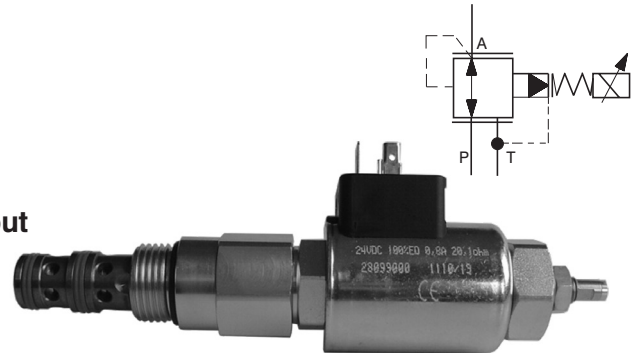


- Screw-in cartridge design
- Pilot operated
- Three pressure ranges
- Pressure output proportional to DC current input



## Functional Description

The pressure valves SP4P2-B3 are pilot operated screw-in cartridge proportional pressure reducing valves designed as 3 way valves, i.e. with pressure protection of the secondary circuit.

The complete reducing valve consists of a body (2) with thread 7/8-14 UNF, control spool (3), spring (4) and pilot stage of SR1P2-A2 valve.

In the basic position the flow from the primary circuit flows to consumer ports A. In this situation the spring chamber is vented to Tank line through nozzle (5) and (6).

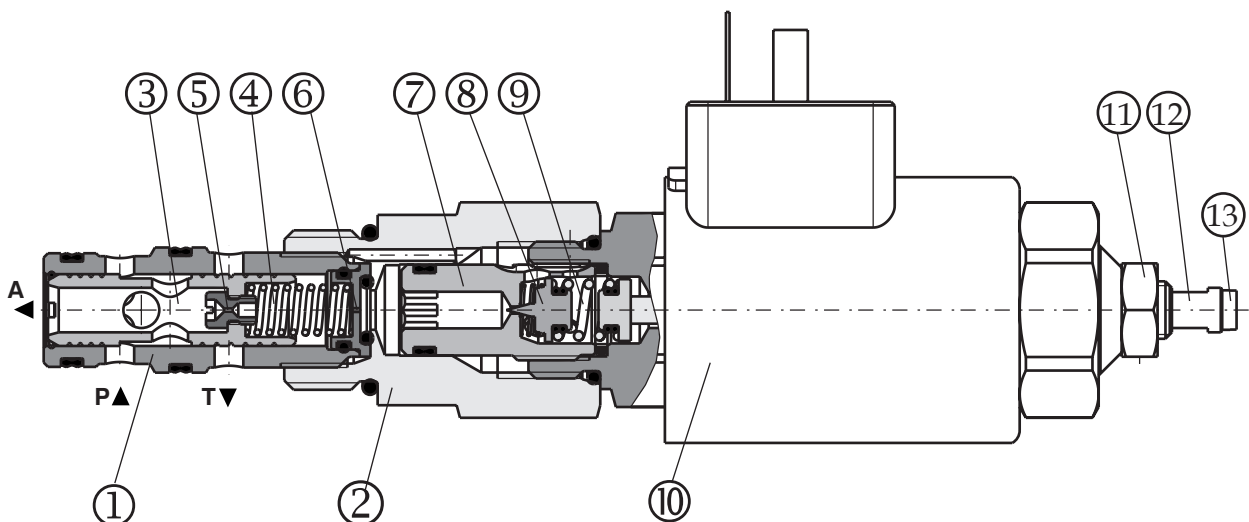
When the DC current is applied to solenoid (10) at spring (9) increases force to the seat (8) and it continuously closes.

Build up pressure acts on spool (3) in spring chamber (4) through orifices (6). Then the reduced pressure at port A is continuously controlled and compared with the pressure preset from pilot stage. If any control error appears, the respective control action takes place and the reduced pressure returns to its pre-set value. If pressure behind the valve increases due to the effect of

external load acting on the user, the control spool (3) shifts further against the spring, the reducing metering edge closes and the second metering edge opens. The fluid passes through the „third way“ to port T. The control flow of the pilot stage valve (7) is also connected to port T.

Pilot stage valve SR1P2-A2 (catalogue no. HA 5122) can be ordered separately as a built-in proportional directly operated pressure relief valve. The main stage of the valve can be also ordered separately – see spare parts.

The valve body and the adjustment screw are zinc coated.



## Ordering Code

**SP4P2-B3** /  -

**Proportional Pilot Operated Pressure Reducing Valve 7/8-14UNF**

**High performance**

**H**

**Pressure range**

up to 120 bar (1740 PSI)  
up to 210 bar (3046 PSI)  
up to 350 bar (5076 PSI)

**12**  
**21**  
**35**

**Nominal solenoid supply voltage**

12 V DC  
24 V DC

**12**  
**24**

**V**

**Seals**

Viton ( FPM)

**Type of solenoid coil**

**E2**

Connector EN 175301-803-A with quenching diode

**E4**

Connector AMP Junior Timer with quenching diode

**E13**

Connector Deutsch DT04-2P with quenching diode

Other coils on demand see catalog HA8007.

## Technical Data

Valve size		B3
Cartridge cavity		7/8-14 UNF-2A
Maximum operating pressure at ports P	bar (PSI)	350 (5076)
Maximum operating pressure at ports T*	bar (PSI)	100 (1450)
Flow range	L/min (GPM)	0 ÷ 60 (0 ÷ 15.85)
Hydraulic fluid		Hydraulic oils of power classes (HL, HLP) to DIN 51524
Fluid temperature range (FPM)	°C (°F)	-20 ... 120 (-4 ... 248)
Ambient temperature range	°C (°F)	-20 ... 80 (-4 ... 176)
Viscosity range	mm <sup>2</sup> /s (SUS)	10 ... 500 (49 ... 2450)
Duty cycle	%	100
Enclosure type to EN 60 529		IP 67 (IP 65)
Maximum valve tightening torque	Nm ( lbf.ft)	50+5 (36.87+3.68)
Optimum dither control	Hz	250
Maximum degree of fluid contamination		Class 21/18/15 according to ISO 4406
Minimum reachable pressure for Q = 0 L/min (0 GPM)	bar (PSI)	~ 6 (87)
Hysteresis	%	< 5
Weight	kg (lb)	0,595 (0.312)
Mounting position		When possible, the valve should be mounted with solenoid faced down.
Valve body ( data shee HA 0018)		SB-B3

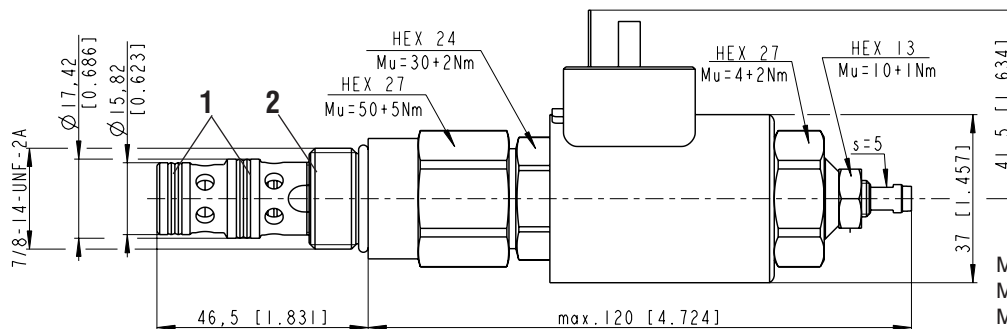
\*Pressure in T influences p = f(l) a p = f(Q) valve performance

## Solenoid Technical Data

Type of coil	V	12 DC	24 DC
Limit current	A	1	0,6
Resistance at 20 °C (68 °F)	Ω	6,5	20,8
Quenching diode (E2, E4, E13)		BZW06-19B	BZW06-33B

## Valve Dimensions

Dimensions in millimeters and (inches)



**Seal kit (Main valve)**

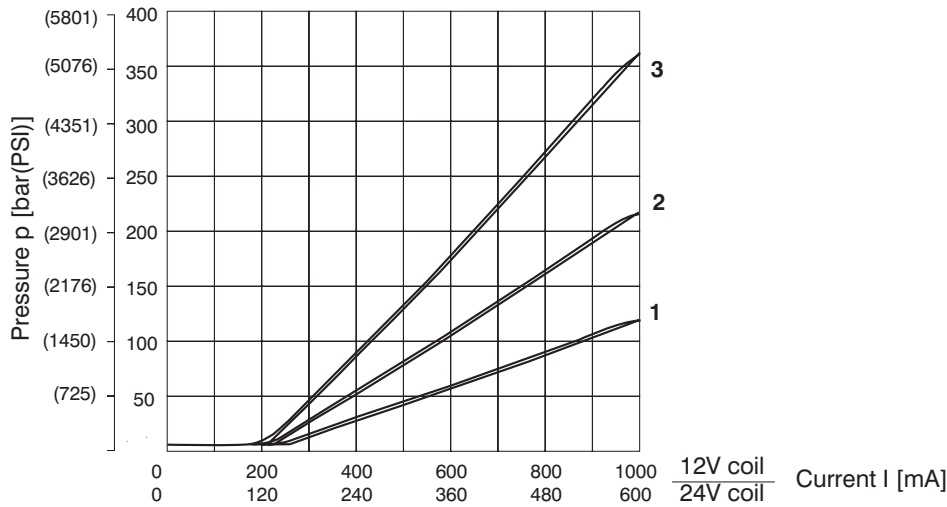
- see Spare Parts
- 1. Dualseal - PU
- 2. O-ring - Viton

Mu=[50+5 Nm (37+3.68 lb.ft)]  
Mu=[30+2 Nm (22+1.47 lb.ft)]  
Mu=[4+2 Nm (2.95+1.47 lb.ft)]  
Mu=[10+1 Nm (7.37+0.73 lb.ft)]

### p-I Characteristics

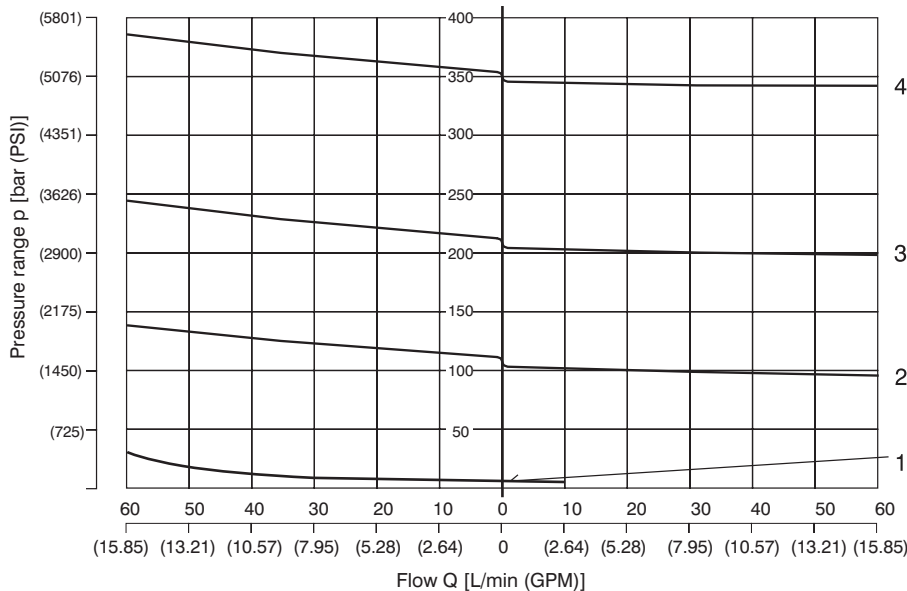
Measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)

$p = f(I), Q = 0 \text{ dm}^3 \cdot \text{min}^{-1}$  (Port A close)



### p-Q Characteristics

Measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)



### Type of the Solenoid Coil

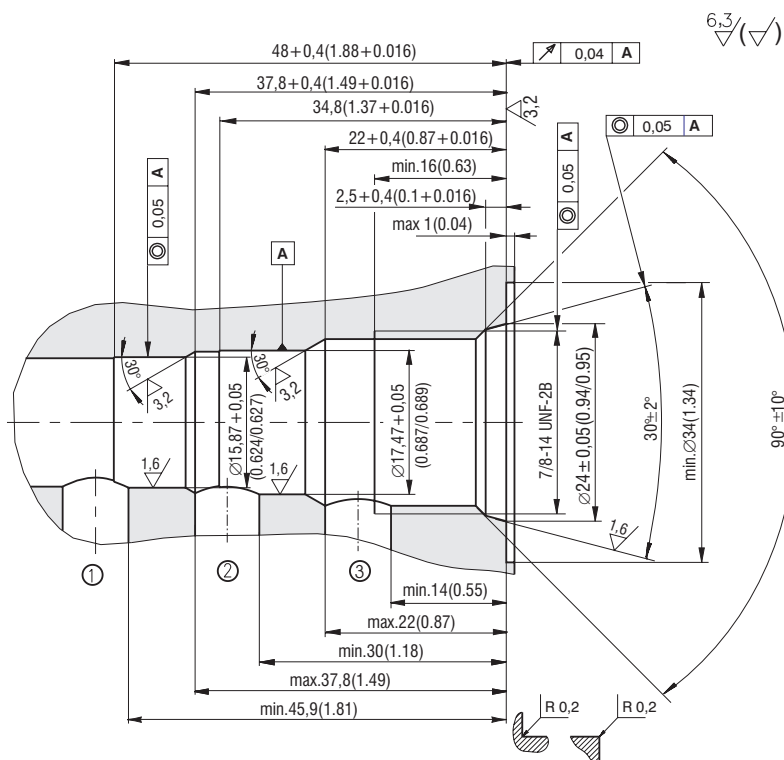
**Note:**

Example of most frequent coil types.

For complete range valve coils with technical informatik about voltage, enclosure type, terminal box please refer to coil data sheet HA 8007.

Coil example	Solenoid	Connector	Type code
<p><b>Type E2</b></p>	12 VDC	Connector EN 175301-803-A with quenching diode	C19B-01200E2-6,5NA
	24 VDC	Connector EN 175301-803-A with quenching diode	C19B-02400E2-20,1NA
	12 VDC	Connector AMP Junior Timer with quenching diode	C19B-01200E4-6,5NA
	24 VDC	Connector AMP Junior Timer with quenching diode	C19B-02400E4-20,1NA
	12 VDC	Connector Deutsch with quenching diode	C19B-01200E13-6,5NA
	24 VDC	Connector Deutsch with quenching diode	C19B-02400E13-20,8NA

# Cavity



## Spare Parts

<b>Solenoid coil</b>	Type of the coil		
	E2	E4	E13
<b>Nominal voltage coil</b>	Ordering number		
12 V DC	28145600	28145800	29867600
24 V DC	27824300	27824400	29868600
<b>Main valve</b>	Designation		Ordering number
	SP6H2-B3/HV		29248000
<b>Seal kit (Main valve)</b>	Dimensions, quantity		Ordering number
	Dualseal - PU		O-ring
	13,47x15,87x 3,1(1pc)	17,47x15,07x3,1 (1pc)	19,4x2,1 (1pc)
<b>Seal kit (Pilot valve)</b>	Dimensions, quantity		Ordering number
	Dualseal - PU		O-ring
	10,3 x 12,7 x 3,1 (1pc)		17,17 x 1,78 (1pc)

## Caution!

- The packing foil is recyclable.
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.

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