PACKED SPOOL 4-WAY

DIRECTIONAL CONTROL VALVE
4-Way 3-Position Valve

1. Air Cylinder Body
2. Detent Housing
3. Detent (3 Position)
4. Ball Plungers
5. Body/Sleeve Assembly
6. Spool (Stainless Steel)
7. Sleeve (Heat Treated Stainless Steel)
9. Hand Lever
10. Piston Seal Assembly
11. Air Piston
12. Spring Housing
13. Return Spring

4-Way, 3-Position Directional Valve
Air Solenoid Operated

4-Way, 3-Position Valve
Manual Detent

4-Way, 2-Position Valve
Momentary Contact

Spring Offset
Design Features

Long Lasting Parts
- Spool is hydraulically balanced to assure uniform wear

Interchangeability
- Same size seal rings throughout
- No lap fitted parts
- To change function, just change spool
- All functions achieved with 3 spool configurations

Mounting Pattern
- NFPA D05 (CETOP05)

Heavy Duty Design
- Corrosion resistant materials, self compensating seals

Fluid Media
- Water/water soluble oil content of 3%
- Low viscosity fluid, kerosene, etc.
- Raw Water
- Nonflammable fluids
- Hydraulic oil
- For other fluid media, consult factory

Air Actuator Specifications

Recommended air pressure
- PS-250: 72 psi (5 bar) minimum
- PS-415: 81 psi (6 bar) minimum
- All Models: 120 psi (8 bar) maximum

Air volume required to shift: 1.25 cubic inch (20 mL)

DM Operator
- 120 VAC 50/60 Hz
- 1VA inrush, 8VA holding
- 24 VDC - 13 to 2 watts nominal

Minimum air pressure to actuate: 61 psi (4 bar) for 98/2 HWCF

DR Operator
- 120/240 VAC 50/60 Hz
- 87VA inrush, 30VA holding
- 24 VDC - 14 watts nominal

Features
- Solenoid Actuator
- Manual Override
- Indicator Light
Dimensional Data

Double Solenoid Valve
- Weight - 13.5 lbs
- Mounting Screws
  - PS-250: 1/4” or 6mm
  - PS-415: 5/16” or 8mm
- Ross Air Actuator shown below

Single Solenoid Valve
- Weight - 10.5 lbs
- Manual & Manual Detent Valve
- Lockable version available. Consult factory.

Please Note
- For flows over 6 GPM, use of both “T” (Tank”) porting is required to maximize efficiency
- Air cylinder can be rotated in 90° increments
- Dimensions in inches

Double Solenoid Valve
L.H. ACTUATOR SHOWN
R.H. ACTUATOR OPPOSITE

Single Solenoid Valve
L.H. ACTUATOR SHOWN
R.H. ACTUATOR OPPOSITE

Manual Valve
L.H. ACTUATOR SHOWN
R.H. ACTUATOR OPPOSITE
**Ordering Data - Packed Spool Directional Control Valve**

**MODEL CODE EXAMPLE**

```
PS - 250 - 40 - DR - 6 - 11D
```

<table>
<thead>
<tr>
<th>MODEL CODE</th>
<th>MODEL</th>
<th>Actuator Type</th>
<th>Function</th>
<th>Voltage</th>
<th>Valve Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS-250</td>
<td>Code  1</td>
<td>MO/MD</td>
<td>10</td>
<td>220VAC</td>
<td></td>
</tr>
<tr>
<td>PS-415</td>
<td>Code  2</td>
<td>DR &amp; DM</td>
<td>10</td>
<td>220VAC</td>
<td></td>
</tr>
</tbody>
</table>

**ACTUATOR TYPE**

- DM: Air Actuated Valve with MAC Solenoid
- DR: Air Actuated Valve with Ross Solenoid
- MO: Manual Hand Lever Operator
- MD: Manual Hand Lever Operator with Detent

**VOLTAGE**

```
1 8 VDC
2 12 VDC
3 24 VDC
4 48 VDC
5 110 VDC
6 110/120VAC 50/60Hz
8 220/240VAC 50/60Hz
9 410/460VAC 50/60Hz
10 200VAC 50/60Hz
11 440/480VAC 60Hz
12 24VAC 50/60Hz
```

**FUNCTIONS**

```
40 CROSS OVER FOR FUNCTION 01
44 CROSS OVER FOR FUNCTION 02
45 CROSS OVER FOR FUNCTION 03
```

**VALVE ACCESSORIES**

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>11B</td>
<td>Electrical Quick Disconnect Male - Industrial, 3-Blade Pattern</td>
</tr>
<tr>
<td>11D</td>
<td>Electrical Quick Disconnect Male - DIN# 43650, 3-Blade Pattern</td>
</tr>
<tr>
<td>11E</td>
<td>Electrical Quick Disconnect Male - Brad Harrison 3-Pin</td>
</tr>
</tbody>
</table>

**Notes**

1. Codes 3, 6, & 8 are standard voltages. For non-standard voltages, please contact us!
2. For actuator types MO & MD, please use ACTUATOR CODE 7 and corresponding ACTUATOR TYPE MO/MD.
3. PS-415 uses a modified D05 pattern to include 5/16”-18 size bolts.

For custom specifications and non-standard voltages, please contact us! Our team at Elwood is happy to customize a valve to fit your requirements!
Packed Spool Pilot Accessories
(order required items separately)

• Flow Control Sandwich Plate
  - Control flow via adjusting screw
• Pressure Filter
  - Protect pilot portion of the valve
• Ported Subplates
  - For standalone pilot capabilities
• Electrical Cords
  - Supply power to air actuators
• Isolation Valve
  - Lock-out valves from hydraulic system for easy maintenance
• Consult factory for custom specifications

Flow Control Sandwich Plate

• “Check/Choke” Flow Control
• Turn adjustment screw clockwise to decrease flow
• Available in stainless steel

• Compatible with PS-250 & PS-415 models
  - D05-3K/3.6K for PS-250 (9794 8961)
  - D05-6K for PS-415 (9793 8046)
• For custom specifications, consult factory

Flow Control

Pressure Filter

Sandwich Type with Electrical Clogging Indicator

• Filters fluid between pilot valve and poppets.
• Various micron filtration options available.
Ported Subplates

- Model PS-250 (210 bar) available port types:
  - Various NPT connections
  - Various SAE o-ring connections
  - 1/4”-20 UNC mounting bolts
- Model PS-415 (410 bar) available port types:
  - Various NPT connections
  - Various SAE o-ring connections
  - 5/16”-18 UNC mounting bolts

Electrical Cord Ordering Data
(Electrical cord not supplied with valve assembly)

- Hirschmann Type Industrial
  - Form B
  - Standard for MAC solenoids
- Hirschmann Type (DIN#43650)
  - Form A
  - Standard for ROSS solenoids

PT Type 11B

<table>
<thead>
<tr>
<th>Part No.</th>
<th>STD. CORDS AVAILABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8712 0100</td>
<td>Type 11D with 6 ft. long molded cord</td>
</tr>
<tr>
<td>8712 0103</td>
<td>Type 11D with indicator light and 18” length of shielded cable with 3 ft. of extended wire - ½” NPT conn.</td>
</tr>
<tr>
<td>8712 0150</td>
<td>Type 11B with 6 ft. long cord</td>
</tr>
</tbody>
</table>

NOTES:

1. When ordering cord that requires indicator light other than 110/220V, 50/60Hz, please specify voltage.
2. Longer cord lengths and electrical connector patterns other than listed above can be supplied at additional cost. Consult factory.

Isolation Valve (Lock-Out)

- Isolates manifold mounted directional valves.
- Reduces maintenance time by allowing directional valve replacement without depressurizing and draining the hydraulic system.
- Single lever operation to close all four ports (P, T, A, B). Cylinders can remain under external load without having to be blocked.
- Lockable via Lockout Hasp.
- NFPA “DO”/CETOP and special mounting patterns available. Request NFPA D05 pattern for compatibility with Elwood’s Packed Spool Series. Specify whether PS-250 or PS-415 model to assure mounting bolt compatibility.
- Contact factory to identify appropriate part number for application.
Elwood Fluid Power is proud to provide high pressure hydraulic valves and systems for water and other low viscosity applications. Traditionally, Elwood custom valves have been used in steel mills, aluminum mills, and petrochemical facilities across the world. Today Elwood is expanding its markets into custom high pressure water or low viscosity applications across many industries. Contact us today to start talking with our team!

Water and Low Viscosity Hydraulics

2-, 3- & 4-Way Directional Control Valves
As one of the most fundamental components in hydraulic and pneumatic machinery, directional control valves are responsible for stopping, allowing, and changing direction of fluid flow from one or multiple sources.

Packed Spool 4-Way Directional Control Valves
Deliver precise valve control through air actuated function.

Pressure Control Valves
Named for their primary function, pressure control valves relieve, reduce, or stop system pressure.

Isolation Valves
Utilize system maintenance with the ISO-Lock valve by isolating manifold mounted directional control valves without shutting the entire system down.

2-Way Valves
• Descaling applications
• Pump unloading & bypass applications
• Stopping applications

Accumulator System Shut-Off Valves
As system pressure builds, this safety valve shuts off pressure when determined levels are reached.

Decoking Control Valves
Assisting the refinery industry since the late 1930’s, Elwood’s decoking control valves have come a long way. Support provided is for older Nordberg and Rexnord valves. Newer designs feature additional beneficial characteristics. Available in spindle and cartridge designs, customized to fit your needs.

Valve Stands & Manifolds

ELWOOD CORPORATE POLICY STATEMENT
It is the policy of Elwood to provide our customers with products that meet or exceed their expectations for performance, reliability and safety while ensuring compliance with applicable laws and regulations, and to continually improve all aspects of our business.