

MODELS 106-PG-BPC / 206-PG-BPC / 306-PG-BPC

Booster Pump Control Valve – Single Chamber

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, 206-PG-BPC or 306-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.

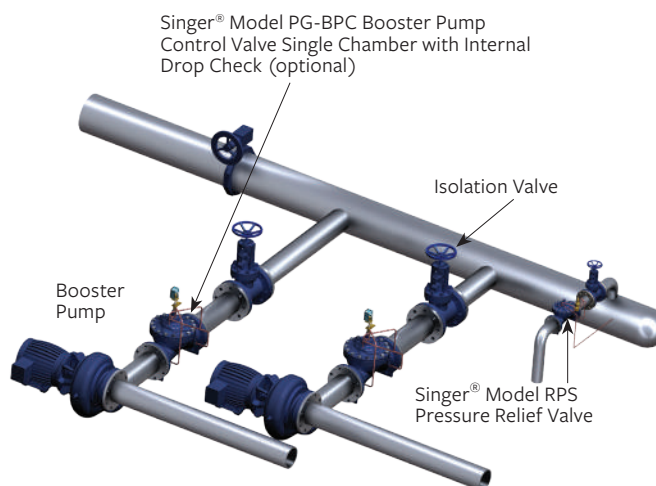
When shut-down is required, the pilot solenoid is de-energized to close the main valve and reduce the flow. The pump is kept running while the booster pump control valve slowly closes. When the valve is almost fully closed and flow is virtually stopped, a cam triggers the limit switch to stop the pump.

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



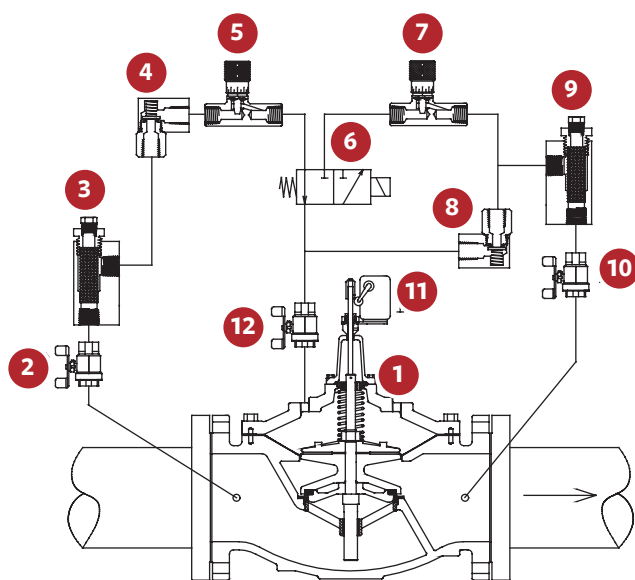
MODELS 106-PG-BPC / 206-PG-BPC / 306-PG-BPC

Booster Pump Control Valve – Single Chamber

SCHEMATIC DRAWING

NO.	PART
1	Main Valve - 106-PG, 206-PG or 306-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)



SCHEMATIC A-7254C

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) and consult us for pump control panel options.

SELECTION SUMMARY

- The model PG-BPC, booster pump control valve incurs continuous head loss while the pump is operating. Refer to the (106), (206) or (306) performance curves (see Technical & Sizing Information section). Use drooping portion of curve. Select the smallest size with a pressure drop that is acceptable.
- 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. Section 106-PG, 206-OPG and 306-PG (main valve option), provide specifications and details of construction of the standard main valves while bulletin IDC - Internal Drop Check (see Main Valve Options section) provides details on the internal mechanical check option.
- 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 120 VAC / 60 Hz (or 220 VAC / 50 Hz or 240 VAC / 60 Hz) coil. For other electrical service or higher pressure ratings, consult with a Singer® representative. A manual override is available upon request.

ORDERING INSTRUCTIONS

Refer to the order form and ordering instructions.

Additionally, include the following information for this product:

1. Single chamber (106), (206) or (306)
2. Solenoid voltage
3. Maximum inlet pressure

MODELS 106-PG-BPC / 206-PG-BPC / 306-PG-BPC

Booster Pump Control Valve – Single Chamber

106-PG-BPC

FLOW COEFFICIENT C_v (SEE 106-PG IN MAIN VALVE SECTION FOR OTHER VALVE DATA)

Size (Inches)	2"	2 1/2"	3"	4"
Size (mm)	50 mm	65 mm	80 mm	100 mm
C_v^1	55	80	110	200
K_v^2	48	69	95	173

206-PG-BPC

FLOW COEFFICIENT C_v (SEE 206-PG IN MAIN VALVE SECTION FOR OTHER VALVE DATA)

Size (Inches)	4"	6"	8"	10"
Size (mm)	100 mm	150 mm	200 mm	250 mm
C_v^1	150	250	505	985
K_v^2	130	216	437	852

106-PG-BPC

FLOW COEFFICIENT C_v (SEE 106-PG IN MAIN VALVE SECTION FOR OTHER VALVE DATA)

Size (Inches)	6"	8"	10"	12"	14"	16"	20"	24"	36"
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	398	692	1125	1817	2227	2855	4412	6574	14134

206-PG-BPC

FLOW COEFFICIENT C_v (SEE 206-PG IN MAIN VALVE SECTION FOR OTHER VALVE DATA)

Size (Inches)	12"	16"	18"	20"	24 x 16	24 x 20"	36 x 24"	40 x 36"	48 x 36"
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	1200 x 900 mm
C_v^1	1550	2200	3300	3400	3500	5300	7800	16340	16340
K_v^2	1341	1903	2855	2941	3028	4585	6747	14134	14134

306-PG-BPC

FLOW COEFFICIENT K_v (SEE 306-PG IN MAIN VALVE SECTION FOR OTHER VALVE DATA)

Size	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400
K_v - Globe (m ³ /h @ 1 bar)	28	48	69	130	261	462	852	1341	2045	2149

* C_v = USGPM at 1 psi pressure drop

** K_v = m³/h at 1 bar pressure drop

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