Models 106-PR-S / 206-PR-S Pressure Reducing Valve with Downstream Surge Protection

106-PR-S Globe

KEY FEATURES

- Excellent low flow stability
- Automatically reduces downstream surges during sudden demand reductions
- Easily and precisely set downstream pressure

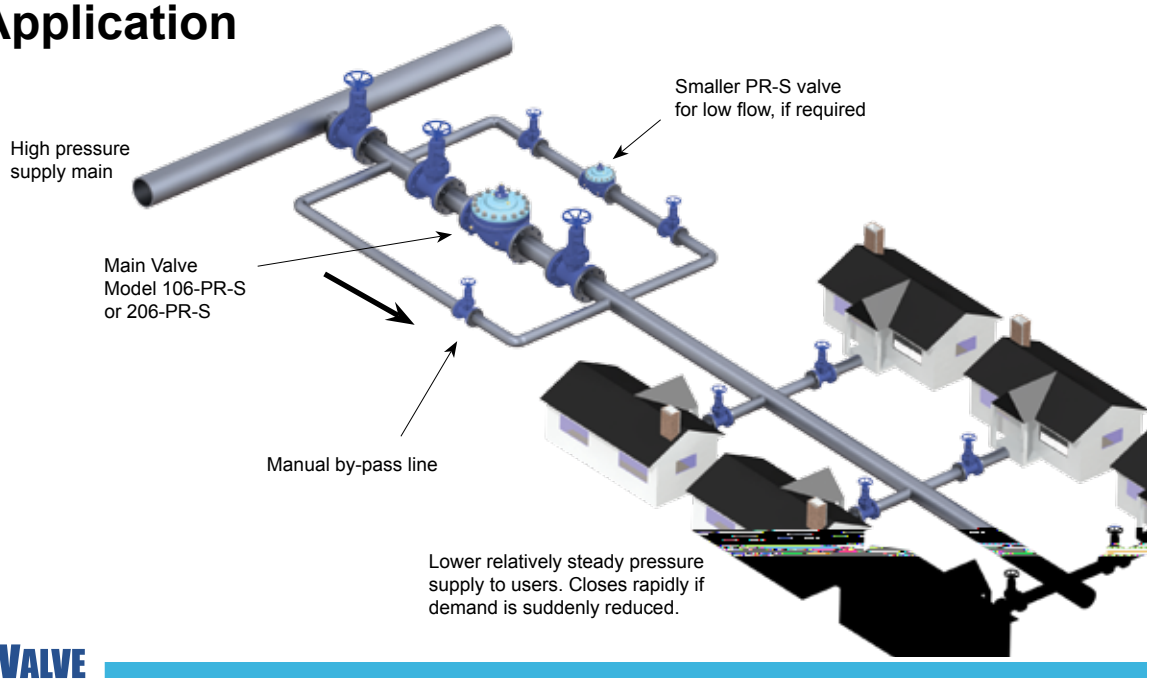
Product Overview

The 106-PR-S and 206-PR-S pressure reducing valves with downstream surge control are based on the 106-PG or 206-PG main valve.

Pressure reducing pilot valve senses the downstream pressure through a connection at the valve outlet. Under flowing conditions, the pilot reacts to small changes in pressure to control the valve position by modulating the pressure above the diaphragm. The downstream pressure is maintained relatively steady at the pilot set-point.

The surge pilot senses the downstream pressure. If the pressure rises above the pressure reducing pilot setting and reaches the surge pilot setting, the surge pilot opens in order to close the main valve rapidly.

Typical Application



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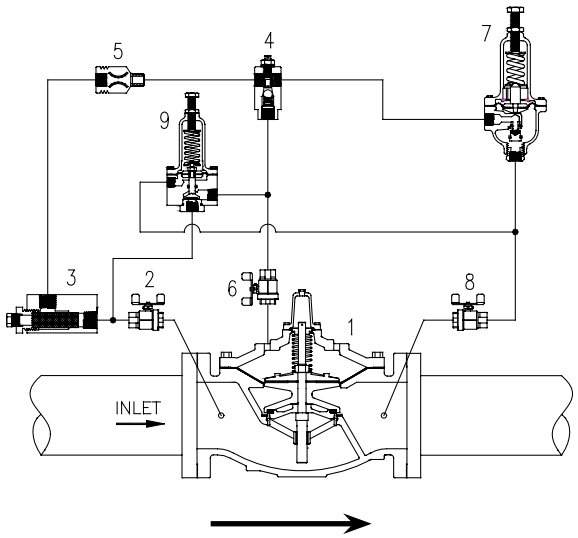
Schematic Drawing



Schematic A-0336D

1. Main Valve 106-PG or 206-PG
2. Isolation Valve - standard 4 in / 100 mm and larger
3. Strainer - standard 4 in / 100 mm and larger
4. Model 26 Flow Stabilizer (sizes 8 in / 200 mm 106, 10 in / 250 mm 206 and smaller)
5. Fixed Restriction
6. Isolation Valve - standard 4 in / 100 mm and larger
7. Model 160 pilot
   - Specify for 5 to 50 psi / 0.35 to 3.5 bar, 10 to 80 psi / 0.70 to 5.5 bar, 20 to 200 psi / 1.3 to 13.8 bar, 100 to 300 psi / 6.9 to 20.7 bar.
8. Isolation Valve - standard all sizes
9. Model 81 RP Surge Pilot - standard spring 20 to 200 psi / 1.38 to 13.8 bar -specify for 5 to 50 psi / 0.35 to 3.5 bar, 10 to 80 psi / 0.7 to 5.5 bar, 100 to 300 psi / 6.9 to 20.7 bar.

Standard Materials

Standard materials for pilot system components are:

- ASTM B62 bronze or ASTM B16 brass
- AISI 303/316 stainless steel trim
- Buna-N / EPDM diaphragm and seals

Specifications

- The valve shall be a Singer Valve model 106-PR-S / 206-PR-S, size "_____", ANSI Class 150 (ANSI 300, ANSI flanges drilled to ISO PN 10 / 16 / 25 or 40) pressure rating / flange standard, globe (angle), style valve. The Model 160 Pressure Reducing (Normally Open Pilot) spring range shall be "___ to ___" psi / "___ to ___" bar, with set-point preset at Singer Valve to "___" psi / "___" bar. The Model 81-RP Pressure Relief Pilot (Normally Closed Pilot) spring range shall be "___ to ___" psi / "___ to ___" bar, with set-point preset at Singer Valve to "___" psi / bar. Assembly shall be according to Schematic A-0336D.
- The valve shall maintain relatively accurate control of the downstream pressure regardless of fluctuation in flow or upstream pressure. The downstream surge control increases the closing speed of the valve to help the valve maintain control when demand is reduced suddenly.
- Refer to Main Valve section, 106-PG or 206-PG for detailed information pertaining to valve sizes and materials, selection criteria and specifications.
- Refer to Pilot and Accessories section, Model 160 Pressure Reducing Pilot (Normally Open Pilot), Model 81-RP Pressure Relief Pilot (Normally Closed Pilot) and Model 26 Flow Stabilizer for detailed information pertaining to materials and specifications.

Models 106-PR-S / 206-PR-S Pressure Reducing Valve with Downstream Surge Protection

Selection Summary

1. Select the valve series and size with sufficient capacity
2. Check the operating flow against valve minimum.
3. Surge pilot typically set 5 psi / 0.35 bar higher than reducing pilot.
4. If the outlet pressure is less than 35% of the inlet pressure, check for cavitation.
5. Ensure that the flange rating exceeds the maximum operating pressure.

Ordering Instructions

Refer to page 293 for the order form and ordering instructions.

Additionally, include the following information for this product:

1. Full port (106) or reduced port (206)
2. Pilot ranges

106-PR-S	**Flow Capacity** (See 106-PG in Main Valve section for other valve data)								
Size (inches)	1/2 in	3/4 in	1 in	1-1/4 in	1-1/2 in	2 in	2-1/2 in	3 in	4 in
Size (mm)	15 mm	19 mm	25 mm	32 mm	40 mm	50 mm	65 mm	80 mm	100 mm
Minimum (USGPM) Flat Diaphragm	1	1	1	1	1	5	5	5	10
Minimum (L/s) Flat Diaphragm	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.6
Maximum Continuous (USGPM)	12	19	49	93	125	210	300	460	800
Maximum Continuous (L/s)	0.8	1	3	6	8	13	19	29	50

106-PR-S	**Flow Capacity** (See 106-PG in Main Valve section for other valve data)								
Size (inches)	6 in	8 in	10 in	12 in	14 in	16 in	20 in	24 in	36 in
Size (mm)	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	500 mm	600 mm	900 mm
Minimum (USGPM) Flat Diaphragm	20	40	-	-	-	-	-	-	-
Minimum (USGPM) Rolling Diaphragm	1	1	3	3	3	3	10	10	20
Minimum (L/s) Flat Diaphragm	1.3	2.5	-	-	-	-	-	-	-
Minimum (L/s) Rolling Diaphragm	0.1	0.1	0.2	0.2	0.2	0.2	0.6	0.6	1.3
Maximum Continuous (USGPM)	1800	3100	4900	7000	8500	11000	17500	25800	55470
Maximum Continuous (L/s)	114	196	309	442	536	694	1104	1628	3500

206-PR-S	**Flow Capacity** (See 206-PG in Main Valve section for other valve data)								
Size (inches)	3 in	4 in	6 in	8 in	10 in	12 in	16 in	18 in	20 in
Size (mm)	80 mm	100 mm	150 mm	200 mm	250 mm	300 mm	400 mm	450 mm	500 mm
Minimum (USGPM) Flat Diaphragm	5	5	10	20	40	-	-	-	-
Minimum (USGPM) Rolling Diaphragm	-	-	-	-	-	3	3	3	3
Minimum (L/s) Flat Diaphragm	0.3	0.3	0.6	1.3	2.5	-	-	-	-
Minimum (L/s) Rolling Diaphragm	-	-	-	-	-	0.2	0.2	0.2	0.2
Maximum Continuous (USGPM)	300	580	1025	2300	4100	6400	9230	16500	16500
Maximum Continuous (L/s)	19	37	65	145	259	404	582	1041	1041

206-PR-S	**Flow Capacity** (See 206-PG in Main Valve section for other valve data)						
Size (inches)	24 x 16 in	24 x 20 in	28 in	30 in	32 in	36 in	40 in
Size (mm)	600 mm	600 mm	700 mm	750 mm	800 mm	900 mm	1000 mm
Minimum (USGPM) Rolling Diaphragm	3	3	10	10	10	10	20
Minimum (L/s) Rolling Diaphragm	0.2	0.2	0.6	0.6	0.6	0.6	1.3
Maximum Continuous (USGPM)	16500	21700	33600	33650	33700	33800	62000
Maximum Continuous (L/s)	1040	1370	2120	2123	2126	2132	3912