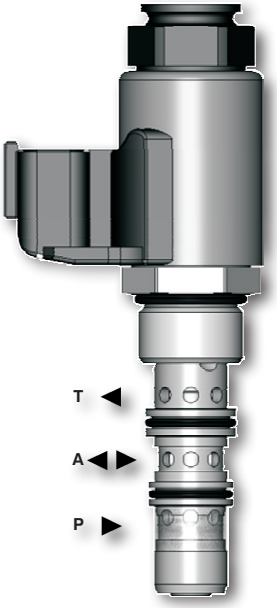
Proportional Pressure Control Valve, Reducing - Relieving, Pilot Operated, Screw-In Style

SP4P1-B4

7/8-14 UNF • Q_{max} 40 l/min (11 GPM) • p_{max} 30 bar (435 PSI)

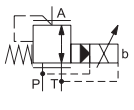
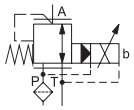


Technical Features

- 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.

Model Code	no mesh screen	with mesh screen
Symbol		

Technical Data

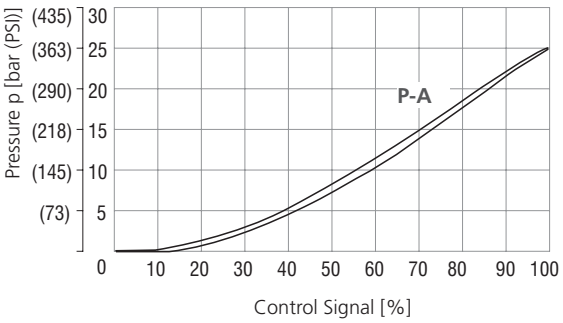
Valve size / Cartridge cavity			7/8-14 UNF-2A / B4
Max. operating pressure (port P)		bar (PSI)	30 (435)
Max. reducing pressure (port A)		bar (PSI)	25 (363)
Max. flow rate P-A		l/min (GPM)	40 (11)
Max. control flow		l/min (GPM)	0.4 (0.12)
Fluid temperature range (NBR)		°C (°F)	-30 ...90 (-22 ...194), +100 (212) short time
Fluid temperature range (FPM)		°C (°F)	-20 ...90 (-4 ...194), +100 (212) short time
Ambient temperature range		°C (°F)	-30 ...90 (-22 ...194), +100 (212) short time
Response time at 100 % signal		ms	< 50
Solenoid data			
Supply voltage		V	12 DC / 24 DC
Max. current		A	0.7 / 0.35
Rated resistance at 20 °C (68 °F)		Ω	7.82+5 % / 29.5+4.5 %
Duty cycle		%	100
Optimal PWM frequency		Hz	200
Quenching diode			BZW06-28B / BZW06-33B
Enclosure type acc.to EN 60529**			(acc.to terminal type) IP67 / IP69K
Weight with solenoid		kg (lbs)	0.3 (0.66)
		Data Sheet	Type
General information		GI_0060	Products and operating conditions
Coil types		C_8007	C14B*
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_8010	

**The indicated IP protection level is only reached with a properly mounted connector.

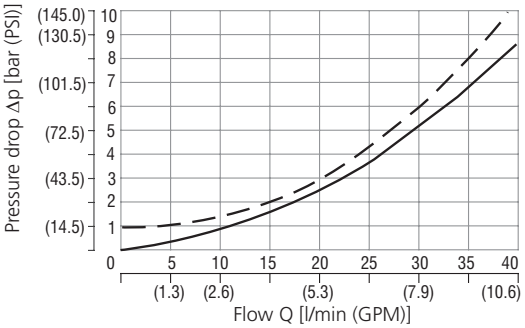
The volume flow, which is needed for control of output pressure and maintaining the adjusted value of reducing pressure, flows permanently through the pilot stage of valve.

Characteristics measured at ν = 32 mm²/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



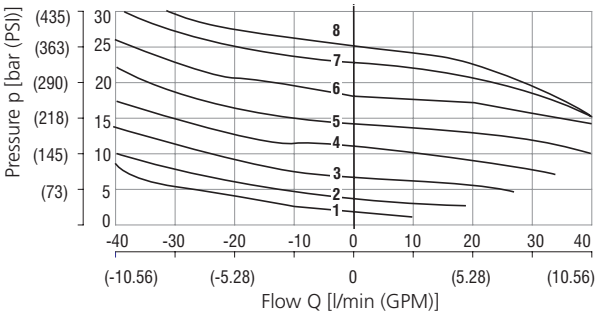
Pressure drop related to flow rate
——— A-T Valve coil de-energized (relieving function)
— — P-A Valve coil energized (reducing function)
measured without mesh screen



Characteristics measured at ν = 32 mm²/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

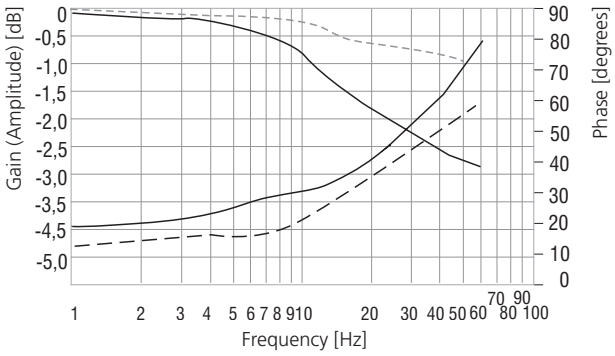
relieving function A-T / reducing function P-A



1	2	3	4	5	6	7	8
24%	35%	47%	59%	70%	82%	94%	100%

Frequency response characteristics
Inlet pressure at port P - 30 bar (435 PSI), flow = 0 lpm (GPM)

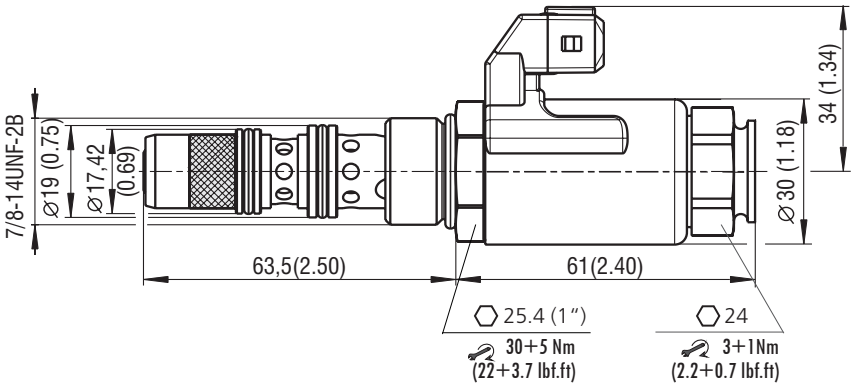
------ signal 70 ± 25%
—— signal 55 ± 40%



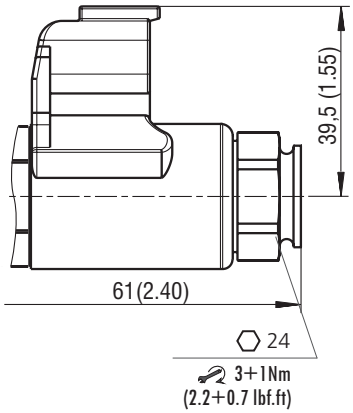
Dimensions in millimeters (inches)

Connector type

E3A, E4A - IP67
AMP Junior Timer



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



Ordering Code

SP4P1-B4 / □-□□□□-□□

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

Valve cavity
7/8-14 UNF

Max. reducing pressure
20 bar (290 PSI) **20**
25 bar (363 PSI) **25**

Supply voltage / max. current
12 V DC / 0.7 A **12**
24 V DC / 0.35 A **24**

Mesh screen
No designation without mesh screen
SP-300 port P, 300 microns

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

Seals
No designation NBR
V FPM (Viton)

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