

MODELS 106-PR-SM / 206-PR-SM PRESSURE REDUCING CONTROL VALVE WITH INTEGRAL BACK-UP

KEY FEATURES

- Ideal for applications where failure is not an option
- Includes a back-up system to protect against diaphragm or pilot failure
- Reduces requirement for immediate service
- Provides downstream surge protection



PRODUCT OVERVIEW

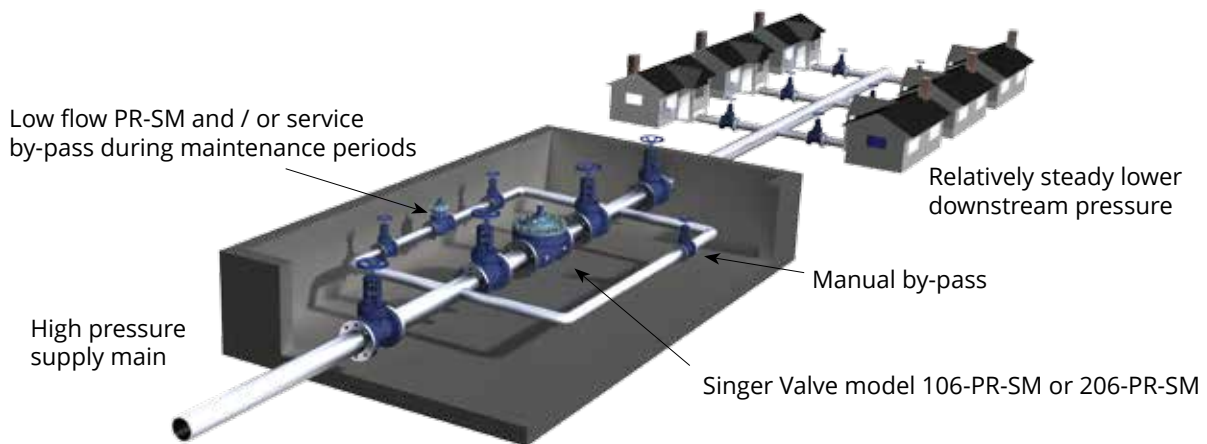
The 106-PR-SM and 206-PR-SM series control valves are engineered to be used anywhere pressure reducing valve failure is unacceptable. These valves have a second and independent operating system superimposed upon the standard primary system. With the assurance of a back-up system, maintenance schedules may be extended as pressures will continue to be controlled even in the event of failure with the primary system.

Under normal pressure reducing conditions, the primary pilot 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 in the lower operating chamber. The downstream pressure is maintained virtually steady at the pilot set-point that is adjustable.

Should the primary pilot system and / or main valve fail to control the downstream pressure, the independent back-up pilot system will begin to operate. It controls the pressure above the diaphragm in the second operating chamber. The back-up pilot is set slightly higher than the primary pilot. The forces now operating in the top chamber assume control of the inner valve assembly and maintain pressure reducing control. During back-up operation only, there is a small (1 USGPM / 0.063 L/s) continuous discharge that should be taken to drain.

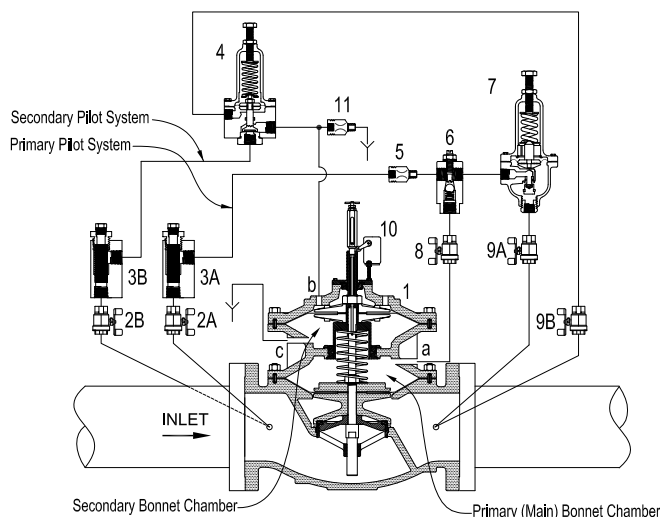
The secondary pilot continually senses the downstream pressure. Should there be a rapid rise in downstream pressure for any reason, the secondary pilot will respond quickly, and will pressurize the top chamber. This will compliment the primary pressure reducing controls and provide faster response.

TYPICAL APPLICATION



SCHEMATIC DRAWING

1. Main Valve - 106-PGM or 206-PGM
- 2, 8, 9. Isolation Valves - (2A, 2B, 8, 9A, 9B)
3. Strainer - 40 mesh stainless steel screen (3A, 3B)
4. Model 81-RP Pilot (Back-up)
- 5, 11. Fixed Restriction
6. Model 26 Flow Stabilizer (sizes 8 in / 200 mm 106, 10 in / 250 mm 206 and smaller is included)
7. Model 160 PR Pilot (Primary)
10. Limit Switch Assembly - SPDT - Optional



Schematic A-7697D

STANDARD MATERIALS

Standard materials for pilot system components are:
ASTM B-62 bronze or ASTM B-16 brass
AISI 303 / 316 stainless steel trim

SELECTION SUMMARY

1. Select the valve series and size with sufficient capacity
2. Check the operating flow against valve minimum.
3. Provide a smaller valve in parallel to facilitate maintenance and low flow capability, if required.
4. If the outlet pressure is less than 35% of the inlet pressure, check for cavitation.
5. Ensure that the valve and flange working pressure rating exceeds the maximum operating pressure.

ORDERING INSTRUCTIONS

Refer to page 244 for the order form and ordering instructions.

Additionally, include the following information for this product:

1. Single chamber (106) or (206)
2. Outlet pressure range

MODELS 106-PR-SM / 206-PR-SM PRESSURE REDUCING CONTROL VALVE WITH INTEGRAL BACK-UP

| 106-PR-SM | Flow Capacity (See 106-PGM in Main Valve section for other valve data) | | | | | | | | | |
|-----------------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 3 in | 4 in | 6 in | 8 in | 10 in | 12 in | 14 in | 16 in | 20 in | 24 in |
| Size (inches) | 3 in | 4 in | 6 in | 8 in | 10 in | 12 in | 14 in | 16 in | 20 in | 24 in |
| Size (mm) | 80 mm | 100 mm | 150 mm | 200 mm | 250 mm | 300 mm | 350 mm | 400 mm | 500 mm | 600 mm |
| Minimum (USGPM) Flat Diaphragm | 5 | 10 | 20 | 40 | - | - | - | - | - | - |
| Minimum (USGPM) Rolling Diaphragm | - | - | 1 | 1 | 3 | 3 | 3 | 3 | 10 | 10 |
| Minimum (L/s) Flat Diaphragm | 0.32 | 0.63 | 1.26 | 2.52 | - | - | - | - | - | - |
| Minimum (L/s) Rolling Diaphragm | - | - | 0.06 | 0.06 | 0.19 | 0.19 | 0.19 | 0.19 | 0.63 | 0.63 |
| Maximum Continuous (USGPM) | 460 | 800 | 1800 | 3100 | 4900 | 7000 | 8500 | 11000 | 17500 | 25000 |
| Maximum Continuous (L/s) | 29 | 50 | 114 | 196 | 309 | 442 | 536 | 694 | 1104 | 1577 |

| 206-PR-SM | Flow Capacity (See 206-PGM in Main Valve section for other valve data) | | | | | | | | | | | | | |
|-----------------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------------|--------------|--------|--------|--------|--------|
| | 4 in | 6 in | 8 in | 10 in | 12 in | 16 in | 18 in | 20 in | 24 x 16 in | 24 x 20 in | 28 in | 30 in | 32 in | 36 in |
| Size (inches) | 4 in | 6 in | 8 in | 10 in | 12 in | 16 in | 18 in | 20 in | 24 x 16 in | 24 x 20 in | 28 in | 30 in | 32 in | 36 in |
| Size (mm) | 100 mm | 150 mm | 200 mm | 250 mm | 300 mm | 400 mm | 450 mm | 500 mm | 600 x 400 mm | 600 x 500 mm | 700 mm | 750 mm | 800 mm | 900 mm |
| Minimum (USGPM) Flat Diaphragm | 5 | 10 | 20 | 40 | - | - | - | - | - | - | - | - | - | - |
| Minimum (USGPM) Rolling Diaphragm | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 10 | 10 | 10 | 10 |
| Minimum (L/s) Flat Diaphragm | 0.32 | 0.63 | 1.26 | 2.52 | - | - | - | - | - | - | - | - | - | - |
| Minimum (L/s) Rolling Diaphragm | - | - | - | - | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.63 | 0.63 | 0.63 | 0.63 |
| Maximum Continuous (USGPM) | 580 | 1025 | 2300 | 4100 | 6400 | 9230 | 16500 | 16500 | 16500 | 21700 | 33600 | 33650 | 33700 | 33800 |
| Maximum Continuous (L/s) | 37 | 65 | 145 | 259 | 404 | 582 | 1041 | 1041 | 1041 | 1370 | 2120 | 2123 | 2126 | 2132 |