NEW DELTROL fluid products
DIVISION OF DELTROL CORP

DPOR, DRVK, DPRR, DPS3, DPSK
5,000 psi Pressure Control Valves
DPOR-080 Adjustable Pilot Operated Relief Valve

DESCRIPTION
An adjustable, pilot operated spool cartridge valve designed to limit flow in hydraulic circuits.

OPERATION
The DPOR-080 prevents flow from \(1\) to \(2\) until pressure at \(1\) exceeds the set crack pressure and opens the pilot section. The pilot flow creates a pressure differential across the spool which causes the valve to open allowing flow from \(1\) to \(2\) and thus protecting the circuit from over pressurization.

FEATURES AND BENEFITS
- Rapid response to pressure surges.
- Quiet operation.
- High accuracy of pilot operated design.
- Hardened parts for long life.
- DPOR-080-S has an adjustment screw that can be locked in place. DPOR-080-H has a hidden, tamper resistant style adjustment.
- Adjustment prevents spring from going solid.
- Industry common cavity.
- Compact size.
- High flow capacity.

SPECIFICATIONS
- Operating Pressure: 5000 psi (345 Bar)
- Flow: 20 GPM (75.7 L/min)
- Internal Leakage: 5 in³/mi (82 cc/min) max at 3000 psi (207 Bar)
- Crack Pressure Defined:
- Re-Set Pressure: Nominal 80% of crack pressure
- Standard Spring Ranges: 300 to 5000 psi (20 to 345 Bar)
  Preset: See HOW TO ORDER below
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids; Consult factory for other fluid compatibility
- Cavity: 080-2
- Cavity Tool: See catalog

PRESSURE DROP VS. FLOW

HOW TO ORDER

DPOR - 080 - U - * - XX/ **** - **

Pilot Operated Relief Valve
Cavity/Seal
SEAL COMPOUND
N = Buna N
V = Viton
U = Urethane
S = Screw Adjustment Style
H = Hidden Adjustment Style

SPRING RANGES
20 = 300 - 2000 PSI (20 to 138 Bar)
Preset: 300 PSI (20 Bar)
50 = 2000 to 5000 PSI (138 to 345 Bar)
Preset: 4000 PSI (276 Bar)

BODY PORTING††
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Ord for Cartridge Only

FACTORY PRESET PSI
50 PSI increments
Example: 2550 = 2550 PSI
Ord for Standard

†U = Urethane option required for pressures above 3000 psi (207 Bar)
†† Other porting options available - consult factory.
DPOR-080-*-S
Adjustable Pilot Operated Relief Valve

USASI/ISO

INSTALLATION DIMENSIONS

DPOR-080-*-H
Adjustable Pilot Operated Relief Valve

USASI/ISO

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters
**DESCRIPTION**

An adjustable, pilot operated spool cartridge valve designed to allow flow to actuator circuits until a predetermined pressure is attained, then to discharge flow back to tank at a low pressure.

**OPERATION**

Flow is blocked from port 1 to 2 until system pressure exceeds the valve setting allowing flow through the pilot section to pass out of the vent port. As flow passes through the pilot section the resulting differential pressure shifts the main spool to unload the system to a predetermined low pressure. When the system pressure is reduced below 50 psi (3.4 bar), the valve will reset itself and again block flow from port 1 to 2.

Flow is blocked from port 2 to 1. Pressure at port 2 is added to valve setting.

**FEATURES AND BENEFITS**

- Quiet operation.
- High accuracy of pilot operated design.
- Hardened parts for long life.
- DRVK-080-S has an adjustment screw that can be locked in place. DRVK-080-H has a hidden, tamper resistant style adjustment.
- Adjustment prevents spring from going solid.
- Industry common cavity.
- Compact size.
- High flow capacity.

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Operating Pressure: 5000 psi (345 Bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow: 10 GPM (37.9 L/min)</td>
</tr>
<tr>
<td>Internal Leakage: 5 in³/μm (82 cc/min) max at 80% of crack pressure</td>
</tr>
<tr>
<td>Crack Pressure Defined: Determined at .25 GPM (1.0 L/min)</td>
</tr>
<tr>
<td>Re-Set Pressure: When Port 2 pressure is below 50 psi (3.4 Bar), valve will reset to original pressure setting.</td>
</tr>
<tr>
<td>Standard Spring Ranges: 400 to 5000 psi (28 to 345 Bar)</td>
</tr>
<tr>
<td>Preset: See HOW TO ORDER</td>
</tr>
<tr>
<td>Temperature: -30°F to +250°F (-35°C to +120°C)</td>
</tr>
<tr>
<td>Recommended Filtration: ISO 17/15/13</td>
</tr>
<tr>
<td>Fluids: Mineral-based fluids; Consult factory for other fluid compatibility</td>
</tr>
<tr>
<td>Cavity: 080-2</td>
</tr>
<tr>
<td>Cavity Tool: See catalog</td>
</tr>
</tbody>
</table>

**HOW TO ORDER**

DRVK - 080 - U - * - XX/ **** - **

Kick-Down Relief Valve

<table>
<thead>
<tr>
<th>Seal Compound</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = Buna N</td>
</tr>
<tr>
<td>V = Viton</td>
</tr>
<tr>
<td>U = Urethane</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screw Adjustment Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>S = Screw Adjustment Style</td>
</tr>
<tr>
<td>H = Hidden Adjustment Style</td>
</tr>
</tbody>
</table>

**PRESSURE DROP VS. FLOW**

- Pressure drop vs. flow for flow from port 1 to unloaded (150 mm/32 cH Oil @ 100°F/38°C)

**PRESSURE RISE VS. FLOW**

- Pressure rise vs. flow for flow from port 1 to unloaded (150 mm/32 cH Oil @ 100°F/38°C)

**OTHER PORTING OPTIONS AVAILABLE - CONSULT FACTORY.**

**FACTORIES**

- Standard Spring Ranges
  - 15 = 400 - 1500 psi (28 to 103 Bar)
  - Preset: 500 psi (34 Bar)
  - 40 = 1000 - 4000 psi (69 to 276 Bar)
  - Preset: 2000 psi (139 Bar)
  - 50 = 2000 to 5000 psi (138 to 345 Bar)
  - Preset: 4000 psi (276 Bar)

- Other porting options available - consult factory.
**DPRR-080**

**Pilot Operated Pressure Reducing/Relieving Valve**

**DESCRIPTION**
An adjustable, pilot operated spool cartridge valve designed to regulate pressure in secondary circuits.

**OPERATION**
The DPRR-080 in steady state will allow bi-directional flow between 1 and 2 with spring chamber 3 vented. When the preset pressure at 1 is achieved, the spool throttles to regulate pressure at 1 by restricting flow at 2. The valve will relieve 1 to 3.

**FEATURES AND BENEFITS**
- Hardened precision spool and sleeve for long life.
- Variety of pressure ranges.
- High accuracy of pilot operated design.
- Adjustment prevents spring from going solid.
- DPRR-080-S has an adjustment screw that can be locked in place. DPRR-080-H has a hidden, tamper resistant style adjustment.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**
- Operating Pressure: 5000 psi (345 Bar)
- Flow: 6 GPM (22.7 L/min)
- Internal Leakage: 5 in³/ni (82 cc/min) max at 3000 psi (207 Bar)
- Standard Spring Ranges:
  - 300 to 5000 psi (20 to 345 Bar)
  - Preset: See How To Order below
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: ISO 19/15
- Fluids: Mineral-based fluids; Consult factory for other fluid compatibility
- Cavity: 080-3
- Cavity Tool: See catalog

**PRESSURE DROP VS. FLOW**

**HOW TO ORDER**

**DPRR - 080 - ** - ** - **

<table>
<thead>
<tr>
<th>Reducing/Relieving Valve</th>
<th>Cavity/Seal</th>
<th>SEAL COMPOUND</th>
<th>SPRING RANGES†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N = Buna N</td>
<td>20 = 300 - 2000 psi (20 to 138 Bar)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V = Viton</td>
<td>40 = 1800 to 4000 psi (124 to 276 Bar)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>U = Urethane</td>
<td>50 = 2000 to 5000 psi (138 to 345 Bar)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S = Screw Adjustment Style</td>
<td>Preset: 300 PSI (20 Bar)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H = Hidden Adjustment Style</td>
<td>Preset: 3000 PSI (207 Bar)</td>
</tr>
</tbody>
</table>

**BODY PORTING**

- 2N = 1/4 PTF
- 3N = 3/8 PTF
- 6T = SAE 6
- 8T = SAE 8

**FACTORY PRESET PSI**

- 50 PSI increments
- Example: 2550 = 2550 PSI

†U = Urethane option required for pressures above 3000 psi (207 Bar)

††Other porting options available - consult factory.
**DPS3-080**  
Pilot Operated Sequence Valve

**DESCRIPTION**  
An adjustable, pilot operated spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

**OPERATION**  
The DPS3-080 in steady state blocks flow at 1 while allowing flow from 2 to 3. When the preset pressure at 1 is achieved the pilot section opens. This pilot flow creates a pressure differential across the spool, which causes the spool to shift to allow flow from 1 to 2.

**FEATURES AND BENEFITS**  
• Hardened precision spool and sleeve for long life.  
• Variety of pressure ranges.  
• High accuracy of pilot operated design.  
• Adjustment prevents spring from going solid.  
• DPS3-080-S has an adjustment screw that can be locked in place. DPS3-080-H has a hidden, tamper resistant style adjustment.  
• Industry common cavity.  
• Compact size.

**SPECIFICATIONS**  
**Operating Pressure:** 5000 psi (345 Bar)  
**Flow:** 6 GPM (22.7 L/min)  
**Internal Leakage:** 5 in³/mi (82 cc/min) max at 3000 psi (207 Bar)  
**Standard Spring Ranges:** 300 to 5000 psi (20 to 345 Bar)  
**Preset:** See HOW TO ORDER below  
**Temperature:** -30°F to +250°F (-35°C to +120°C)  
**Recommended Filtration:** ISO 19/15  
**Fluids:** Mineral-based fluids; Consult factory for other fluid compatibility  
**Cavity:** 080-3  
**Cavity Tool:** See catalog

**PRESSURE DROP VS. FLOW**

**HOW TO ORDER**

**DPS3 - 080 - U - * - XX/ **** - ****

- **Pilot Operated Sequence Valve**  
- **Cavity/Seal**

**SEAL COMPOUND**

- **U** = Urethane
- **S** = Screw Adjustment Style
- **H** = Hidden Adjustment Style

**SPRING RANGES**

- **15** = 300 - 2500 PSI (20 to 103 Bar)  
  Preset: 300 PSI (20 Bar)
- **50** = 1000 to 5000 PSI (69 to 345 Bar)  
  Preset: 3000 PSI (207 Bar)

**BODY PORTING**

- **2N = 1/4 PTF**
- **3N = 3/8 PTF**
- **6T = SAE 6**
- **8T = SAE 8**

**FACTOR PRESSET PSI**

- **50 PSI increments**  
  Example: 2550 = 2550 PSI

*Other options available - consult factory.  
**Other porting options available - consult factory.
**DPS3-080-** S

Pilot Operated Sequence Valve

**USASI/ISO**

**INSTALLATION DIMENSIONS**

- SCREW ADJUSTMENT
- 3/16 HEX SOCKET
- 88 (22.4) HEX TORQUE 20 F/LBS (27.1 Nm) MAX.

---

**DPS3-080-** H

Pilot Operated Sequence Valve

**USASI/ISO**

**INSTALLATION DIMENSIONS**

- SCREW ADJUSTMENT
- 3/16 HEX SOCKET
- 88 (22.4) HEX TORQUE 20 F/LBS (27.1 Nm) MAX.

( ) Parentheses = Millimeters
DPSK-080
Pilot Operated Kick-Down Sequence Valve

DESCRIPTION
An adjustable, pilot operated spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

OPERATION
The DPSK-080 in steady state blocks flow at 1 while allowing flow from 2 to 3. When the preset pressure at 1 is achieved the pilot section opens. This pilot flow creates a pressure differential across the spool, which causes the spool to shift to allow flow from 1 to 2. The spool will not shift back (kick-down) until pressure at 2 falls below a predetermined pressure.

FEATURES AND BENEFITS
• Hardened precision spool and sleeve for long life.
• Variety of pressure ranges.
• High accuracy of pilot operated design.
• Adjustment prevents spring from going solid.
• DPSK-080-S has an adjustment screw that can be locked in place. DPSK-080-H has a hidden, tamper resistant style adjustment.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 5000 psi (276 Bar)
Flow: 6 GPM (22.7 L/min)
Internal Leakage: 5 in³/min (82 cc/min) max at 3000 psi (207 Bar)

Standard Spring Ranges:
Pressure: 300 to 5000 psi (20 to 276 Bar)
Preset: See HOW TO ORDER below

Re-Set Spring Pressure:
100 psi (7 Bar)
Temperature:
-30°F to +250°F (-35°C to +120°C)

Recommended Filtration:
ISO 19/15

Fluids:
Mineral-based fluids; Consult factory for other fluid compatibility

Cavity: 080-3
Cavity Tool: See catalog

PRESSURE DROP VS. FLOW

HOW TO ORDER
DPSK - 080 - * - * - XX/ **** - **

Kick-Down Sequence Valve

Cavity/Seal

SEAL COMPOUND
N = Buna N
V = Viton
U = Urethane

S = Screw Adjustment Style
H = Hidden Adjustment Style

SPRING RANGES
20 = 300 - 2000 PSI (20 to 138 Bar)
Preset: 1000 PSI (103 Bar)
40 = 600 to 5000 PSI (41 to 276 Bar)
Preset: 3000 PSI (207 Bar)

BODY PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8

FACTORY PRESET PSI
50 PSI increments
Example: 2550 = 2550 PSI

†U = Urethane option required for pressures above 3000 psi (207 Bar)
††Other porting options available - consult factory.
**DPSK-080-**-*S*

Pilot Operated Kick-Down Sequence Valve

**USASI/ISO**

**INSTALLATION DIMENSIONS**

- SCREW ADJUSTMENT 3/16 HEX SOCKET
- 88 (22.4) HEX.

**DPSK-080-**-*H*

Pilot Operated Kick-Down Sequence Valve

**USASI/ISO**

**INSTALLATION DIMENSIONS**

- SCREW ADJUSTMENT 3/16 HEX SOCKET
- 88 (22.4) HEX.

( ) Parentheses = Millimeters
Please visit us at

www.deltrolfluid.com

for information on these other Deltrol product lines:

• High Performance Hydraulic Cartridge Valves
• Hydraulic Integrated Circuit Manifolds
• In-Line Flow Control, Needle, Check and Accessory Valves
• Custom Solutions for Your Fluid Power and Fluid Control Demands

Or Contact Us and Request a Free Catalog.