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SB 12 Series Back Pressure/ Relief Valves

CHEMLINE Plastics Limited
Your Pipeline To Quality

PVC, PP, PVDF

SIZES: 3/8" – 4"

ENDS: True Union Socket or Threaded
Non Union Socket, Threaded, Flanged or Butt (Spigot)†

CONTROL DIAPHRAGM: Teflon® Bonded EPDM

SEALS: EPDM, Viton

The Chemline SB 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 SB12's have a built-in check valve function, desirable for dosing applications. They are not so sensitive as to open with every pulsation from a metering pump.

Designed for Long Life

Ideal for Chemical Dosing Systems

Suitable for "Dirty" Fluids



True Union Ends
Easy installation and maintenance

Features

- **Built in check valve function**
  – Desirable for dosing applications
- **Suitable for "dirty" fluids**

Set Pressure Ranges:
- 1/2" to 2" – 5 to 150 psi
- 2-1/2" and 3" – 7.5 to 150 psi*
- 4" – 7.5 to 90 psi*

Long Cycling Life
- Dynamic seal is Teflon® bonded EPDM for high chemical resistance
- This moulded diaphragm is designed for superior sealing and flex life

Designed for Superior Performance
- Valves are hydraulically designed for minimum hysteresis ("backlash") and to eliminate chatter

† PP and PVDF spigot ends have DIN dimensions and will butt fuse directly to Chemline PP and PVDF piping systems.
* Optional 4 to 60 psi range springs are available for 2-1/2" to 4" sizes.

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SB 12 Back Pressure/Relief Valves

SET PRESSURE RANGES

- 1/2" to 2" – 5 to 150 psi
- 2-1/2" and 3" – 7.5 to 150 psi**
- 4" – 7.5 to 90 psi**

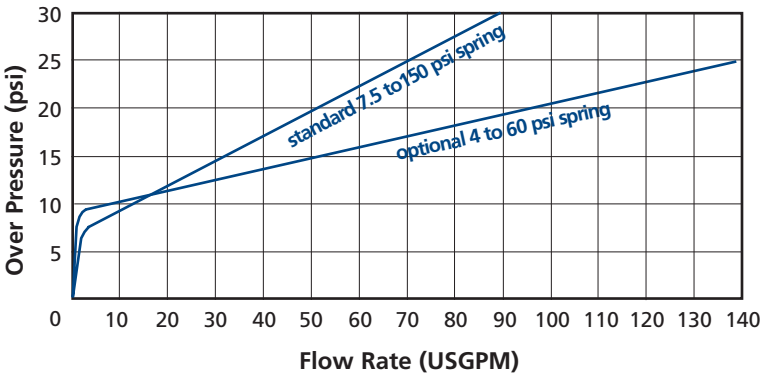
** Optional 4 to 60 psi range springs are available for 2-1/2" to 4" sizes.

OVER PRESSURE VS. FLOW RATE

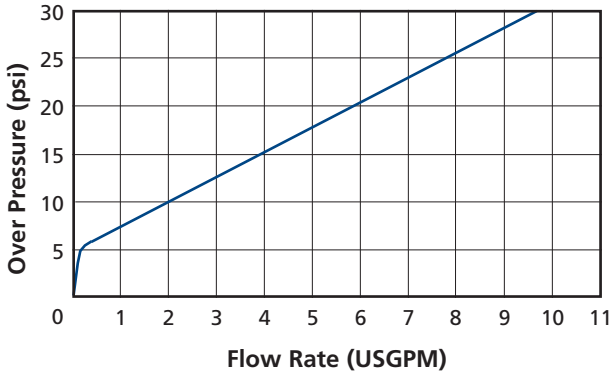
The curves show the relationship between the over pressure (inlet pressure above the set pressure) and the approximate flow rate through the valve for water at 20°C. These values will vary depending on:

- The configuration of the piping and the pressure losses associated with it.
- The fluid if not water at 20°C.
- Whether the pressure is rising or falling. Hysteresis is approximately 4 psi.

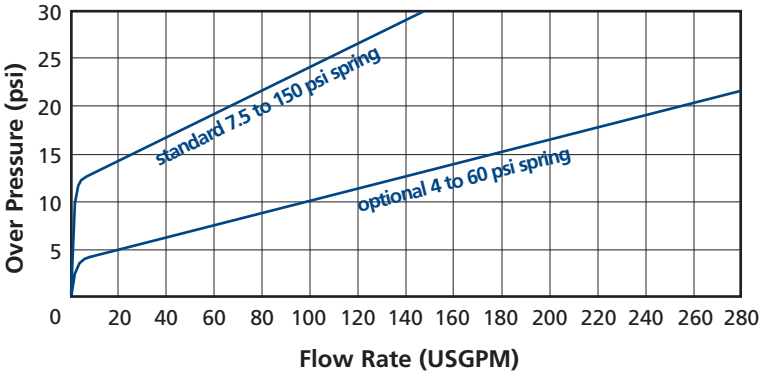
VALVE SIZE 2-1/2"



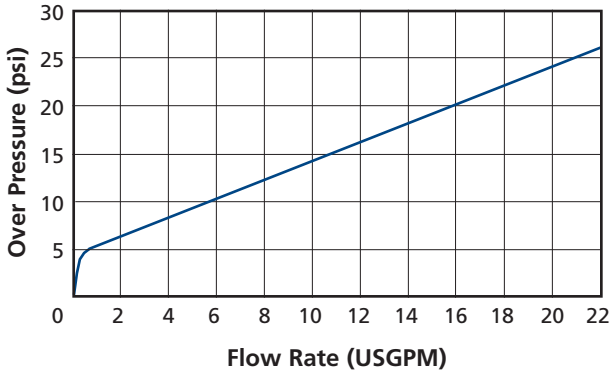
VALVE SIZES 3/8" and 1/2"



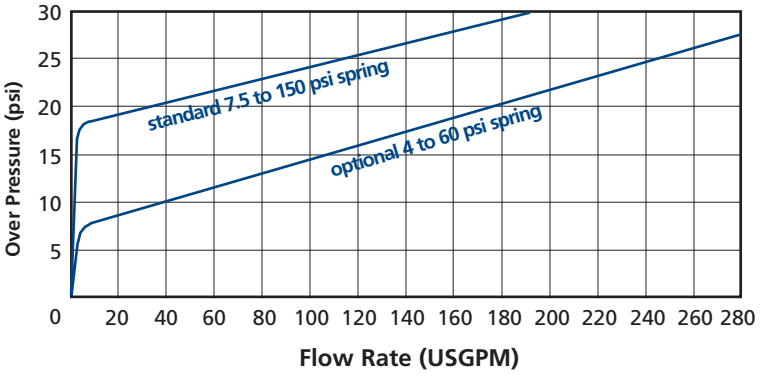
VALVE SIZE 3"



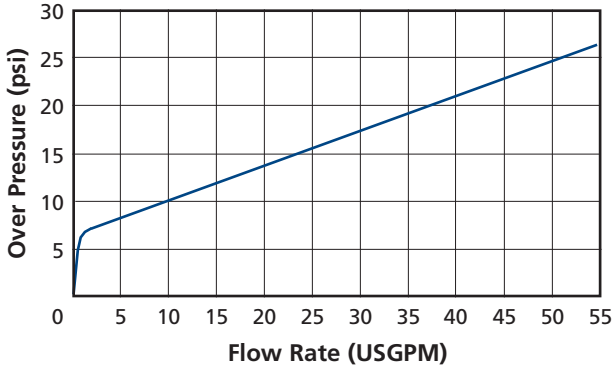
VALVE SIZES 3/4" and 1"



VALVE SIZE 4"



VALVE SIZES 1-1/4", 1-1/2" and 2"

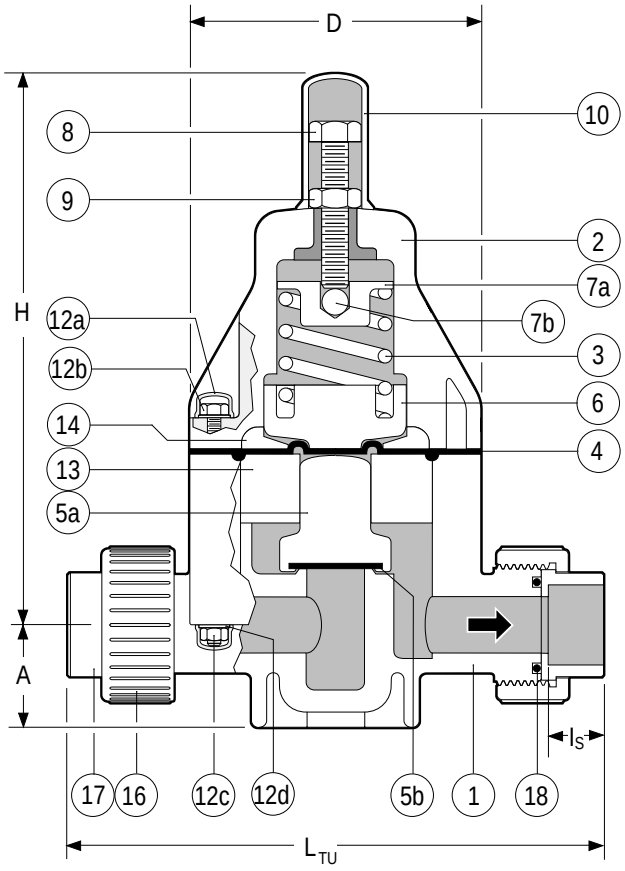


OPTIONAL PRESSURE GAUGE

- For inlet and/or outlet



SB 12 Relief Valves 1/2" to 2"



True Union Body

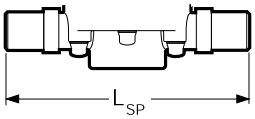
PARTS

▲ Recommended Spare Parts

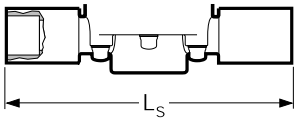
No.	Part	Pcs.	Materials
1	Body	1	PVC, PP, PVDF
2	Bonnet	1	PPG
3	Spring	1	304 SS
4▲	Control Diaphragm	1	Teflon® PTFE bonded EPDM
5a▲	Piston	1	PVC, PP, PVDF
5b▲	Seat	1	EPDM, Viton
6	Lower Spring Retainer	1	PPG
7a	Upper Spring Retainer	1	Cad Plated Steel
7b	Ball	1	304 SS
8	Spring Tensioning Bolt	1	304 SS
9	Lock Nut	1	304 SS
10	Spring Bolt Cap	1	PE
12a	Bolt/Nut Cap	8/12*	PE
12b	Hex Bolt	4/6*	304 SS
12c	Hex Nut	4/6*	304 SS
12d	Washer	8/12*	304 SS
13	Spacer Disc	1	PVC, PP, PVDF
14	Pressure Plate	1	PP
16	Union Nut	2	PVC, PP, PVDF
17	End Connector	2	PVC, PP, PVDF
18▲	Face O-Ring	2	EPDM,Viton

* 1/2" size / 3/4" to 2" sizes

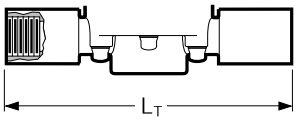
NON UNION ENDS



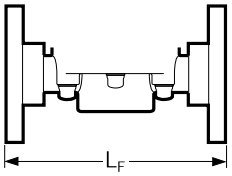
Spigot Body



Socket



Threaded



Flanged

DIMENSIONS INCHES

WEIGHTS LB

C_V VALUES

Size	D	H	PVC A	PVC l_S	PVC L_{TU}†	PVC L_{SP}*	PVC L_S	PVC L_T	PVC L_F	PP and PVDF A	PP and PVDF L_{SP} *	PP and PVDF L_{TU}†	PVC	PP	PVDF	USGPM Flow at 1 psi ΔP
3/8"	3.2	6.9	1.0	0.6	6.5	5.7	7.4	7.2	4.5	0.9	5.7	**	1.8	1.5	2.2	2.1
1/2"	3.2	6.9	1.0	0.6	6.8	5.7	8.0	7.8	6.3	0.9	5.7	7.1	1.9	1.6	2.4	3.0
3/4"	4.2	8.0	1.5	0.7	8.3	6.9	9.3	8.9	7.4	1.4	6.9	8.4	4.1	3.5	4.6	6.6
1"	4.2	8.0	1.5	0.9	8.5	6.9	9.6	9.3	7.4	1.4	6.9	8.7	4.2	3.5	4.7	8.7
1-1/4"	5.8	10.3	2.2	1.0	10.9	8.8	11.6	11.2	9.2	2.1	8.8	10.9	11.0	9.0	12.0	18.0
1-1/2"	5.8	10.3	2.2	1.2	11.1	8.8	12.2	11.5	9.5	2.1	8.8	11.2	11.2	9.2	12.2	20.0
2"	5.8	10.3	2.2	1.5	11.3	9.6	12.9	12.0	10.0	2.1	8.8	13.2	11.4	9.4	12.4	21.4

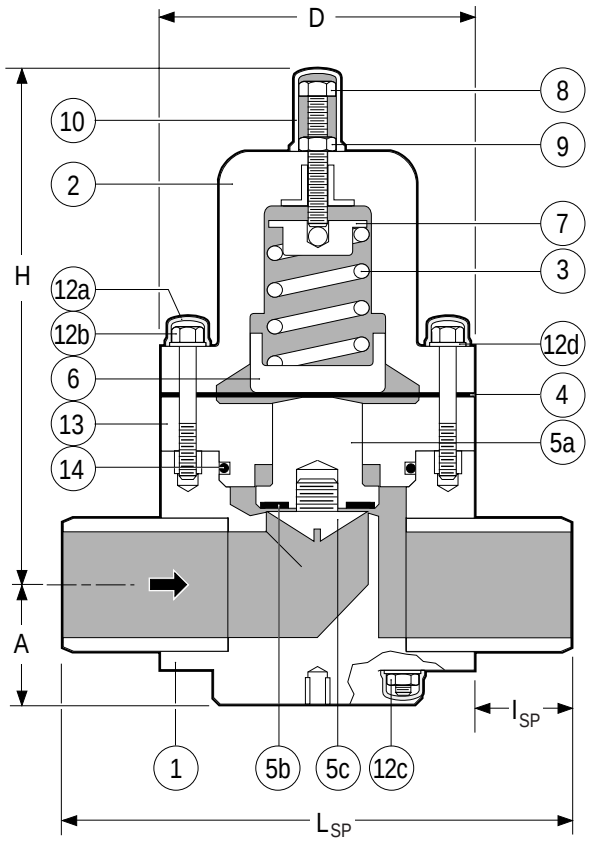
† True Union bodies come standard with socket ends. Threaded union ends are available.
* Spigot bodies are used for non union socket, threaded or flanged ends. All spigot ends have DIN dimensions and the PP and PVDF spigots butt fuse directly to Chemline PP and PVDF piping. ** Consult Chemline.

MAXIMUM PRESSURES PSI

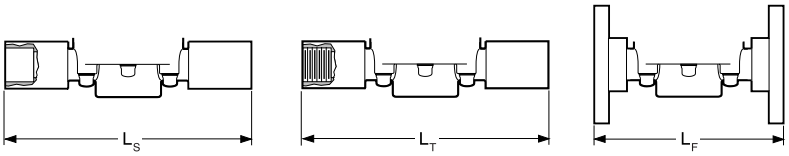
Size	PVC 20°C 68°F	PVC 30°C 86°F	PVC 40°C 104°F	PVC 50°C 122°F	PP 30°C 86°F	PP 40°C 104°F	PP 50°C 122°F	PP 60°C 140°F	PP 70°C 158°F	PVDF 30°C 86°F	PVDF 50°C 122°F	PVDF 70°C 158°F	PVDF 80°C 176°F	PVDF 90°C 194°F	PVDF 100°C 212°F
1/2"- 2"	150	105	60	15	150	90	60	37.5	15	150	100	60	45	30	15

Temperature Ranges: PVC 0 to 50°C (32 to 122°F), **PP** –20 to 70°C (–4 to 158°F), **PVDF** –40 to 100°C (–40 to 212°F).

SB 12 Relief Valves 2-1/2" to 4"



Spigot Body



Socket Threaded Flanged

PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
1	Body	1	PVC, PP, PVDF
2	Bonnet	1	PPG
3	Spring	1	304 SS
4▲	Control Diaphragm	1	Teflon® PTFE bonded EPDM
5a▲	Piston	2	PVC, PP, PVDF
5b▲	Seat	1	EPDM, Viton
5c▲	Seat Retainer	1	PVC, PP, PVDF
6	Lower Spring Retainer	1	PPG
7	Upper Spring Retainer	1	304 SS
8	Spring Tensioning Bolt	1	304 SS
9	Lock Nut	1	304 SS
10	Spring Bolt Cap	1	PE
12a	Hex Bolt/Nut Cap	20	PE
12b	Hex Bolt/Stud	12*	304 SS
12c	Hex Nut	20	304 SS
12d	Washer	20	304 SS
13	Spacer Disc	1	PVC, PP, PVDF
14	Spacer O ring	1	EPDM, Viton

*2 large upper bolts, 2 shorter lower bolts, 8 studs.

DIMENSIONS INCHES

WEIGHTS LB

C_V VALUES

Size	A	D	H	PVC L_S	PVC L_T	PVC L_F	PP and PVDF l_{SP}	PP and PVDF L_{SP}*	PVC	PP	PVDF	USGPM Flow at 1 psi ΔP
2-1/2"	2.7	6.9	11.1	14.5	14.0	10.9	2.1	11.2	20.9	15.4	24.6	41
3"	3.0	7.9	12.2	16.0	15.5	12.2	3.1	14.2	26.4	23.8	30.8	63
4"	3.7	9.8	14.2	–	–	13.8	3.3	16.5	33.0	26.4	37.4	98

* All spigot ends have DIN dimensions and the PP and PVDF spigots may be butt fused directly to Chemline PP and PVDF piping systems.

ORDERING EXAMPLE

Chemline Back Pressure/Relief Valve	**SB12**	**A**	**005**	**V**	**U**
Body Material	**A** - PVC	**B** - PP	**K** - PVDF		
Size	**003** - 3/8" **010** - 1" **020** - 2"	**005** - 1/2" **012** - 1-1/4" **025** - 2-1/2"	**007** - 3/4" **015** - 1-1/2" **030** - 3"	**040** - 4"	
Elastomers	**E** - EPDM	**V** - Viton			
Ends	**S** - Socket **U** - Union Socket	**T** - Threaded	**F** - Flanged **Blank** - Spigot (Butt)		

Example: Chemline SB 12 Series, PVC, 1/2" diameter, Viton seals, Union socket ends.

OPTIONS

- 4 to 60 psi Pressure Range springs for 2-1/2" to 4" valves
- **Integral Pressure Gauge** – for inlet and/or outlet
- Bodies in 316 Stainless Steel and Teflon® PTFE