

**Semi-Restrictive****DESCRIPTION**

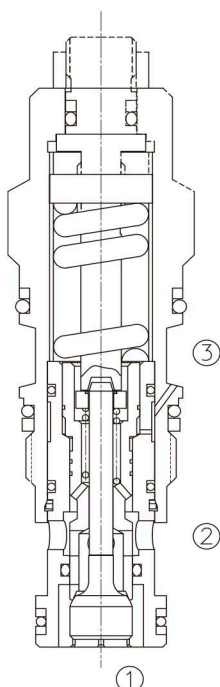
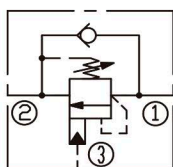
A cartridge-style semi-restrictive counterbalance valve

**OPERATION**

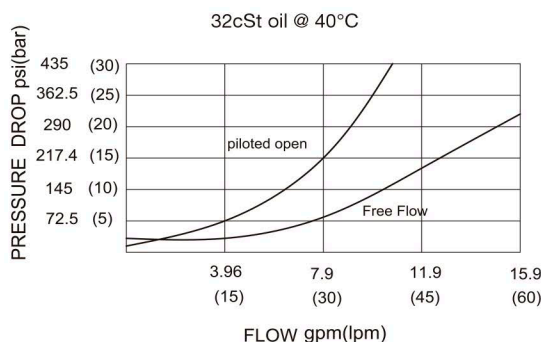
Counterbalance valves with pilot assist are meant for control on overrunning load. The check valve allows free flow from port ② to port ① while a direct-acting, pilot-assisted relief valve controls flow from port ① to port ②. Pilot assist at port ③ lowers the effective setting of the relief valve at a rate determined by the pilot ratio.

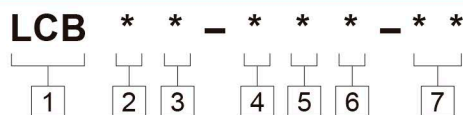
**FEATURES**

- Counterbalance valves should be set at least 1.3 times the maximum load induced pressure.
- Full clockwise setting is less than 14 bar.
- Backpressure at port ② adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the backpressure.
- Reseat exceeds 85% of set pressure when the valve is standard set. Setting lower than the standard set pressure may result in lower reseal percentages.
- Factory pressure setting established at 30cc/min(2 in<sup>3</sup>/min).

**SYMBOL****SPECIFICATIONS**

(Max. Setting):	280 bar(LCBBB/LCBBC) 350 bar(LCBBD)
(Max. Recommended Load Pressure at Max. Setting):	215 bar(LCBBB/LCBBC) 270 bar(LCBBD)
(Flow):	See PRESSURE DROP VS.FLOW graph.
(Internal Leakage):	5 drops/min
(Pilot Ratio):	(LCBBB) 1.5:1; (LCBBC) 3:1 (LCBBD) 4.5:1
(Temperature):	-40°F to +250°F(-40°C to +120°C)
(Filtration):	See page N-1
(Fluids):	Mineral-based fluids with viscosities of 7.4 to 420 cSt.
(Cavity):	SUN T-11A, See page M-6
(Body Material):	6061-T6 aluminum alloy rated to 207bar, Steel & Ductile iron rated to 350bar

**PRESSURE DROP VS.FLOW**



**1 LCB=**  
Counterbalance Cartridge Valve

**2 Flow**  
B=40L/min

**3 Pilot Ratio**  
B=1.5:1; C=3:1; D=4.5:1

**4 Control**  
L=Standard Screw Adjustment

**5 Spring Ranges**

**6 Seal Kits**  
N= Buna N  
V= Viton

**7 Body Porting**  
Blank=None  
6T=SAE6  
8T=SAE8  
3G=G 3/8  
4G=G 1/2  
Other Porting is Available

## LCBBB/LCBBC

H=1000-4000psi(70-280bar)  
Preset:3000psi(210bar)(Check:1.7bar)  
I=400-1500psi(28-105bar)  
Preset:1000psi(70bar)(Check:1.7bar)  
A=1000-4000psi(70-280bar)  
Preset:3000psi(210bar)(Check:0.3bar)  
B=400-1500psi(28-105bar)  
Preset:1000psi(70bar)(Check:0.3bar)

## LCBBD

J=2000-5000psi(140-350bar)  
Preset:3000psi(210bar)(Check:1.7bar)  
K=1000-2500psi(70-175bar)  
Preset:2000psi(140bar)(Check:1.7bar)  
C=2000-5000psi(140-350bar)  
Preset:3000psi(210bar)(Check:0.3bar)  
D=1000-2500psi(70-175bar)  
Preset:2000psi(140bar)(Check:0.3bar)

## INSTALLATION DIMENSIONS

Unit=Millimeters

Number of Counter-clockwise Turns  
3.75

