



2:1 pilot ratio, vented counterbalance valve - atmospherically referenced

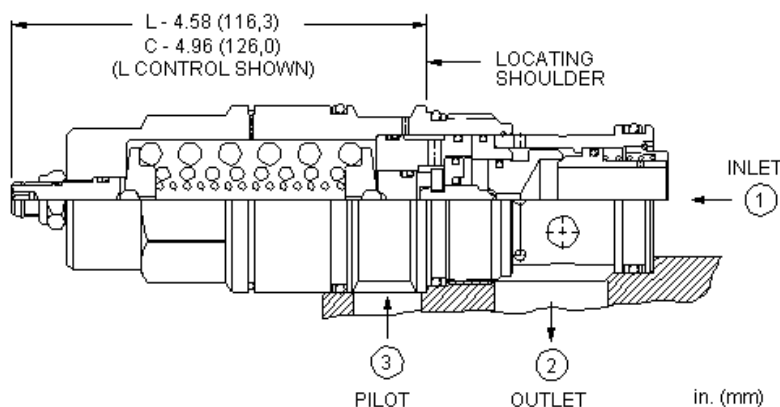
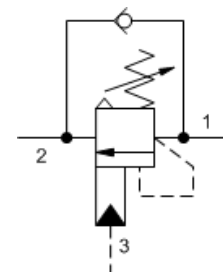
Capacity:
120 gpm (480 L/min.)

Model:
CAIL

Product Description

Atmospherically-vented counterbalance valves with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (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. Backpressure at port 2 does not affect the valve setting because the spring chamber is atmospherically referenced.

Other names for this valve include motion control valve and over center valve.



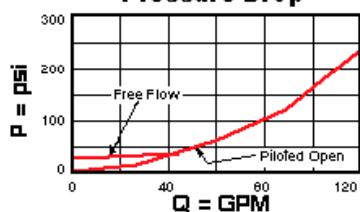
Technical Features

- Counterbalance valves should be set at least 1.3 times the maximum load induced pressure.
- Turn adjustment clockwise to decrease setting and release load.
- Full clockwise setting is 200 psi (14 bar).
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseal percentages.
- Sun counterbalance cartridges can be installed directly into a cavity machined in an actuator housing for added protection and improved stiffness in the circuit.
- This valve has positive seals between all ports.
- With vented valves, a lower pilot ratio may be required to achieve machine stability compared to non-vented valves.
- Three-port vented valves are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, the vented valves may leak externally or allow moisture into the spring chamber. Four-port vented counterbalance valves are recommended for new applications.
- All 3-port counterbalance, load control, and pilot-to-open check cartridges are physically interchangeable (i.e. same flow path, same cavity for a given frame size).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

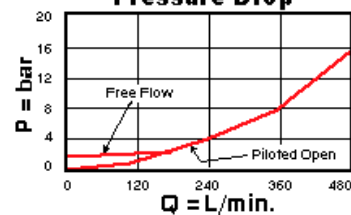
Technical Data

	U.S. Units	Metric Units
Cavity	T-19A	
Capacity	120 gpm	480 L/min.
Pilot Ratio	2:1	
Maximum Recommended Load Pressure at Maximum Setting	4615 psi	320 bar
Maximum Setting	6000 psi	420 bar
Adjustment - Number of Counterclockwise Turns to Increase Setting	5	
Check Cracking Pressure	20 psi	1,5 bar
Factory Pressure Settings Established at	2 in ³ /min.	30 cc/min.
Maximum Valve Leakage at Reseat	5 drops/min.	0,3 cc/min.
Series (from Cavity)	Series 4	
U.S. Patent #	4,834,135	
Reseat	>85% of Set Pressure	
Valve Hex Size	1 5/8 in.	41,3 mm
Valve Installation Torque	350 - 375 lbf ft	475 - 500 Nm
Adjustment Screw Internal Hex Size	5/32 in.	4 mm
Adjustment Locknut/Cap Hex Size	9/16 in.	15 mm
Adjustment Nut Torque	80 - 90 lbf in.	9 - 10 Nm
Seal Kits - Cartridge	Buna: 990-119-007	
Seal Kits - Cartridge	Viton: 990-119-006	
Model Weight	3.57 lb.	1.62 kg.

Free Flow and Piloted Open Pressure Drop



Free Flow and Piloted Open Pressure Drop



CAIL-LGN

Control

Standard Options

- C* Tamper Resistant - Factory Set
L Standard Screw Adjustment

Functional Setting Range

Standard Options

- F 1000 - 2500 psi (70 - 175 bar), 2000 psi (140 bar) Standard Setting
G 2000 - 6000 psi (140 - 420 bar), 4000 psi (280 bar) Standard Setting

Seal Material

Standard Options

- N Buna-N
V Viton

* Special Setting required, specify at time of order
Customer specified setting stamped on hex.