

# Flow Limiting Control Valve

Technical Guide W4.62

The Singer models 106-RF / 206-RF flow limiting valves are used to balance water storage systems with limited recharge capacities. By regulating flow, you can limit consumption or delivery to match a hydraulic design.



11.25 | W4.62 FLOW LIMITING CONTROL VALVE

## Applications

Potable water  
Pressure Control  
Municipal  
Mining Applications  
Irrigation Applications

## Product Attributes

Accurately limits flow to a pre-set maximum  
Easily adjustable flow limit  
Paddle-style orifice plate included  
Optional orifice plate housing

## Approvals/Standards

AS 5081:2008  
Flanges to AS/NZS4087 Fig. B5  
Coating complies with AS/NZS 4158



**Licence Number:**  
WMK/SMK26726

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The Flow Limiting Control Valve is ideal for limiting the flow to a pre-determined maximum (via maintaining a continuous pressure differential across an orifice).

When the pressure differential is less than the set-point, the valve opens, allowing flow to meet pre-determined demand. At the desired maximum set-point, the pilot reacts to small changes in sensing pressure and controls the main valve position by modulating the pressure above the diaphragm. When the pressure drop across the orifice exceeds the set-point, the valve closes slightly, limiting the flow to the pre-set maximum. The orifice is usually sized to generate a pressure differential of 0.2 to 0.35 bar at the desired flow. Adjusting the pilot setting permits the maximum flow to be changed in the field above or below the original point.

### STANDARD MATERIALS

Standard materials for pilot system components are:

- ASTM B62 bronze or ASTM B-16 brass
- Stainless steel
- Copper

### SELECTION SUMMARY

1. Determine the flow range and limit (*setting*) for the application - standard range 2:1 - maximum to minimum.
2. Determine the pressure drop available to provide control at the flow limit - valve plus orifice losses.
3. For the most positive control, the orifice is sized in combination with the valve to use the full pressure drop available at the maximum flow setting.
4. To calculate the pressure drop across the orifice, use the formula  $P = 0.2 \text{ bar } (Q_{max}/Q_{min})^2$ .  
0.2 bar is a standard minimum but 0.138 bar is acceptable if necessary. With the orifice plate designed for a 2:1 flow adjustment range, the orifice loss would then range from 0.2 to 0.8 bar.
5. Use the Singer performance curves to determine the valve size with sufficient capacity, with the pressure drop available. Consult with Hynds Water for precise orifice plate calculations.

### ORDERING INSTRUCTIONS

Refer to the order form and ordering instructions. Additionally, include the following information for this product:

- a. Single Chamber (106), or (206)
- b. Pilot Range

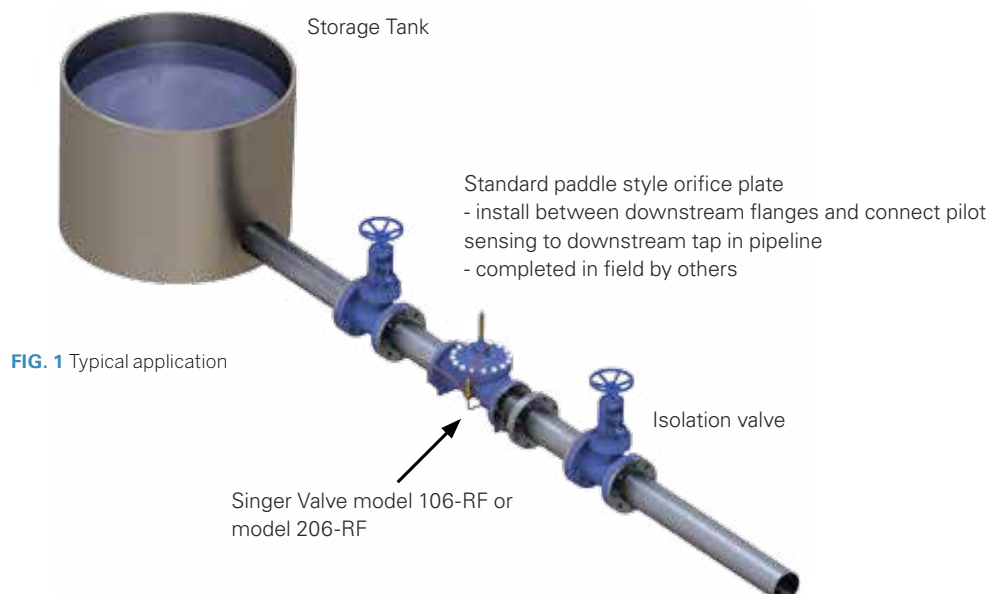


FIG. 1 Typical application

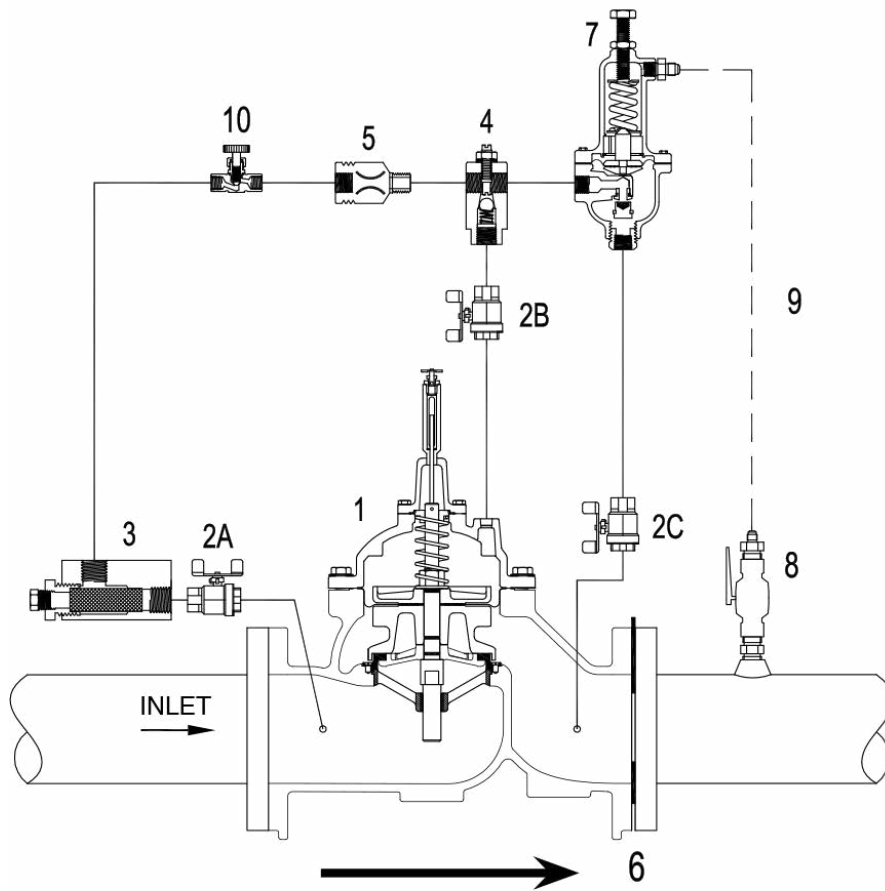


FIG. 2 Schematic A-7427C

## SCHEMATIC DRAWING

1. Main Valve - 106-PG or 206-PG with X107 position indicator
2. Isolation Valves (2A, 2B, 2C) standard
3. Strainer - 40 mesh - standard on all sizes
4. Model 26 Flow Stabilizer
  - Standard on valves 200mm 106, 250mm 206
5. Fixed Restriction
6. Orifice Plate - paddle style - fits inside bolt pattern
7. Model 160-RF Rate of Flow Pilot - specify for 0.138 to 1.38 bar;  
1.72 to 3.4 bar
8. 15 mm Ball valve and Flare fittings - for downstream connection of  
sensing line to header - field install
9. 10 mm Sensing Tubing - supply and installation by others
10. Optional: Closing Speed Control - model 852-B
11. Optional: Orifice Plate and Housing Assembly (not shown)

**Note:** Singer Rolling Diaphragm shown is available for 150mm 106-PG and larger.

**TABLE 1 106-RF and 206-RF Flow Coefficient Cv**

Size	Momentary (L/s)	
	106-RF	206-RF
15	-	-
20	-	-
25	-	-
32	-	-
40	8	-
50	13	-
65	19	-
80	29	19
100	50	37
150	-	65
200	-	145
250	-	260
300	-	404
350	-	582
400	-	1040
500	-	1040

**TABLE 2 106-RF and 206-RF Flow Capacity**

Size	Momentary (L/s)	
	106-RF	206-RF
150	114	-
200	196	-
250	309	-
300	442	-
350	536	-
400	694	-
500	1104	-
600	1577	-
600 x 400	-	1040
600 x 500	-	1370
700	-	2120
750	-	2123
800	-	2126
900	3500	2132
1000	-	3912

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