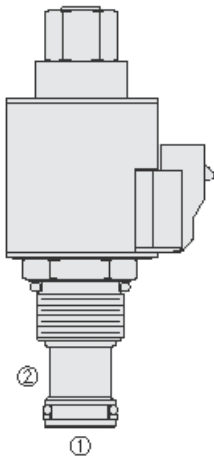




## Overview



### Description

A solenoid-operated, 2-port, normally open, poppet-type, proportional, screw-in hydraulic cartridge valve, designed for low leakage blocking and load-holding applications.

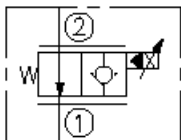
### Operation

When energized, the SP12-21 acts as a check valve, allowing flow from port 1 to port 2, while blocking flow from port 2 to port 1. When de-energized, the poppet lifts to open the port 2 to port 1 flow path.

### Features

- Continuous-duty rated coil.
- Efficient wet-armature construction.
- Optional waterproof E-Coils rated up to IP69K.
- Industry common cavity.

### Symbol



## Ratings

### Pressure Ratings

Pressure rating	250 bar (3625 psi) verification levels	- <b>Note:</b> Per NFPA t2.6.1 r2-2000 using 99.9 assurance and 90%
Proof pressure	344 bar (5000 psi)	
Burst pressure	779 bar (11300 psi)	

### Flow Ratings

Flow rating	102 lpm (27 gpm) (500 gpm)	- <b>Note:</b> Based on pressure drop (see performance graphs) 34.4 lpm
Maximum internal leakage	5 drops/min	- <b>Note:</b> At 250 bar (3625 psi)
Hysteresis per cent	10 %	- <b>Note:</b> Maximum, from 0 to 45% of max flow (at max control current)
	5 %	- <b>Note:</b> Maximum, from 45 to 100% of max flow (at max control current)

### Temperature Ratings

Operating fluid temperature	-40 to 100 °C (-40 to 212 °F)	- <b>Note:</b> With buna N seals
	-26 to 204 °C (-15 to 400 °F)	- <b>Note:</b> With fluorocarbon seals
	-54 to 107 °C (-65 to 225 °F)	- <b>Note:</b> With polyurethane seals
Storage temperature	-40 to 70 °C (-40 to 160 °F)	
Ambient temperature	-40 to 70 °C (-40 to 160 °F)	

### Other Ratings

Corrosion protection	960 hr salt spray per ASTM b117
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## Operating Parameters

Fluids	Mineral based or synthetic hydraulic fluid with lubricating properties
Fluid viscosity range	7.4 to 420 cSt
Maximum operating contamination level	20/18/14 per ISO 4406

## Properties

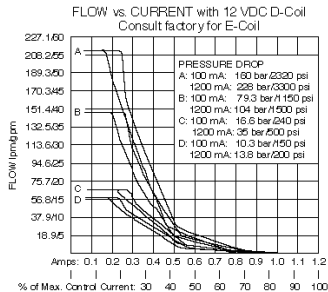
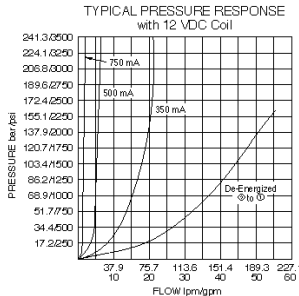
Unit weight	0.27 kg (0.60 lb)
Internal wetted surface area	210 cm <sup>2</sup> (32.5 in <sup>2</sup> )



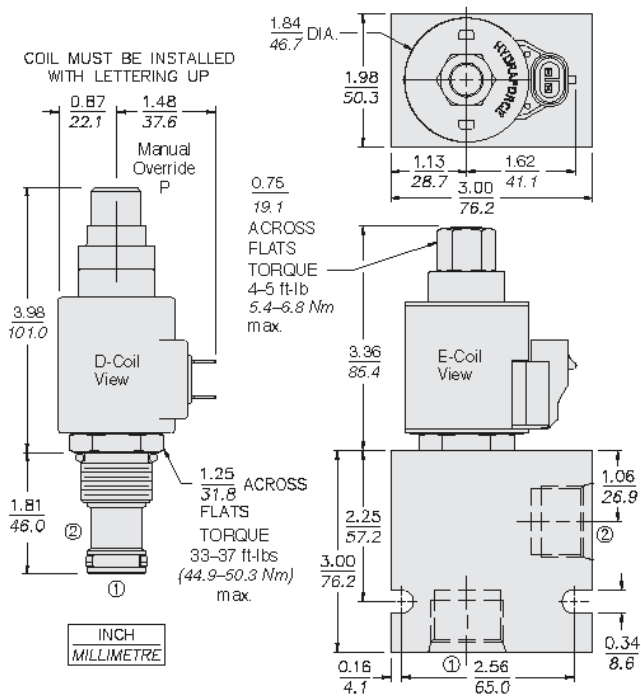
## Electrical Parameters

Valve inductance	197 mH	
Maximum control current	0.85 A	- <b>Note:</b> D-coil 12 Vdc
	1.2 A	- <b>Note:</b> Required to achieve rated leakage
Threshold current	0.25 A	- <b>Note:</b> D-coil (see performance graphs) 12 Vdc
Dither PWM frequency	100 to 400 Hz	

## Performance



## Dimensions



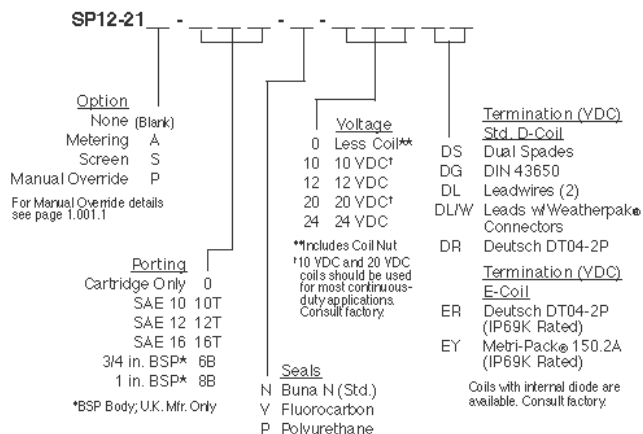
## Installation Specifications

Cavity	VC12-2
Cartridge installation torque	44.8 to 50.2 N-m (33 to 37 ft-lb)
Coil nut torque	6.8 to 9.5 N-m (5 to 7 ft-lb)
Orientation restriction	None

## Accessories

Seal kit	SK12-2X-T	- <b>Note:</b> X = seal option
Housings		
Coils		

## Order Code



POSITION	CODE	DESCRIPTION
		SP12-21DEG-H-J-L
D		Poppet Metering
D	A	Linear Poppet Metering
D	BLANK	Standard Poppet Metering
E		Manual Override
E	BLANK	NONE
E	K	Momentary Push Override, Knob
E	P	Momentary Push Override, Button
G		Screen
G	BLANK	NONE
G	S	100 Mesh Screen
H		Line Body
H	0	No Body
H	10T	Aluminum SAE 10
H	12T	Aluminum SAE 12
H	16T	Aluminum SAE 16
H	12TD	Ductile Iron SAE 12
H	16TD	Ductile Iron SAE 16
H	8B	Aluminum BSPP 1" (8)
H	8BD	Ductile Iron BSPP 1" (8)
J		Seal
J	N	Buna-N
J	V	Fluorocarbon
J	P	Polyurethane
J	U	PPDI Urethane
L		Coil
L	0	No Coil
L	10DG	10 VDC, D-Coil, DIN 43650
L	10DL	10 VDC, D-Coil, Dual Lead Wires
L	10DS	10 VDC, D-Coil, Dual Spade
L	10EL	10 VDC, E-Coil, Dual Lead Wires
L	10ER	10 VDC, E-Coil, Deutsch
L	12DG	12 VDC, D-Coil, DIN 43650
L	12DL	12 VDC, D-Coil, Dual Lead Wires, 18 inches long



POSITION	CODE	DESCRIPTION
L	12DL/36	12 VDC, D-Coil, Dual Lead Wires, 36 inches long
L	12DL/W	12 VDC, D-Coil, Dual Lead Wires with Weatherpak
L	12DR	12 VDC, D-Coil, Deutsch
L	12DS	12 VDC, D-Coil, Dual Spade
L	12EG	12 VDC, E-Coil, DIN 43650
L	12EJ	12 VDC, E-Coil, AMP Jr.
L	12EL	12 VDC, E-Coil, Dual Lead Wires, 18 inches long
L	12EL/36	12 VDC, E-Coil, Dual Lead Wires, 36 inches long
L	12ER	12 VDC, E-Coil, Deutsch
L	12EY	12 VDC, E-Coil, Metri-Pack 150
L	20DS	20 VDC, D-Coil, Dual Spade
L	20ER	20 VDC, E-Coil, Deutsch
L	24AG	24 VDC, D-Coil, DIN 43650
L	24AP	24 VDC, D-Coil, 1/2" Conduit and Dual Lead Wires
L	24DG	24 VDC, D-Coil, DIN 43650
L	24DL	24 VDC, D-Coil, Dual Lead Wires
L	24DL/W	24 VDC, D-Coil, Dual Lead Wires with Weatherpak
L	24DP	24 VDC, D-Coil, 1/2" Conduit and Dual Lead Wires
L	24DR	24 VDC, D-Coil, Deutsch
L	24DS	24 VDC, D-Coil, Dual Spade
L	24EG	24 VDC, E-Coil, DIN 43650
L	24EJ	24 VDC, E-Coil, AMP Jr.
L	24EL	24 VDC, E-Coil, Dual Lead Wires, 18 inches long
L	24EL/36	24 VDC, E-Coil, Dual Lead Wires, 36 inches long
L	24ER	24 VDC, E-Coil, Deutsch
L	24EY	24 VDC, E-Coil, Metri-Pack 150
L	36DS	36 VDC, D-Coil, Dual Spade