

# Pressure Reducing Control Valve with Integral Back-Up

Technical Guide W4.71

The 106-PR-SM and 206-PR-SM series control valves are engineered to be used anywhere pressure reducing valve failure is not an option. They utilise a second inbuilt 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.



02.25 | W4.71 SINGER PRESSURE REDUCING CONTROL VALVE WITH INTEGRAL BACK-UP

## Applications

Potable water  
Tank level control  
Municipal  
Mining Applications  
Irrigation Applications



**Licence Number:**  
WMK/SMK26726

## Product Attributes

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

## Approvals/Standards

AS 5081:2008  
Flanges to AS/NZS 4087 Fig. B5  
Coating complies with AS/NZS 4158

## Quality

ISO 9001:2015 Quality Management Systems

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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.

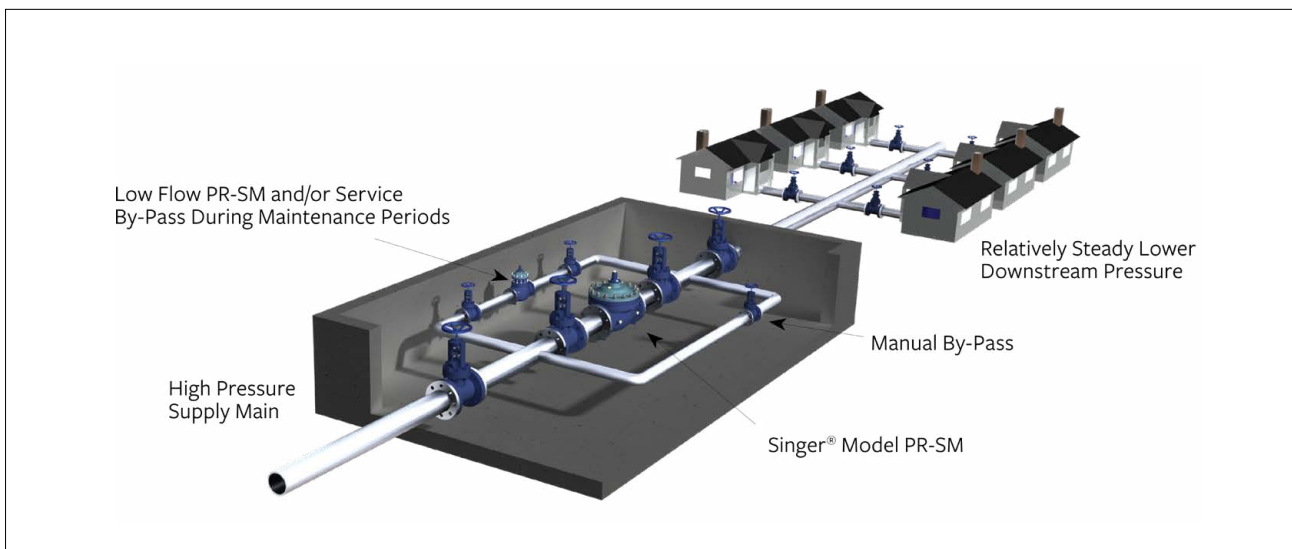


FIG. 1 Typical application

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 ( 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 pressurise the top chamber. This will complement the primary pressure reducing controls and provide faster response.

## 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 the order form and ordering instructions.

Additionally, include the following information for this product:

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

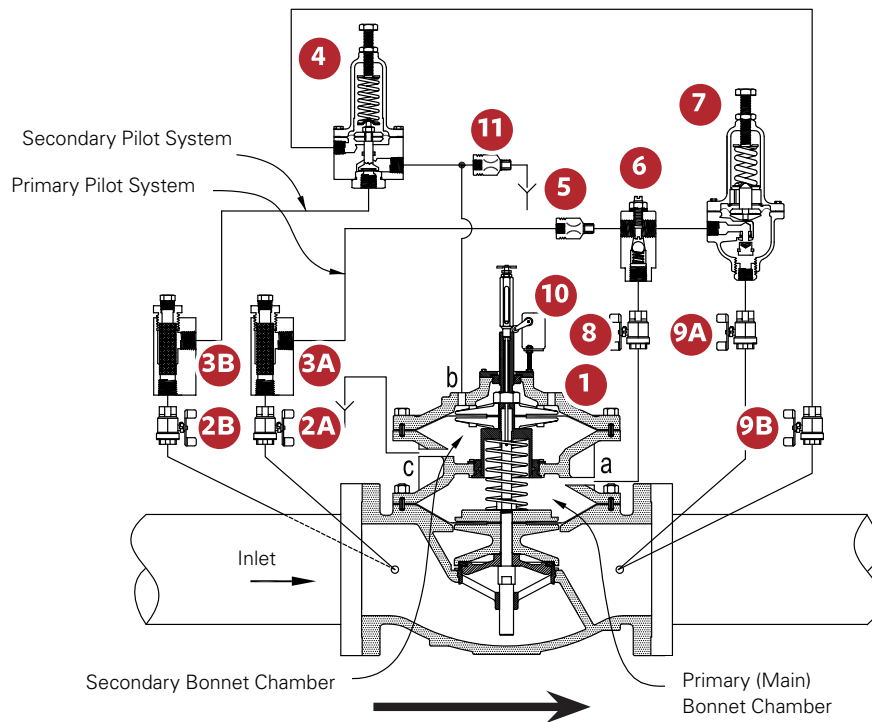


FIG. 2 Schematic A-7697D

### SCHEMATIC DRAWING

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

**TABLE 1 106-PR-SM and 206-PR-SM Pressure Reducing Control Valve with Integral Back-up**

Size (mm)	Minimum (L/s)		Maximum Continuous (L/s)	
	106-A-Type 2	206-A-Type 2	106-A-Type 2	206-A-Type 2
150	0.06	-	114	-
200	0.06	-	196	-
250	0.19	-	309	-
300	0.19	0.19	442	404
350	0.19	-	536	-
400	0.19	0.19	694	582
450	-	0.19	-	1041
500	0.63	0.19	1104	1041
600	0.63	-	1577	-
600 x 400	-	0.19	-	1041
600 x 500	-	0.19	-	1370
700	-	0.63	-	2120
750	-	0.63	-	2123
800	-	0.63	-	2126
900	-	0.63	-	2132

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