Description

4-port, spool type, solenoid operated, directional control valves with wet armature AC or DC coils and wide variety of spool types with spring-centered and spring-offset arrangements.

Features

1. Five chamber body and spool design to facilitate high flow.
2. Conforms to ISO4401-5, NFPA T3.5.1M R1 and ANSI B93-7 D 05 interface.
3. Available in 52 standard, interchangeable spool configurations.
4. Removable wet-armature AC and DC solenoids for quick replacement and conversions. Moulded solenoid coils to protect against moisture and ingress of dust.
5. Individual solenoid plug-in connectors with indicator lights to ISO 4400 and DIN 43650.
6. Special R-rings for high extrusion resistance. Increased stability under high dynamic condition.
7. Override for operation of valve without electrical power.

Note on solenoid identification:
Solenoid “a” is close to Port “A” and Solenoid “b” is close to Port “B” for a direct operated valve.
## Technical data

### General

<table>
<thead>
<tr>
<th>Weight</th>
<th>Valve with 1 solenoid</th>
<th>kg</th>
<th>Valve with 2 solenoids</th>
<th>kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>4.2</td>
<td></td>
<td>DC</td>
<td>4.3</td>
</tr>
</tbody>
</table>

### Hydraulic

**Nominal Pressure**
- Ports P, A and B: bar 315
- Port T: bar 175

**Maximum Flow**
- lpm 120

**Flow Area**
- Spool Q, A/B → T, position "0": 6% 5.9mm²
- Spool R, B → P, position "b": 50% 49.3mm²
- Spool V, A/B → T, position "0": 12% 11.8mm²
- P → A/B, position "0": 10% 9.9mm²
- Spool W, A/B → T, position "0": 3% 3.0mm²
- Others: >98.0mm²

**Hydraulic Fluid**
- Mineral Oil

**Fluid Temperature**
- NBR: °C -30 to 80°C
- FKM: °C -20 to 80°C

**Maximum degree of fluid contamination**
- Class 18/15 according to ISO 4406
- Filter β₁₀ ≥ 75

### Electrical

**Power Requirement**
- W 35

**Duty Cycle**
- Continuous

**Shifting Time**
- ON: ms 60
- OFF: ms 30

**Insulation**
- IP 65

### Spool Types

#### 4/2 Way Valve with "0" and "a" positions

- 4/3 Way and 4/2(1) Way Valve

#### Spool Types

<table>
<thead>
<tr>
<th>Spool</th>
<th>Diagram</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A(3)</td>
<td><img src="image" alt="Diagram" /></td>
<td>4/2 Way Valve with &quot;0&quot; and &quot;a&quot; positions</td>
</tr>
<tr>
<td>B(3)</td>
<td><img src="image" alt="Diagram" /></td>
<td>4/2 Way Valve with &quot;0&quot; and &quot;b&quot; positions</td>
</tr>
<tr>
<td>E</td>
<td><img src="image" alt="Diagram" /></td>
<td>4/3 Way and 4/2(1) Way Valve</td>
</tr>
<tr>
<td>M</td>
<td><img src="image" alt="Diagram" /></td>
<td>4/3- and 4/2- way Directional Control Valves Model: 4DE10 with Wet Pin AC or DC Solenoids</td>
</tr>
</tbody>
</table>

**Note:**

(1) When ordering a spool with only two positions "0" and "a" or "0" and "b", specify the desired position "A" or "B" after the spool code.

Example: E Spool with "0" and "a" position—4DE10EA...

(2) Please check the possibility of cylinder intensification

(3) For spool type A and B. Port T must be used as drain line
4/3- and 4/2-way Directional Control Valves
Model: 4DE10 with Wet Pin AC or DC Solenoids
Size 10 (D 05) 315 bar 120 lpm

Ordering Code

<table>
<thead>
<tr>
<th>4 DE 10 E S A220 V -01</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Service Ports</td>
</tr>
<tr>
<td>Directional Control, Electrically Operated</td>
</tr>
<tr>
<td>ISO size 5, NFPA/ANSI D 05 interface</td>
</tr>
<tr>
<td>Spool type (Refer Spool Chart)</td>
</tr>
<tr>
<td>Return</td>
</tr>
<tr>
<td>Spring return = S</td>
</tr>
<tr>
<td>Without spring return = O</td>
</tr>
</tbody>
</table>

Design Series (Subject to Change)
01 to 09 externally interchangeable

Seals
Nitrile (NBR) = omit
Fluorocarbon (FKM) = V

Voltage
AC Voltage DC Voltage
A110 D12
A220 D24

Installation

Note:
(1) Length of valve with 1 solenoid
(2) Length of valve with 2 solenoids
(3) Space required to remove plug-in connector
(4) Space required to remove solenoid

Valve Mounting Bolts:
M6 x 40 mm or 1/4-20 UNC x 1.1/2"
Tightening Torque 15.5 Nm
Mounting Hardware not included in scope of supply

Valve Mounting Bolts:
M6 x 1.0, 10 deep or 1/4-20 UNC, 3/8” deep
4/3- and 4/2- way Directional Control Valves
Model: 4DE10 with Wet Pin AC or DC Solenoids

Spares

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Valve with 1 solenoid</th>
<th>Valve with 2 solenoids</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Valve Body</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Spool</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Spring Pad</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Spring</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>*</td>
<td>O-ring 21.9 x 2.62</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Solenoid Coil</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Plug</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>*</td>
<td>Plug-in connector</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>*</td>
<td>R-ring (Alternately use O-ring 12 x 2)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>Label</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Screw M3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

* Recommended Spares