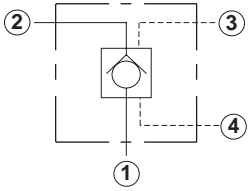


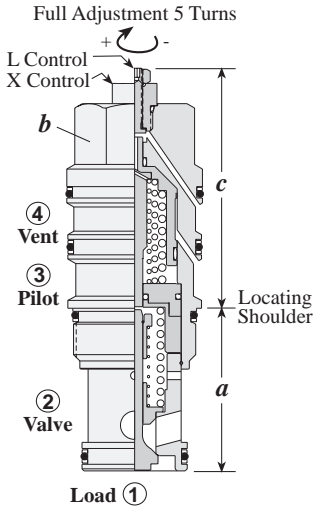
Pilot-to-Open Check Valves

VENTED, 4 PORT CAVITY



Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions				Installation Torque (lb. ft.)
			a	b	c		
					X	L	
15 GPM	CVCV - XCN	T - 21A	1.38	7/8"	2.11	2.34	30/35
30 GPM	CVEV - XCN	T - 22A	1.38	1 1/8"	2.34	2.56	45/50
60 GPM	CVGV - XCN	T - 23A	1.81	1 1/4"	2.81	3.03	150/160
120 GPM	CVIV - XCN	T - 24A	2.50	1 5/8"	3.50	3.77	350/375

OPTION ORDERING INFORMATION



CV * V - * * *

Nominal Capacity	Control**	Cracking Pressure	Seal
C 15 GPM	X Standard Pilot	A 4 psi	N Buna-N
E 30 GPM	L Manual Load Release	B 15 psi	V Viton
G 60 GPM		C 30 psi	
I 120 GPM		D 50 psi	
		E 75 psi	
		F 100 psi	

** See page 244 for information on Control Options

TECHNICAL TIPS / PERFORMANCE CURVES

Pilot-to-Open Check Valves, Vented

Applications

Sun pilot-to-open check valves are non-modulating, *on/off* valves used for load locking only, therefore *do not* provide smooth motion control. They allow free flow through check valve from port 2 to port 1, then block reverse flow until a pilot pressure directly proportional to the load pressure is sensed at port 3 so that a pilot piston can push the check poppet off of its seat.

Because of the on/off action of the pilot-to-open check valve it makes them unsuitable for use with overrunning loads that will cause a loss of pilot pressure. Without pilot pressure the check valve will close until adequate pilot pressure is again restored, causing a ratcheting motion.

Pilot-to-open check valves should never be used with paired cylinders. Pilot pressure will open the valve with the least load first, transferring the combined load to the second valve at double the pressure.

The *vented* type is used on applications where there is variable back-pressure downstream of the valve which could cause instability in a standard valve. The pilot spring chamber is vented externally to tank through a fourth port making it insensitive to back pressure. Any pressure generated on the drain port will be additive to the pilot pressure required.

NOTE: The vent port should never be plugged, as seal weepage will eventually cause valves to malfunction.

It is preferable that the pilot-to-open check valve is mounted as close as possible to the actuator to provide maximum protection in the event of a hydraulic line failure. This can be achieved by incorporating them directly into the actuator, or, Sun offers a range of gasket mounted bodies that bolt directly onto the mounting face of a cylinder or motor.

Design Concepts and Features

- Pilot-to-open check valves have a pilot ratio of 3:1, which is suitable for most applications.
- Operating pressures up to 5000 psi. Flow capacities up to 120 GPM
- Low leakage when closed, less than 1 drop/min.
This leakage figure is checked at both low and high pressure during test.
- Optional free flow check springs available, from 4 psi to avoid cavitation up to 100 psi for severe applications.
- These cartridges have a sealed pilot piston.
- Valve with emergency manual release screw available, in case pilot pressure is not available.
- Hardened poppet and seat provides long life and better resistance to contamination.

General Application Requirements

- Operating Temperature Range: Buna-N seals -50° F to 200° F, Viton seals 0° F to 250° F.
- Viscosity Range: 60-3000 SUS.
- Fluid Contamination Level: ISO 4406 18/15 or better; Recommend $\beta_{10} \geq 75$ to achieve ISO 18/15 or better in most systems.
- Factory Pressure Setting for cartridge is established at cracking flow.

Performance Curves

Typical Pressure Drop

