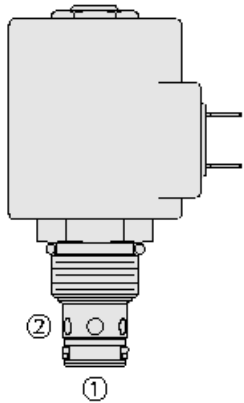




## Overview



### Description

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

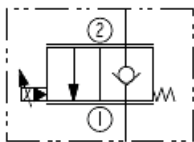
### Operation

When de-energized, the SP10-20xxx acts as a check valve, allowing flow from 1 to 2, while blocking flow from 2 to 1. When energized, the poppet lifts to open the 2 to 1 flow path.

### Features

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

### Symbol



## Ratings

### Pressure Ratings

Pressure rating	250 bar (3625 psi)
Proof pressure	345 bar (5000 psi)
Burst pressure	827 bar (12000 psi)

### Flow Ratings

Flow rating	See performance graphs
Maximum internal leakage	5 drops/min - <b>Note:</b> At 207 bar (3000 psi)

### 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 viton 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)	

## 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

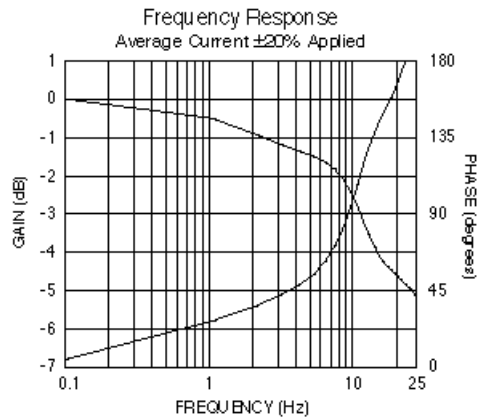
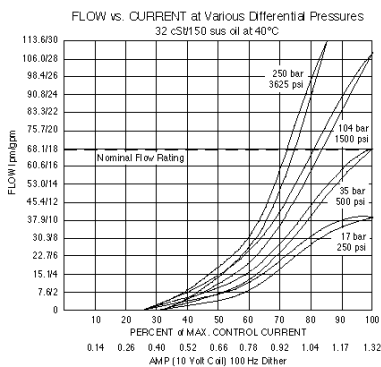
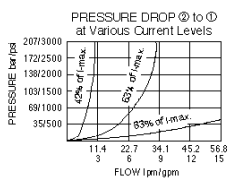
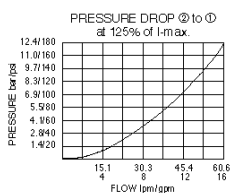
Unit weight	0.16 kg (0.34 lb)
Internal wetted surface area	12065 mm <sup>2</sup> (18.7 in <sup>2</sup> )



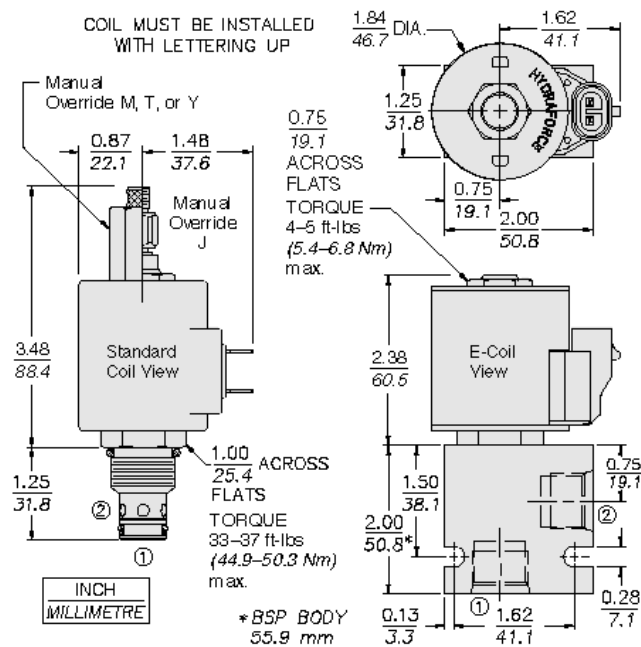
## Electrical Parameters

Valve inductance	173.3 mH	- Note: At 1.2 A
Maximum control current	1.44 A	- Note: 10 V D-series coil
	1.20 A	- Note: 12 V D-series coil
	1.40 A	- Note: 12 V E-series coil
	0.74 A	- Note: 20 V D-series coil
	0.60 A	- Note: 24 V D-series coil
	0.70 A	- Note: 24 V E-series coil
Threshold current	0.36 A	- Note: 10 V D-series coil
	0.30 A	- Note: 12 V D-series coil
	0.30 A	- Note: 12 V E-series coil
	0.18 A	- Note: 20 V D-series coil
	0.15 A	- Note: 24 V D-series coil
	0.15 A	- Note: 24 V E-series coil
Dither PWM frequency	100 Hz	

## Performance



## Dimensions



## Installation Specifications

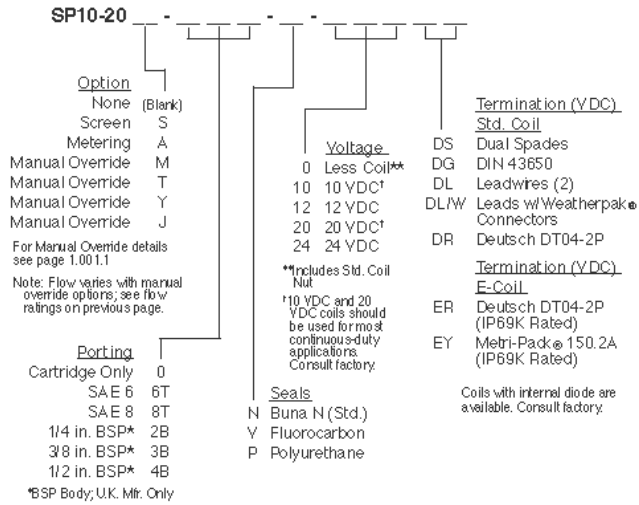
Cavity	VC10-2
Cartridge installation torque	44.9 to 50.3 N-m (33 to 37 ft-lb)
Maximum allowable torque	67.8 N-m (50 ft-lb)
Coil nut torque	6.8 to 9.5 N-m (5 to 7 ft-lb)
Orientation restriction	None



Accessories

Seal kit SK10-2X-T - Note: X = seal option

Order Code



Model Options

SP10-20DEG-H-J-L

D Poppet Metering

CODE	DESCRIPTION
A	Linear Poppet Metering
BLANK	Standard Poppet Metering

E Manual Override

CODE	DESCRIPTION
BLANK	NONE
J	Momentary Pull Override, #10-32 threads
M	Two Position Override, Red Knurled Knob
T	Variable Position Override, Red Knurled Knob
Y	Momentary Pull Override, Red Knurled Knob

G Screen

CODE	DESCRIPTION
BLANK	NONE
S	100 Mesh Screen

H Line Body

CODE	DESCRIPTION
0	No Body
6T	Aluminum SAE 6
8T	Aluminum SAE 8
6TD	Ductile Iron SAE 6
8TD	Ductile Iron SAE 8
2B	Aluminum BSPP 1/4" (2)
3B	Aluminum BSPP 3/8" (3)
4B	Aluminum BSPP 1/2" (4)



CODE	DESCRIPTION
4BD	Ductile Iron BSPP 1/2" (4)

### 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



CODE	DESCRIPTION
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