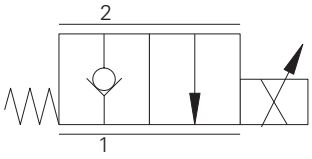
EPV10 - Proportional Valve

Proportional uni-directional poppet, flow control valve
Up to 30L/min (8 USgmp) • 350 bar (5000 psi)



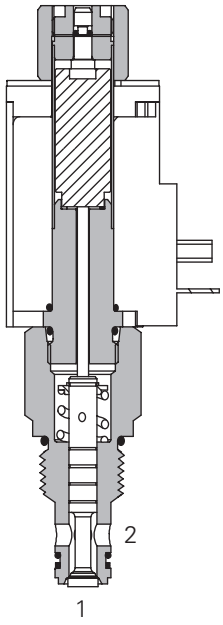
Operation

In the de-energized condition, blocked from port 2 to 1 with no reverse flow permitted. When energized, flow is allowed from port 2 to port 1 in direct proportion to the current applied to the solenoid coil.

Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

Sectional View



Performance Data

Ratings and Specifications

Performance data is typical with fluid at 21,8 cSt (105 SSU) and 49˚C (120˚F)	
Typical application pressure (at port 2)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	0 - 30 L/min (0 - 8 USgpm)
Operating ambient temperature	-30° to 90°C (-22° to 194°F)
Cavity	C-10-2
Fluids	Anti-wear hydraulic oils with Buna-N seals (standard) Phosphate esters (non-alkyl) with Viton® seals are available by request Viton is a registered trademark of E.I. DuPont
Weight cartridge only	0,78 kg (1.72 lbs)
Filtration	70 - 210 bar (1000 - 3000 psi) Cleanliness code 17/15/12 210+ bar (3000+ psi) Cleanliness code 15/13/11
Standard housing materials	Aluminum or Steel
Typical hysteresis	Less than 4% of rated current at 10 bar pressure drop – Pulse Width Modulated (PWM)
Internal leakage	10 cm^3 maximum @ 140 bar (2000 psi) and oil viscosity of 30 cSt
Oil viscosity range	10 - 800 cSt
Nominal supply voltage	12 or 24 VDC
Threshold current	Adj from 300 - 600 mA (12 VDC) Adj from 150 - 300 mA (24 VDC)
Coil current @ max flow	0.7 amps max @ 24 VDC 1.4 amps max @ 12 VDC
Recommended PWM frequency	100 - 200 Hz application dependent, 150 Hz typ
Coil resistance @ 20°C (86°F)	12V-6.5Ω 24V-25.0Ω
Power consumption @ rated current and 20°C coil temperature	12V-12.8 watts 24V-12.8 watts
Cartridge seal kit	02-317580 (Buna-N)

Description

This is a uni-directional proportionally controlled, normally closed poppet valve. It is ideal for lowering circuits controlling the speed of movement with low leakage when closed.

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Proportional uni-directional poppet, flow control valve
Up to 30L/min (8 USgmp) • 350 bar (5000 psi)

B

Model Code

EPV 10 – * – ** – ** – *** – (*) – * – **

1 2 3 4 5 6 7 8 9

1 Function

EPV - Electro-proportional flow control valve, poppet type

2 Size

10 - 10 Size

3 Valve Housing Material

Omit for cartridge only
A - Aluminum
S - Steel
Maximum operating pressure for aluminum housing is 210 bar (3000 psi)

5 Seal Material

N - Buna-N
V - Viton
NF - Buna-N and 60 mesh filter screen
VF - Viton and 60 mesh filter screen

4 Port Size

Code	Port Size	Housing Number	
		Aluminium	Steel
0	Cartridge only		
3G	3/8" BSPP	876703	02-175103
6H	SAE 6	876700	-
8H	SAE 8	876701	-
6T	SAE 6	-	02-175100
8T	SAE 8	-	02-175101

See section J for housing details.

8 Coil/Connector Types

Connector			
Blank	No Coil	12VDC	24VDC
W	Leadwire (DC only)	02-361830	02-363310
Q	Spade terminals (DC only)	02-361836	02-363311
U	DIN 43650	02-361837	02-363321
Y	Metri-Pack 150 male*	02-361845	02-363322
F	Weather-Pack male	02-361848	02-364328

*Preferred Packard connector.

6 Voltage Rating

12D - 12VDC
24D - 24VDC

7 Manual Override Option

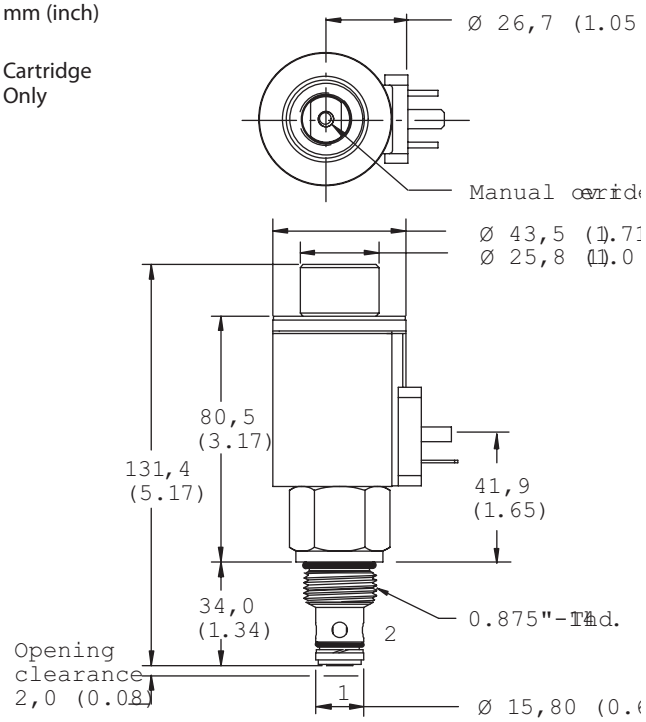
Blank - No manual override
M - Pin type
S - Screw type
Manual override is available in two different configurations, either push pin type is used when system pressure does not exceed 210 bar (3000 psi). The screw type can be used at any system pressure.

9 Design Number

Dimensions

mm (inch)

Cartridge Only



Valve is shown with "U" coil. See Section C for coil information. Torque cartridge in housing

A - 47-54 Nm (35-40 ft. lbs)
S - 68-75 Nm (50-55 ft. lbs)

WARNING

The cavity should be machined to the 14,29 (0.562) maximum diameter and 36,00 (1.417) maximum depth. See Section M.

WARNING

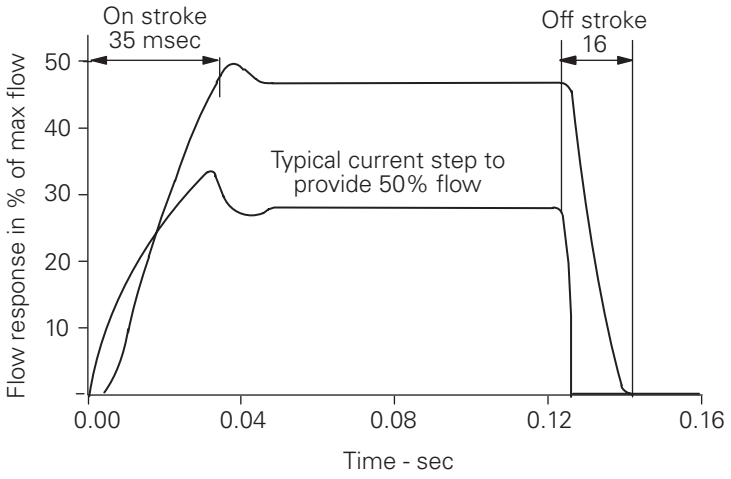
When using the "Screw Type" override, care must be taken to return the override back to its neutral position before activating the valve. Failure to take this precaution may result in personal injury or damage to the machine.

EPV10 - Proportional Flow Control Valve

Performance curves

B

Step Response Data

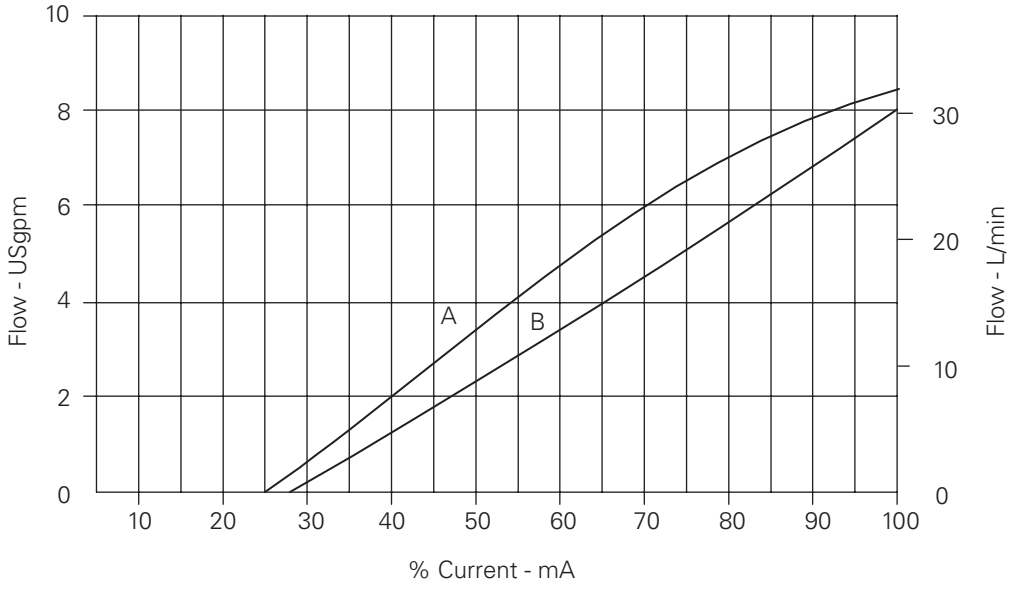


Flow vs Current

With 10 bar differential between inlet and outlet

A - 210 bar (3000 psi) pressure drop from Port 2 to Port 1

B - 10 bar (150 psi) pressure drop from Port 2 to Port 1

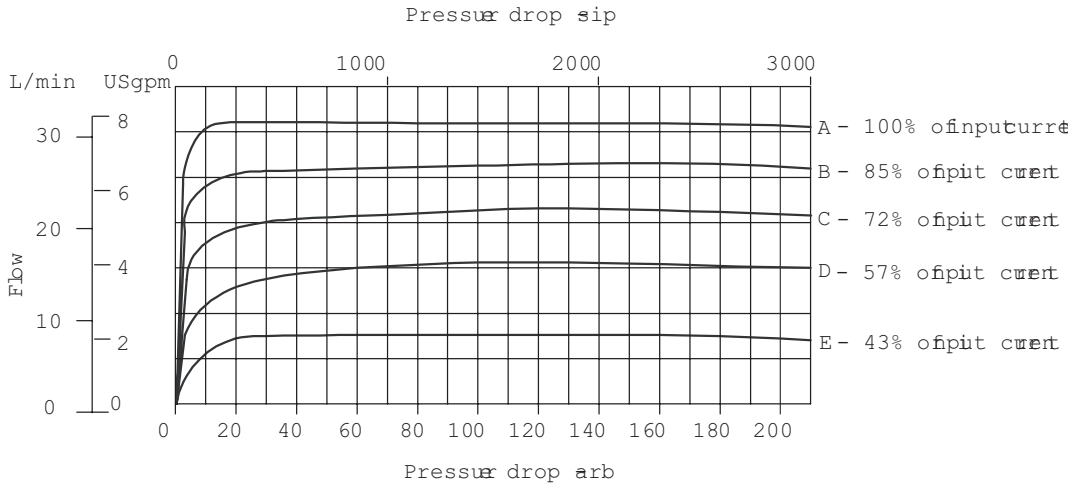


EPV10 - Proportional Flow Control Valve

Performance curves

Flow vs Pressure Drop

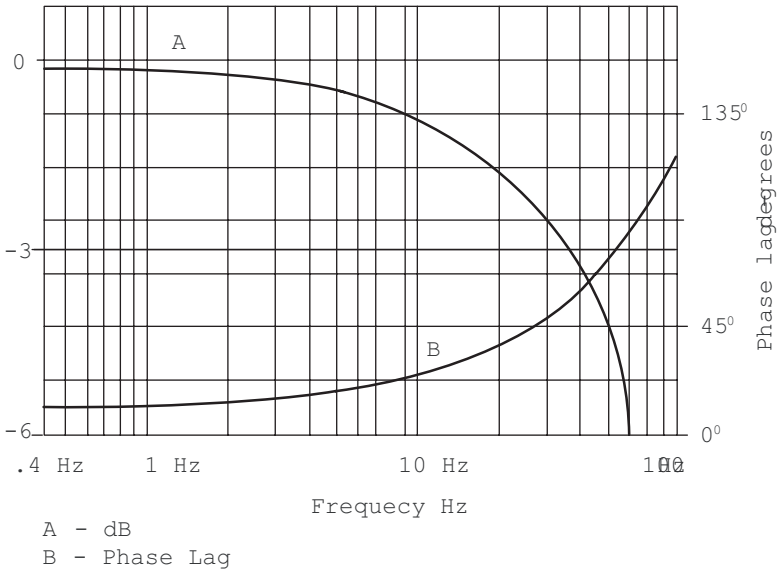
Per % of Input Current



Typical Flow Response

For an amplitude of ± 40% maximum stroke (center to offset) about the 50% position.

ΔP = 10 bar (145 psi)



A - dB
B - Phase Lag