HYGRADEWATER
INFRASTRUCTURE

Booster Pump Control Valve – Single Chamber

The booster pump control valve is installed in-line directly downstream of the pump discharge, to reduce the risk of surge damage caused when large booster pumps cycle on/off.

TECHNICAL GUIDE: **AVH1.7**

Applications

- Potable water
- Pressure systems
- Municipal
- Mining Applications
- Irrigation Applications

Product Attributes

- Substantially reduces pump starting and stopping surges
- Separate opening and closing speed controls
- Cost effective pump control system
- Optional internal mechanical drop check reduces power failure surge

Quality

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

WaterMark

The booster pump control valve is installed in-line directly downstream of the pump discharge.

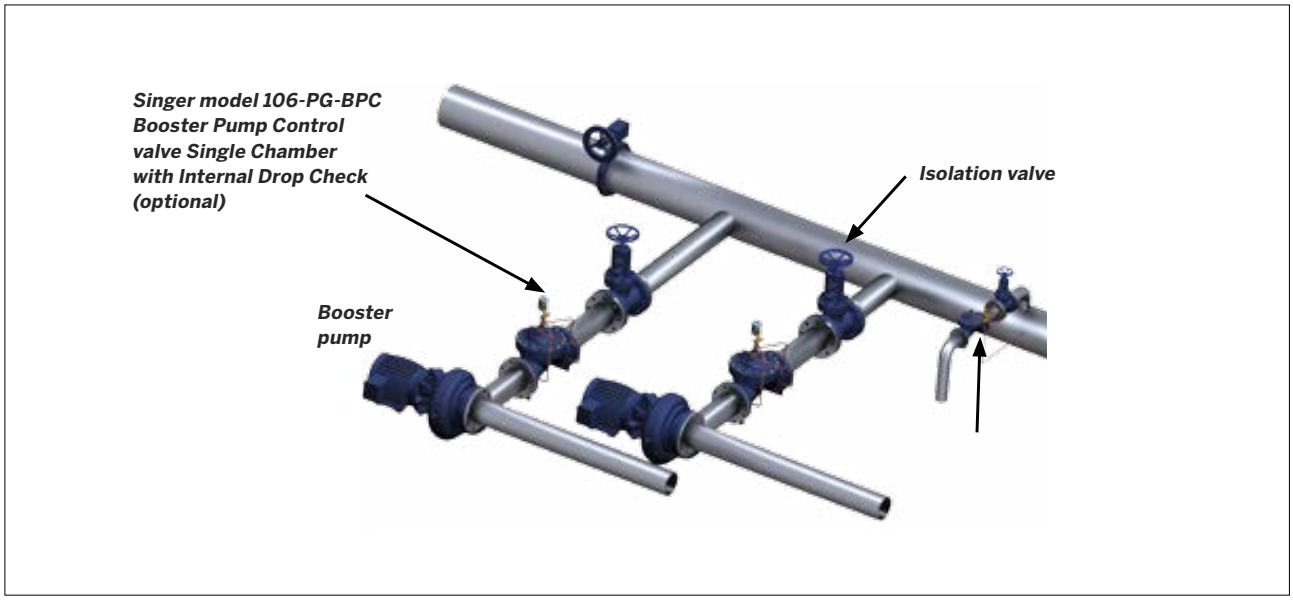

FIG. 1 Typical application

The valve is normally closed, and, on pump start-up, a pilot solenoid is energized to slowly open the valve, at a rate governed by the opening speed control. The pipeline flow is gradually increased.

When shut-down is required, the pilot solenoid is de-energized to close the main valve and reduce the flow. The pump is kept running while the booster pump control valve slowly closes. When the valve is almost fully closed and flow is virtually stopped, a cam triggers the limit switch to stop the pump.

With the internal drop check option, the built-in mechanical drop check closes immediately when the flow stops, regardless of the valve position. Whether due to a control malfunction, normal operation or a pump motor power failure, by closing before flow reverses, surges are minimized.

The single chamber construction facilitates supplemental modulating functions such as pressure sustaining, pressure reducing, rate of flow control. Being a single chamber design, the control forces are generated by the differential across the valve. When a modulating function is included there are more positive initial closing results.

STANDARD MATERIALS

Standard materials for pilot system components are:

Refer to Electronic Control section (SPC product) and consult Hygrade for pump control panel options.

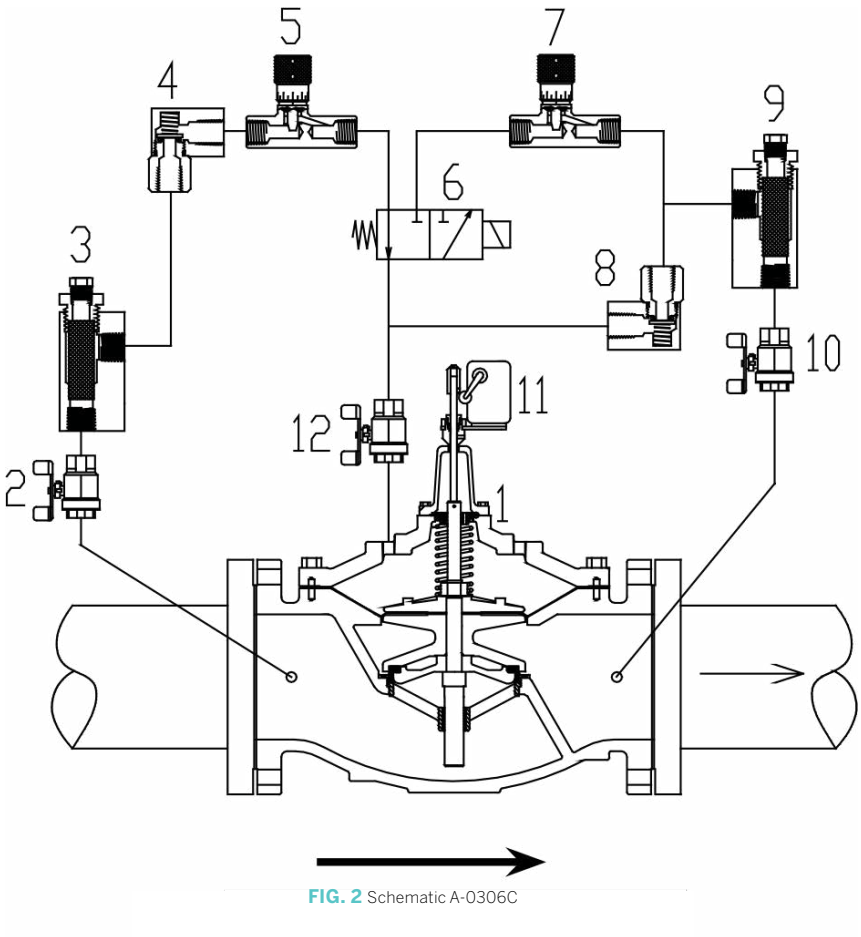

FIG. 2 Schematic A-0306C

SCHEMATIC DRAWING

1. Main Valve - 106-PG or 206-PG
2. Isolation Valve
3. Strainer - 40 mesh stainless steel screen
4. Check Valve - model 10
5. Micrometer Needle Valve - closing speed
6. Solenoid Valve - three way, NEMA 4
7. Micrometer Needle Valve - opening speed
8. Check Valve - model 10
9. Strainer - 40 mesh stainless steel screen
10. Isolation Valve
11. Model X129 Limit Switch Assembly -NEMA 4, SPDT
12. Isolation Valve

106-PG-BPC	Flow Coefficient C_v (See 106-PG in Main Valve Section for other Valve Data)		
Size (inches)	2 in	2-1/2 in	3 in
Size (mm)	50 mm	65 mm	80 mm
C_v [1]	50 mm	80	110
K_v [2]	13	19	26

106-PG-BPC	Flow Coefficient C_v (See 106-PTC 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
C_v [1]	460	800	1300	2100	2575	3300	5100	7600	16340
K_v [2]	110	190	310	500	610	780	1210	1800	3875

206-PG-BPC	Flow Coefficient C_v (See 206-PG in Main Valve section for other valve data)			
Size (inches)	4 in	6 in	8 in	10 in
Size (mm)	100 mm	150 mm	200 mm	250 mm
C_v [1]	150	250	505	985
K_v [2]	36	60	120	230

206-PG-BPC	Flow Coefficient C_v (See 206-PTC in Main Valve section for other valve data)							
Size (inches)	12 in	16 in	18 in	20 in	24 x 16 in	24 x 20 in	36 x 24 in	40 x 36 in
Size (mm)	300 mm	400 mm	450mm	500 mm	600 x 400 mm	600 x 500 mm	900 x 600 mm	1000 x 900 mm
C_v [1]	1550	2200	3300	3400	3500	5300	7800	18000
K_v [2]	370	520	780	810	830	1210	1850	4265

*C_v = USGPM at 1 psi pressure drop

**K_v = L / s at 1 bar pressure drop

($Q=C_v \sqrt{\Delta P}$)

Scan for more information

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