Proportional Pressure Control Valve, Reducing - Relieving, Pilot Operated, Screw-In Style

**SP4P1-B4**

- 7/8-14 UNF • Q<sub>max</sub> 40 l/min (11 GPM) • p<sub>max</sub> 30 bar (435 PSI)

### Technical Features

- Excellent stability throughout flow range with rapid response to proportional current input change
- Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- Precise pressure control vs current and excellent repeatability
- Integrated relief function for protection against pressure peaks
- Solenoid electrical terminal: AMP Junior Timer or Deutsch DT04-2P
- 12 or 24 V DC coils
- Compact design with reduced solenoid dimensions for production cost saving
- High flow capacity and low coil power consumption
- Optional mesh screen
- In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

### Functional Description

A pilot-operated, spool-type hydraulic pressure reducing valve in the form of a screw-in cartridge. Reduced pressure output is proportional to DC current input. This valve is intended for use as a pressure limiting device.

Note: Consult factory for special OEM versions of this product.

### Technical Data

- **Valve size / Cartridge cavity**: 7/8-14 UNF-2A / B4
- **Max. operating pressure (port P)**: 30 (435) bar (PSI)
- **Max. reducing pressure (port A)**: 25 (363) bar (PSI)
- **Max. flow rate P-A**: 40 (11) l/min (GPM)
- **Max. control flow**: 0.4 (0.12) l/min (GPM)
- **Fluid temperature range (NBR)**: -30 ... 90 (-22 ... 194), +100 (212) short time
- **Fluid temperature range (FPM)**: -20 ... 90 (-4 ... 194), +100 (212) short time
- **Response time at 100 % signal**: ms < 50
- **Solenoid data**
  - **Supply voltage**: 12 DC, 24 DC
  - **Max. current**: 0.7, 0.35 A
  - **Rated resistance at 20 °C (68 °F)**: 7.82+5 %, 29.5+4.5 %
  - **Optimal PWM frequency**: Hz 200
  - **Quenching diode**: BZW06-28B, BZW06-33B
  - **Enclosure type acc.to EN 60529**: BZW06-28B, BZW06-33B
  - **Weight with solenoid**: kg (lbs) 0.3 (0.66)
  - **Type**: G1 0060, G1 0060
  - **Data Sheet**: Type IP67 / IP69K
  - **General information**: Products and operating conditions
  - **Valve bodies**: In-line mounted SB_0018, SB-B4*
  - **Sandwich mounted**: SB-04(06)_0028, SB-B4*
  - **Cavity details / Form tools**: SMT_0019, SMT-B4*
  - **Spare parts**: SP 2010

**Characteristics** measured at v = 32 mm/s (156 SUS)

**Reduced pressure related to control signal**

Port A of range 0 - 25 bar (363 PSI), Q = 0 lpm (GPM)

Port P inlet pressure 30 bar (435 PSI)

measured without mesh screen

**Pressure drop related to flow rate**

A-T Valve coil de-energized (relieving function)

P-A Valve coil energized (reducing function)

measured without mesh screen

**Note**

The volume flow, which is needed for control of output pressure and maintaining the adjusted value of reducing pressure, flows permanently through the pilot stage of valve.

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**Data Sheet**

- **Type**: General information
- **GI_0060**: Products and operating conditions
- **C_8007**: In-line mounted
- **SB_0018**: SB-B4*
- **SB-04(06)_0028**: SB-B4*
- **SMT_0019**: SMT-B4*
- **SP 2010**: SP 2010

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**Subject to change · SP4P1-B4_5124_2en_02/2019**

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### Characteristics measured at $\nu = 32$ mm/s (156 SUS)

**Reducing - relieving pressure related to flow rate**
Reducing pressure range 0 - 25 bar (0 - 363 PSI), input 30 bar (435 PSI) 
various control currents 
measured without mesh screen

relieving function A-T / reducing function P-A

**Frequency response characteristics**
Inlet pressure at port P - 30 bar (435 PSI), flow = 0 lpm (GPM) 
----- signal 70 ± 25%  
signal 55 ± 40%

### Dimensions in millimeters (inches)

#### Connector type
E3A, E4A - IP67  
AMP Junior Timer

E12A, E13A - IP67 / IP69K  
Deutsch DT04-2P

### Ordering Code

Proportional pressure control valve, reducing - relieving, pilot operated, screw-in style

| Valve cavity | 7/8-14 UNF |
| Max. reducing pressure | 20 bar (290 PSI) 25 bar (363 PSI) |
| Supply voltage / max. current | 12 V DC / 0.7 A 24 V DC / 0.35 A |

Seals

| NBR | FPM (Viton) |
| No designation | SP-300 |

Surface treatment

| A | zinc-coated (ZnCr-3), ISO 9227 (240 h) |
| B | zinc-coated (ZnNi), ISO 9227 (520 h) |

Mesh screen

| No designation | without mesh screen |
| Port P, 300 microns |

Connector type

| E3A | AMP Junior Timer - axial direction (2 pins; male) |
| E4A | E3A with quenching diode |
| E12A | Deutsch DT04-2P - axial direction |
| E13A | E12A with quenching diode |