

SB18 Series Back Pressure/Relief Valves



SERIES: SB18

SIZES: 3/8" to 2"

ENDS: True Union Socket, Threaded, ChemFlare™¹
Spigot² Bodies with Plain, Socket, Threaded or
Flanged ends

DIAPHRAGM: PTFE Bonded EPDM

SEALS: EPDM or FKM (Viton®)



True Union Ends
Easy installation and maintenance

The Chemline **SB18 Series** Back Pressure/Relief Valve has two functions. As a **back pressure valve**, installed in-line downstream of a pump, the back pressure below the metering pump is maintained. When installed in the branch of a tee it is a **pressure relief valve**. The valve stays closed until inlet pressure reaches the set pressure which is adjusted by turning the spring tensioning bolt. Inlet pressure acts upward against the piston allowing excess pressure to flow upwards through the orifice.

The SB18 Series is recommended for dosing applications. It is not so sensitive as to open with every pulsation from a metering pump.

Features

True Union Ends

- Easy installation and maintenance
- Eliminate chemical leakage problems common with old fashioned threaded connections

Recommended for Oscillating Pumps

Constant, Frictionless and Low Vibration Control

Long Cycling Life

- Dynamic seal is PTFE bonded EPDM for high chemical resistance
- This moulded diaphragm is designed for superior sealing and flex life

Superior Performance in Dosing Systems

- Valves are hydraulically designed for very low hysteresis ("backlash") and to eliminate chatter

Technical

Set Pressure Ranges

- 3/8" to 2": 7.5 to 150 psi

Maximum Viscosity

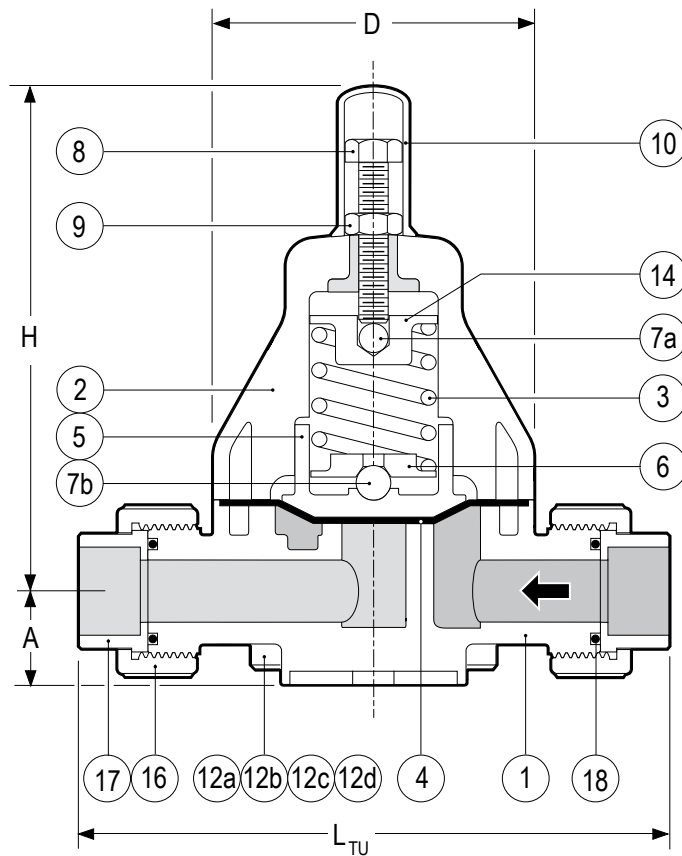
- 120cP is maximum recommended service viscosity
- Not recommended for fluids containing solids or particles

¹ For ChemFlare™ end connectors, consult Chemline

² PP and PVDF spigot ends have DIN dimensions and will butt fuse directly to Chemline PP and PVDF piping systems

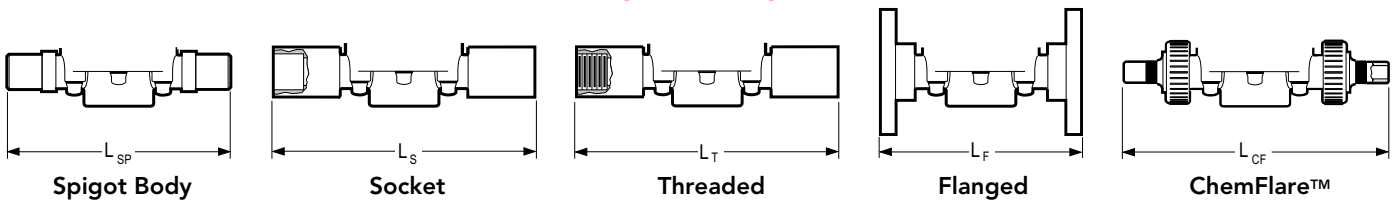
³ PVC valves with EPDM or FKM (Viton®) seals are certified under NSF/ANSI Standard 61 for contact with drinking water

SB18 Series Back Pressure/Relief Valves



True Union Body

OTHER ENDS



PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
1	Body	1	PVC, PP
2	Bonnet	1	PPG
3	Spring	1	Galvanized Steel
4▲	Diaphragm	1	PTFE bonded EPDM
5	Seat	1	PVC, PP
6	Spring Plate	1	PPG
7a	Ball	1	304 SS
7b	Ball	1	304 SS
8	Spring Tensioning Bolt	1	304 SS
9	Lock Nut	1	304 SS
10	Spring Bolt Cap	1	PE
12a	Bolt/Nut Cap	8/12 ¹	PE
12b	Hex Bolt	4/6 ¹	304 SS
12c	Hex Nut	4/6 ¹	304 SS
12d	Washer	8/12 ¹	304 SS
14	Pressure Plate	1	PP
16	Union Nut	2	PVC, PP
17	End Connector	2	PVC, PP
18▲	Face O-Ring	2	EPDM, FPM(Viton®)

¹ 1/2" size / 3/4" to 2" sizes

DIMENSIONS INCHES

Size	D	H	PVC								PP			WEIGHTS LB.		Cv VALUES
			A	I _s	L _{TU} ²	L _{SP} ³	L _S	L _T	L _F	L _{CF}	A	L _{SP} ³	L _{TU} ²	PVC	PP	
3/8"	3.2	7.0	1.0	0.6	6.5	5.7	7.4	7.2	—	8.2	0.9	5.7	**	1.4	1.2	2.3
1/2"	3.2	7.0	1.0	0.6	6.8	5.7	8.0	7.8	6.3	8.3 ⁴	0.9	5.7	7.1	1.4	1.3	3.7
3/4"	4.2	8.1	1.5	0.7	8.3	6.9	9.3	8.9	7.4	9.7	1.4	6.9	8.4	3.0	2.6	8.4
1"	4.2	8.1	1.5	0.9	8.5	6.9	9.6	9.3	7.4	10.2	1.4	6.9	8.7	3.1	2.8	11.9
1-1/4"	5.8	10.9	2.2	1.0	10.9	8.8	11.6	11.2	9.2	13.5	2.1	8.8	10.9	8.0	7.1	20.8
1-1/2"	5.8	10.9	2.2	1.2	11.1	8.8	12.2	11.5	9.5	—	2.1	8.8	11.2	8.1	7.1	26.0
2"	5.8	10.9	2.2	1.5	11.3	9.6	12.9	12.0	10.0	—	2.1	8.8	13.2	8.6	7.5	26.0

² True Union bodies come standard with socket ends. Threaded union ends are available. ** Consult Chemline.

³ Spigot bodies are used for non union socket, threaded or flanged ends. All spigot ends have metric dimensions and the PP and PVDF spigots butt fuse directly to Chemline PP and PVDF piping. ⁴ Tube size can be reduced to 1/4" tube, LCF = 7.74" for 1/4", 8.26" for 3/8".

MAXIMUM PRESSURES PSI

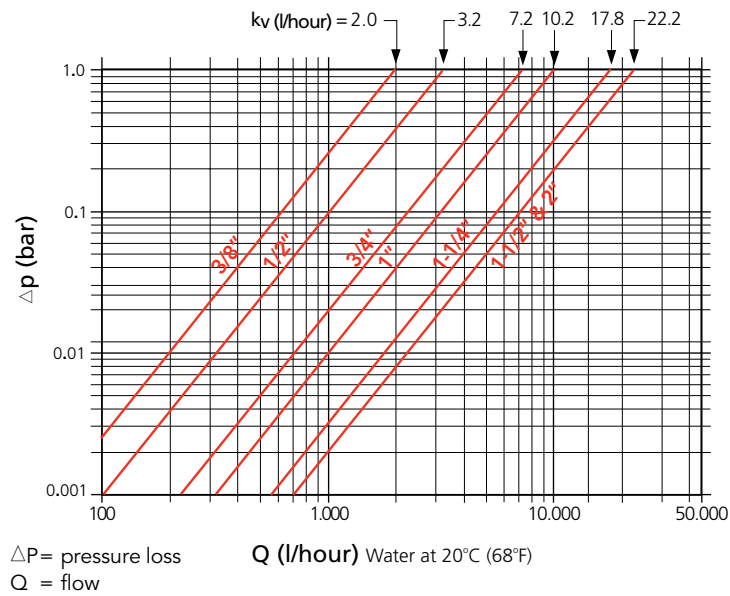
Size	PVC				PP				
	20°C 68°F	30°C 86°F	40°C 104°F	50°C 122°F	30°C 86°F	40°C 104°F	50°C 122°F	60°C 140°F	70°C 158°F
1/2"–2"	150	105	60	15	150	90	60	37.5	15

Temperature Ranges: PVC 0 to 50°C (32 to 122°F), PP 10 to 70°C (50 to 158°F)

SB18 Series Back Pressure/Relief Valves



Pressure Loss Nomogram for SB18 valves 3/8" to 2"



Conversion

$$c_v = k_v \times 0.07; f_v = k_v \times 0.0585$$

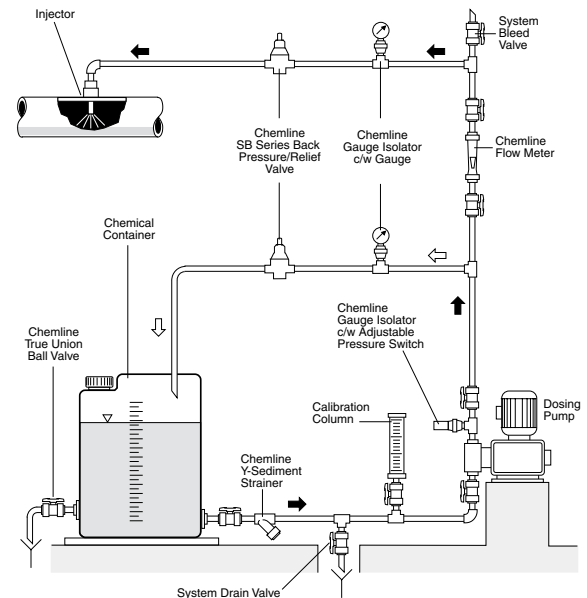
Units:

k_v [l/min]; c_v [gal/min] US; f_v [gal/min] GB

1 bar = 14.5 psi

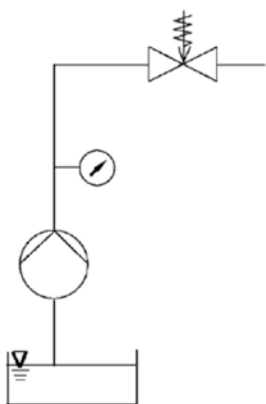
1 l/hour = 0.0044 USGPM

Typical Dosing System Schematic

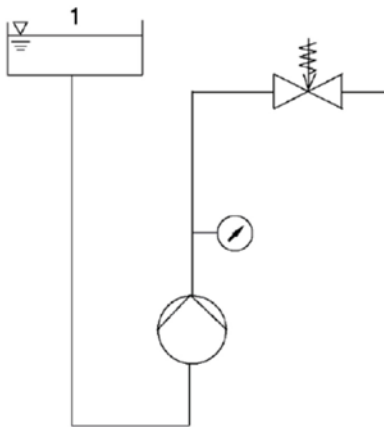


Application of Pressure Relief Valves

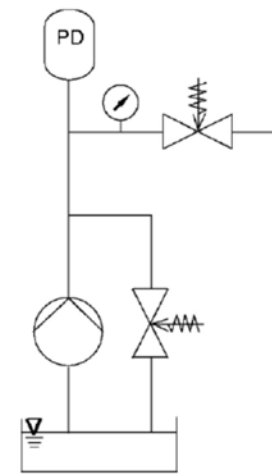
Generation of a Constant Operating Pressure



Use with High Primary Pressure



Reduction of Pressure Impacts due to an overflow valve to protect the plant

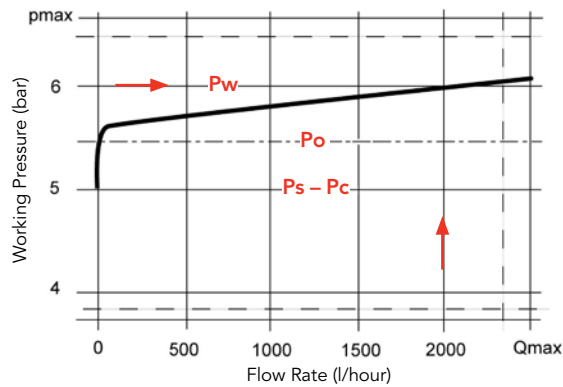


PD = Pulsation Dampener

SB18 Series Back Pressure/Relief Valves



Configuration Example



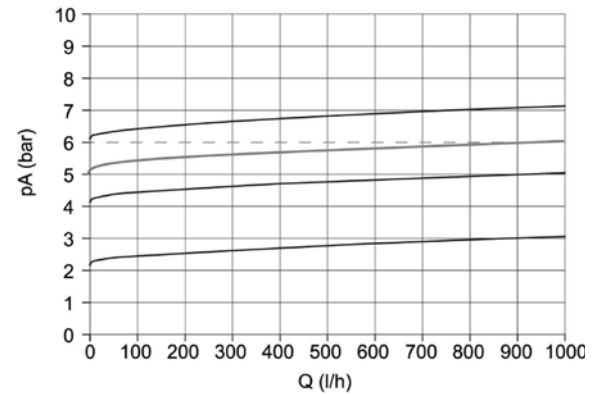
The value is set tight at 5 bar.

A flow of approximately 2,000 l/hour is reached at a pressure increase of 1 bar.

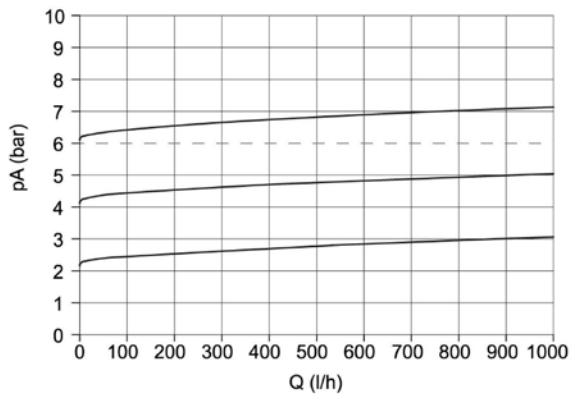
According to the curve, this results in the following values:

Set Pressure P_s : 5 bar; Working Pressure P_w : 6 bar; Opening Pressure P_o : 5.5 bar;
Closing Pressure P_c : 5 bar

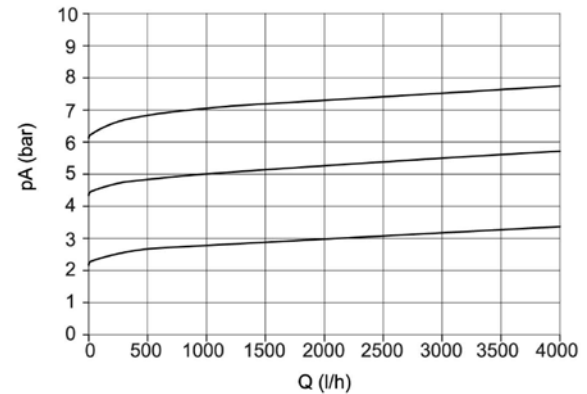
3/8" Valves



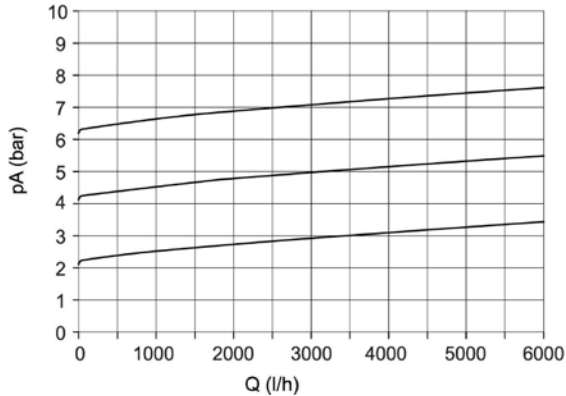
1/2" Valves



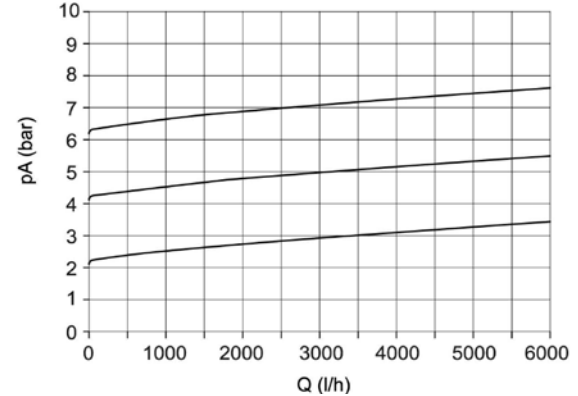
3/4" Valves



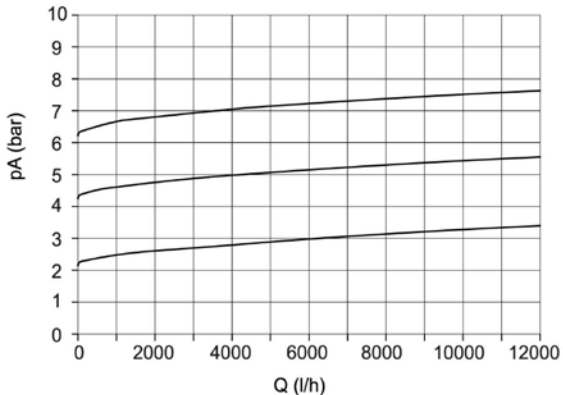
1" Valves



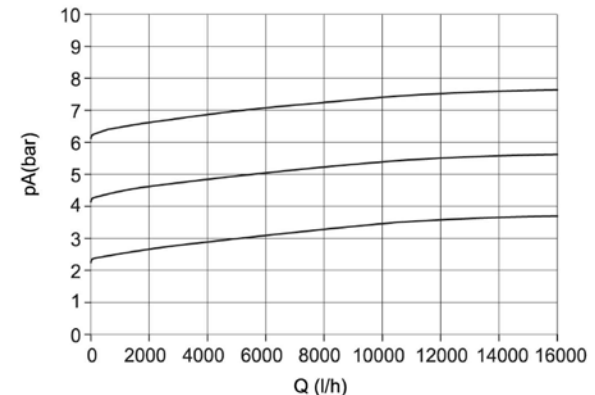
1-1/4" Valves



1-1/2" Valves



2" Valves



SB18 Series Back Pressure/Relief Valves



ORDERING EXAMPLE

Chemline Back Pressure/ Relief Valves		SB18	A	005	V	U
Body Material	A – PVC	B – PP				
Size	003 – 3/8"	005 – 1/2"	007 – 3/4"			
	010 – 1"	012 – 1-1/4"	015 – 1-1/2"			
	020 – 2"					
Elastomers	E – EPDM	V – FPM (Viton®)				
Ends	S – Socket	T – Threaded	F – Flanged	U – Union Socket		
	CFx – ChemFlare™		Blank – Spigot (Butt)			

Example: Chemline SB18 Series, PVC, 1/2" diameter, FPM (Viton®) seals, Union socket ends
x = 4 for 1/4", **6** for 3/8", **8** for 1/2", **12** for 1" ID tube connections

OPTIONS

- Bodies in 316 Stainless Steel