

Models 106-RPS-RR / 206-RPS-RR Surge Anticipating on Rate of Rise of Pressure Relief Valve



206-RPS-RR Globe

KEY FEATURES

- Protects against power failure surges or pressure waves caused by velocity changes
- Unaffected by header pressure and over sizing
- Quick opening relief
- Easily adjustable pressure setting
- No electrical services required

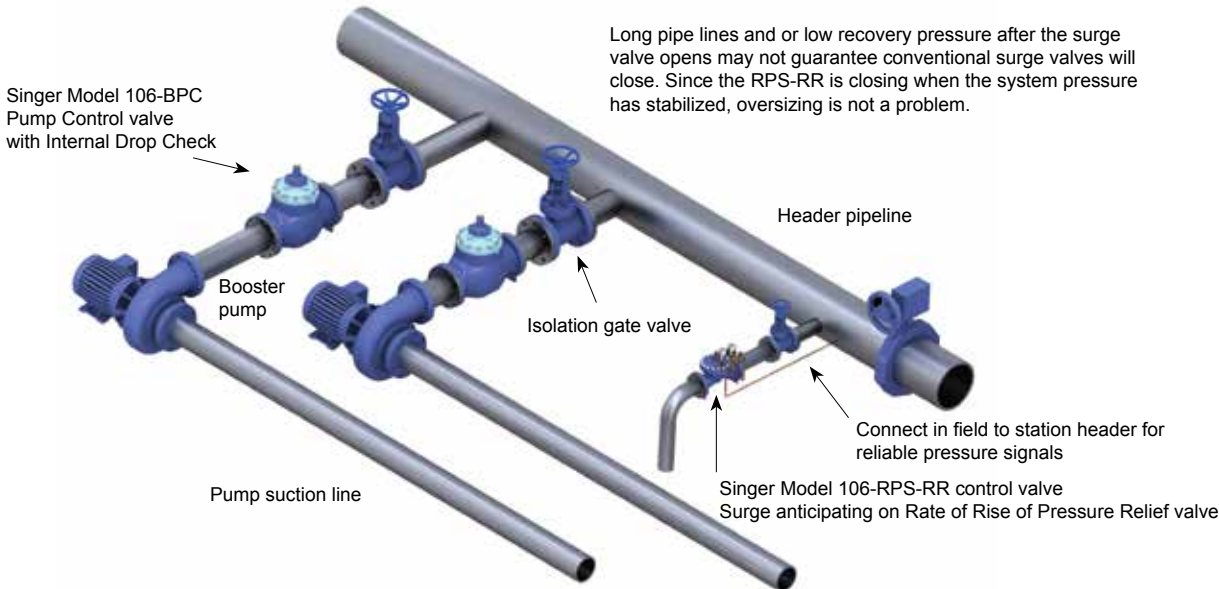
Relief / Sustaining / Surge

Product Overview

The 106-RPS-RR and 206-RPS-RR surge anticipating relief on rate of rise valves are based on the 106-PG or 206-PG main valve.

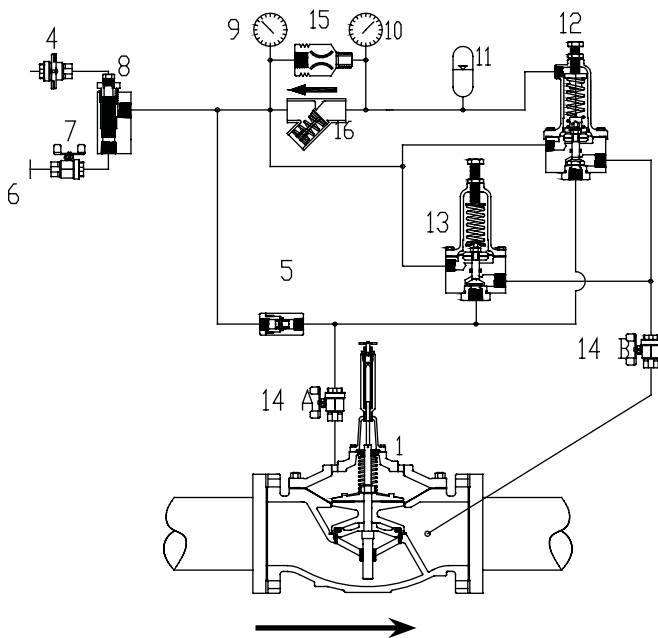
The valve is installed downstream of the pump check valve(s) and has two pilots, the 81-RP and the 81-RPD. Both pilots sense pressure through a connection to the header pipe. The 81-RP high pressure pilot acts as a standard relief pilot, opening on excessive pressure. The 81-RPD differential pilot responds to the pressure differential across its diaphragm. A pressure differential is created when there is a system pressure increase. The flow into the accumulator creates a pressure drop across the fixed restriction, which lowers the pressure in the connection between the fixed restriction and the pilot. The pilot senses the pressure difference between this lower pressure and the header pressure. This difference occurs at the initiation of the pressure surge, providing the time necessary for the valve to open in anticipation of the high pressure.

Typical Application



Models 106-RPS-RR / 206-RPS-RR Surge Anticipating on Rate of Rise of Pressure Relief Valve

Schematic Drawing



1. Main Valve - 106-PG or 206-PG, complete with X107 Position Indicator
4. Strainer Flush Valve - Normal Position Closed
5. Flow Control - J0077A
6. Connection To Header
7. Isolating Valve - Normal Position Open
8. Strainer - 40 Mesh - J0098A
9. Pressure Gauge
10. Pressure Gauge
11. Bladder Accumulator - M1408A
12. Differential Pilot - Model 81-RPD - Normally Closed
13. Relief Pilot - Model 81-RP
14. Isolating Valve (14A, 14B) - Normal Position Open
15. Fixed Restriction - 1/16 in / 1.58 mm
16. Check Valve - J0040A

Schematic A-7340F

Note: Schematic shown is for 2 in / 50 mm to 6 in / 150 mm 106, and 3 in / 80 mm to 8 in / 200 mm 206

Selection Summary

1. Anticipating surge relief valves should be sized from information provided by an engineer's surge analysis of the system.
2. In the absence of such information, as a general guide, a valve selected to pass 25% of the maximum normal flow when the valve is fully open, calculated with the static pressure as the pressure drop across the valve, has been successful in practice.
3. Ensure the maximum working pressure rating of the valve and flanges exceeds the maximum operating pressure.
4. Select either a standard globe style body or the optional angle style body.
5. Surge anticipating valves usually relieve to atmosphere which ensures high operating differential pressure and rapid response times. Momentary, "m", service range up to 45 ft/s / 14 m/s is suitable for sizing selection. Other supplementary functions are available, consult with Singer Valve.

Specifications

- The valve shall be a Singer Valve model 106-RPS-RR / 206-RPS-RR, 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. The Model 81-RP Pressure Relief Pilot (Normally Closed Pilot) spring range shall be "___ to ___" psi / bar, with set-point preset at Singer Valve to "___" psi / bar. Assembly shall be according to Schematic A-7340F, 2 in / 50 mm to 6 in / 150 mm 106, and 3 in / 75 mm to 8 in / 200 mm 206 (for A-7340F1 [not shown], 8 in / 200 mm and larger 106).

Models 106-RPS-RR / 206-RPS-RR Surge Anticipating on Rate of Rise of Pressure Relief Valve

- The valve will open rapidly on an over-pressure caused by sudden pump stop due to power failure or other means, and other causes of surges in the pipeline.
- The valve will also anticipate a surge by sensing a rapid increase in pressure as the surge wave returns and opens fully with no stroke limiters on the valve opening.
- The valve will begin slowly closing when the system pressure falls below the high pressure set-point of the valve piloting until it fully closes regardless of static pressure in the pipeline.
- Refer to Main Valve section, see 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, Model 81 Pressure Relief Pilot (Normally Closed Pilot) and Model 81-RPD Differential Pressure Pilot for detailed information pertaining to materials and specifications.

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. Pilot range

Models 106-RPS-RR / 206-RPS-RR

Surge Anticipating on Rate of Rise of Pressure Relief Valve

106-RPS-RR	Flow Capacity 45 ft / s or 14 m / s (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)	-	-	-	-	-	470	670	1030	1800
Momentary (L/s)	-	-	-	-	-	30	42	65	114

106-RPS-RR	Flow Capacity 45 ft / s or 14 m / s (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)	4000	7000	11000	16000	19000	25000	39000	56200	124700
Momentary (L/s)	252	442	694	1009	1199	1577	2461	3546	7868

206-RPS-RR	Flow Capacity 45 ft / s or 14 m / s (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)	564	1236	2160	4800	8400	13200	19200	30000	30050
Momentary (L/s)	36	78	136	303	530	833	1211	1893	1896

206-RPS-RR	Flow Capacity 45 ft / s or 14 m / s (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)	30100	39000	67440	67490	67540	67640	62000
Momentary (L/s)	1899	2461	4255	4258	4261	4268	3912