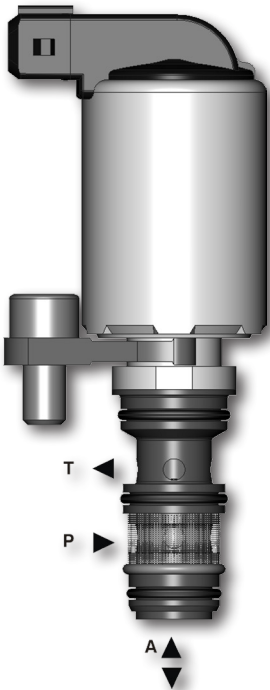


Proportional Pressure Control Valve, Reducing - Relieving, Direct-Acting, Slip-In Style

**PP2P1-W3**

Size D20 • Q<sub>max</sub> 20 l/min (5 GPM) • p<sub>max</sub> 50 bar (700 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 savings
- › 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. Enhanced surface protection for mobile sector available for the steel parts (ISO 9227, 520 h salt spray)

**Functional Description**

A direct-operated, spool-type hydraulic pressure reducing valve in the form of a slip-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		D20 / W3		
Max. operating pressure (port P)	bar (PSI)	50 (730)		
Max. regulated pressure (port A)	bar (PSI)	20 (290)	25 (363)	32 (460)
Max. flow rate P-A	l/min (GPM)	20 (5.3)	20 (5.3)	16 (4.2)
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		
<b>Solenoid data</b>				
Supply voltage	V	12 DC	24 DC	
Limit current	A	1	1	
Rated resistance at 20 °C (68 °F)	Ω	7.2	11.2	
Duty cycle	%	100		
Optimal PWM frequency	Hz	signal100		
Quenching diode		BZW06-28B	BZW06-33B	
Enclosure type acc. to EN 60529**		(acc.to terminal type) IP 67 / IP 69K		
Weight	kg (lbs)	0.4 (0.88)		
	Datasheet	Type		
General information		GI_0060	Products and operating conditions	
Valve bodies	In-line mounted	SB_0018	SB-W3-*	
Cavity details		SMT_0019	SB-W3-*	
Spare parts		SP_8010		

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

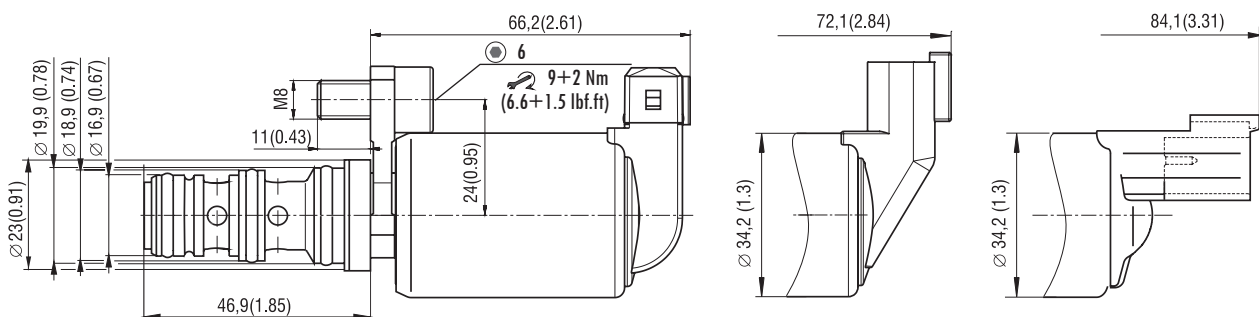
**Dimensions** in millimeters (inches)

**Connector type**

E3, E4 - IP67  
AMP Junior Timer

E12, E13 - IP67 / IP69K  
Deutsch DT04-2P

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



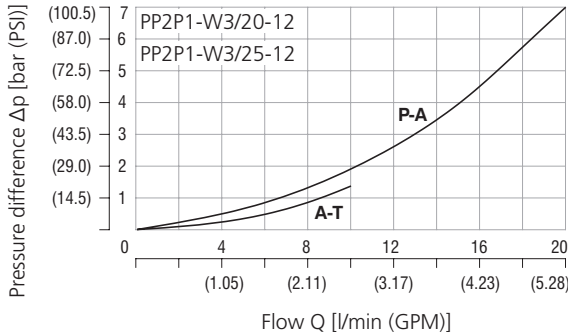
**Elektronic control unit EL7**

An electronic control unit (ECU) EL7 is used for the valve control. The ECU converts the input command signal into an output current control PWM signal for solenoid coils. For this type of valve the only available form of EL7 ECU is external one (EL7-E\*, see datasheet HA 9152).

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

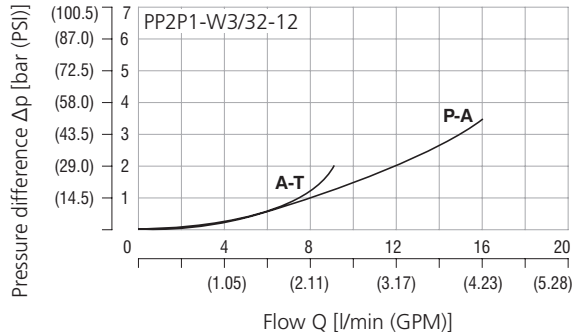
**Pressure drop related to flow rate**

A-T, Valve coil de-energized (reducing function)  
P-A, Valve coil energized (relieving function)



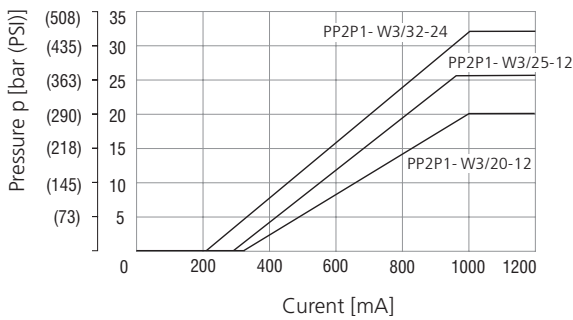
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P-A, Valve coil energized (relieving function)



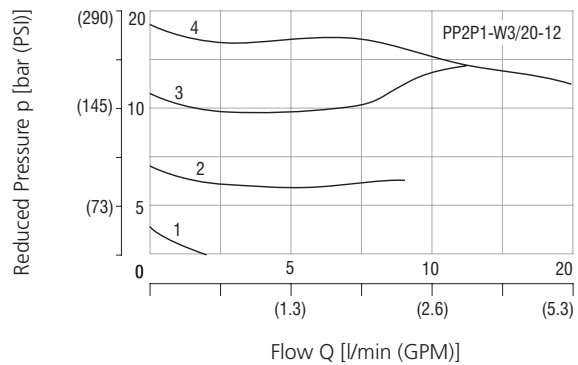
**Reduced pressure related to control signal**

Port A, range 0 - 20 bar (290 PSI)  
Port A, range 0 - 32 bar (464 PSI)  
Port P, Inlet pressure 50 bar (730 PSI)  
Q = 0 lpm (GPM)



**Reducing pressure related to flow rate**

Reducing Function P - A



Control signal	
1	40 %
2	60 %
3	80 %
4	100 %

**Ordering Code**

PP2P1 - W3/ [ ] - [ ] [ ] [ ] - [ ] [ ]

**Proportional pressure control valve, reducing - relieving, direct-acting, slip-in style**

**Valve cavity**  
D20 mm (0.79 in)

**Max. regulated pressure**  
20 bar (290 PSI) **20**  
25 bar (363 PSI) **25**  
32 bar (464 PSI) **32**

**Supply voltage / limit current**  
12 V DC / 1 A **12**  
24 V DC / 1 A **24**

**Mesh screen**  
**No designation** without mesh screen  
**SP-125** port P, 125 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**  
**E3** AMP Junior Timer - radial direction (2 pins; male)  
**E4** E3 with quenching diode  
**E12** Deutsch DT04-2P - radial direction (2 pins; male)  
**E13** E12 with quenching diode  
**E12A** Deutsch DT04-2P - axial direction (2 pins; male)  
**E13A** E12A with quenching diode

Besides the shown, commonly used valve versions other special models are available. Contact our technical support for their identification, feasibility and operating limits.