The Model 108SA-3 operates as a pressure relief valve by opening at a pressure above its set point. In addition, it provides extra protection against surges associated with sudden stoppage of the pumps (e.g., power failure) by opening on the resulting low pressure wave, in “anticipation” of the high pressure wave to follow. By being already open when the high pressure wave hits, any potential surge is harmlessly bypassed to atmosphere.

Typical examples include:
- Pump systems
- Irrigation systems
- Municipal distribution systems

**OPERATION**

The control of the Model 108SA-3 is via two hydraulic control pilots. A normally open, low pressure pilot opens the valve when system pressure drops to its set point. This setting must be less than static pressure. The valve also opens when the set point of the normally closed, high pressure relief pilot is exceeded. The valve slowly closes (adjustable closing) when system pressure returns to normal (pressure is between the setting of the two pilots).

**COMPONENTS**

The Model 108SA-3 consists of the following components, arranged as shown on the schematic diagram:
- 1.) Model 65 Basic Control Valve
- 2.) Model 1330 Pressure Relief Pilot
- 3.) Model 1340 Pressure Reducing Pilot
- 4.) Model 126 Ejector
- 5.) Model 141-3 Flow Control Valve (closing speed control)
- 6.) Model 159 Y-Strainer
- 7.) Model 141-4 Isolation Ball Valves
- 8.) Model 155 Visual Indicator (Optional)

**MAX. PRESSURE**

The pressures listed below are maximum pressures at 100°F.

<table>
<thead>
<tr>
<th>END CONNECTIONS</th>
<th>DUCTILE IRON</th>
<th>STEEL/STN STL</th>
<th>LOW-LEAD BRONZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threaded</td>
<td>640 psi</td>
<td>640 psi</td>
<td>500 psi</td>
</tr>
<tr>
<td>Grooved</td>
<td>300 psi</td>
<td>300 psi</td>
<td>300 psi</td>
</tr>
<tr>
<td>150# Flanged</td>
<td>250 psi</td>
<td>285 psi</td>
<td>225 psi</td>
</tr>
<tr>
<td>300# Flanged</td>
<td>640 psi</td>
<td>740 psi</td>
<td>500 psi</td>
</tr>
</tbody>
</table>

**SIZING**

Definitive sizing information can be found in the OCV Catalog, Series 118 Surge Anticipation section and Engineering section Performance Charts. Consult the factory for assistance and a copy of the OCV ValveMaster Sizing program.
Model 108SA-3

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>Typical Water Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>The surge anticipation valve shall be installed on a bypass line downstream of the pump check valve(s). It shall function to prevent potentially damaging pressure surges by (a) opening rapidly in the event of a drop in pressure below a predetermined set point and (b) opening rapidly if main line pressure should exceed a predetermined set point. In either event, the valve shall slowly close after pressure has returned to normal.</td>
<td></td>
</tr>
</tbody>
</table>

**DESIGN**

The valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled globe valve. The valve shall seal by means of a corrosion-resistant seat and a resilient, rectangular seat disc. These, and other parts, shall be replaceable without removing the valve from the line. The stem of the main valve shall be guided top and bottom by integral bushings. Alignment of the body, bonnet and diaphragm assembly shall be by precision dowel pins. The diaphragm shall not be used as a seating surface, nor shall the pistons be used as an operating means. The pilot system shall be furnished complete and installed on the main valve. It shall include a closing speed control, Y-strainer and isolation ball valves. The surge anticipation valve shall be operationally and hydrostatically tested prior to shipment.

**MATERIALS OF CONSTRUCTION**

The main valve body and bonnet shall be ductile iron per ASTM A536, Grade 65-45-12. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be low-lead Bronze. Elastomers (diaphragms, resilient seats and O-rings) shall be EPDM. Control pilots shall be low-lead Bronze. The closing speed control and isolation ball valves shall be brass, and control line tubing shall be copper.

**OPERATING CONDITIONS**

The surge anticipation valve shall be capable of limiting main line pressure to a maximum of \(<X> \text{ psi, based on a main line maximum flow rate of } \langle X \rangle \text{ gpm and a static pressure of } \langle X \rangle \text{ psi, with valve discharge to atmosphere.} \)

**ACCEPTABLE PRODUCTS**

The surge anticipation valve shall be \(<\text{size}>\) Model 108SA-3, \(<\text{globe pattern, angle pattern}>\), with \(<150# \text{ flanged, 300# flanged, threaded, grooved}>\) end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.