

106-RF / 206-RF Flow Limiting Control Valve

Flow limiting valves are used to balance water storage systems with limited recharge capacities. By regulating flow, limit consumption or delivery to match hydraulic design.



TECHNICAL GUIDE: **AVH1.17**

Applications

Potable water
Pressure systems
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

Quality

AS 5081:2008
Flanging to AS/NZS 4087
Coating to AS/NZS 4158



The 106-RF and 206-RF flow limiting control valves are based on the 106-PG or 206-PG main valves. The valve is ideal for limiting the flow to a pre-determined maximum (via maintaining a continuous pressure differential across an orifice).

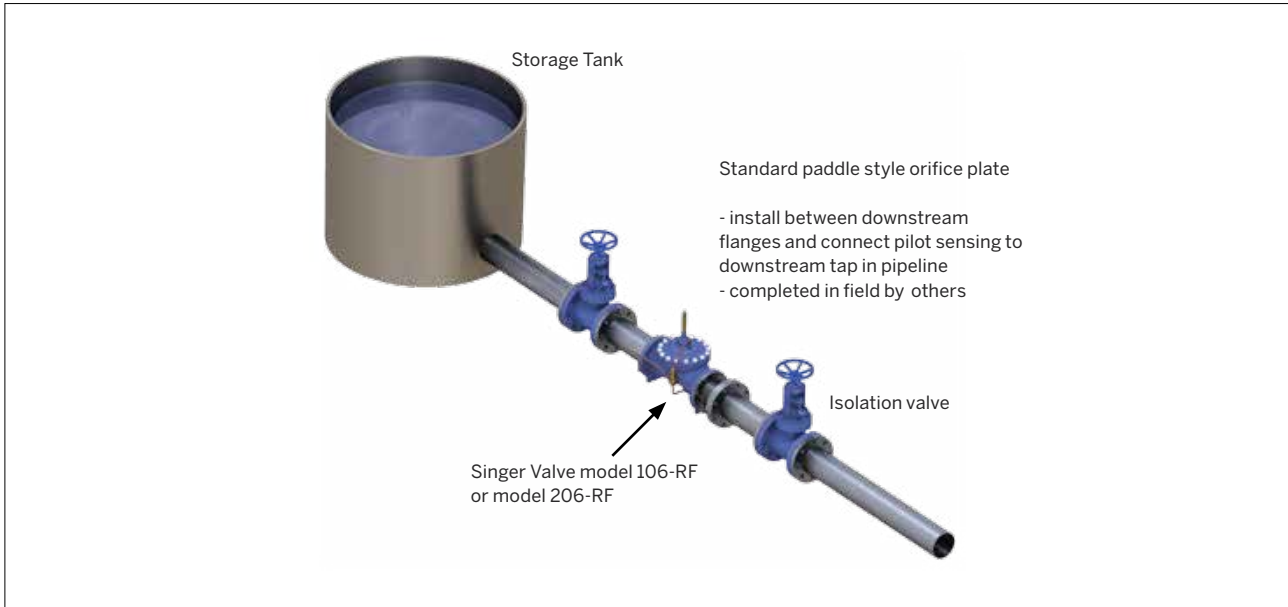


FIG. 1 Typical application

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 3 to 5 psi / 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 $P = 3 \text{ psi } (Q_{max}/Q_{min})^2$.
3 psi / 0.2 bar is a standard minimum but 2 psi / 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 3 to 12 psi / 0.2 to 0.8 bar.
5. Use the performance curves (see Technical & Sizing Information section, page 231, and / or the chart above, to determine the valve size with sufficient capacity, with the pressure drop available. Consult with Singer Valve for precise orifice plate calculations.

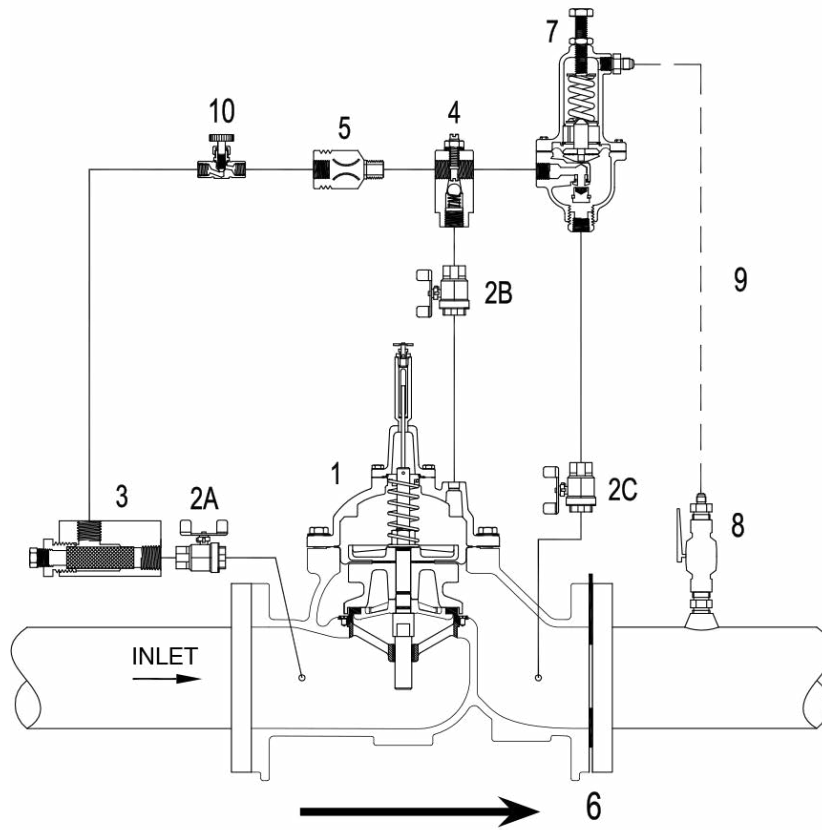


FIG. 2 Schematic A-7427C

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 8 in / 200 mm 106, 10" / 250 mm 206
5. Fixed Restriction
6. Orifice Plate - paddle style - fits inside bolt pattern
7. Model 160-RF Rate of Flow Pilot - specify for 2 to 20 psi / 0.138 to 1.38 bar; 25 to 50 psi / 1.72 to 3.4 bar
8. 1/2 in / 15 mm Ball valve and Flare fittings - for downstream connection of sensing line to header - field install
9. 3/8 in / 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: SRD shown is available for 6" 106-PG and larger.

106-RF	Flow Coefficient (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
Momentary (USGPM)	Not available in these sizes				125	210	300	460	800
Momentary (L/s)					8	13	19	29	50

206-RF	Flow Coefficient Cv (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
Momentary (USGPM)	300	580	1025	2300	4100	6400	9230	16500	16500
Momentary (L/s)	19	37	65	145	260	404	582	1040	1040

106-RF	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
Momentary (USGPM)	1800	3100	4900	7000	8500	11000	17500	25000	55470
Momentary (L/s)	114	196	309	442	536	694	1104	1577	3500

206-RF	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 x 400 mm	600 x 500 mm	700 mm	750 mm	800 mm	900 mm	1000 mm
Momentary (USGPM)	16500	21700	33600	33650	33700	33800	62000
Momentary (L/s)	1040	1370	2120	2123	2126	2132	3912



Scan for more information

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