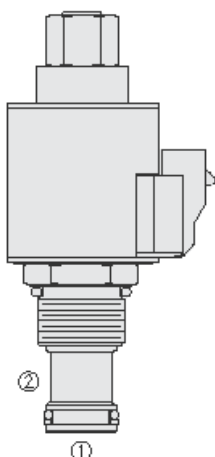




Overview



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.

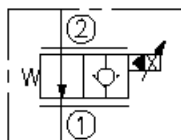
Operation

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)	- Note: Per NFPA t2.6.1 r2-2000 using 99.9 assurance and 90% verification levels
Proof pressure	344 bar (5000 psi)	
Burst pressure	779 bar (11300 psi)	

Flow Ratings

Flow rating	102 lpm (27 gpm)	- Note: Based on pressure drop (see performance graphs) 34.4 lpm (500 gpm)
Maximum internal leakage	5 drops/min	- Note: At 250 bar (3625 psi)
Hysteresis per cent	10 %	- Note: Maximum, from 0 to 45% of max flow (at max control current)
	5 %	- Note: 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)	- Note: With buna N seals
	-26 to 204 °C (-15 to 400 °F)	- Note: With fluorocarbon seals
	-54 to 107 °C (-65 to 225 °F)	- Note: 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



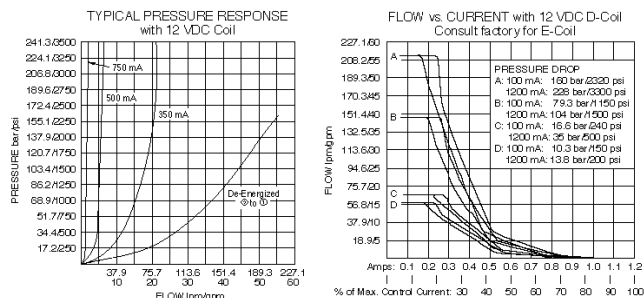
Properties

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

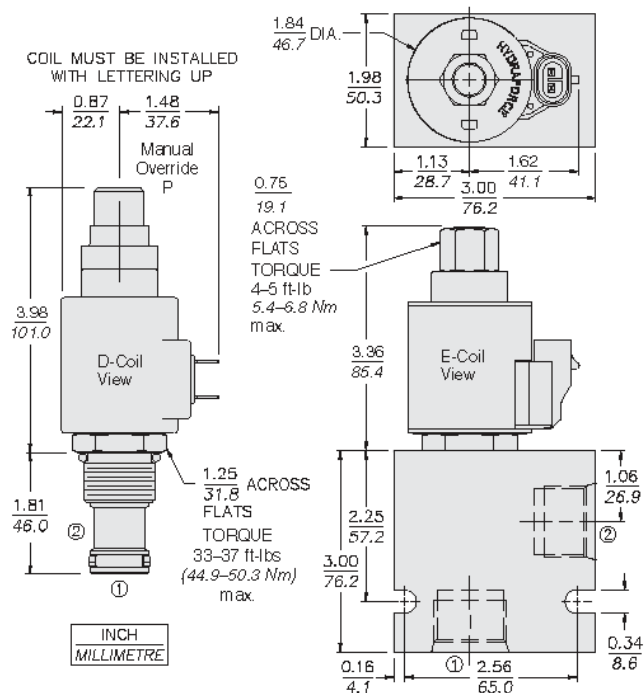
Electrical Parameters

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

Performance



Dimensions



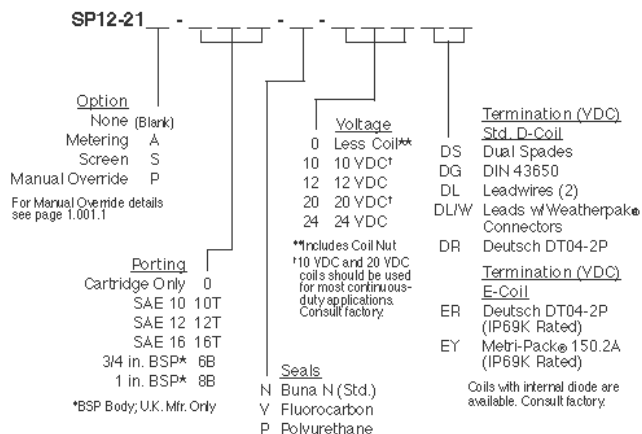
Installation Specifications

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 - Note: X = seal option
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Order Code



Model Options

SP12-21DEG-H-J-L

D Poppet Metering

CODE	DESCRIPTION
A	Linear Poppet Metering
BLANK	Standard Poppet Metering

E Manual Override

CODE	DESCRIPTION
BLANK	NONE
K	Momentary Push Override, Knob
P	Momentary Push Override, Button

G Screen

CODE	DESCRIPTION
BLANK	NONE
S	100 Mesh Screen

H Line Body

CODE	DESCRIPTION
0	No Body
10T	Aluminum SAE 10
12T	Aluminum SAE 12
16T	Aluminum SAE 16
12TD	Ductile Iron SAE 12
16TD	Ductile Iron SAE 16
8B	Aluminum BSPP 1" (8)
8BD	Ductile Iron BSPP 1" (8)

J Seal

CODE	DESCRIPTION
N	Buna-N
V	Fluorocarbon
P	Polyurethane
U	PPDI Urethane

L Coil



CODE	DESCRIPTION
0	No Coil
10DG	10 VDC, D-Coil, DIN 43650
10DL	10 VDC, D-Coil, Dual Lead Wires
10DS	10 VDC, D-Coil, Dual Spade
10EL	10 VDC, E-Coil, Dual Lead Wires
10ER	10 VDC, E-Coil, Deutsch
12DG	12 VDC, D-Coil, DIN 43650
12DL	12 VDC, D-Coil, Dual Lead Wires, 18 inches long
12DL/36	12 VDC, D-Coil, Dual Lead Wires, 36 inches long
12DL/W	12 VDC, D-Coil, Dual Lead Wires with Weatherpak
12DR	12 VDC, D-Coil, Deutsch
12DS	12 VDC, D-Coil, Dual Spade
12EG	12 VDC, E-Coil, DIN 43650
12EJ	12 VDC, E-Coil, AMP Jr.
12EL	12 VDC, E-Coil, Dual Lead Wires, 18 inches long
12EL/36	12 VDC, E-Coil, Dual Lead Wires, 36 inches long
12ER	12 VDC, E-Coil, Deutsch
12EY	12 VDC, E-Coil, Metri-Pack 150
20DS	20 VDC, D-Coil, Dual Spade
20ER	20 VDC, E-Coil, Deutsch
24AG	24 VDC, D-Coil, DIN 43650
24AP	24 VDC, D-Coil, 1/2" Conduit and Dual Lead Wires
24DG	24 VDC, D-Coil, DIN 43650
24DL	24 VDC, D-Coil, Dual Lead Wires
24DL/W	24 VDC, D-Coil, Dual Lead Wires with Weatherpak
24DP	24 VDC, D-Coil, 1/2" Conduit and Dual Lead Wires
24DR	24 VDC, D-Coil, Deutsch
24DS	24 VDC, D-Coil, Dual Spade
24EG	24 VDC, E-Coil, DIN 43650
24EJ	24 VDC, E-Coil, AMP Jr.
24EL	24 VDC, E-Coil, Dual Lead Wires, 18 inches long
24EL/36	24 VDC, E-Coil, Dual Lead Wires, 36 inches long
24ER	24 VDC, E-Coil, Deutsch
24EY	24 VDC, E-Coil, Metri-Pack 150
36DS	36 VDC, D-Coil, Dual Spade