

BACK PRESSURE RELIEF VALVES

3040 Series

Relief & Back Pressure Regulating Valve

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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# & 250# Flanged
Body Material	Bronze - 1/2" - 1 1/2" Threaded Cast Iron - 2" Threaded Cast Iron - 2" Flanged
Disc Material	Buna-N/Teflon - 200°F max Viton (optional) - 300°F max
Diaphragm	Neoprene/Nylon - 200°F max Viton (optional) - 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 for protection against overpressure conditions.

CAUTION: Not to be used as an emergency or safety relief valve.

FEATURES & OPTIONS

- Soft Seat for tight shut-off
- Easy maintenance
- Self-contained
- Fast response
- Accurate control
- Optional Viton trim for 300°F service

PRESSURE ADJUSTMENT

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 lock nut after adjustment.

HOW TO SIZE/ORDER

- Specify:
- Regulator **3040 Series**
 - Size based on capacity chart
 - Spring range or relief pressure

Example: **2" 3040 Series – 5-35 PSIG spring range**

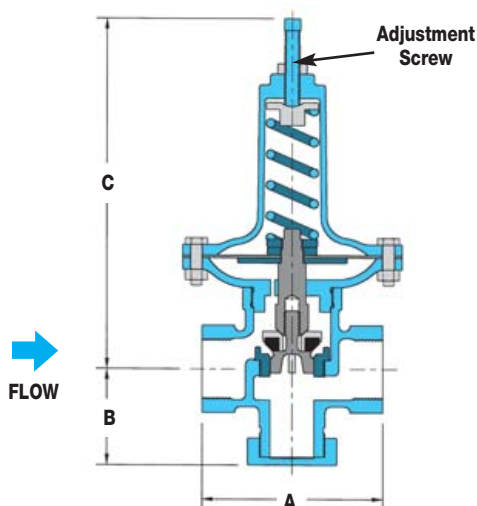
PRESSURE-ADJUSTING SPRING RANGES

Relief Pressure (PSIG)	Spring No.
1-12	4*
5-35	3
20-70	2
40-125	1

* 1/2" - 1" only

DIMENSIONS & WEIGHTS – inches/pounds

Size	Face-to-Face A			B	C	Weight (lbs)
	NPT Threaded	125# Flanged	250# Flanged			
1/2"	4 ¹ / ₈			2 ⁵ / ₁₆	9	10
3/4"	4 ¹ / ₈			2 ⁵ / ₁₆	9	10
1"	4 ¹ / ₈			2 ⁵ / ₁₆	9	10
1 1/4"	4 ¹³ / ₁₆			3 ¹ / ₄	12 ³ / ₄	15
1 1/2"	5 ³ / ₁₆			3 ¹ / ₂	13 ¹ / ₄	17
2"	9 ¹ / ₂	10 ³ / ₈	10 ⁷ / ₈	5 ¹ / ₂	16 ³ / ₄	45



BACK PRESSURE RELIEF VALVES

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Relief & Back Pressure Regulating Valve

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							
Spring Range (PSIG)	Set Pressure (PSIG)	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
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.	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					
1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
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

The **3040 Series** Relief Valve water and air capacities at both 10% and 20% over "Set Pressure" are tabulated in the above tables. Enter the chart at the desired "Set Pressure" in the gray column and read the capacity in GPM or SCFM to determine proper Valve Size. Select a spring with a relief range that includes the "Set Pressure" required. **Example: A 1" valve set at 50 PSIG will pass 35.6 GPM water or 409 SCFM air if the system pressure exceeds the set point by 20%.**

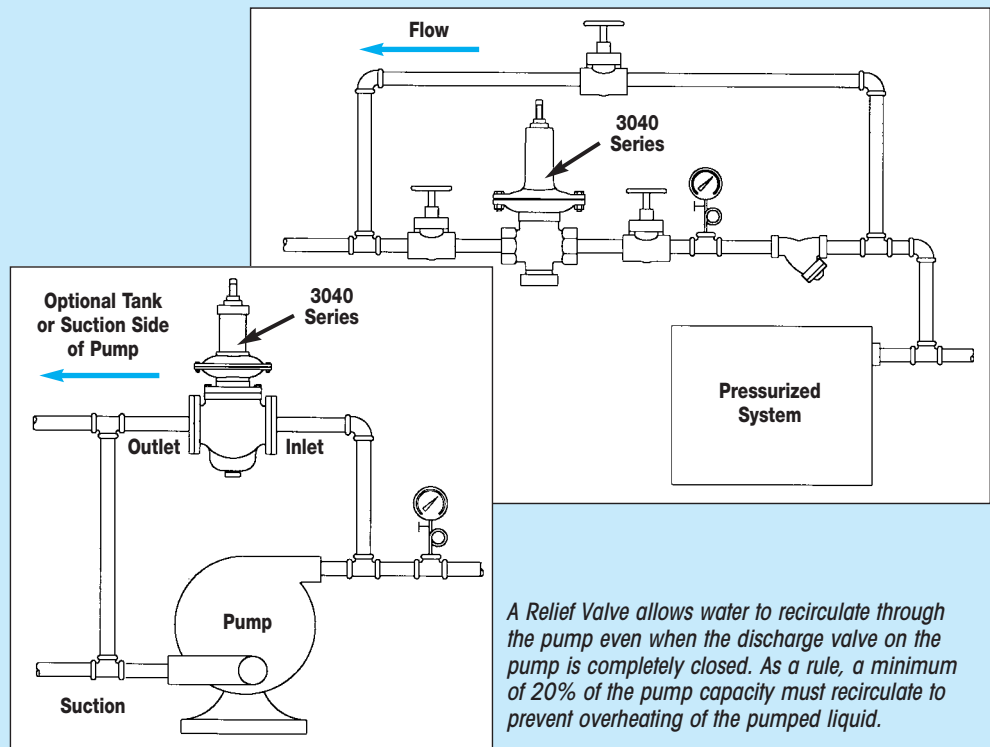
DIRECT-OPERATED
REGULATING VALVES

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.