

SR50 Series Pressure Regulating (Reducing) Valves



SERIES: SR50

SIZES: 3/8" to 3"

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

DIAPHRAGM: PTFE Bonded EPDM

SEALS: EPDM, FKM (Viton®)

CRN
Registered
as Category C Fittings
Consult Chemline



Spring Tensioning Bolt

True Union Ends
Easy installation and maintenance



Optional Pressure Gauge
For inlet and/or outlet



ChemFlare™ Ends
For connection to PFA tube.
Leak-free connections for difficult services such as sodium hypochlorite.

The Chemline SR 50 Series Pressure Regulating (Reducing) valves maintains a set downstream pressure independent of higher variable upstream pressures. As downstream pressure increases reaching the set pressure, the valve closes. It opens as soon as the downstream pressure decreases below set pressure.

The SR 50 is sensitive and provides precise control. One application is to protect filters from damaging pressure surges.

Features

True Union Ends

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

Long Cycling Life

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

Designed for Superior Performance

- Designed for minimum hysteresis
- Seat is hydraulically designed to eliminate chatter

Technical

Downstream Set Pressure Ranges

- 1/2" to 2" – 15 to 130 psi
- 2-1/2" and 3" – 15 to 90 psi

Maximum Viscosity

- 120cP is maximum recommended service viscosity

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

Pressure Regulating (Reducing) Valves



How They Work

The SR50 controls downstream pressure, which must always be below the inlet pressure. It is normally open until the downstream pressure (which acts on the control diaphragm) reaches the set pressure, adjustable with the spring tensioning bolt. At this point the valve closes. It opens again as soon as downstream pressure decreases slightly below the set pressure.

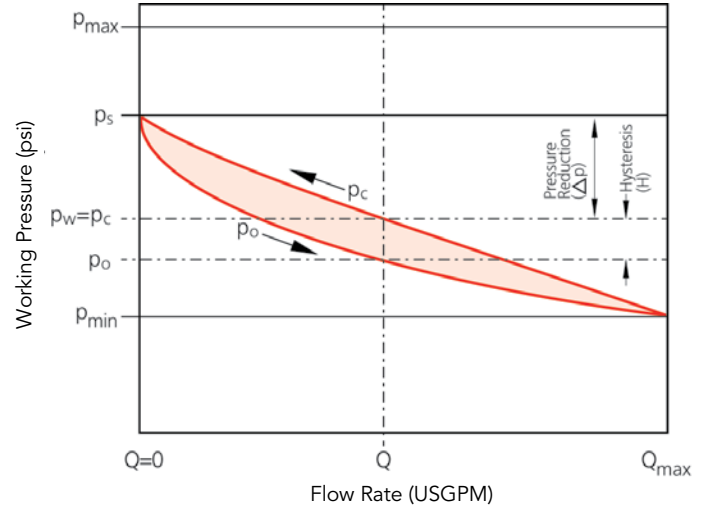
The large diaphragm provides for sensitive and precise control. The valve seat opens and closes until a balance is achieved between the spring force (set pressure) and the downstream pressure.

Working Pressure vs. Flow Rate

The curves show the relationship between the *working pressure* and the flow rate through the valve for water at 20°C (68°F). 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 (68°F)
- whether the pressure is rising or falling, *hysteresis* is approximately 1.5 to 6 psi.

configuration example

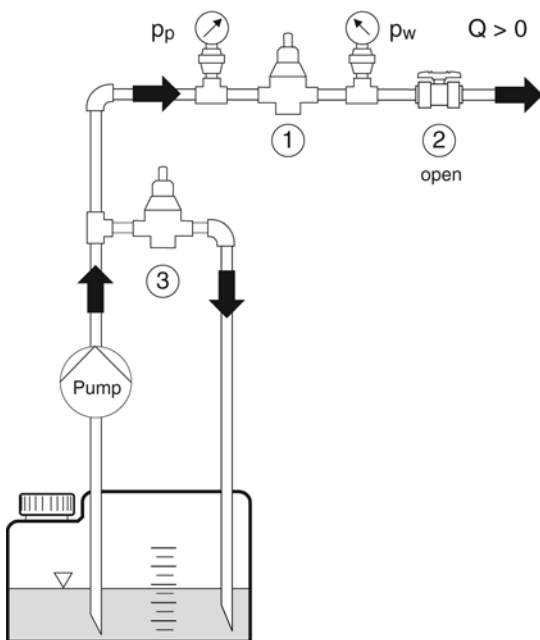


- p_s = set pressure
- p_w = working pressure
- p_o = opening pressure
- p_c = closing pressure
- p_p = pump pressure
- $H = p_o - p_c = \text{hysteresis}$
- $\Delta p = p_w - p_s = \text{flow dependent pressure reduction}$
- $Q = \text{flow}$

Application of Pressure Regulating Valves

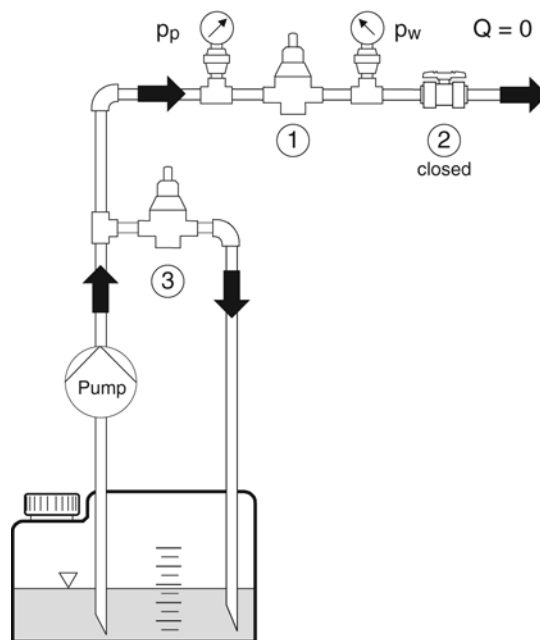
Secondary Pressure – System Dynamically Flowing

If the ball valve is closed, the working pressure P_w rises by the amount of the closing pressure P_c



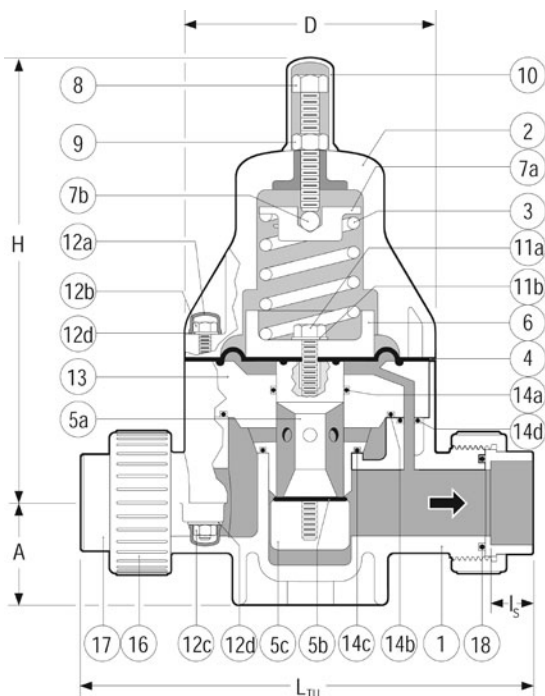
Secondary Pressure – System Closed

If the ball valve is opened, the working pressure P_w drops by the amount of the opening pressure P_o



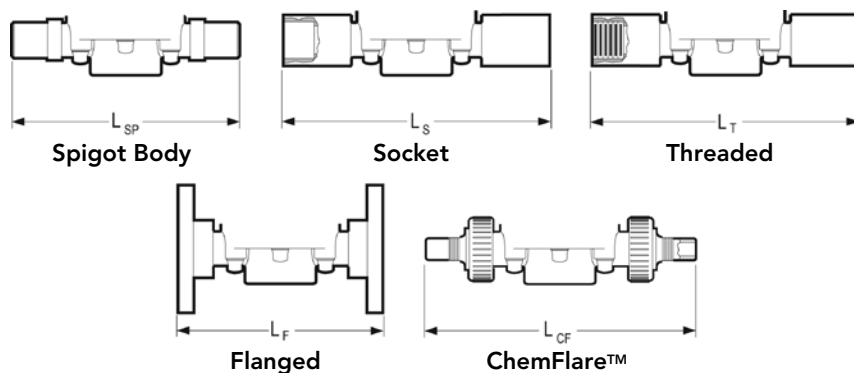
- ① = pressure reducing valve
- ② = ball valve
- ③ = pressure relief valve

Pressure Regulating (Reducing) Valves 3/8" to 2"



True Union Body

OTHER ENDS



PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
1	Body	1	PVC, PP, PVDF
2	Bonnet	1	PPG
3	Spring	1	Galvanized Steel
4▲	Control Diaphragm	1	PTFE bonded EPDM
5a▲	Piston	1	PVC, PP, PVDF
5b▲	Seat	1	EPDM, FPM(Viton®)
5c▲	Seat Retainer	1	PVC, PP, PVDF
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
11a	Piston Bolt	1	304 SS
11b	Piston Bolt Washer	1	304 SS
12a	Bolt/Nut Caps	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
13	Piston Guide	1	PVC, PP, PVDF
14a▲	Small Guide O-Ring	1	EPDM, FPM(Viton®)
14b▲	Large Guide O-Ring	1	EPDM, FPM(Viton®)
14c▲	Med. Guide O-Ring	1	EPDM, FPM(Viton®)
14d▲	Pilot Port O-Ring	1	EPDM, FPM(Viton®)
16	Union Nut	2	PVC, PP, PVDF
17	End Connector	2	PVC, PP, PVDF
18▲	Face O-Ring	2	EPDM, FPM(Viton®)

¹1/2" size / ³3/4" to 2" sizes.

DIMENSIONS INCHES

WEIGHTS LB.

Size	D	H	PVC								PP and PVDF			PVC	PP	PVDF
			A	L _s	L _{TU} ²	L _{SP} ³	L _s	L _T	L _F	L _{CF}	A	L _{SP} ³	L _{TU} ²			
3/8"	3.2	6.9	1.0	0.6	6.5	5.7	7.4	7.2	-	-	0.9	5.7	**	1.8	1.5	2.2
1/2"	3.2	6.9	1.0	0.6	6.8	5.7	8.0	7.8	6.3	8.3 ⁴	0.9	5.7	7.1	1.9	1.6	2.4
3/4"	4.2	8.0	1.5	0.7	8.3	6.9	9.3	8.9	7.4	9.7	1.4	6.9	8.4	4.1	3.5	4.6
1"	4.2	8.0	1.5	0.9	8.5	6.9	9.6	9.3	7.4	10.2	1.4	6.9	8.7	4.2	3.5	4.7
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
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
2"	5.8	10.3	2.2	1.5	11.3	9.6	12.9	12.0	10.0	-	2.1	9.6	13.2	11.4	9.4	12.4

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

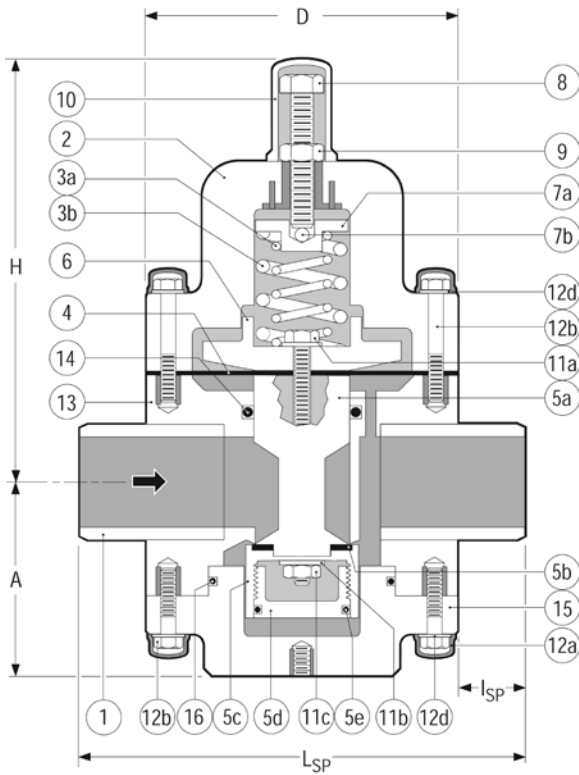
³ Spigot bodies are used for non union socket, threaded or flanged ends. All spigot ends have metric dimensions and the PP and PVDF spigots butt fuse directly to Chemline PP and PVDF piping. ⁴ Tube size can be reduced to 1/4" tube, LCF = 7.74" for 1/4", 8.26" for 3/8".

MAXIMUM PRESSURES PSI

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

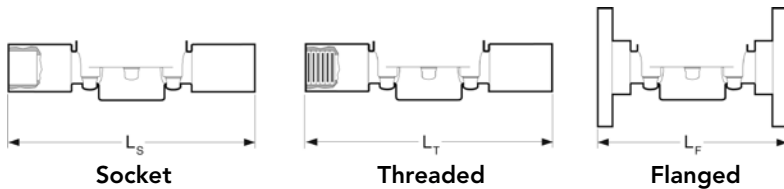
Temperature Ranges: PVC 0 to 50°C (32 to 122°F), PP 10 to 70°C (50 to 158°F), PVDF -30 to 100°C (-22 to 212°F).

Pressure Regulating (Reducing) Valves 2-1/2", 3"



Spigot Body

NON UNION ENDS



PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
1	Body	1	PVC, PP, PVDF
2	Bonnet	1	PPG
3a/3b	Spring Set	2	Galvanized Steel
4▲	Control Diaphragm	1	PTFE bonded EPDM
5a▲	Piston	1	PVC, PP, PVDF
5b▲	Seat	1	EPDM, FPM(Viton®)
5c▲	Seat Retainer	1	PVC, PP, PVDF
5d▲	Retainer Plug	1	PVC, PP, PVDF
5e▲	Plug O-Ring	1	EPDM, FPM(Viton®)
6	Lower Spring Retainer	1	PPG
7a	Upper Spring Retainer	1	Cad. Plated Steel
7b	Ball	1	304 SS
8	Tensioning Bolt	1	304 SS
9	Lock Nut	1	304 SS
10	Spring Bolt Cap	1	PE
11a	Piston Bolt	1	304 SS
11b	Piston Bolt Washer	1	304 SS
11c	Piston Nut	1	304 SS
12a	Bolt/Nut Cap	20	PE
12b	Bolt/Stud Set	12 ¹	304 SS
12c	Hex Nut	16	304 SS
12d	Washer	20	304 SS
13	Piston Guide	1	PVC, PP, PVDF
14▲	Guide O-Ring	1	EPDM, FPM(Viton®)
15	Base	1	PVC, PP, PVDF
16	Base O-Ring	1	EPDM, FPM(Viton®)

¹2 large upper bolts, 2 shorter lower bolts, 8 studs

DIMENSIONS INCHES

WEIGHTS LB.

Size	PVC, PP & PVDF					PVC			PVC	PP	PVDF
	A	D	H	L _{SP} ²	L _{SP}	L _S	L _T	L _F			
2-1/2"	4.8	7.7	10.4	11.2	1.7	14.5	14.0	12.2	27.5	26.2	31.0
3"	5.6	9.8	13.4	14.2	2.2	16.0	15.5	15.0	33.0	29.7	37.8

² Plain spigot ends in PP and PVDF may be butt fused directly to Chemline PP and PVDF piping systems.

Weights based on spigot bodies.

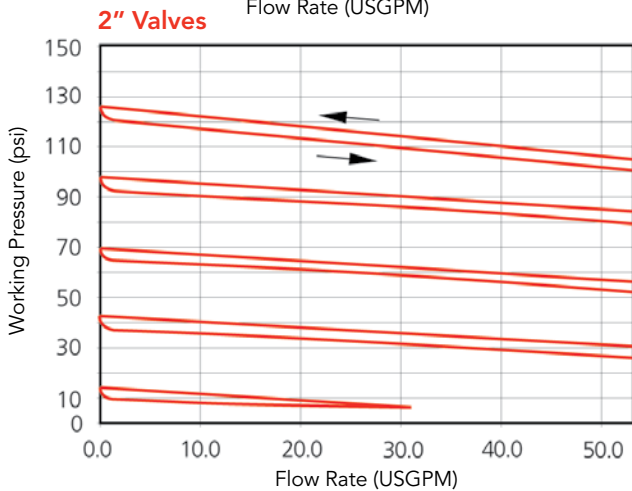
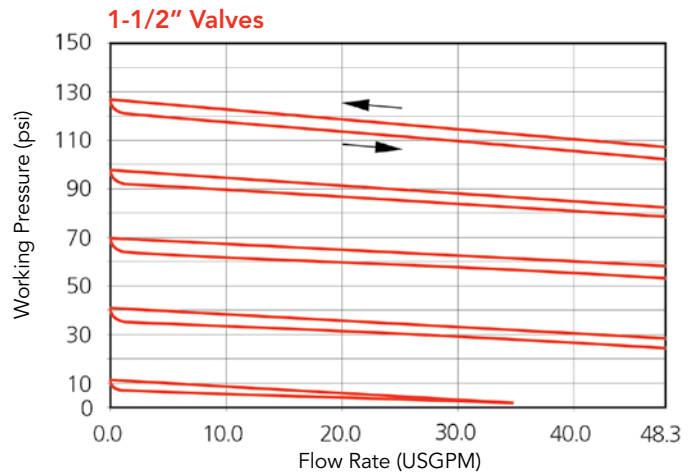
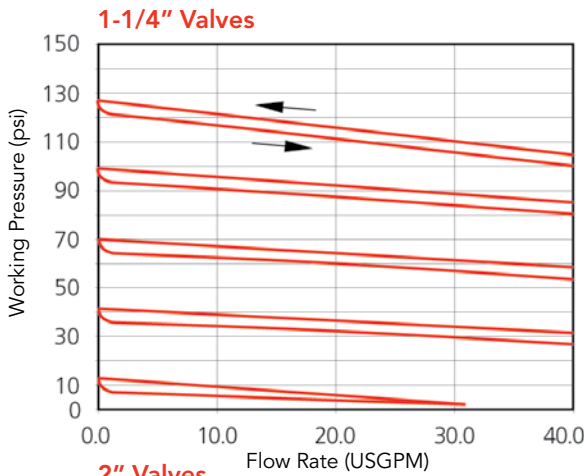
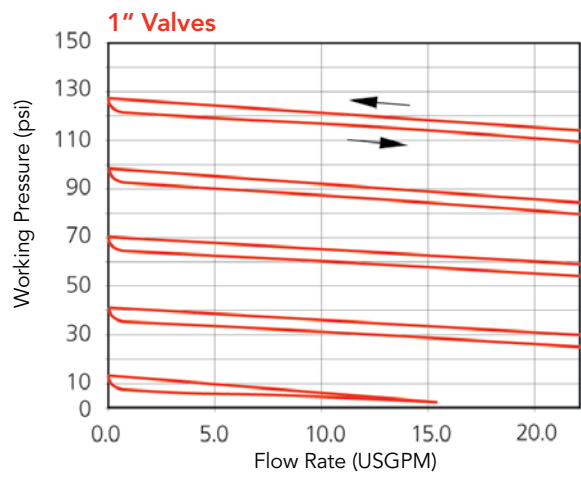
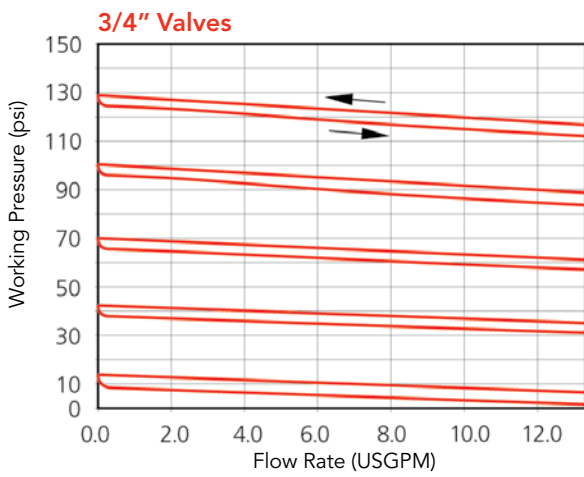
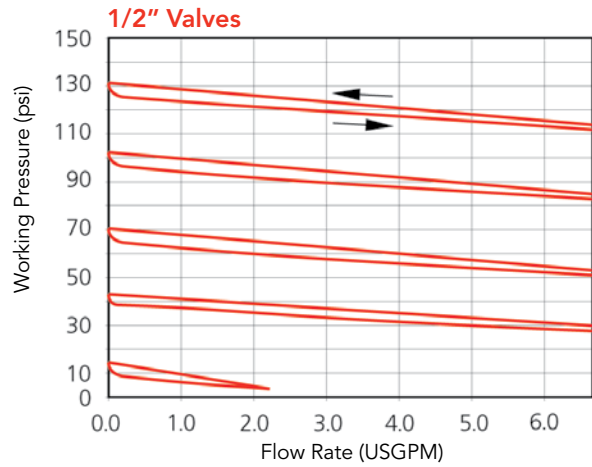
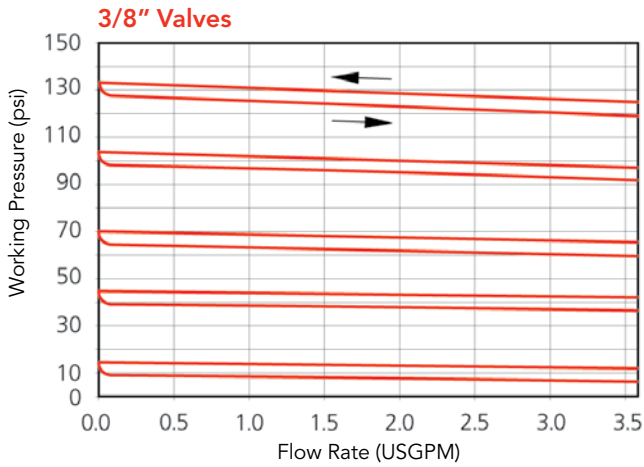
ORDERING EXAMPLE

Chemline Pressure Regulating Valves					for ChemFlare™ ends only			all other ends		
SR50	A	005	V	-A	8N	-1				
Body Material	A - PVC	B - PP	K - PVDF							
Size	003 - 3/8"	005 - 1/2"	007 - 3/4"	010 - 1"	012 - 1-1/4"					
	015 - 1-1/2"	020 - 2"	025 - 2-1/2"	030 - 3"						
Elastomers	E - EPDM	V - FPM (Viton®)								
ChemFlare™ End Connectors for valves 3/8" to 1-1/4"										
Material	A - PVC	B - PP	C - CPVC	K - PVDF						
Tube Size ³	4N - 1/4"	6N - 3/8"	8N - 1/2"	12N - 3/4"	16N - 1"	20N - 1-1/4"				
Tube Nut	-1 - includes nut		Blank - without nut							
Ends	S - Socket	T - Threaded	F - Flanged	U - Union Socket	Blank - Spigot (Butt)					

Example: Chemline SR50 Series, PVC, 1/2" diameter, FPM (Viton®) seals, PVC ChemFlare™ end connectors, 1/2" tube size, including nuts.

³ Tube size must be equal or smaller than the valve size.

Pressure Regulating (Reducing) Valves 3/8" to 2"



Pressure Regulating (Reducing) Valves 2-1/2", 3"



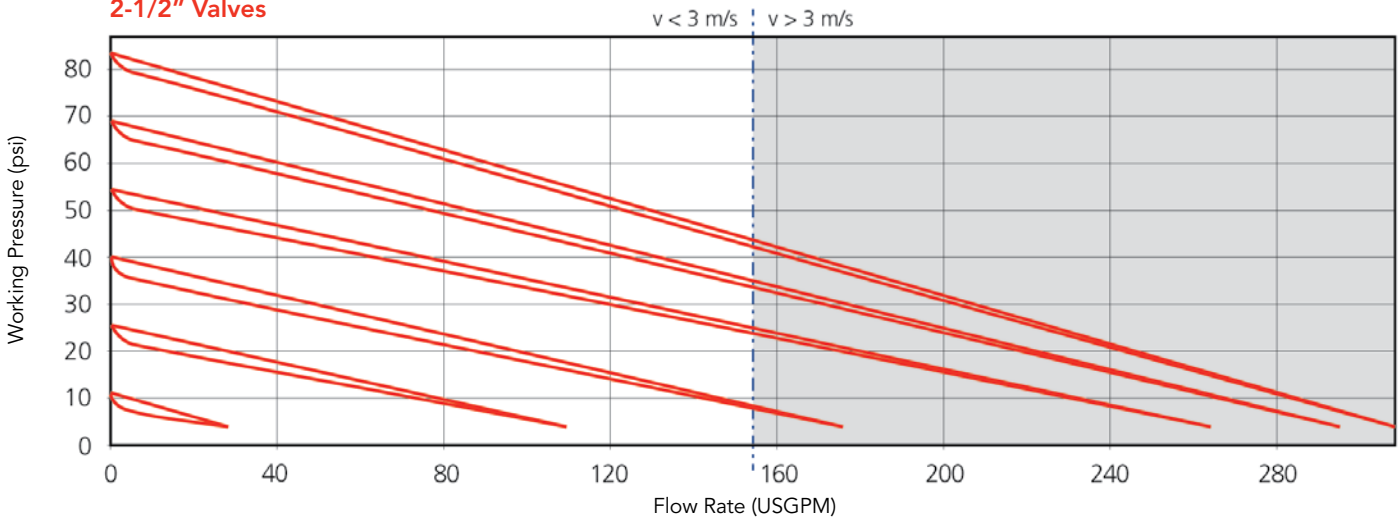
MAXIMUM PRESSURES PSI

Size	PVC				PP						PVDF					
	20°C 68°F	30°C 86°F	40°C 104°F	50°C 122°F	20°C 68°F	30°C 86°F	40°C 104°F	50°C 122°F	60°C 140°F	70°C 158°F	30°C 86°F	50°C 122°F	70°C 158°F	80°C 176°F	90°C 194°F	100°C 212°F
2-1/2"–3"	150	90	45	15	150	115	90	60	37.5	15	150	95	55	35	25	15

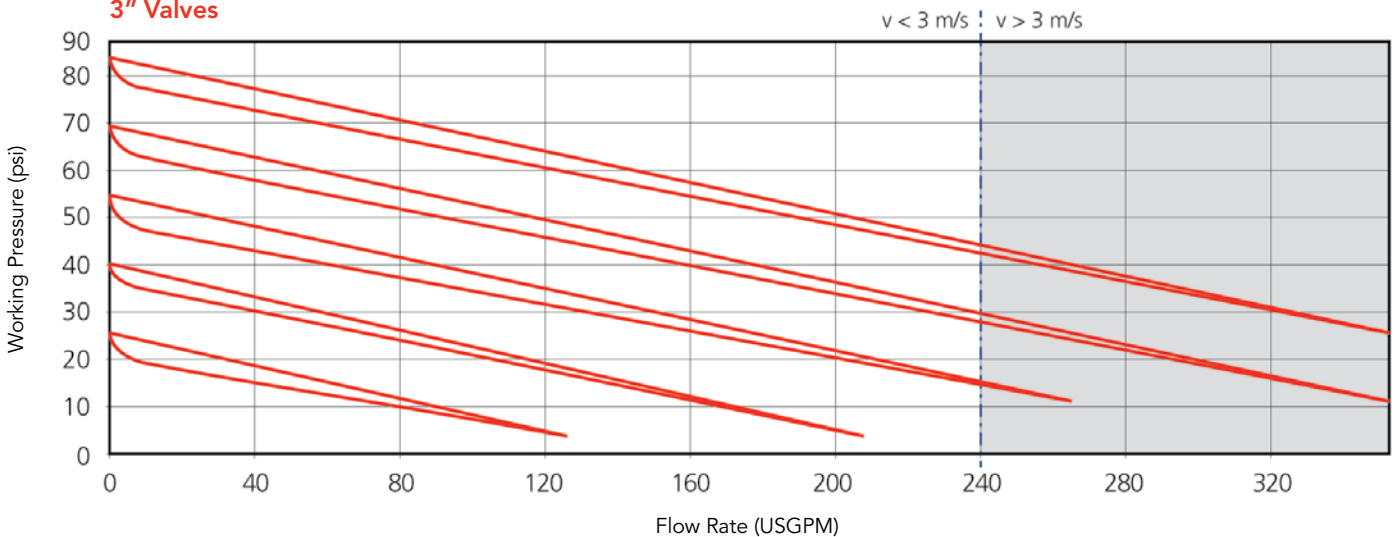
Temperature Ranges: PVC 0 to 50°C (–32 to 122°F), PP 10 to 70°C (50 to 158°F), PVDF –30 to 100°C (–22 to 212°F).

Working Pressures vs. Flow Rate

2-1/2" Valves



3" Valves



SAMPLE SPECIFICATION – SR50 SERIES

- All Pressure Reducing/Regulating valves in PVC, PP or PVDF shall be Chemline SR50 Series or equal. Sizes 1/2" to 1-1/2" shall have an outlet pressure setting of 15 to 135 psi and sizes 2" to 3" shall have an outlet pressure setting of 15 to 90 psi.
- Static seals shall be FKM (Viton®) OR EPDM.
- Control diaphragm will be PTFE covered.
- Exposed fasteners will be 304 SS.
- Socket ends shall be Schedule 80 and conform to ASTM D-2467.
- Threaded ends shall be Schedule 80 and conform to ASTM D-2464.
- ChemFlare™ ends will be compatible with Chemline's ChemFlare™ Leak-Free tubing system.
- PP or PVDF Butt or Socket fusion ends in will be compatible with Chemline PP or PVDF metric piping systems.
- Flanged ends shall be ANSI Class 150.
- Every valve will undergo a factory hydrostatic pressure test to assure quality.
- All valves shall have labels permanently marked with manufacturing number to provide production level traceability.

SR50 Series.DS.11.03.23