PV70-33 Proportional, Spool, Normally Closed

DESCRIPTION
A solenoid-operated, spool-type, normally closed, proportional flow control valve designed for use with a pressure compensator to function as a proportional flow regulator.

OPERATION
The PV70-33 provides regulated flow from port 3 to port 2 with input from port 1 blocked. Regulated flow is proportional to electric current applied to solenoid.

Operation of Manual Override:
To Engage: Turn clockwise approximately 1 turn to reach start point. Continue another approximately 5 turns to full shift.
To Disengage: Turn counterclockwise approximately 6 turns to positive stop.

FEATURES
• Several regulated flow ranges.
• Excellent linearity and hysteresis.
• Optional control orifice sizes.
• Hardened spool and cage for long life.
• Optional coil voltages and terminations.
• Efficient wet armature construction.

RATINGS
Operating Pressure: Inlet (Port 1) 241 bar (3500 psi); Regulated (Port 3) 207 bar (3000 psi); Bypass (Port 2) 207 bar (3000 psi)
Proof Pressure: 345 bar (5000 psi)
Burst Pressure: (896 bar (13,000 psi)
Flow Rating: Range A - 0 to 45.4 lpm (0 to 14 gpm) Range B - 0 to 37.8 lpm (0 to 10 gpm); Range C - 0 to 18.9 lpm (0 to 5 gpm)
Internal Leakage: 197 cc/min. (12 cu. in./min.) fully closed at 207 bar (3000 psi)
Operating 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
Electrical: (with 70-size D-series and E-series coils)

<table>
<thead>
<tr>
<th>Coil Voltage (VDC)</th>
<th>Valve Inductance (mH)</th>
<th>Threshold Current (mA)</th>
<th>Maximum Control Current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E-Coil</td>
<td>D-Coil</td>
<td>A or B</td>
</tr>
<tr>
<td>12</td>
<td>240</td>
<td>200</td>
<td>300 ± 70</td>
</tr>
<tr>
<td>24</td>
<td>700</td>
<td>600</td>
<td>150 ± 35</td>
</tr>
</tbody>
</table>

Hysteresis: ± 0.9 lpm (0.25 gpm) maximum
Dither/PWM Frequency Range: 100 to 250 Hz

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: Install D-series coils with two O-rings above and below the coil. Install E-series coils with only one O-ring above the coil. Manual override options M and G require Coil Nut Kits. See part numbers below. See Cartridge Installation, page 9.020.1 for cartridge, coil and coil retainer installation. To assure proper function, coil retainer must be installed.

Cavity: VC10-3; See page 9.110.1
Cavity Tool: CT10-3X-XX; See page 8.600.1
Seal Kit: SK10-3X-MM; See page 8.650.1 for seal kit options and appropriate seals based on application temperature range.
Coil Nut Kits (for Manual Override Option G): 4001214; (for Option M): 420218
**PV70-33**

**DIMENSIONS**

![Diagram](image)

**Materials**

- **Cartridge**: Weight: 0.32 kg (0.70 lb)  
  With Option M: 0.38 kg (0.83 lb)  
  With Option G: 0.46 kg (1.02 lb)  

- **Standard Ported Body**: Weight: 0.36 kg (0.80 lb) Anodized high-strength aluminum alloy, rated to 207 bar (3000 psi). Ductile iron bodies available; dimensions may differ. See page 8.010.1

- **70-Size “D” Coil**: Weight: 0.32 kg (0.7 lb) Unitized thermoplastic encapsulated, Class H high temperature magnet-wire. See page 3.200.7.

- **70-Size “E” Coil**: Weight: 0.41 kg (0.9 lb) Fully encapsulated with rugged external metal shell. IP69K rated. See page 3.400.1.

- **Port Plug**: For SAE 6 Port: 6103006  
  For SAE 8 Port: 6103008; See page 8.500.1.

**Regulated Flow Range**

- 0-45.4 lpm (0-14 gpm)  
- 0-37.8 lpm (0-10 gpm)  
- 0-18.9 lpm (0-5 gpm)

**Option(s)**

- None (Blank)  
- Manual Override  
- Manual Override with Guard

**Seals**

- Buna N (Std.)  
- Fluorocarbon

**Terminations D-Coil**

- Dual Spades  
- DIN 43650  
- Leadwires (2)  
- Leads w/Weatherpak® Connectors

**Terminations E-Coil**

- IP69K Rated  
- Deutsch DT04-2P  
- Metri-Pack® 150

**Voltage**

- 0 V DC  
- 12 V DC  
- 24 V DC

**MATERIALS**

**TO ORDER**

![Ordering Information](image)