Models 106-PG-BPC / 206-PG-BPC
Booster Pump Control Valve – Single Chamber

206-PG-BPC Globe

KEY FEATURES

- 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

Product Overview

The 106-PG-BPC or 206-PG-BPC booster pump control valve is installed in-line directly downstream of the pump discharge.

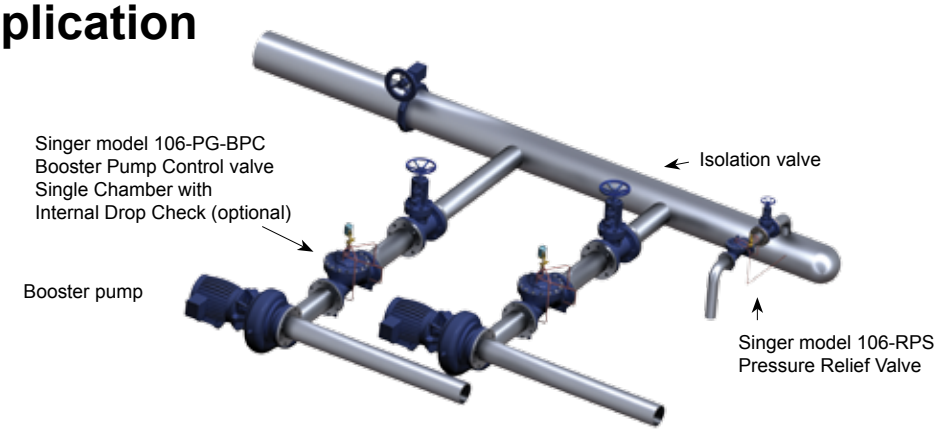
The valve is normally closed, and, on pump start-up, a pilot solenoid is energized to slowly open the valve, at a rate governed by the opening speed control. The pipeline flow is gradually increased.

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.

Typical Application



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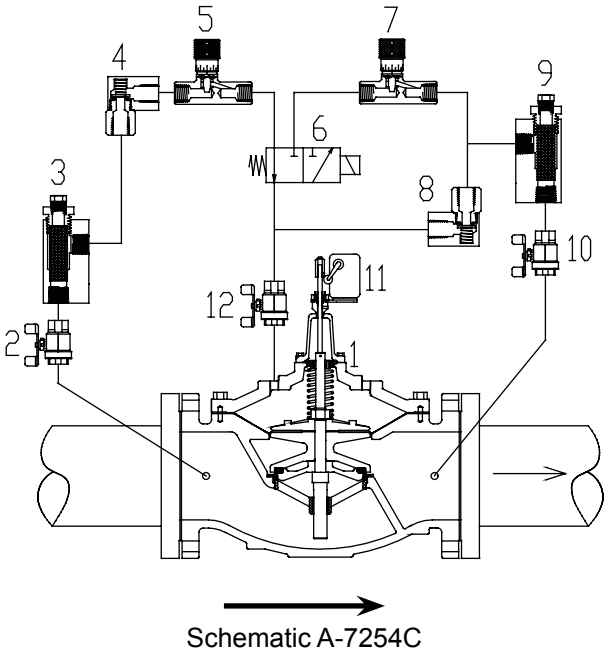
Schematic Drawing



Schematic A-7254C

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

Internal Drop Check Feature (optional, not shown)

Standard Materials

Standard materials for pilot system components are:

- ASTM B-62 bronze and ASTM B-16 brass
- AISI 303 / 316 stainless steel trim

Refer to Electronic Control section (SPC product), see page 251, and consult Singer Valve for pump control panel options.

Specifications

- The valve shall be a Singer Valve model 106-PG-BPC / 206-PG-BPC, size "_____", ANSI Class 150 (ANSI 300, ANSI flanges drilled to ISO PN 10 / 16/ 25 or 40) pressure rating / flange standard, globe (angle), style valve. Solenoid valve shall be three-way de-energized to close valve, with a 120VAC/ 60Hz (220 VAC/ 50 Hz or 240 VAC/ 60 Hz) solenoid coil. Assembly shall be according to Schematic A-7254C.
- The Booster Pump control valve will eliminate surges associated with the normal stopping and starting of booster pumps. On pump start-up, a pilot solenoid is energized to begin opening the valve, at a rate governed by the opening speed control. Opening and closing speeds are adjusted independently.
- When the solenoid is de-energized, the valve slowly closes while the pump continues to run. When the valve is almost fully closed and flow is virtually zero, a stem-mounted cam triggers the limit switch to stop the pump.

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- Refer to Main Valve section, page 11, 106-PG (or 206-PG) for detailed information pertaining to valve sizes and materials, selection criteria and specifications.
- Refer to Pilot and Accessories section, page 279, Micrometer Flow Control Valves for detailed information pertaining to materials and specifications. Solenoid specification information is available from Singer Valve only at this time.

Selection Summary

1. The model PG-BPC, booster pump control valve incurs continuous head loss while the pump is operating. Refer to the 106 or 206 performance curves (see Technical & Sizing Information section, page 284). Use drooping portion of curve. Select the smallest size with a pressure drop that is acceptable.
2. With no modulating pilot functions added, care should be exercised not to oversize the valve, especially if pumps are operating in parallel. With very low differential across the valve, initial closing speed will be slow. Sections 106-PG and 206-PG (Main Valve section, page 11), provide specifications and details of construction of the standard main valves while bulletin IDC - Internal Drop Check (see Main Valve Options section, page 83) provides details on the internal mechanical check option.
3. Standard configuration provides for NEMA 4 watertight enclosures for the Honeywell model OP-AR, Single Pole Double Throw limit switch and the ASCO solenoid with 120VAC / 60Hz (or 220VAC / 50HZ or 240VAC / 60Hz) coil. For other electrical service or higher pressure ratings consult with Singer Valve. A manual override is available upon request.

Ordering Instructions

Refer to page 293 for the order form and ordering instructions.

Additionally, include the following information for this product:

1. Full port (106) or reduced port (206)
2. Solenoid voltage
3. Maximum inlet pressure

Models 106-PG-BPC / 206-PG-BPC
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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	4 in
Size (mm)	50 mm	65 mm	80 mm	100 mm
C_v[1]	55	80	110	200
K_v[2]	13	19	26	47

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	450 mm	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
Kv2	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

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