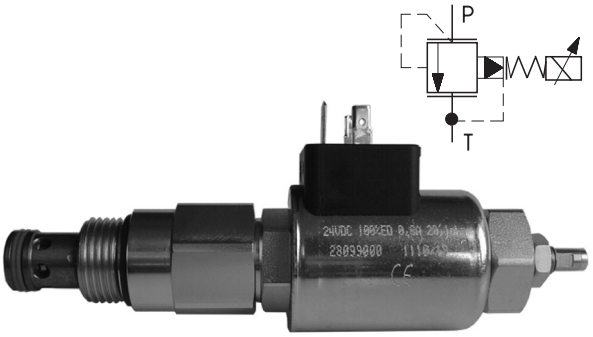
Proportional Pilot Operated Pressure Relief Valves

SR4P2-B2

HA 5117 5/2012

7/8-14 UNF • pmax 350 bar (5076 PSI) • Qmax 60 L/min (15.85GPM)

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



Functional Description

The valve is designed for continuous regulation of pressure in the circuit.
The valve is pilot operated using the pilot stage of SR1P2-A2 execution.
Due to two stage pilot design the valve is able to control high hydraulic power in circuit.

The complete valve consist of pilot stage valve SR1P2-A2 and main stage size 7/8-14 UNF.

In the basic position (with the coil de-energized) the port P is fully open to the tank.
Connection to the pilot stage is realized with nozzles (5) and (6) and the spring chamber (4) is unloaded to the tank port.
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) against the pressure line P thus closing the P line to the Tank port.

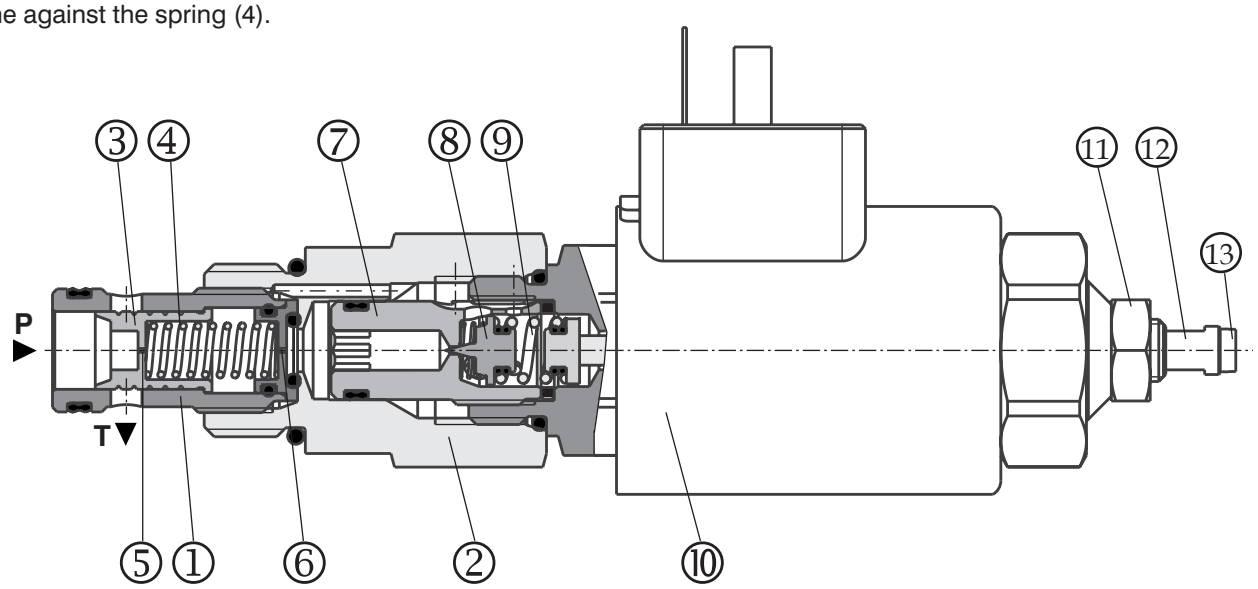
The valve opens when the increasing pressure on P line reaches value set by proportional solenoid (10).
In this situation the main spool (3) shift to open the Tank line against the spring (4).

Build up pressure P in system is proportional to the energizing current at solenoid (10).

The minimum value of cracking pressure can be adjusted using the screw (12), position of which is secured with nut (11). The adjusting screw (12) can be used as emergency control. Screw (13) is used to air bleed the solenoid control system. To ensure self bleeding of the valve it is recommended to install it in a vertical position with the solenoid facing downwards. Bleeding process is necessary for the proper function of the valve.

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

SR4P2-B2 / □ □ - □ □ □

Proportional Pilot Operated Pressure Relief Valves 7/8-14UNF

High performance — **H**

Pressure range

up to 120 bar (1740 PSI)	**12**
up to 210 bar (3046 PSI)	**21**
up to 350 bar (5076 PSI)	**35**

Nominal solenoid supply voltage

12 V DC	**12**
24 V DC	**24**

Seals

V — 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		B2
Cartridge Cavity		7/8-14UNF-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^2/s (SUS)	10 ... 500 (49 ... 2450)
Duty cycle	%	100
Enclosure type to EN 60 529		IP67 (IP65)
Maximum valve tightening torque	Nm (lbf.ft)	50+5
Optimum dither control	Hz	250
Maximum degree of fluid contamination		Class 21/18/15 according to ISO 4406
Minimum reachable pressure for Q = 5 L/min (1.321 GPM)	bar (PSI)	~ 7 (101,5)
Valve hysteresis	%	< 5
Weight	kg (lb)	0,580 (1.278)
Mounting position		When possible, the valve should be mounted with solenoid faced down.
Valve body (data shee HA 0018)		SB-B2

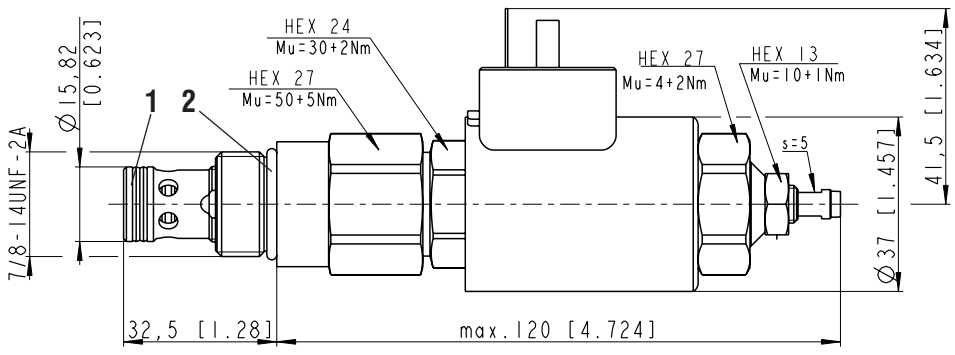
*Pressure in T influences p = f(I) a p = f(Q) valve performance

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)



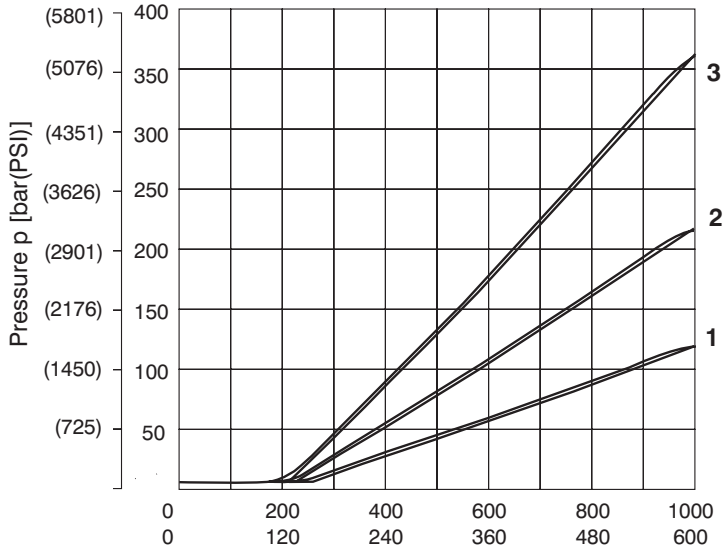
Seal kit (Main valve)
- see Spare Parts
1. Dualseal - PU
2. O-ring - Viton

Mu=[50+5 Nm (37+3.38 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 Charakteristic

Measured at ν = 32 mm^2/s (156 SUS)

p = f (I), Q= 5 L/min (1.321 GPM)

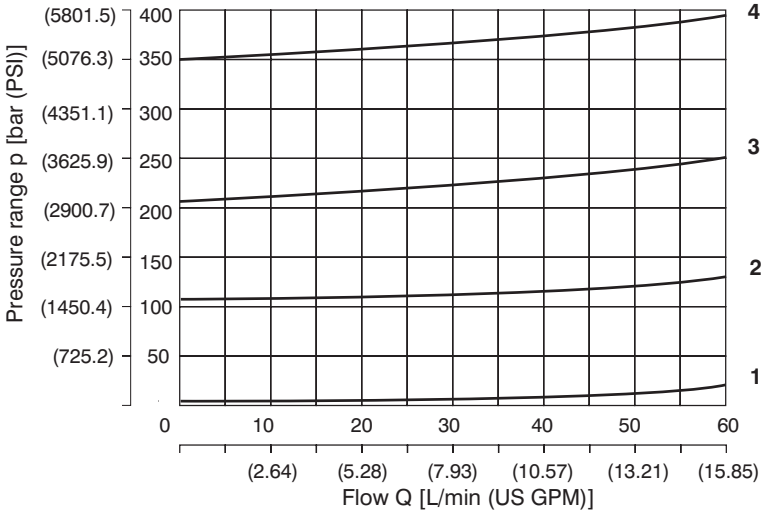


Attention:
The proportional pressure relief valve is not mechanically protected and it does not perform the relief valve function.

3	Pressure range 35
2	Pressure range 21
1	Presseure range 12

p-Q Charakteristic

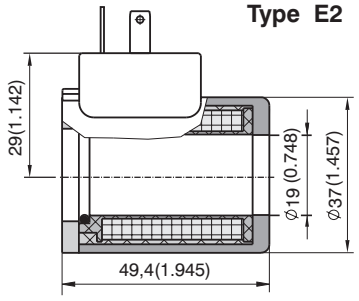
Measured at ν = 32 mm^2/s (156 SUS)



4	Pressure range 35
3	Pressure range 21
2	Presseure range 12
1	Min. pressure (range 35)

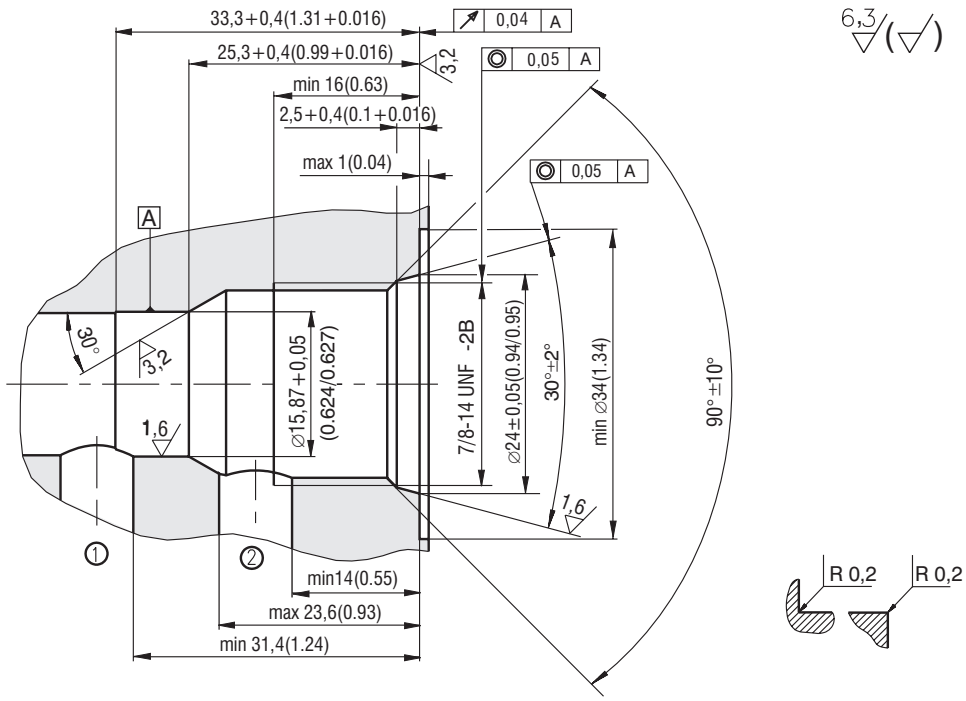
Type of the Solenoid Coil

Note:
Example of most frequent coil types.
For complete range valve coils with technical informatik about voltage, enclosure type, terminal box please afer to coil data sheet HA 8007.

Coil example	Solenoid	Connector	Type code
	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-02400E2-20,6NA
	12 VDC	Connector AMP Junior Timer with quenching diode	C19B-01200E4-6,5NA
	24 VDC	Connector AMP Junior Timer with quenching diode	C19B-02400E4-20,6NA
	12 VDC	Connector Deutsch DT04-2P with quenching diode	C19B-01200E13-6,5NA
	24 VDC	Connector Deutsch DT04-2P with quenching diode	C19B-02400E13-20,6NA

Cavity

Dimensions in millimeters and (inches)



Spare Parts

Solenoid coil	Type of the coil		
	E2	E4	E13
Nominal voltage coil	Ordering number		
12 V DC	28145600	28145800	29867600
24 V DC	27824300	27824400	29868600
Main valve	Designation		Ordering number
	SR6H2-B2/HV		29248100
Seal kit (Main valve)	Dimensions, quantity		Ordering number
	Dualseal - PU	O-ring	
	13,47x15,87x3,1 (1pc)	19,4x2,1 (1pc)	18960500
Seal kit (Pilot valve)	Dualseal - PU	O-ring	
	10,3 x 12,7 x 3,1 (1pc)	17,17 x 1,78 (1pc)	17014300

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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