Booster Pump Control Valve Single Chamber

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Technical Guide W4.53

The Singer 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.

Applications

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

WaterMark ***Licence Number:*** *WMK/SMK26726*

Product Attributes

- Substantially reduces pump starting and stopping surges
- Separate opening and closing speed controls
- Cost effective pump control system
- Built-in non-slam mechanical Check to reduce power failure Surge

Approvals/Standards

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

Quality

- ISO 9001:2015 Quality Management Systems

We are the supply partner of choice for New Zealand's civil construction industry, specialising in water and infrastructure based solutions.

HYNDSwater

The 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 energised 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-energised 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 minimised.

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:

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

Refer to Hynds Water 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), or (206) performance curves. 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.
- 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 VAC/50 Hz or 240 VAC / 60 Hz) coil. For other electrical service or higher pressure ratings, consult with Hynds Water. 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)*, or *(206)*
2. Solenoid voltage
3. Maximum inlet pressure

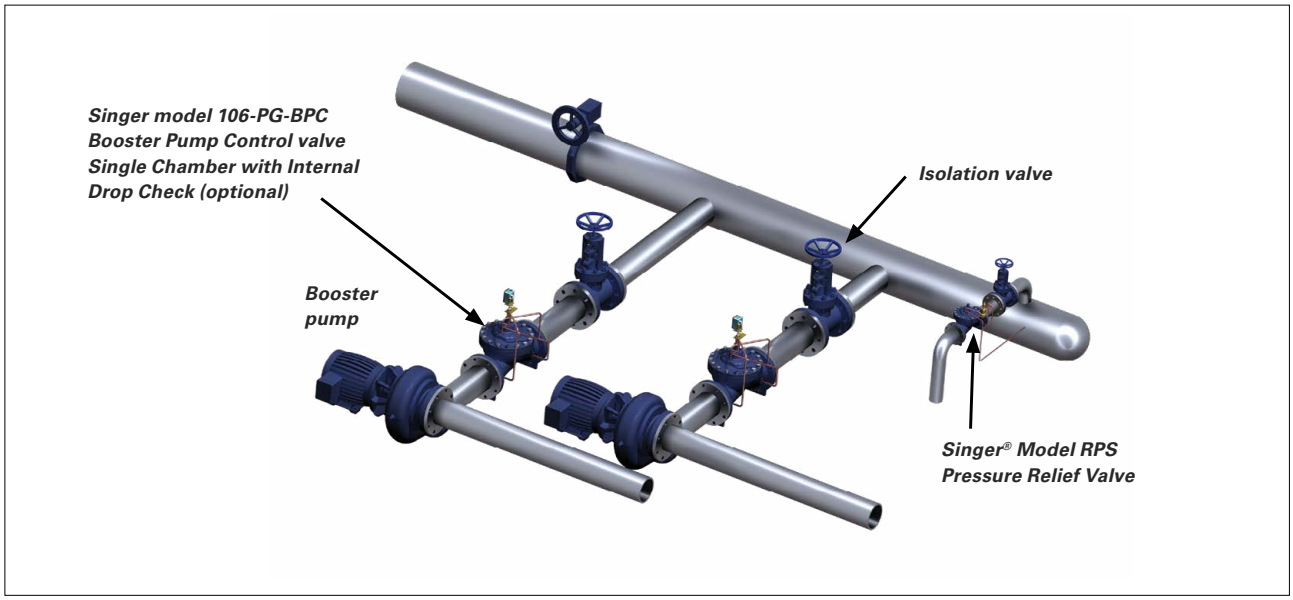

FIG. 1 Typical application

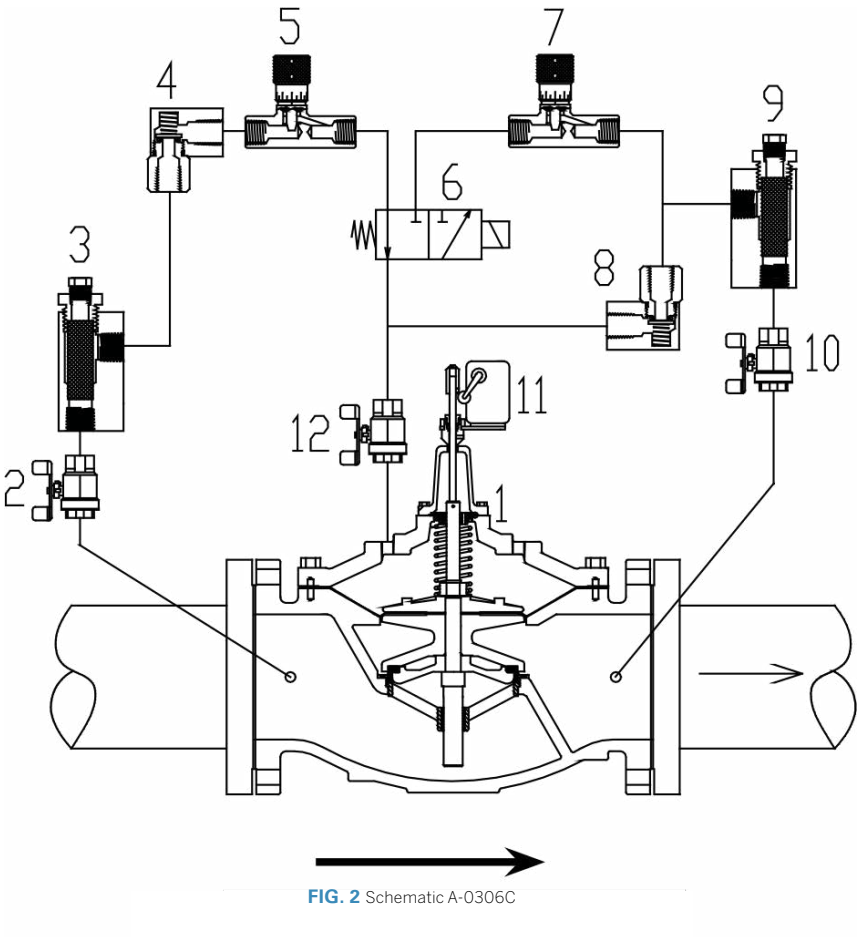

FIG. 2 Schematic A-0306C

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

TABLE 1 **106-PG-BPC and 206-PG-BPC Flow Coefficient Kv**

Size (mm)	K_v²	
	106-PG-BPC	**206-PG-BPC**
50	13	-
65	19	-
80	26	-
100	-	36
150	110	60
200	190	120
250	310	230
300	500	370
350	610	-
400	780	520
450	-	780
500	1210	810
600	1800	-
600 x 400	-	830
600 x 500	-	1210
900	3875	-
900 x 600	-	1850
1000 x 900	-	4265

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

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