PR50-38 Pressure Reducing/Relieving Spool Valve

DESCRIPTION
A screw-in, cartridge-style, direct-acting, spool-type, hydraulic pressure reducing/relieving valve, with internal spring-chamber drain and spool damping chamber. It is designed to act as a pressure regulating valve for secondary circuits. Port 2 may be protected with a 60 mesh 250 micron rated screen.

OPERATION
In its steady state, the PR50-38 allows flow to pass bidirectionally from port 2 to port 1, with the spring chamber constantly drained at port 3. Upon attainment of a predetermined pressure at 1, the spool shifts to block flow at 2, thereby regulating pressure at 1. In this mode, the valve will also relieve from port 1 to port 3, at a variable value over the set reducing pressure.

FEATURES
- Adjustments cannot be backed out of the valve.
- Adjustments prohibit springs from going solid.
- Optional spring ranges to 227.5 bar (3300 psi).
- Optional 60 mesh, 250 micron screen at port 2.
- Corrosion protection of 960 hours salt spray per ASTM B117.
- Industry common cavity.

RATINGS
Pressure Rating: 345 bar (5000 psi) at ports 1 and 2; 68.9 bar (1000 psi) at port 3; 241 bar (3500 psi) max for F and H adjustment options. Optional screen at port 2 adds 1.73 bar (25 psi) @ 22.7 lpm (6 gpm) and 2.41 bar (35 psi) @ 30.3 lpm (8 gpm).

Proof Pressure: 482.6 bar (7000 psi) at ports 1 and 2; 68.9 bar (1000 psi) at port 3

Burst Pressure: 1034 bar (15000 psi)

Standard Spring Ranges:

<table>
<thead>
<tr>
<th>Spring code</th>
<th>-5</th>
<th>-15</th>
<th>-21</th>
<th>-33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment range</td>
<td>10 to 38 bar</td>
<td>150 to 550 psi</td>
<td>7 to 103 bar</td>
<td>100 to 1500 psi</td>
</tr>
<tr>
<td>Adjust per turn (F/H adjuster)</td>
<td>7.5 bar (109 psi)</td>
<td>25.7 bar (379 psi)</td>
<td>43.5 bar (631 psi)</td>
<td></td>
</tr>
<tr>
<td>Adjust per turn (A/B/C/L adjuster)</td>
<td>27.5 bar (406 psi)</td>
<td>55 to 228 bar</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: It may be possible to adjust the valve either lower or higher than the nominal ratings shown. If the valve is adjusted beyond the recommended maximum pressure range for F and H style adjuster options, the valve may not open to relieve pressure.

Maximum Rated Flow: See Performance Chart

Maximum Internal Leakage to Port 3: 82 ml per minute (5.0 cu. in. per minute)

Temperature: -40 to 100°C (-40 to 212°F) with standard Buna N seals;
-26 to 204°C (-15 to 400°F) with fluorocarbon seals;
-54 to 107°C (-65 to 225°F) with polyurethane and urethane seals

Filtration: See page 9.010.1

Fluids: Mineral-based or synthetics with lubricating properties at viscosities of
7.4 to 420 cSt (50 to 2000 sus); See Temperature and Oil Viscosity, page 9.060.1

Installation: No restrictions; See page 9.020.1

Cavity: VC10-3; See page 9.110.1 Cavity Tool: CT10-3XX; See page 8.600.1

Seal Kit: SK10-3X-BM; See page 8.650.1

Performance (Cartridge Only)

Pressure Drop
Port 2 to 1 — Port 1 to 3 —
32 cSt/150 sus oil at 40°C (104°F)

Note to Customer:
- It may be possible to adjust the valve either lower or higher than the nominal ratings shown. If the valve is adjusted beyond the recommended maximum pressure range for F and H style adjuster options, the valve may not open to relieve pressure.

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**Damped, Direct-Acting**

**PR50-38**

### DIMENSIONS

Orifice Disc should not be used with this valve.

- **ACROSS FLATS**
  - 2.25 mm
- **MAX.**
  - 3.34 mm
- **1.00**

**TORQUE:** 25–27 ft-lbs (33.9–36.6 Nm)
- **H-Plug Torque:** 25 ft-lbs (33.9 Nm)

### MATERIALS

**Cartridge:** Weight: 0.27 to 0.31 kg (0.59 to 0.69 lb) depending on adjustment type. Steel with hardened work surfaces. Zinc-plated exposed surfaces. Buna N O-rings and polyester elastomer back-ups standard. Anodized aluminum knobs and caps.

**Standard Ported Body:** Ductile iron (code D) bodies are required for operation over 207 bar (3000 psi). Anodized high-strength aluminum alloy, rated to 207 bar (3000 psi) also available, dimensions may differ; consult factory. See page 8.010.1

*If the valve is adjusted beyond the recommended maximum pressure range for the F and H style adjuster options, the valve may not open to relieve system pressure.

### TO ORDER

- **Cartridge Only**
  - 0
- **SAE 6**
  - 6T
- **SAE 8**
  - 8T
- **SAE 6**
  - 6TD
- **SAE 8**
  - 8TD
- **1/4 in. BSP**
  - 2B
- **1/4 in. BSP**
  - 2BD
- **3/8 in. BSP**
  - 3B
- **3/8 in. BSP**
  - 3BD
  - *BSP Body; U.K. Mfr Only

**Seals**

- Buna N (Std.)
- Fluorocarbon
- Polyurethane
- Urethane

**Porting**

- **Screen**
- **No Screen**
- **(blank)**
- **250 Micron Screen** - S

**Setting in bar**

- *Adjustable valves will be preset to approx. 50% of spring max. potential.

**Setting in psi**

- *Adjustable valves will be preset to approx. 50% of spring max. potential.

**Spring Range**

- *241 bar (3500 psi) max for F and H Adjustment options.*