



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.

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

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	120 gpm
Pilot Ratio	10:1
Maximum Recommended Load Pressure at Maximum Setting	3850 psi
Maximum Setting	5000 psi
Factory Pressure Settings Established at	2 in ³ /min.
Maximum Valve Leakage at Reseat	5 drops/min.
Adjustment - No. of CCW Turns from Min. to Max. Setting	3.75
Operating Characteristic	Standard
Reseat	>85% of setting
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Adjustment Screw Internal Hex Size	7/32 in.
Locknut Hex Size	3/4 in.
Locknut Torque	25 - 30 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	EPDM: 990019014
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.97 lb.

CONFIGURATION

L	Control	Standard Screw Adjustment
K	Functional Setting Range	1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting
N	Seal Material	Buna-N
(none)	Material/Coating	Standard Material/Coating

CONFIGURATION OPTIONS

Model Code Example: CBIHLKN

CONTROL	(L) FUNCTIONAL SETTING RANGE	(K) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	K 1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting	N Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting	E EPDM	/AP Stainless Steel, Passivated
	D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting	V Viton	/LH Mild Steel, Zinc-Nickel
	J 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting		

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 less than 200 psi (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. Settings lower than the standard set pressure may result in lower reseal percentages.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Sun counterbalance cartridges can be installed directly into a cavity machined in an actuator housing for added protection and improved stiffness in the circuit.
- Two check valve cracking pressures are available. Use the 25 psi (1,7 bar) check unless actuator cavitation is a concern.
- This valve has positive seals between all ports.
- 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.

PERFORMANCE CURVES

