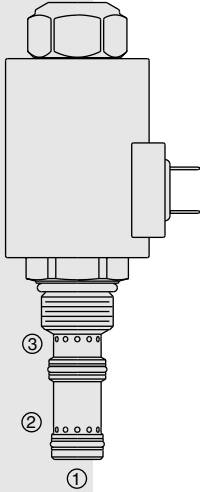


ELECTRO-PROPORTIONAL VALVES—FLOW CONTROL

ZL70-36 Proportional, Bi-Directional Flow Control,

U.S. Patent
6,116,263



DESCRIPTION

A solenoid-operated, electrically-variable, three-port, pressure-compensated, spool-type, normally closed when de-energized, proportional, bi-directional, priority-type flow control valve.

OPERATION

The ZL70-36 provides priority regulated flow from port ① to port ③ with bypass at port ②; or regulated flow from port ③ to port ② with port ① blocked externally, typically with a check valve (see symbol drawing). Regulated flow is proportional to electric current applied to the solenoid.

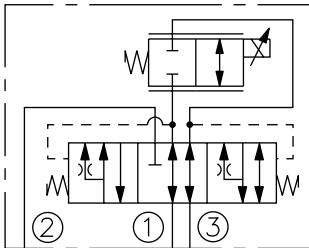
Application Notes: The ZL70-36 may be used for single-acting cylinder applications where lowering is provided by gravity force. The ZL 70-36 has no minimum load restrictions provided the load is enough to overcome cylinder friction and other frictions in the system. At low loads, the lowering speed can be slower than at heavier load if pressure drop is less than the compensation value of the valve.

The hydraulic circuit must include a check valve and a poppet-type solenoid valve (SV08-20 type) connected as shown on the circuit symbol and placed close to the ZL70-36 valve, if possible in the same manifold. See Application Guide.

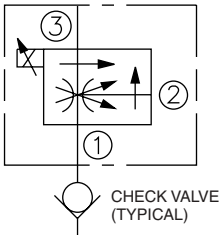
Operation of Manual Override: To Engage: Turn clockwise approximately 1 turn to reach start point. Continue another approximately 5 turns to full shift. To Disengage: Turn counterclockwise approximately 6 turns until positive stop is found.

SYMBOLS

USAS/ISO:



ABBREVIATED SYMBOL:



FEATURES

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

RATINGS

Maximum Operating Pressure: 240 bar (3500 psi)

Regulated Flow: Range A: 0–19 lpm (0–5.0 gpm); Range B: 0–9.5 lpm (0–2.5 gpm)

Input Flow: Range A: 0–25.5 lpm (0–6.5 gpm); Range B: 0–15 lpm (0–4.0 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	300 ± 100 mA	1400 ± 100 mA
24 VDC	150 ± 50 mA	700 ± 50 mA

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

Filtration: See page 9.010.1

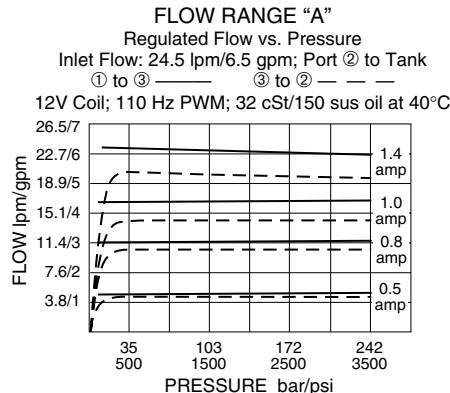
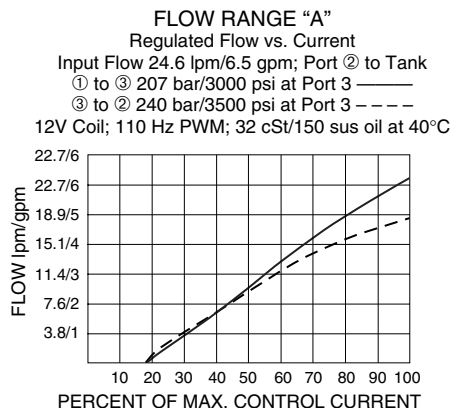
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)

Installation: No restrictions; See page 9.020.1.

Cavity: VC10-L3; 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

PERFORMANCE



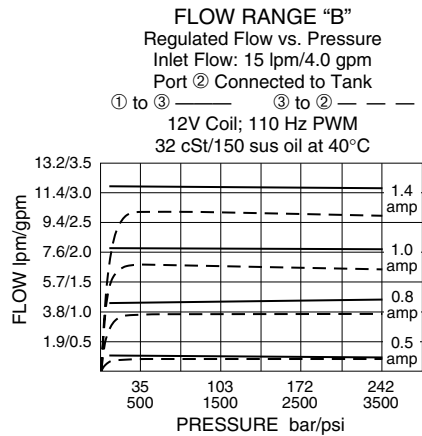
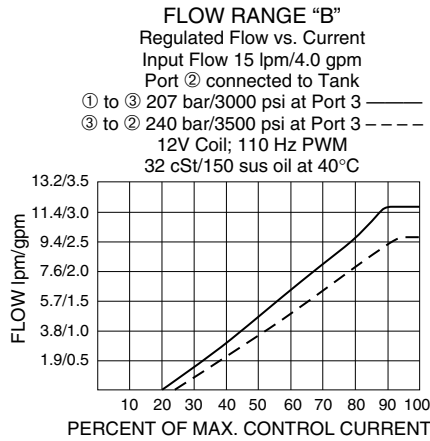
Recommended Controllers (See Section 3)

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	4000123	4000143	4000130	4000139
PWM	—	4000144	4000133	4000140
w/24V Coil				
0-5 VDC	4000161	4000194	4000174	4000136
0-10 VDC	4000165	4000141	4000182	4000137
4-20 mA	4000169	4000143	4000186	4000139
PWM	—	4000144	4000133	4000140

Normally Closed

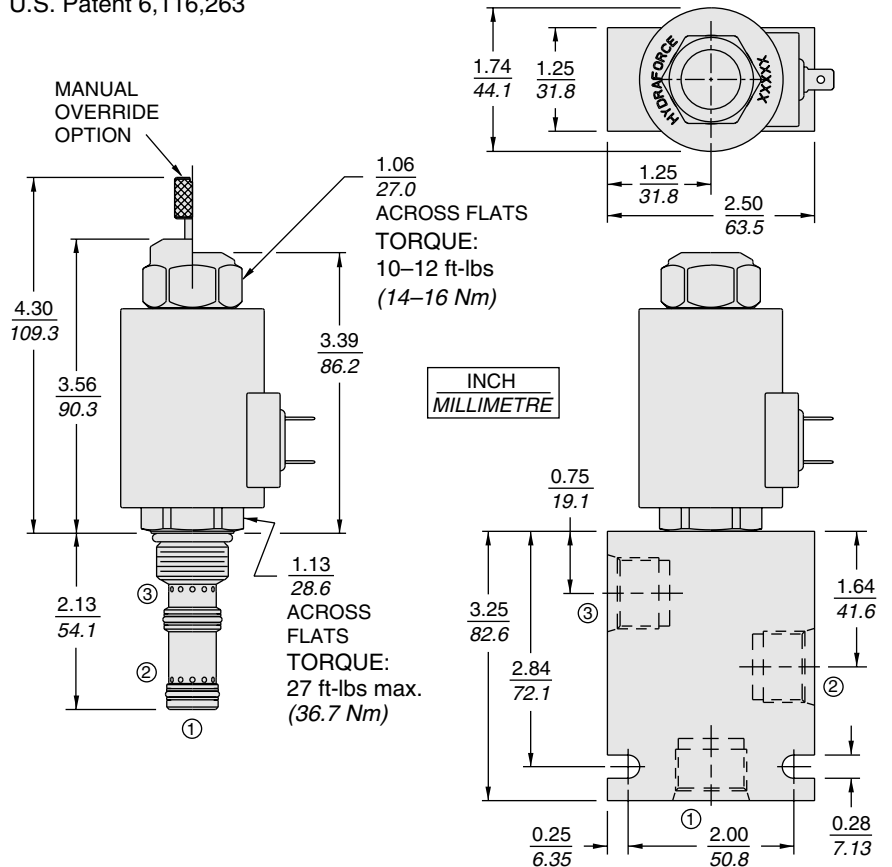
ZL70-36

PERFORMANCE (continued)



DIMENSIONS

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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

ZL70-36

Range	Terminations
0-19 lpm (0-5.0 gpm) A	DS Dual Spades
0-9.5 lpm (0-2.5 gpm) B	DG DIN 43650
	DL Leadwires (2)
	DL/W Leads w/Weatherpak® Connectors
	DR Deutsch DT04-2P
Option(s)	
None (Blank)	
Manual Override M	
Porting	Voltage
Cartridge Only 0	0 Less Coil
SAE 6 6T	12 12 VDC
SAE 8 8T	24 24 VDC
Seals	
N Buna N (Std.)	
V Fluorocarbon	

Coils with internal diode are available. Consult factory.