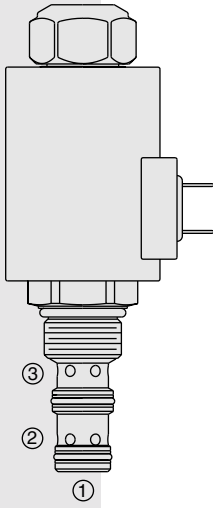


# ELECTRO-PROPORTIONAL VALVES—FLOW CONTROL

## ZL70-30 Proportional, Bi-Directional Flow Control,

U.S. Patent  
6,167,906



### DESCRIPTION

A solenoid-operated, electrically-variable, pressure-compensated, spool-type, normally closed when de-energized, proportional, bi-directional, flow control valve. An internal compensator spool provides compensated flow across the proportional orifice regardless of flow direction.

### OPERATION

The **ZL70-30** provides regulated flow from port ② to port ③, or regulated flow from port ③ to port ②. Port ① should be blocked. Regulated flow is proportional to electric current applied to the solenoid.

#### Operation of Manual Override:

To Engage: Turn clockwise approximately 1 turn to reach start point. Continue another approximately 5 turns to full shift.

To Disengage: Turn counterclockwise approximately 6 turns until positive stop is found.

### FEATURES

- Excellent linearity and hysteresis characteristics.
- Hardened spool and cage for long life.
- Optional coil voltages and terminations.
- Efficient wet armature construction.
- Manual Override option.

### RATINGS

**Maximum Operating Pressure:** 240 bar (3500 psi)

**Regulated Flow:** Range A: 0–20 lpm (0–5.3 gpm); Range B: 0–10 lpm (0–2.6 gpm)

**Internal Leakage:** 0.38 lpm (0.10 gpm) maximum at zero current

**Electrical:** 2 standard voltage ratings

Coil Voltage	Threshold Current	Max. Control Current
12 VDC	250 ± 100 mA	1400 ± 100 mA
24 VDC	125 ± 50 mA	750 ± 50 mA

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

**Filtration:** See page 9.010.1

**Fluids:** Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)

**Installation:** No restrictions; See page 9.020.1.

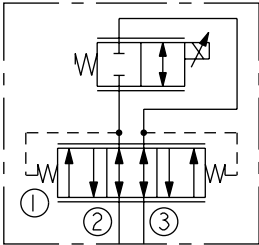
**Cavity:** VC10-3; See page 9.110.1

**Cavity Tool:** CT10-3X-XX; See page 8.600.1

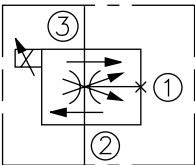
**Seal Kit:** SK10-3X-MM; See page 8.650.1

### SYMBOLS

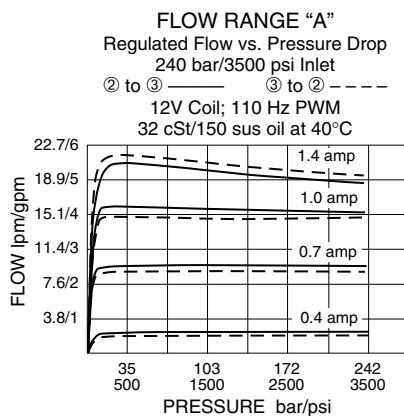
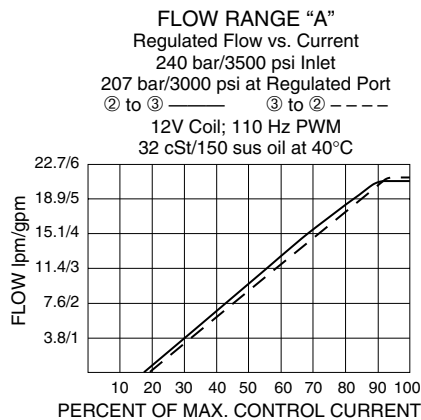
#### USASI/ISO:



#### ABBREVIATED SYMBOL:



### PERFORMANCE



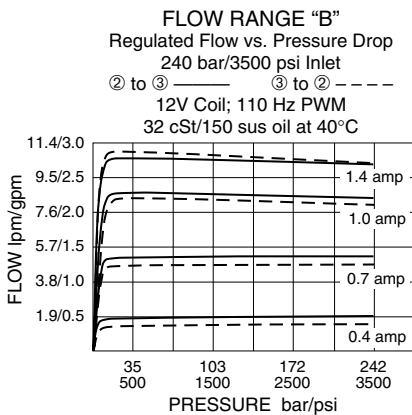
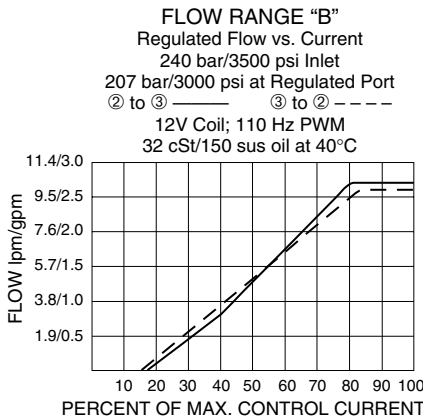
#### Recommended Controllers (See Section 3)

Input Sig. w/12V Coil	DIN Coil Mount	PCB Board	Metal Box	DIN Rail Mount
0-5 VDC	7114950	4000046	4000049	4000136
0-10 VDC	4000070	4000141	4000124	4000137
4-20 mA PWM	4000123	4000143	4000130	4000139
	—	4000144	4000133	4000140
w/24V Coil				
0-5 VDC	4000161	4000194	4000174	4000136
0-10 VDC	4000165	4000141	4000182	4000137
4-20 mA PWM	4000169	4000143	4000186	4000139
	—	4000144	4000133	4000140

# Normally Closed

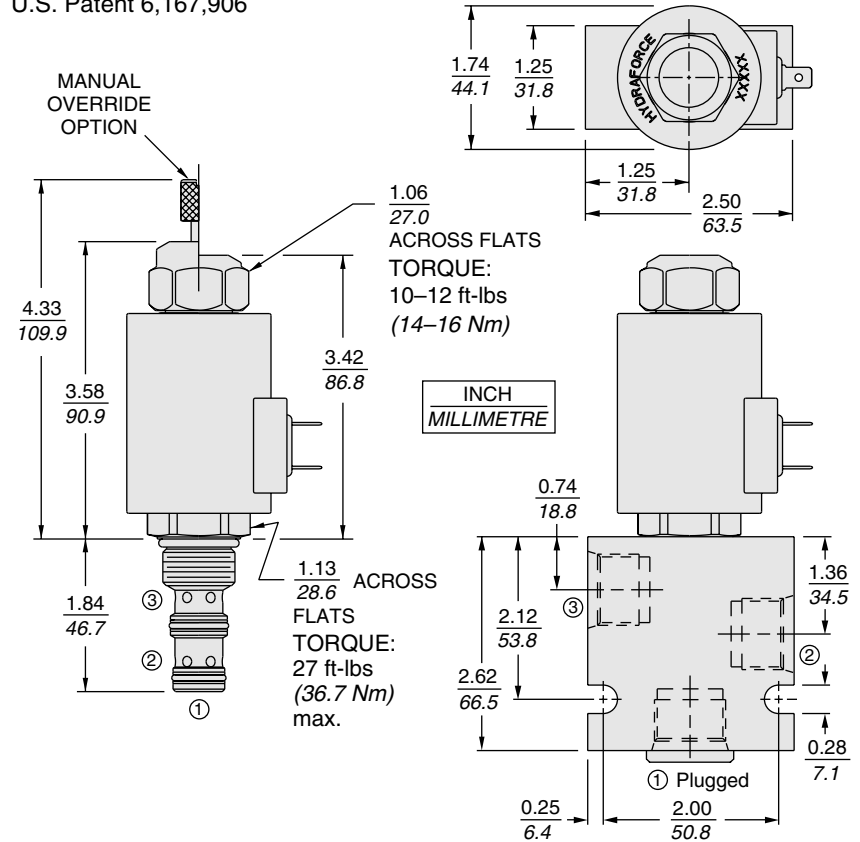
# ZL70-30

## PERFORMANCE (continued)



## DIMENSIONS

U.S. Patent 6,167,906



## MATERIALS

**Cartridge:** Weight: 0.32 kg. (0.7 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces. Buna N O-rings and polyester elastomer back-ups standard.

**Standard Ported Body:** Weight: 0.59 kg. (1.3 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); See page 8.010.1. Steel and ductile iron bodies available; dimensions may differ; consult factory.

**PV70 Series Coil:** Weight: 0.32 kg. (0.7 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnet-wire; See page 3.200.7.

## TO ORDER

<b>ZL70-30</b>		-	-	-	-	-	-	-
<b>Range</b>	<b>A</b>							
0–20 lpm (0–5.3 gpm)								
<b>Range</b>	<b>B</b>							
0–10 lpm (0–2.6 gpm)								
<b>Option(s)</b>								
None (Blank)								
Manual Override	<b>M</b>							
<b>Porting</b>								
Cartridge Only	<b>0</b>							
SAE 6	<b>6T</b>							
SAE 8	<b>8T</b>							
SAE 10	<b>10T</b>							
<b>Seals</b>								
N	Buna N (Std.)							
V	Fluorocarbon							
<b>Terminations</b>								
DS	Dual Spades							
DG	DIN 43650							
DL	Leadwires (2)							
DL/W	Leads w/Weatherpak® Connectors							
DR	Deutsch DT04-2P							
<b>Voltage</b>								
0	Less Coil							
12	12 VDC							
24	24 VDC							

Coils with internal diode are available. Consult factory.