/2" . 3/4" Valve; 350 psi	PV-006122	
	Pressure Spring - 1/2" . 3/4" Valve; 100 psi, 316 SS	PV-00602S	
	Pressure Spring - 1+Valve; 150 psi	PV-00603	
Pressure Spring - 1+Valve; 50 psi	PV006033		
7	Support Disc - 1/2 . 3/4" Valve, PVC	PV-00705	
	Support Disc - 1/2 . 3/4" Valve, 316 SS	PV-00706	
	Support Disc - 1+Valve, PVC	PV-00707	
	Support Disc - 1+Valve, 316 SS	PV-00709	
8	Diaphragm - 1/2" . 3/4" Valve - PTFE / EPDM	PV-00810	
	Diaphragm - 1/2+. 3/4+Valve . Viton	PV-00812	
	Diaphragm - 1/2" . 3/4" Valve - PTFE / Viton (High Temperature)	PV-00813	
	Diaphragm - 1+Valve . PTFE/EPDM (4.5+OBS Body)	PV-00820	
	Diaphragm - 1+Valve . Viton (4.5+OBS Body)	PV-00821	
	Diaphragm - 1+Valve . PTFE/EPDM (5+OD Body)	PV-00830	
Diaphragm - 1+Valve . Viton (5+OD Body)	PV-00831		
9	Adjustment Screw - 1/2+. 3/4+Valve PET (white)	PV-00906	
	Adjustment Screw - 1/2+. 3/4+Valve Coated Steel	PV-00903	
	Adjustment Screw - 1+Valve PET (white)	PV-00926	
	Adjustment Screw - 1+Valve Coated Steel	PV-00921	
10	Protective Vinyl Cap- 1/2+. 3/4 +Valves	PV-01001	
	Protective Vinyl Cap- 1+Valves	PV-01002	

**Note: The 1" High Flow Valves use the same internal parts as the standard 1 1/2" Valves.**

**The Part #'s BP/PRHF100\_ has 4.5" bottom diameter.  
The Part #'s BP/PRHF105\_ has a 5" bottom diameter.**