2/2 Proportional Directional valve, Solenoid Operated, Poppet Type, Piloted

SD3P-B2/H

7/8-14 UNF • Q_{max} 100 l/min (26.4 GPM) • p_{max} 350 bar (5100 PSI)

Technical Features

› Hardened precision parts
› High flow capacity and leak-free closing
› High transmitted hydraulic power up to 350 bar
› Normally closed version
› Available Manual Overrides
› Both ports may be fully pressurized
› Standard version zinc-coated with surface protection acc. to ISO 9227 (520 h salt spray)

Functional Description

2/2 screw-in cartridge, proportional, directional, solenoid operated, piloted, poppet type valve normally closed version. When the the coil is not energized, in flow direction 1 → 2, the valve works as a non-return valve. In flow direction 2 → 1 the valve is closed with minimal volume loss.

When the coil is energized, in flow direction 2 → 1 the valve controls flow in proportion to the current.

The valve is commonly used to hold a load with minimal volume loss and smooth control.

Technical Data

<table>
<thead>
<tr>
<th>Valve size / Cartridge cavity</th>
<th>7/8-14 UNF-2A / B2 (C-10-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. flow</td>
<td>l/min (GPM) 100 (26.4)</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>bar (PSI) 350 (5076)</td>
</tr>
<tr>
<td>Nominal flow rate Q_{n} at ( \Delta p = 35 \text{ bar} )</td>
<td>l/min (GPM) 70 (18.5)</td>
</tr>
<tr>
<td>Flow losses at ( \Delta p = 250 \text{ bar} )</td>
<td>ml/min 0.3</td>
</tr>
<tr>
<td>Fluid temperature range (NBR)</td>
<td>°C (°F) -30 ... +80 (-22 ... +176)</td>
</tr>
<tr>
<td>Fluid temperature range (FPM)</td>
<td>°C (°F) -20 ... +120 (-4 ... +248)</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>°C (°F) -30 ... +80 (-22 ... +176)</td>
</tr>
<tr>
<td>Service life</td>
<td>cycles 10^6</td>
</tr>
<tr>
<td>Weight - valve with solenoid</td>
<td>kg 0.447 (0.985)</td>
</tr>
</tbody>
</table>

Technical Data of the Proportional Solenoid

| Nominal supply voltage | V 12 DC 24 DC |
| Limit current          | A 0.475 0.950 |
| Mean resistance value at 20 °C (68 °F) | Ω 4.9±0.22 20.8±0.8 |
| Duty cycle             | % 100 |
| Dither frequency       | Hz 70 |

Datasheet Type

General information

GL_0060 Products and operating conditions

Coil types

C_8007 C198*

Valve bodies

In-line mounted SB_0018 SB-B2*
Sandwich mounted SB-04(06)_0028 SB-*B2*

Cavity details / Form tools

SMT_0019 SMT-B2*

Spare parts

SP_8010

Characteristics measured at \( v = 32 \text{ mm/s} \) (156 SUS)

Flow characteristic - flow direction 2-1

at different pressure levels

Operating limits - flow direction 2-1

at different current levels
### Characteristics measured at \( \nu = 32 \text{ mm/s} \) (156 SUS)

**Pressure drop related to flow rate**  
Flow direction \( 2 \rightarrow 1 \), Control current \( i_c = 1.25 \cdot i_{\text{max}} \)

![Graph showing pressure drop vs flow rate](image)

**Pressure drop related to flow rate**  
Flow direction \( 1 \rightarrow 2 \), Control current \( i_c = 0 \text{ mA} \)

![Graph showing pressure drop vs flow rate](image)

### Dimensions in millimeters (inches)

**Connector type**  
- E1, E2 - IP65  
  EN 175301-803-A  
- E3A, E4A - IP67  
  AMP Junior Timer  
- E12, E13 - IP67 / IP69K  
  Deutsch DT04-2P

![Connector types](image)

### Manual Override dimensions in millimeters (inches)

**Designation M5** - socket head screw, size 2.5

![Manual override dimensions](image)

**Designation M9** - without manual override

![Manual override dimensions](image)

In case of solenoid malfunction or power failure, the spool of the valve can be shifted by manual override as long as the pressure in port T does not exceed 25 bar (363 PSI). For alternative manual overrides contact our technical support.

### Ordering Code

2/2 Proportional Directional valve,  
Solenoid Operated, Poppet Type,  
Piloted

Valve cavity  
7/8-14 UNF-2A (C-10-2)

High performance

Functional symbol

Nominal flow rate  
70 l/min při 35 bar (18.5 GPM at 508 PSI)

Rated supply voltage / max. current  
12 V DC / 1.2 A  
24 V DC / 0.6 A

![Ordering code diagram](image)

**Surface treatment**  
zinc-coated (ZnNi), ISO 9227 (520 h)

**Seals**  
- NBR  
- FPM (Viton)

**Manual override**  
- socket head screw, size 2.5  
  without manual override

**Connector**  
- E1  
  EN 175301-803-A  
- E2  
  E1 with quenching diode  
- E3  
  AMP Junior Timer (2 PIN)  
- E4  
  E4 with quenching diode  
- E3A  
  AMP Junior Timer - axial direction (2 PIN)  
- E4A  
  E3A with quenching diode  
- E12A  
  Deutsch DT04-2P - axial direction (2 PIN)  
- E13A  
  E12A with quenching diode

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Subject to change · SD3P-B2_5191_1en_09/2020