Hybrid Relief Valves

<table>
<thead>
<tr>
<th>Cartridge Type</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Acting Relief Valve - Before Check</td>
<td>156</td>
</tr>
<tr>
<td>Direct Acting Relief Valve - After Check</td>
<td>157</td>
</tr>
<tr>
<td>Ventable, Pilot Operated, Balanced Piston, Relief Valve - Before Check</td>
<td>158</td>
</tr>
<tr>
<td>Ventable, Pilot Operated, Balanced Piston, Relief Valve - Before Check with Integral Pilot Control Cavity</td>
<td>159</td>
</tr>
</tbody>
</table>
Hybrid Valves

DIRECT ACTING RELIEF VALVE - BEFORE CHECK

- Maximum operating pressure = 350 bar
- Maximum valve leakage at reseat = 0.3 cc/min.
- Reseat exceeds 85% of crack pressure
- Factory pressure setting established at 15 L/min.
- Free flow check cracking pressure = 1.7 bar
- Typical response = 2 ms
- The check portion of the valve has a maximum leakage rate of less than 0.07 cc/min.
- Note: This valve deviates from Sun’s normal flow path for three port relief valves; port 2 is the inlet, port 1 is the system and port 3 is tank. Therefore, it is probably not useable in existing standard Sun relief manifolds.

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

<table>
<thead>
<tr>
<th>Nominal Capacity</th>
<th>Control**</th>
<th>Adjustment Range</th>
<th>Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>D 40 L/min.</td>
<td>L Standard Screw Adjustment</td>
<td>A 35 - 210 bar</td>
<td>N Buna-N</td>
</tr>
<tr>
<td></td>
<td>C Tamper Resistant Factory Set</td>
<td>W 55 - 315 bar</td>
<td>V Viton</td>
</tr>
<tr>
<td></td>
<td>K Handknob</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** See page 162 for information on Control Options

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

DIRECT ACTING RELIEF VALVE - AFTER CHECK

- Maximum operating pressure = 350 bar
- Maximum valve leakage at reseat = 0.3 cc/min.
- Reseat exceeds 85% of crack pressure
- Factory pressure setting established at 15 L/min.
- Free flow check cracking pressure = 1.7 bar
- Typical response = 2 ms
- The check portion of the valve has a maximum leakage rate of less than 0.07 cc/min.
- Note: This valve deviates from Sun's normal flow path for three port relief valves; port 2 is the inlet, port 1 is the system and port 3 is tank. Therefore, it is probably not useable in existing standard Sun relief manifolds.

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.
Hybrid Valves

VENTABLE, PILOT OPERATED, BALANCED PISTON, RELIEF VALVE - BEFORE CHECK

- Maximum operating pressure = 350 bar
- Maximum valve leakage (port 2 to port 3) = 32.8 cc/min. at 70 bar
- Factory pressure setting established at 15 L/min.
- Free flow check cracking pressure = 1.7 bar
- Typical response = 10 ms
- Minimum setting is 5 bar for all spring ranges.
- Back pressure at port 3 (tank) is directly additive to the valve setting at a 1:1 ratio.
- Pressure at port 4 (vent) controls the valve below its setting.
- The check portion of the valve has a maximum leakage rate of less than 0.07 cc/min.
- Note: This valve deviates from Sun’s normal flow path for four port relief valves; port 2 is the inlet, port 1 is the system, port 3 is tank and port 4 is vent. Therefore, it is probably not usable in existing standard Sun relief manifolds.

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

- Customer may specify pressure setting.

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

<table>
<thead>
<tr>
<th>Nominal Capacity</th>
<th>Control**</th>
<th>Adjustment Range</th>
<th>Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 L/min.</td>
<td>L Standard Screw Adjustment</td>
<td>A 5 - 210 bar</td>
<td>N Buna-N</td>
</tr>
<tr>
<td></td>
<td>C Tamper Resistant Factory Set</td>
<td>B 5 - 105 bar</td>
<td>V Viton</td>
</tr>
<tr>
<td></td>
<td>K Handknob</td>
<td>D 5 - 55 bar</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 5 - 315 bar</td>
<td></td>
</tr>
</tbody>
</table>

** See page 162 for information on Control Options
Hybrid Valves

VENTABLE, PILOT OPERATED, BALANCED PISTON, RELIEF VALVE - BEFORE CHECK WITH INTEGRAL PILOT CONTROL CAVITY

The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief 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 = 350 bar
- Maximum valve leakage (port 2 to port 3) = 32.8 cc/min. at 70 bar
- Free flow check cracking pressure = 1.7 bar
- Minimum setting is 5 bar for all spring ranges.
- Back pressure at port 4 (tank) is directly additive to the valve setting at a 1:1 ratio.
- The check portion of the valve has a maximum leakage rate of less than 0.07 cc/min.
- Note: This valve deviates from Sun’s normal flow path for four port relief valves; port 2 is the inlet, port 1 is the system, port 3 is tank and port 4 is vent. Therefore, it is probably not useable in existing standard Sun relief manifolds.
- With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed 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

- HVCA – 8DN
- Nominal Capacity: 40 L/min.
- Control: 8 with T-8A cavity in hex body for pilot operation
- Adjustment Range: 5 bar
- Seal: N Buna-N
- Viton

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