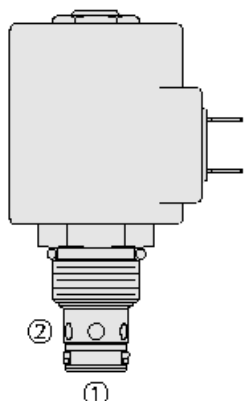




## Overview



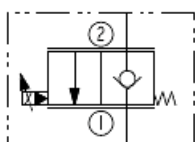
### Description

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

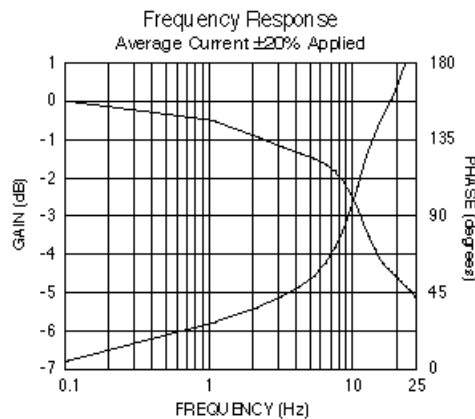
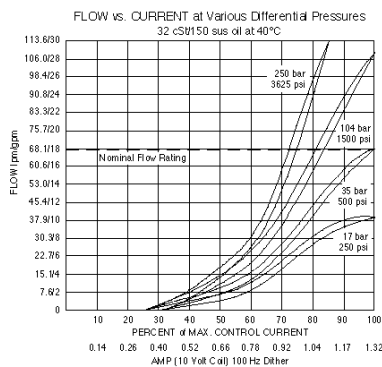
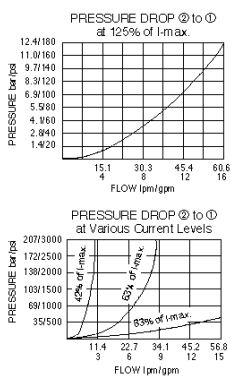
Unit weight	0.16 kg (0.34 lb)
Internal wetted surface area	12065 mm <sup>2</sup> (18.7 in <sup>2</sup> )



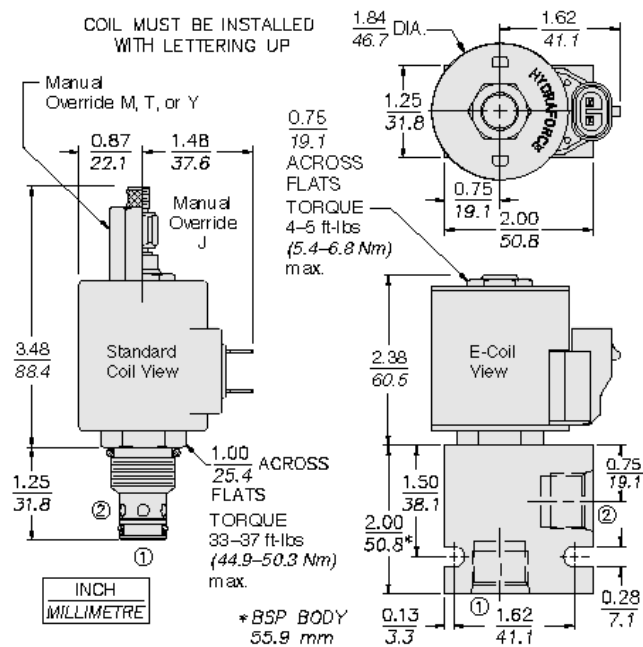
## Electrical Parameters

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

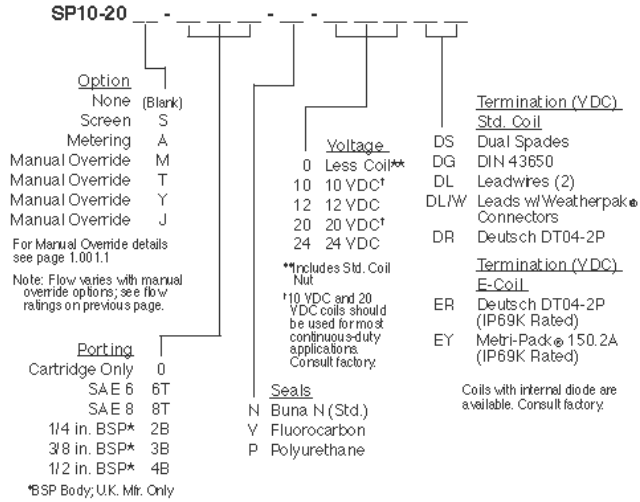
Cavity	VC10-2
Cartridge installation torque	44.9 to 50.3 N-m (33 to 37 ft-lb)
Maximum allowable torque	67.8 N-m (50 ft-lb)
Coil nut torque	6.8 to 9.5 N-m (5 to 7 ft-lb)
Orientation restriction	None



Accessories

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

Order Code



POSITION	CODE	DESCRIPTION
		SP10-20DEG-H-J-L
D		Poppet Metering
D	A	Linear Poppet Metering
D	BLANK	Standard Poppet Metering
E		Manual Override
E	BLANK	NONE
E	J	Momentary Pull Override, #10-32 threads
E	M	Two Position Override, Red Knurled Knob
E	T	Variable Position Override, Red Knurled Knob
E	Y	Momentary Pull Override, Red Knurled Knob
G		Screen
G	BLANK	NONE
G	S	100 Mesh Screen
H		Line Body
H	0	No Body
H	6T	Aluminum SAE 6
H	8T	Aluminum SAE 8
H	6TD	Ductile Iron SAE 6
H	8TD	Ductile Iron SAE 8
H	2B	Aluminum BSPP 1/4" (2)
H	3B	Aluminum BSPP 3/8" (3)
H	4B	Aluminum BSPP 1/2" (4)
H	4BD	Ductile Iron BSPP 1/2" (4)
J		Seal
J	N	Buna-N
J	V	Fluorocarbon
J	P	Polyurethane



POSITION	CODE	DESCRIPTION
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
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