

Regulators

Relief & Back Pressure Valves

3040 Series

Water, Air, Oil & Other Liquids

Model	3040 Series
Service	Water, Oil, other Liquids, Air
Sizes	1/2", 3/4", 1", 1 1/4", 1 1/2", 2"
Connections	NPT, 125# FLG, 250# FLG
Body Material	<ul style="list-style-type: none"> • 1/2" - 1 1/2" NPT, SS Body, Bronze Diaphragm Chamber • 2" NPT, Cast Iron Body • 2" FLG, Cast Iron Body
Seat Material	Stainless Steel
Disc Material	Viton - 300°F max
Diaphragm	Viton - 300°F max
Max Inlet Pressure	250 PSIG

Design Pressure/Temperature Rating – PMA/TMA

NPT	300 PSIG	@ 200°F
125# FLG	125 PSIG	@ 200°F
250# FLG	250 PSIG	@ 200°F

Typical Applications

The **3040 Series** Back Pressure Valves relieve upstream pressure in a variety of processes. Automatically maintains desired maximum pressure in a vessel or system by relieving excess pressure into lower pressure return line or to atmosphere. Ideally suited for use as pump bypass control valve by maintaining constant pump discharge pressures. Used as a continuously operating valve or for intermittent protection against over-pressure conditions.

Features & Options

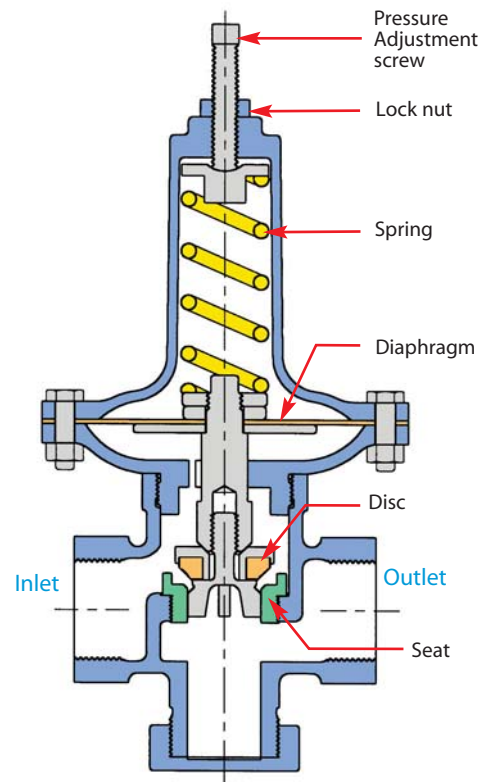
- Fast response
- Viton Trim for 300°F service
- Soft "Seat" for tight shut-off

Pressure Adjustments

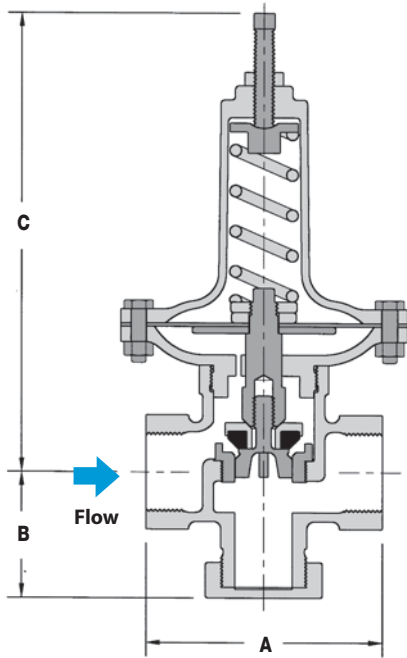
Rotating the adjustment screw clockwise increases the compression on the spring, thereby increasing the set-pressure. Rotating the adjustment screw counter-clockwise lowers the set-pressure. Tighten the locknut after adjustment.



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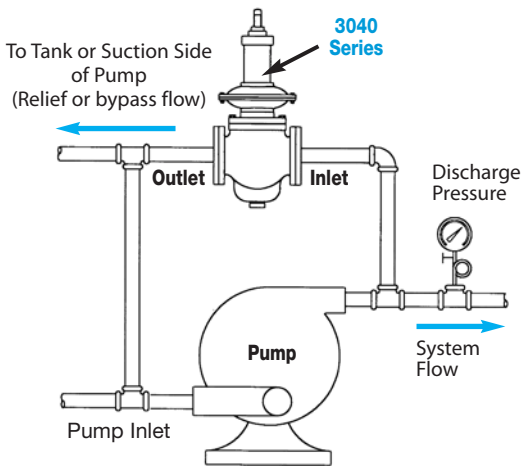


Size Threaded	Face-to-Face A			B	C
	A				
	NPT Flanged	125# Flanged	250#		
1/2"	4 1/8	—	—	2 5/16	9
3/4"	4 1/8	—	—	2 5/16	9
1"	4 1/8	—	—	2 5/16	9
1 1/4"	4 13/16	—	—	3 1/4	12 3/4
1 1/2"	5 3/16	—	—	3 1/2	13 1/4
2"	9 1/2	10 3/8	10 7/8	5 1/2	16 3/4

How it Works

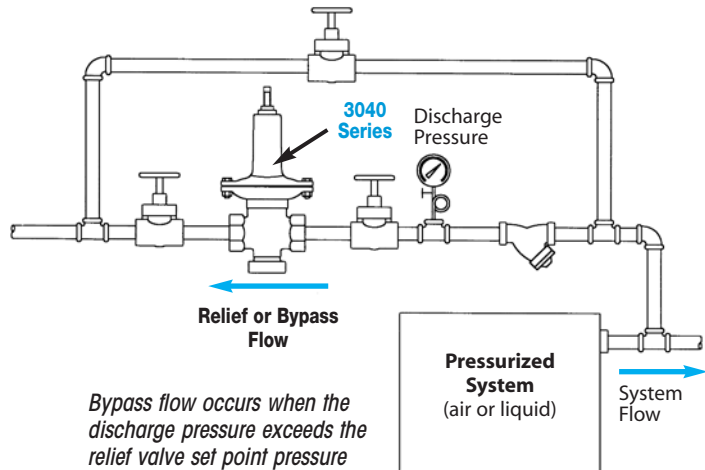
The 3040 Series Back Pressure Valve senses upstream pressure acting on the underside of the diaphragm through a port in the bottom diaphragm case. An increase in the upstream pressure above the set point will compress the spring and allow the valve to open. The spring will close the valve as the upstream pressure decreases to the set-point.

The higher the system pressurizes above the relief set-point pressure, the more flow the valve will pass. It is therefore typical to specify the maximum capacity of a back pressure relief valve at 10% & 20% over set-pressure.



A Relief Valve allows water to recirculate through the pump even when the discharge valve on the pump is completely closed. As a rule, a minimum of 20% of the pump capacity must recirculate to prevent overheating of the pumped liquid.

Protection Against Over-Pressure Condition



Bypass flow occurs when the discharge pressure exceeds the relief valve set point pressure

Water, Air, Oil & Other Liquids

3040 Series Spring Selection Table

Relief Pressure (PSI)	Spring #	Code = X
1 - 12	#4	4
5 - 35	#3	3
20 - 70	#2	2
40 - 125	#1	1

Note: Relief Pressure 1-12 PSI (Code 4) available in 1/2", 3/4", and 1" sizes only.

Size/Connection	Model Code *	Body Material	Weight lbs
Viton Diaphragm & Disc (300°F Max)			
1/2" NPT	3040-12-N-X-V	Bronze	8
3/4" NPT	3040-13-N-X-V	Bronze	8
1" NPT	3040-14-N-X-V	Bronze	9
1 1/4" NPT	3040-15-N-X-V	Bronze	15
1 1/2" NPT	3040-16-N-X-V	Bronze	16
2" NPT	3040-17-N-X-V	Cast Iron	48
2" 125# FLG	3040-17-F125-X-V	Cast Iron	53
2" 250# FLG	3040-17-F250-X-V	Cast Iron	56

X=Spring Code. (reference Spring Selection Table)

Example Model Code:

1) **3040-15-N-3-V**
(3040 Series, 1 1/4" NPT, 5-35 PSIG Relief Pressure)

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Note: The Relief Valve remains closed until the **Set-Pressure** is reached. When the Set-Pressure is met or exceeded, the spring will compress, allowing the valve to open and flow to occur. It is standard practice to publish flow values at 10% and 20% over the **Set-Pressure**.

Example: A 1" valve set at 50 PSIG will pass 35.6 GPM of water or 409 SCFM of air if the system pressure exceeds the set-point by 20%.

The 3040 Series Relief Valve water and air capacities at inlet pressures of 10% and 20% over **Set-Pressure**:

CAPACITIES – Water (GPM)							
At 10% Over Set Pressure							
Spring Range (PSIG)	Set Pressure (PSIG)	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
1-12	5	4.0	8.0	10.0	–	–	–
5-35	10	5.7	11.4	14.3	29	43	71
5-35	20	8.1	16.2	20.3	41	61	101
20-70	50	12.7	25.4	31.8	64	95	159
40-125	75	15.6	31.2	39.0	78	117	195
40-125	100	18.0	36.0	45.0	90	135	225
40-125	125	20	40	50	100	150	250
At 20% Over Set Pressure							
1-12	5	4.4	8.8	11.2	–	–	–
5-35	10	6.3	12.5	16.0	32	47	79
5-35	20	8.9	17.8	22.7	45	67	113
20-70	50	14.0	27.0	35.6	71	105	177
40-125	75	17.2	34.3	43.7	87	129	217
40-125	100	19.8	39.6	50.4	101	149	250
40-125	125	22	44	56	112	166	278

CAPACITIES – Air (SCFM)						
At 10% Over Set Pressure						
1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	
31	55	111	–	–	–	
39	70	141	203	297	422	
56	100	201	290	424	603	
106	191	381	551	805	1144	
148	266	532	768	1123	1596	
190	341	682	986	1441	2047	
231	416	833	1203	1758	2499	
At 20% Over Set Pressure						
32	57	113	–	–	–	
41	73	146	211	308	438	
59	106	212	306	447	635	
114	204	409	591	863	1226	
159	287	573	828	1210	1719	
205	369	737	1065	1556	2212	
250	451	901	1302	1903	2704	