Priority Flow Control
Cartridge Valves

<table>
<thead>
<tr>
<th>Cartridge Type</th>
<th>Page</th>
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<tbody>
<tr>
<td>Bypass / Restrictive, Fixed Orifice</td>
<td>76</td>
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<td>Ventable, Bypass / Restrictive, Fixed Orifice</td>
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<td>Ventable, Bypass / Restrictive, Fixed Orifice with Integral Pilot Control Cavity</td>
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<td>Bypass / Restrictive Modulating Element</td>
<td>79</td>
</tr>
</tbody>
</table>
Performance Curves

- Maximum operating pressure = 5000 psi
- Customer must specify a flow rating. Factory set flow ratings are within +/- 10% of the requested setting.
- Pressure at the bypass port (port 2) may exceed pressure at the priority port (port 3).
- Maximum pressure at port 3 should be limited to 3000 psi.
- Both priority and bypass flow are usable up to the system operating pressure.
- Bypass flow is not available until priority flow requirements are satisfied.
- Blocking priority flow will also block bypass flow.

OPTION ORDERING INFORMATION

Model Codes printed in Red are Preferred Versions and most readily available

Visit www.sunhydraulics.com for detailed and complete technical information on our full line of products.
Priority Flow Control Valves

VENTABLE, BYPASS / RESTRICTIVE, FIXED ORIFICE

- Maximum operating pressure = 5000 psi
- Nominal vent flow = 46 in³/min.
- Pressure at the bypass port (port 2) may exceed pressure at the priority port (port 3).
- Maximum pressure at port 3 should be limited to 3000 psi.
- Both priority and bypass flow are usable up to the system operating pressure.
- Bypass flow is not available until priority flow requirements are satisfied, except when the valve is vented. When port 4 (vent) is open, all flow diverts to port 2 if pressure at port 1 (inlet) is 150 psi or higher.
- Using a pressure control on port 4 will limit the pressure at the priority port (port 3). If pressure on the bypass port (port 2) exceeds the setting of the pressure control, priority flow will be shut off and all the flow will go out the bypass port.
- Blocking priority flow will also block bypass flow.

Performance Curves

- Cartridge Dimensions

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Typical Cartridge Model Code</th>
<th>Cavity</th>
<th>a</th>
<th>b</th>
<th>X</th>
<th>L</th>
<th>K</th>
<th>Installation Torque (lb. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-6.0 GPM</td>
<td>FVCA – XAN</td>
<td>T - 21A</td>
<td>1.38</td>
<td>7/8”</td>
<td>1.78</td>
<td>3.09</td>
<td>3.34</td>
<td>30/35</td>
</tr>
<tr>
<td>1-12.0 GPM</td>
<td>FVDA – XAN</td>
<td>T - 22A</td>
<td>1.38</td>
<td>1 1/8”</td>
<td>2.00</td>
<td>3.44</td>
<td>3.69</td>
<td>45/50</td>
</tr>
<tr>
<td>2-25 GPM</td>
<td>FVEA – XAN</td>
<td>T - 23A</td>
<td>1.81</td>
<td>1 1/4”</td>
<td>2.50</td>
<td>3.94</td>
<td>4.19</td>
<td>150/160</td>
</tr>
<tr>
<td>2-50 GPM</td>
<td>FVFA – XAN</td>
<td>T - 24A</td>
<td>2.50</td>
<td>1 5/8”</td>
<td>3.16</td>
<td>4.76</td>
<td>5.01</td>
<td>350/375</td>
</tr>
</tbody>
</table>

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Priority Flow Control Valves

VENTABLE, BYPASS / RESTRICTIVE, FIXED ORIFICE WITH INTEGRAL PILOT CONTROL CAVITY

The -8 control option allows the pilot control valve to be incorporated directly into the end of the priority flow control cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges on page 121.

Performance Curves

- Maximum operating pressure = 5000 psi
- Nominal vent flow = 46 in³/min.
- Pressure at the bypass port (port 2) may exceed pressure at the priority port (port 3).
- Maximum pressure at port 3 should be limited to 3000 psi.
- Both priority and bypass flow are usable up to the system operating pressure.
- Bypass flow is not available until priority flow requirements are satisfied, except when the valve is vented. When port 4 (vent) is open, all flow diverts to port 2 if pressure at port 1 (inlet) is 150 psi or higher.
- Using a pressure control on port 4 will limit the pressure at the priority port (port 3). If pressure on the bypass port (port 2) exceeds the setting of the pressure control, priority flow will be shut off and all the flow will go out the bypass port.
- Blocking priority flow will also block bypass flow.
- The main stage valve should first be installed to the correct torque value followed by the T-8A pilot control section into the main stage valve to its required torque value.

OPTION ORDERING INFORMATION Model Codes printed in Red are Preferred Versions and most readily available

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nominal capacity

<table>
<thead>
<tr>
<th>Nominal Capacity</th>
<th>Control**</th>
<th>Adjustment Range</th>
<th>Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>C  -1-6.0 GPM</td>
<td>T-8A cavity in hex body for pilot operation (Pilot valve to be ordered separately)</td>
<td>Fixed Orifice</td>
<td>A Fixed Orifice</td>
</tr>
<tr>
<td>D  -1-12.0 GPM</td>
<td></td>
<td>N Buna-N</td>
<td></td>
</tr>
</tbody>
</table>
| E  -2-25 GPM     |  | V Vinne
| F  -2-50 GPM     |  |  |

Maximum Inlet Flow:
- FVCA: 15 GPM
- FVDA: 30 GPM
- FVEA: 60 GPM
- FVFA: 120 GPM

Priorities Flow ranges:
- FVCA: 1-6.0 GPM
- FVDA: 1-12.0 GPM
- FVEA: 1-25 GPM
- FVFA: 1-50 GPM

**See page 162 for information on Control Options
Priority Flow Control Valves

**BYPASS / RESTRICTIVE MODULATING ELEMENT**

- Maximum operating pressure = 5000 psi
- Bypass flow is not available until priority flow requirements are satisfied.
- Bypass pressure at port 4 can be higher than pressure at control port 2.
- Priority flow can be turned on or off with a pilot sized solenoid valve on port 1.

**OPTION ORDERING INFORMATION**  Model Codes printed in Red are Preferred Versions and most readily available

<table>
<thead>
<tr>
<th>Maximum Inlet Flow</th>
<th>Control**</th>
<th>Adjustment Range</th>
<th>Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 GPM D</td>
<td>X Non-adjustable</td>
<td>E 75 - 100 psi</td>
<td>N Buna-N</td>
</tr>
<tr>
<td>30 GPM F</td>
<td></td>
<td>F 100 - 140 psi</td>
<td>V Viton</td>
</tr>
<tr>
<td>60 GPM H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120 GPM J</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** See page 162 for information on Control Options

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