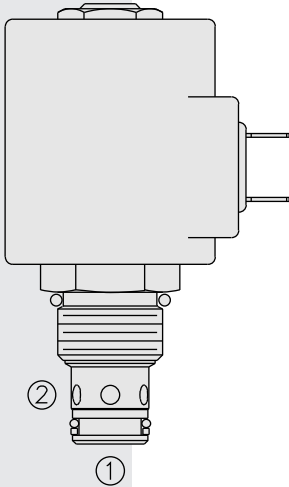


# ELECTRO-PROPORTIONAL VALVES—FLOW CONTROL

## SP10-20 Poppet, 2-Way, Normally Closed



### DESCRIPTION

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

### OPERATION

When de-energized, the **SP10-20** acts as a check valve, allowing flow from 1 to 2, while blocking flow from 2 to 1. When energized, the 2 to 1 flow path opens. Flow is proportional to current applied to the coil. Flow varies with manual override.

**Note: If low voltage is expected on the machine, 12 or 24 volt systems will require the use of 10 volt or 20 volt coils respectively. See "SP Valves and Coil Operating Parameters," page 2.002.1.**

### FEATURES

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

### RATINGS

**Operating Pressure:** 250 bar (3625 psi)

**Flow:** Without Manual Override: 68 lpm (18 gpm) at 34.5 bar (500 psid)  
 With Manual Override M or T: 64.3 lpm (17 gpm) at 34.5 bar (500 psid)  
 With Manual Override Y or J: 41.2 lpm (10.9 gpm) at 34.5 bar (500 psid)

**Minimum Operating Dither/Pulse Frequency:** 70 Hz

**Hysteresis:** Less than 5% up to 75% of I-max.; Less than 10% above 75% of I-max.

**Max. Internal Leakage:** 5 drops per minute at 250 bar (3625 psi)

**Temperature:** -40 to 120°C with standard Buna seals

**Fluids:** Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus); See Temperature and Oil Viscosity, page 9.060.1

**Filteration:** See page 9.010.1; **Installation:** No Restrictions. See page 9.020.1

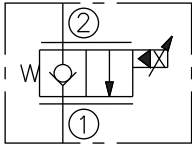
**Cavity:** VC10-2; See page 9.110.1; **Cavity Tool:** CT10-2XX; See page 8.600.1

**Seal Kit:** SK10-2X-T; See page 8.650.1

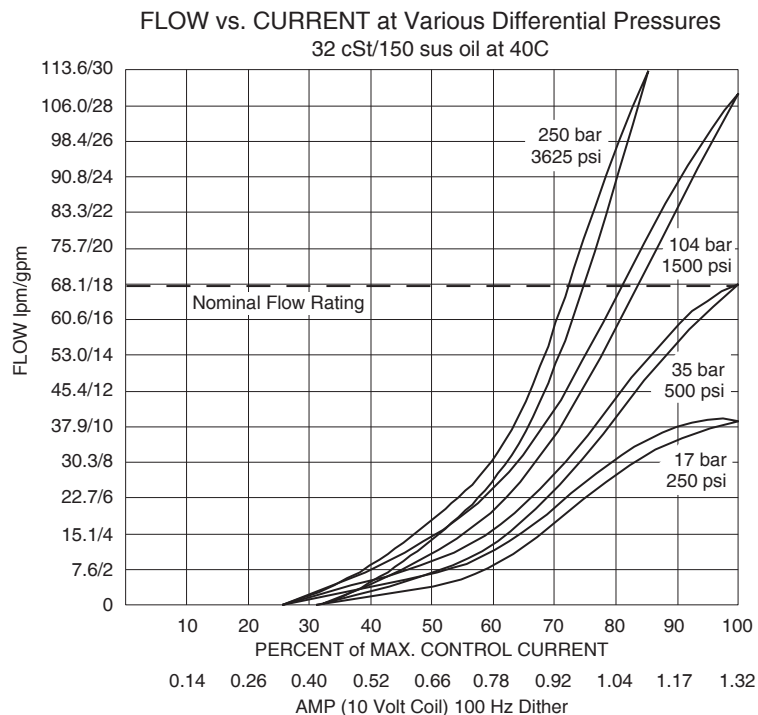
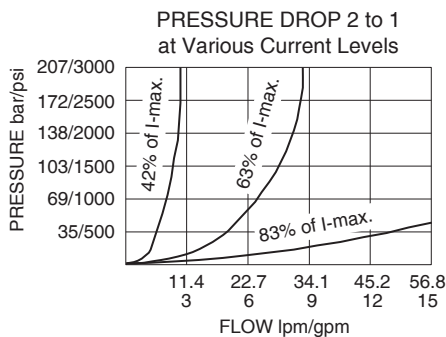
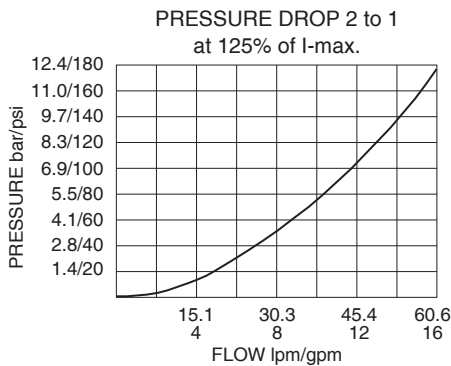
**Coil Nut:** Part No. 7004400; for E-coils manuf. prior to 1-1-04, see page 3.400.1.

### SYMBOLS

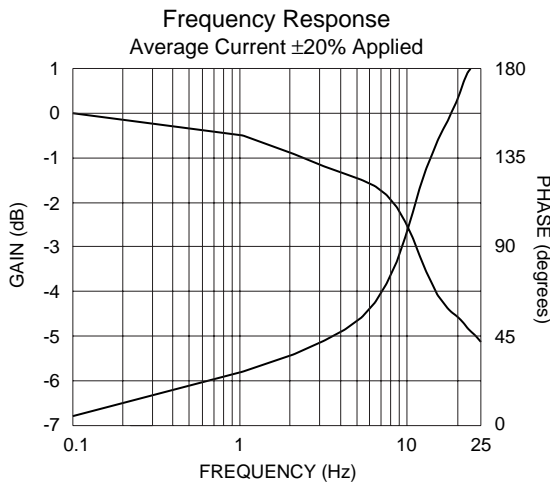
#### USAS/ISO:



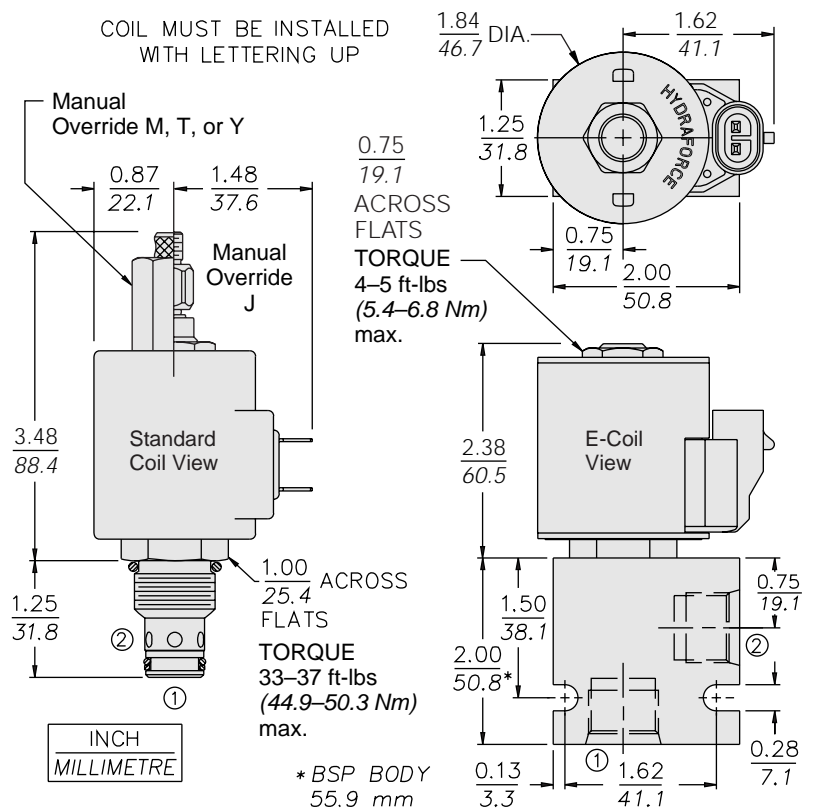
### PERFORMANCE



**PERFORMANCE** (cont'd.)



**DIMENSIONS**



**Recommended Electronic Controllers:**  
See page 2.001.1 or our Electronics catalog.

**MATERIALS**

**Cartridge:** Weight: 0.16 kg. (0.34 lbs.) Steel with hardened work surfaces. Zinc-plated exposed surfaces. Buna N O-rings and back-ups standard.

**Standard Ported Body:** Weight: 0.16 kg. (0.35 lbs.) Anodized high-strength 6061 T6 aluminum alloy, rated to 207 bar (3000 psi). Ductile iron bodies available; dimensions may differ. See page 8.010.1.

**Standard Coil:** Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire; See page 3.200.1.

**E-Coil:** Weight: 0.41 kg. (0.9 lbs.) Perfect wound, fully encapsulated with rugged external metal shell. Rated up to IP69K with integral connectors. **Note: See page 3.400.1 for all E-Coil retrofit applications.**

**TO ORDER**

**SP10-20** - - - - -

<b>Option</b>	None (Blank)				
	Screen <b>S</b>				
	Metering <b>A</b>				
	Manual Override <b>M</b>				
	Manual Override <b>T</b>				
	Manual Override <b>Y</b>				
	Manual Override <b>J</b>				
	For Manual Override details see page 1.001.1				
	<b>Note:</b> Flow varies with manual override options; see flow ratings on previous page.				
<b>Porting</b>	Cartridge Only <b>0</b>				
	SAE 6 <b>6T</b>				
	SAE 8 <b>8T</b>				
	1/4 in. BSP* <b>2B</b>				
	3/8 in. BSP* <b>3B</b>				
	1/2 in. BSP* <b>4B</b>				
	*BSP Body; U.K. Mfr. Only				
		<b>Voltage</b>			
		<b>0</b> Less Coil**			
		<b>10</b> 10 VDC†			
		<b>12</b> 12 VDC			
		<b>20</b> 20 VDC†			
		<b>24</b> 24 VDC			
		**Includes Std. Coil Nut			
		†10 VDC and 20 VDC coils should be used for most continuous-duty applications. Consult factory.			
		<b>Seals</b>			
		<b>N</b> Buna N (Std.)			
		<b>V</b> Fluorocarbon			
		<b>P</b> Polyurethane			
		<b>Termination (VDC) Std. Coil</b>			
		<b>DS</b> Dual Spades			
		<b>DG</b> DIN 43650			
		<b>DL</b> Leadwires (2)			
		<b>DL/W</b> Leads w/Weatherpak® Connectors			
		<b>DR</b> Deutsch DT04-2P			
		<b>Termination (VDC) E-Coil</b>			
		<b>ER</b> Deutsch DT04-2P (IP69K Rated)			
		<b>EY</b> Metri-Pack® 150.2A (IP69K Rated)			
		Coils with internal diode are available. Consult factory.			