

## EFV2-12-C - Proportional valve

Proportional flow, normally closed spool  
 Up to 114 L/min (30 USgpm) • 210 bar (3000 psi)

### Eaton EFV2-12N-C-A

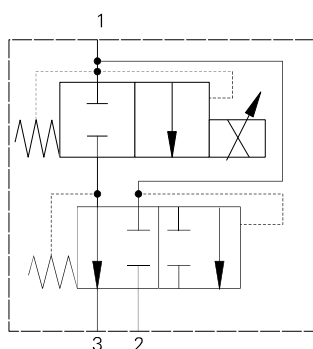
#### Operation

Current supplied to the coil controls the valve. At zero current, the valve is fully closed from port 1 to port 3. As current is increased to the solenoid the flow out of port 3 will increase. At 1500 to 1600 mA (12V coil) the valve is fully open.

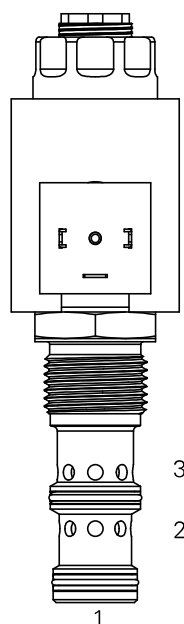
The valve will regulate flow out of port 3 regardless of downstream system pressure. As current is increased to the solenoid the flow out of port 3 will increase.

#### Features

Hardened and ground working parts to give long life with good control; Compact design with low pressure drop. IP69K Tough coil compatibility, continuously rated.



#### Sectional view



#### Description

This is a three port pressure compensated proportional normally closed flow control screw in cartridge valve. The valve can be used as a priority or a restrictive style valve allowing the valve to control the outlet flow with the option of the excess flow being used for another system.

#### Performance data

##### Ratings and specifications

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)

Typical application pressure	210 bar (3000 psi)
Cartridge endurance rating	1 million cycles
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi) NFPA rated
Rated flow	"A" Spool-max regulated flow (by-pass mode): 57 L/min (15 USgpm) max regulated flow (2 port mode): 53 L/min (14 USgpm) max input flow (input flow): 114 L/min (30 USgpm) "B" Spool-max regulated flow (by-pass mode): 38 L/min (10 USgpm) max regulated flow (2 port mode): 31 L/min (8 USgpm) max input flow (input flow): 114 L/min (30 USgpm)
	<b>Note:</b> Max regulated flow may decrease slightly during compensation.
Internal leakage (fully closed)	240 cm <sup>3</sup> /min (15 in <sup>3</sup> /min) @ 3000 PSID
Nominal supply voltage	12/24 V
Current to fully open valve	1600 6 200 mA (12V coil), 800 6 100 mA (24V coil)
Current to fully close valve	350 6 100 mA (12V coil), 175 6 50 mA (24V coil)
Recommended PWM frequency	200-400 Hz
Coil resistance	4.7v V/12V, 19.0 V/24V
Mass	Cartridge only 0,37 kg (0.82 lb), cartridge with coil and end nut 0,73 kg (1.62 lb)
Temperature range	-30° to 90°C (-22° to 194°F)
Maximum oil temperature	120°C (248°F)
Maximum internal coil temperature	200°C (392°F)
Cavity	C-12-3
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20, DTE 24, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Hysteresis	1.5 USgpm with 400Hz PWM driver
Seal kit	9900171-000 (Buna-N), 9900172-000 (Viton®)

Viton is a registered trademark of E.I. DuPont

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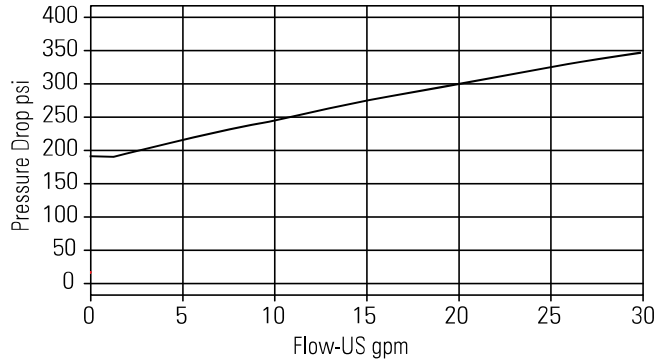
Up to 114 L/min (30 USgpm) • 210 bar (3000 psi)  
Performance Curves

B

## Flow is Pressure drop

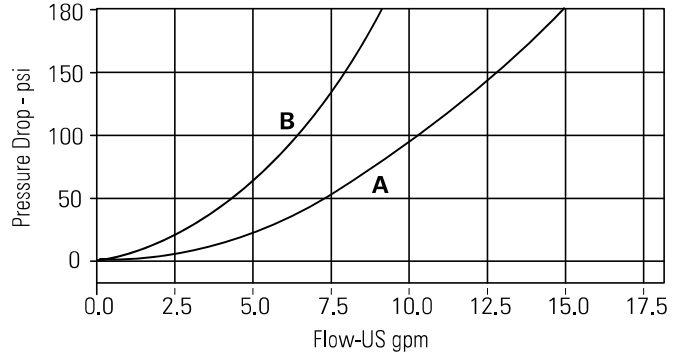
### Flow vs Pressure drop

Excess flow P1 to P2 (P3 to Atm)  
Full current (1700 mA on a 12V Coil)



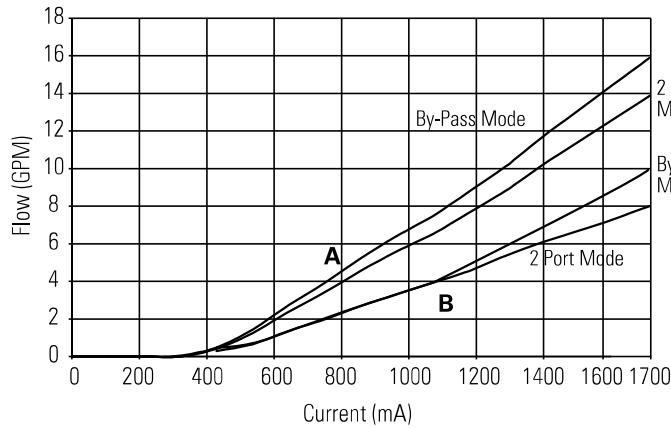
### Flow vs Pressure drop

Regulated flow P1 to P3 (P2 to Atm)  
Full current (1700 mA on a 12V Coil)



A - A spool pressure drop  
B - B spool pressure drop

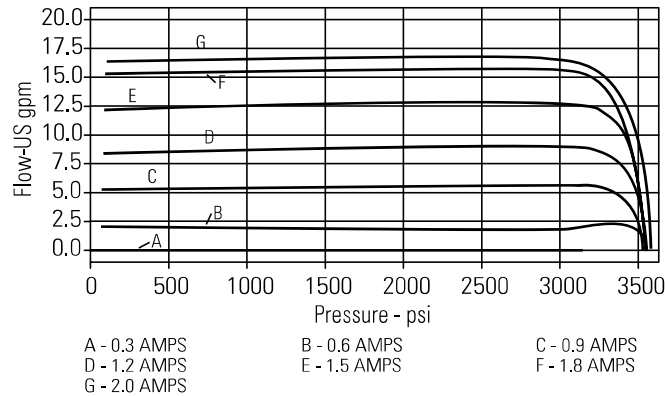
## Flow vs Current



A - A spool  
B - B spool

## Regulated flow vs Pressure

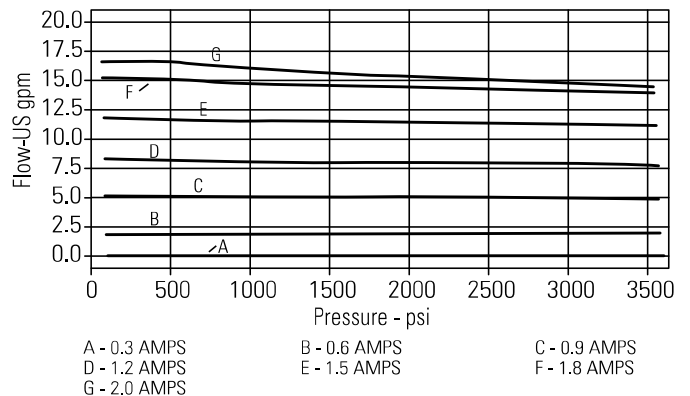
Regular to Bypass



A - 0.3 AMPS      B - 0.6 AMPS      C - 0.9 AMPS  
D - 1.2 AMPS      E - 1.5 AMPS      F - 1.8 AMPS  
G - 2.0 AMPS

## Regulated flow vs Pressure

Bypass to Regular



A - 0.3 AMPS      B - 0.6 AMPS      C - 0.9 AMPS  
D - 1.2 AMPS      E - 1.5 AMPS      F - 1.8 AMPS  
G - 2.0 AMPS

**Note:** Pressure Compensation curves are shown for "B" spool valves.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.