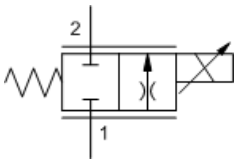
Electro-proportional flow control valve - normally closed

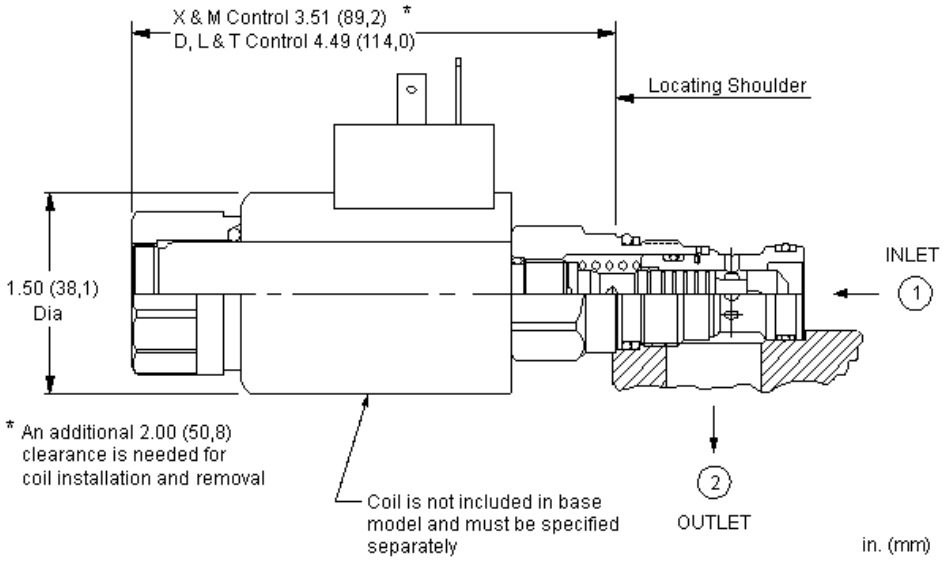
Capacity:
10 gpm (40 L/min.)

Model:
FPCC

Product Description

This valve is a normally-closed, electro-proportional throttle. The valve is spring biased closed. Energizing the coil generates an opening force on the spool proportional to the command current and this force is countered by the spring and flow forces. This force balance creates a metering orifice whose effective size is proportional to the current. The valve exhibits a large degree of self-compensation in the 1 to 2 direction and will provide proportional flow control in the 2 to 1 direction with the addition of an external compensator. Full reverse flow (2 to 1) with 100% command in the 2 to 1 direction is possible without a compensator under all conditions.





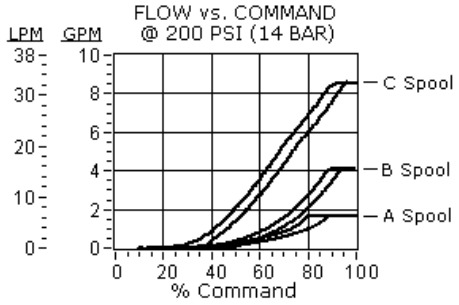
Technical Features

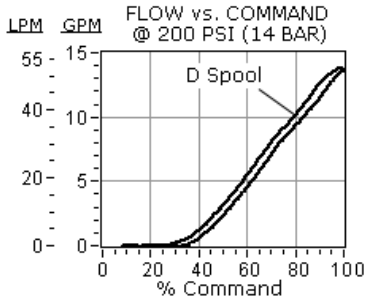
- Available in either a normally open or normally closed configuration with three different capacity ranges.
- Capable of operating with pressures up to 5000 psi.
- Low leakage levels in the closed position.
- Coils are interchangeable with Sun's other full flow, solenoid-operated valves and can be mounted on the tube in either direction.
- This cartridge has several manual override choices, including no manual override. See Option Selection below.
- For optimum performance, an amplifier with current sensing and adjustable dither should be used. Dither should be adjustable between 100 - 250 Hz.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

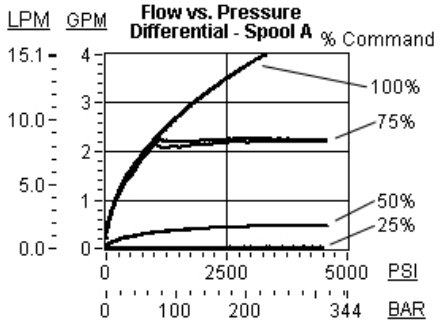
Technical Data

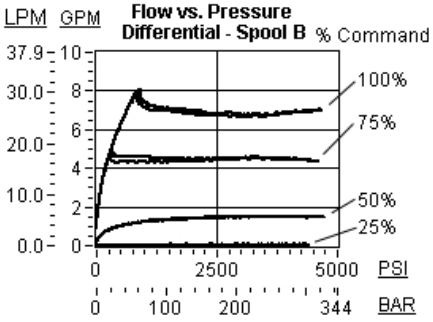
	U.S. Units	Metric Units
Cavity	T-13A	
Capacity	10 gpm	40 L/min.
Hysteresis (with dither)	<4%	
Hysteresis with DC input	<8%	
Linearity (with dither)	<2%	
Repeatibility (with dither)	<2%	
Recommended dither frequency	140 Hz	
Deadband, nominal (as a percentage of input)	25%	

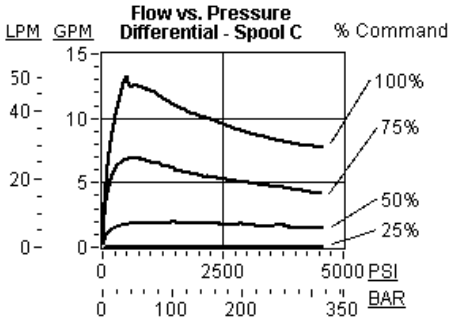
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1	3 kgs/100 bar @ Port 1
Manual Override Stroke	.10 in.	2,5 mm
Maximum Valve Leakage at 110 SUS (24 cSt)	6 in³/min.@3000 psi	100 cc/min.@210 bar
Series (from Cavity)	Series 1	
Solenoid Tube Diameter	.75 in.	19 mm
Valve Hex Size	7/8 in.	22,2 mm
Valve Installation Torque	30 - 35 lbf ft	40 - 50 Nm
Model Weight (with coil)	1.10 lb	0,50 kg
Seal Kits - Cartridge	Buna: 990-413-007	
Seal Kits - Cartridge	Viton: 990-413-006	
Seal Kits - Coil	Viton: 990-770-006	
Model Weight	0.66 lb.	0.30 kg.











FPCC-XCN-***

Control	Flow Rate	Seal Material	Coil
Preferred Options	Preferred Options	Preferred Options	
			*** See Coil Options Below
X No Manual Override	C .25 - 7 gpm (0,8 - 28 L/min.)	N Buna-N	
Standard Options	Standard Options	Standard Options	
D Twist/Lock (Dual) Manual Override	A .1 - 1.5 gpm (0,4 - 6 L/min.)	V Viton	
	B .15 - 3.5 gpm (0,6 - 14 L/min.)		
L Twist/Lock (Detent) Manual			

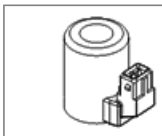
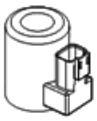
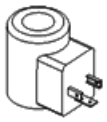
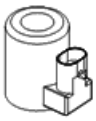
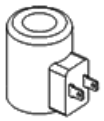
Override

M Manual Override

T Twist Manual Override

D .25 - 10 gpm (1 - 40 L/min.)

Standard Coil Options

					
AMP Junior Timer	Deutsch DT04-2P	DIN 43650 4 pin (Hirschman)	Metri-Pack	SAE J858A	Twin Lead

*** no coil

212 DIN 43650 4 pin (Hirschman) 12 VDC

224 DIN 43650 4 pin (Hirschman) 24 VDC

524 SAE J858A 24 VDC

612 AMP Junior Timer 12 VDC

624 AMP Junior Timer 24 VDC

712 Twin Lead 12 VDC

724 Twin Lead 24 VDC

812 Metri-Pack 12 VDC

824 Metri-Pack 24 VDC

912 Deutsch DT04-2P 12 VDC

924 Deutsch DT04-2P 24 VDC

Embedded Coil Options

2B12A DIN 43650 4 pin (Hirschman) command common on fourth pin 12 VDC 0-20 mA

2B12V DIN 43650 4 pin (Hirschman) command common on fourth pin 12 VDC 0-10V

2B24A DIN 43650 4 pin (Hirschman) command common on fourth pin 24 VDC 0-20 mA

2B24V DIN 43650 4 pin (Hirschman) command common on fourth pin 24 VDC 0-10V

2C12A DIN 43650 4 pin (Hirschman) +5V reference on fourth pin 12 VDC 0-20 mA

2C12V DIN 43650 4 pin (Hirschman) +5V reference on fourth pin 12 VDC 0-10V

2C24A DIN 43650 4 pin (Hirschman) +5V reference on fourth pin 24 VDC 0-20 mA

2C24V DIN 43650 4 pin (Hirschman) +5V reference on fourth pin 24 VDC 0-10V

2D12A DIN 43650 4 pin (Hirschman) enable input on fourth pin 12 VDC 0-20 mA

2D12V DIN 43650 4 pin (Hirschman) enable input on fourth pin 12 VDC 0-10V

2D24A DIN 43650 4 pin (Hirschman) enable input on fourth pin 24 VDC 0-20 mA

2D24V DIN 43650 4 pin (Hirschman) enable input on fourth pin 24 VDC 0-10V

2F12V DIN 43650 4 pin (Hirschman) programmable ramps, separate rise and fall 12 VDC 0-10V

2F24V DIN 43650 4 pin (Hirschman) programmable ramps, separate rise and fall 24 VDC 0-10V

4A12A Deutsch DT04-6P all functions enabled (separate command common, 5 v reference, and an enable) 12 VDC 0-20 mA

4A12V Deutsch DT04-6P all functions enabled (separate command common, 5 v reference, and an enable) 12 VDC 0-10V

4A24A Deutsch DT04-6P all functions enabled (separate command common, 5 v reference, and an enable) 24 VDC 0-20 mA

4A24V Deutsch DT04-6P all functions enabled (separate command common, 5 v reference, and an enable) 24 VDC 0-10V

4F12V Deutsch DT04-6P programmable ramps, separate rise and fall 12 VDC 0-10V

4F24V Deutsch DT04-6P programmable ramps, separate rise and fall 24 VDC 0-10V

Additional Options

Additional Coils

512 SAE J858A 12 VDC