**SV90-G40R  Spool, 4-Way, 2-Position, Drop-In-Style**

**DESCRIPTION**
A direct-acting, spool-type, two-position, four-way, directional control valve. It is a drop-in, flange-mounted, cartridge-type valve for use with general purpose hydraulic fluids. The coil is an integral part of the valve and is not serviceable.

**OPERATION**
When de-energized, the SV90-G40R allows flow from 3 to 4 and from 2 to 1. When energized, the spool shifts to allow flow from 3 to 2 and from 4 to 1.

**FEATURES**
- Bi-directional operation.
- Economical drop-in style.
- Reduced leakage.
- Fast response.
- Low pressure drop
- Corrosion-resistant plating.
- Inlet port screen option for additional resistance to contamination.
- Higher flow capacity at lower temperatures.
- Integral waterproof coil standard.
- Coil voltage range from 10 to 28 VDC.
- Top-mounted coil with several push-on termination options.
- Round flange with optional mounting plates provides more options for orientation.
- Retrofit mounting options also available.

**RATINGS**
- **Operating Pressure:** 45 bar (650 psi) all ports
- **Proof Pressure:** 54 bar (780 psi) at port 1; 207 bar (3000 psi) at ports 2 and 3
- **Burst Pressure:** 165 bar (2400 psi) - all ports pressurized; 275 bar (4000 psi) - ports 2 and 3 pressurized
- **Flow Rating:** 30 lpm (8 gpm)
- **Internal Leakage:** 120 ml/minute (7.3 cu. in./minute) at 45 bar (650 psi)
- **Cycle Life:** 10 million cycles
- **Fluid Temperature:** -40 to 149 °C (-40 to 300 °F) with HBNR seals; -40 to 204 °C (-15 to 400 °F) with fluorocarbon seals
- **Ambient Temperature:** -40 to 120 °C (-40 to 248 °F)
- **Coil Duty Rating:** Continuous from 75% to 115% of nominal voltage
- **Minimum Pull-in Voltage:** 75% of nominal voltage at 120 °C (248 °F) ambient
- **Response Time:** First indication of change of state with 100% voltage at flow rating:
  - Pull-in: 30 ms; Drop-out: 30 ms.
- **Valve Inductance:**
  - 65 mH (10V), 98 mH (12V), 146 mH (14V), 273 mH (20V),
  - 418 mH (24V), 620 mH (28V)
- **Environmental Rating:** IP69k. 1000-hour salt spray per ASTM B117.
- **Filtration:** See page 9.010.1
- **Fluids:** Mineral-based or synthetic hydraulic fluid with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus).
- **Seal Kit:** SK-G026-X; See page 8.650.1

**INSTALLATION**
Flange-mounted, standard mounting configuration shown. Two- and three-valve mounting plate options and retrofit mounting options also available. Part numbers for body, flange, and mounting screws will differ. See page 8.500.5

**Mounting Screws:** M5 x 0.8 x 12 mm long; Part No. 4002609 (sold separately)

**Coil Duty Rating:** Continuous from 75% to 115% of nominal voltage

**Pressure Drop vs. Flow**

<table>
<thead>
<tr>
<th>FLOW lpm/gpm</th>
<th>PRESSURE DROP bar/psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.3/120</td>
</tr>
<tr>
<td>2</td>
<td>6.9/100</td>
</tr>
<tr>
<td>3</td>
<td>5.8/80</td>
</tr>
<tr>
<td>4</td>
<td>4.6/60</td>
</tr>
<tr>
<td>5</td>
<td>3.8/50</td>
</tr>
<tr>
<td>6</td>
<td>2.8/40</td>
</tr>
<tr>
<td>7</td>
<td>2.2/30</td>
</tr>
<tr>
<td>8</td>
<td>1.4/20</td>
</tr>
</tbody>
</table>

**Pressure Drop vs. Flow 32 cSt/150 sus oil at 40°C (104°F)**

- Port 4-1
- Port 3-2
- Port 3-4
- Port 2-1

**Mounted in a 4-Way Manifold**

See page 1.703.1

**Flange Mounting Plate**: Part No. 4595096 (sold separately) For retrofit applications use Part No. 4210236.

**Mounting Screws**: M5 x 0.8 x 12 mm long; Part No. 4002609 (sold separately)

**Mounting Screw Torque**: 2.2 to 3.0 ft.lbs. (3 to 4 Nm)

**Cavity**: VC-G026. Retrofit Application: VC-T004

**Cavity Tool**: CT-G026X-X-G; See page 8.600.1

**Seal Kit**: SK-G026-X; See page 8.650.1
SV90-G40R

DIMENSIONS

MATERIALS

Cartridge including Coil: Weight:
0.32 kg (0.70 lb) Steel with hard-
ened work surfaces. Zinc-Nickel
plated exposed surfaces. HNBR
O-rings standard. Class N high-
temperature magnet wire, with zinc-
nickel plated shell.

Standard Ported Test Body: Weight:
0.63 kg (1.39 lb) Anodized high-
strength aluminum alloy, rated
to 207 bar (3000 psi). Part No.
71610X0. See page 8.010.1

Note: Retrofit G3 line bodies
and mounting plates are also avai-
lable. Part numbers will differ. See
page 8.500.5 or contact HydraForce
application engineering for details.

Mounting Plate: Must be ordered sepa-
rate: Part No. 4595096 For retrofit
applications use P/N 4210236.

Mounting Screws: Must be ordered sepa-
rate: Part No. 4002609

TO ORDER

SV90-G40R

<table>
<thead>
<tr>
<th>Option</th>
<th>Diode</th>
<th>Termination</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None (Blank)</td>
<td>None</td>
<td>ER Deutsch DT04-2P</td>
<td>10 VDC</td>
</tr>
<tr>
<td>S</td>
<td>Z Bidirectional Zener Diode</td>
<td>EJ AMP Junior Timer</td>
<td>12 VDC</td>
</tr>
<tr>
<td>233 µm screen on inlet port 3</td>
<td>EY2A Metripack 150-2</td>
<td>EY2A Metripack 150-2</td>
<td>28 VDC</td>
</tr>
</tbody>
</table>

Seals

Hydrogenated Nitrile (HNBR)

Fluorocarbon

Termination

ER Deutsch DT04-2P

EJ AMP Junior Timer

EY2A Metripack 150-2