

# Surge RPS-L&H Anticipating Relief Valve

Technical Guide W4.72

The 106-RPS-L&H and 206-RPS-L&H Anticipating Surge Relief Valves are based on the 106-PG or 206-PG main valve. The valve is mounted in a tee, downstream of the pump check valve(s). It is designed to anticipate surges to avoid the severe water hammer often associated with power failure surges.



## Applications

Pump Protection  
Surge Control  
Pressure Control  
Mining Applications  
Irrigation Applications



**Licence Number:**  
WMK/SMK26726

## Product Attributes

Protects against power failure surges or pressure waves caused by velocity changes  
Quick opening relief  
Easily adjustable pressure setting  
No electrical services required

## Approvals/Standards

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

## Quality

ISO 9001:2015 Quality Management Systems

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The RPS-L&H pilot system is comprised of two pilots, the 81-RP and the 82-PR. Both pilots sense pressure through a connection to the header pipe.

The 81-RP high pressure pilot opens the valve to relieve excess pressure. The model 82-PR low pressure pilot opens quickly on below normal pressures prior to the return of a surge wave, initiating the opening of the main valve in anticipation of the high pressure wave's arrival.

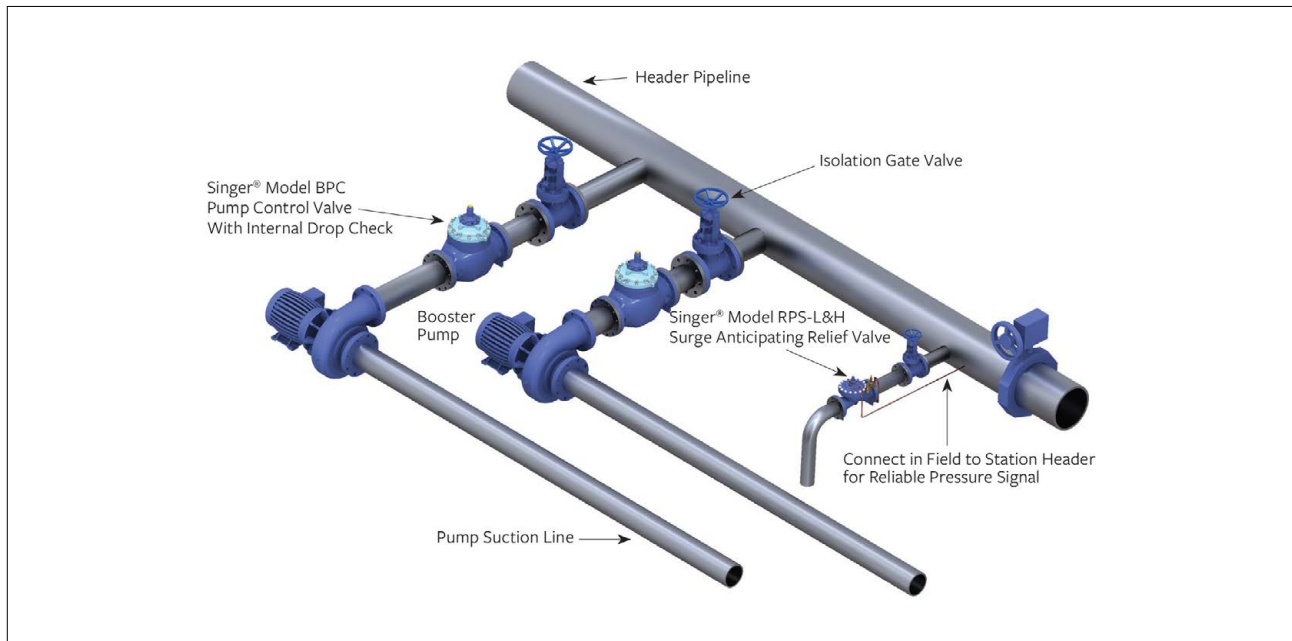


FIG. 1 Typical application

## STANDARD MATERIALS

Standard materials for pilot system components are:

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

## 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. Over sizing may cause problems. Valve may not close if oversized.
3. Ensure that the recovered header pressure (*static*) exceeds the low pressure relief pilot setting, otherwise the valve will not close. As a guide, a setting at 60% of static pressure has been suitable.

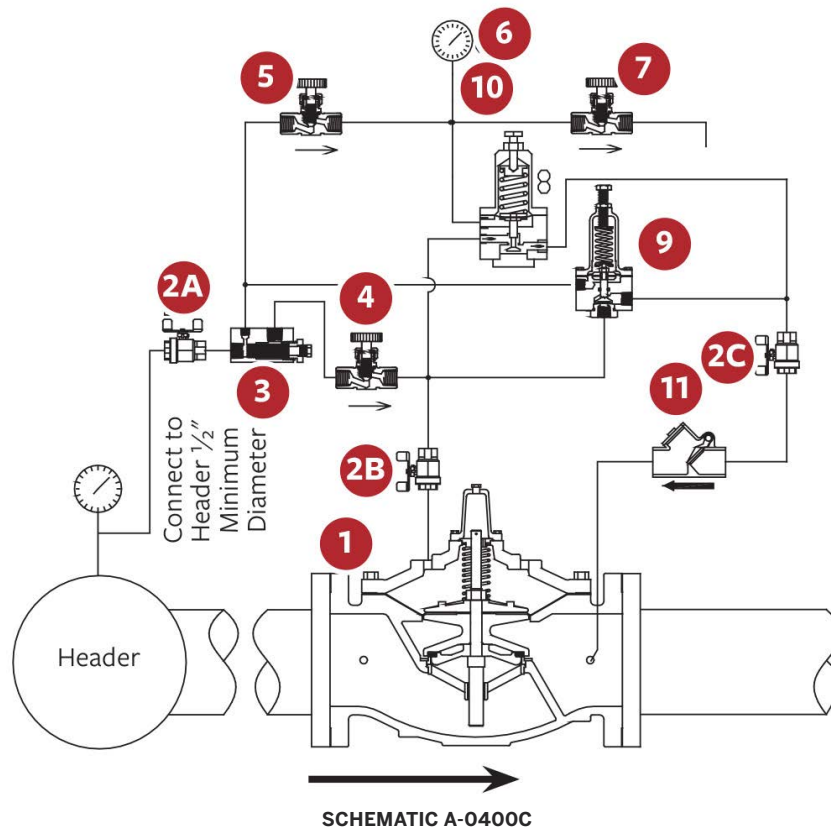
4. Ensure the maximum working pressure rating of the valve and flanges exceeds the maximum operating pressure.
5. Select either a standard globe style body or the optional angle style body.
6. If the RPS-L&H is sized properly, a hydraulic travel limiter is unnecessary. Should an engineer insist that the travel limiter be included, then it will be offered as an option (*add HFL to model number*).
7. Should only be used on static pressures greater than 30 m / 3 bar.

## 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. Pilot ranges
3. HFL – Hydraulic Flow Limiter available



**Note:** Schematic shown is for 50 mm to 150 mm. For 200 mm and higher refer to Schematic A-0401C

### SCHEMATIC DRAWING

1. Main Valve - 106-PG, or 206-PG
2. Isolation Valve (2A, 2B, 2C), Standard All Sizes
3. Strainer - 40 Mesh Screen
4. Closing Speed Control - Model 852-B
5. Test Needle Valve - Normal Position Fully Open
6. Pressure Gauge - 6.35mm, NPT - by Others
7. Test Needle Valve - Normal Position Fully Closed
8. Model 82-PR - Low Surge Pilot  
Specify for:
  - 0.48 to 3.5 bar
  - 3.1 to 13.8 bar
  - 6.9 to 20.7 bar
9. Model 81-RP - High Surge Pressure Pilot. Standard  
1.38 to 13.8 bar  
Specify for:
  - 0.35 to 3.5 bar
  - 0.7 to 5.5 bar
  - 6.9 to 20.7 bar
10. Pipe Plug for Gauge Connection
11. Swing Check Valve - 15mm

**TABLE 1 Singer Surge RPS-L&H Anticipating Relief Valve Flow Capacity****Flow capacity 14 m/s**

<b>Size (mm)</b>	<b>106-RPS-L&amp;H Momentary (L/s)</b>	<b>206-RPS-L&amp;H Momentary (L/s)</b>
50	30	-
65	42	-
80	65	36
100	114	78
150	252	136
200	442	303
250	694	530
300	1009	833
350	1199	-
400	1577	1211
450	-	1893
500	2461	1896
600	3546	-
600 x 400	-	1899
600 x 500	-	2461
700	-	4255
750	-	4258
800	-	4261
900	7868	4268
1000	-	7868
1200	-	7868

See 106-PG and 206-PG main valve section for other valve data.

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