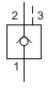


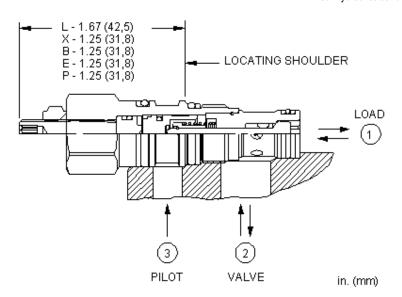
MODEL CKBB



sunhydraulics.com/model/CKBB







This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

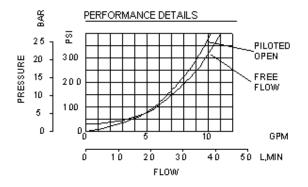
Cavity	T-163A
Series	0
Capacity	30 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	19,1 mm
Valve Installation Torque	27 - 33 Nm
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	EPDM: 990163014
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006
Model Weight	0.09 kg.

#### **CONFIGURATION OPTIONS**

#### Model Code Example: CKBBXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N)	MATERIAL/COATING
X Standard Pilot	<b>C</b> 30 psi (2 bar)	N Buna-N		Standard Material/Coating
L Manual Load Release	E 75 psi (5 bar)	E EPDM		/AP Stainless Steel, Passivated
		V Viton		/LH Mild Steel, Zinc-Nickel

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Note: Available only with 30 psi or 75 psi (2 bar or 5 bar) check valve cracking pressures.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.



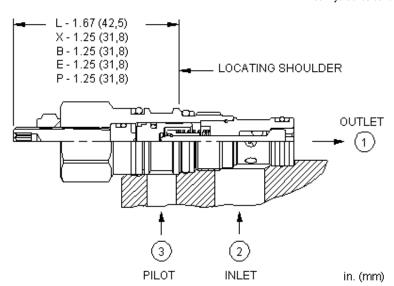
MODEL CKBD



sunhydraulics.com/model/CKBD







This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

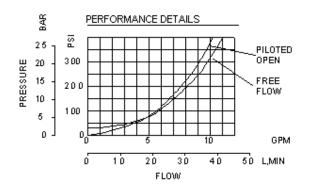
Cavity	T-163A
Series	0
Capacity	30 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	19,1 mm
Valve Installation Torque	27 - 33 Nm
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	EPDM: 990163014
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006
Model Weight	0.09 kg.

#### **CONFIGURATION OPTIONS**

#### Model Code Example: CKBDXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N) MATERIAL/COATING
X Standard Pilot	<b>C</b> 30 psi (2 bar)	N Buna-N	Standard Material/Coating
L Manual Load Release	E 75 psi (5 bar)	E EPDM	/AP Stainless Steel, Passivated
		V Viton	/LH Mild Steel. Zinc-Nickel

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Note: Available only with 30 psi or 75 psi (2 bar or 5 bar) check valve cracking pressures.
- · Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.
- 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.

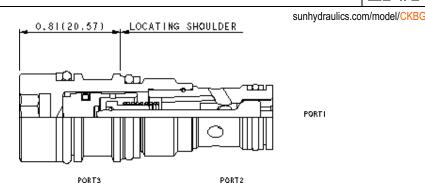




MODEL CKBG







This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

Cavity	T-163A
Series	0
Capacity	30 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Internal Hex Size	8 mm
Valve Installation Torque	27 - 33 Nm
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006
Model Weight	0.06 kg.

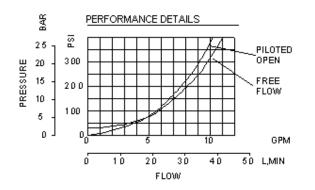
#### **CONFIGURATION OPTIONS**

# Model Code Example: CKBGXCN

CONTROL	X) BIAS PRESSURE	(C) SEAL MATERIAL	(N)	MATERIAL/COATING
X Not Adustable, Standard Hydraulic Pi	lot <b>C</b> 30 psi (2 bar)	N Buna-N		Standard Material/Coating
	E 75 psi (5 bar)	V Viton		/AP Stainless Steel, Passivated

# **TECHNICAL FEATURES**

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Note: Available only with 30 psi or 75 psi (2 bar or 5 bar) check valve cracking pressures.
- · Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- 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.



MODEL CKCB

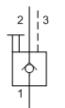
# Pilot-to-open check valve with standard pilot SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-11A

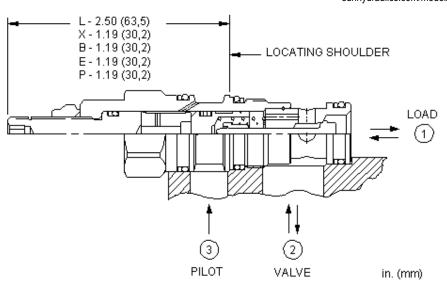


sunhydraulics.com/model/CKCB









This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

Cavity	T-11A
Series	1
Capacity	60 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.13 kg.

#### **CONFIGURATION OPTIONS**

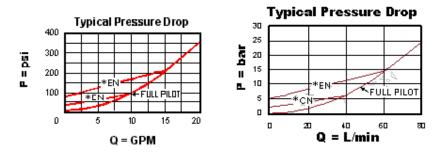
#### Model Code Example: CKCBXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N) MATERIAL/COATING
X Standard Pilot	<b>C</b> 30 psi (2 bar)	N Buna-N	Standard Material/Coating
L Manual Load Release	A 4 psi (0,3 bar)	E EPDM	/AP Stainless Steel, Passivated
	<b>B</b> 15 psi (1 bar)	V Viton	/LH Mild Steel, Zinc-Nickel
	<b>D</b> 50 psi (3,5 bar)		
	E 75 psi (5 bar)		

F 100 psi (7 bar)

- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Optional external porting out of the hex end of the cartridge is available for external piloting. In this configuration, port 3 is blocked. See Control options E, and P.
- · Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel
  components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of
  Construction page located under TECH RESOURCES.
- 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



# **RELATED MODELS**

- CKCBS Vented pilot-to-open check valve with SAE-4 external pilot port and standard pilot
- <u>CKCBV</u> Vented pilot-to-open check valve with 1/4 NPTF external pilot port and standard pilot

MODEL CKCD

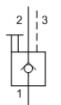
# Pilot-to-open check valve with sealed pilot SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-11A

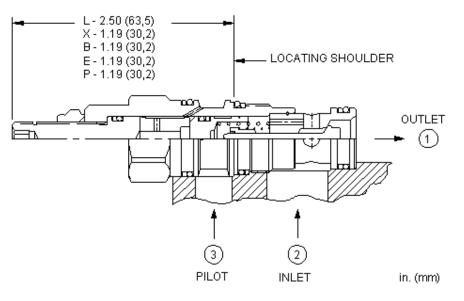


snhy.com/CKCD









This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

Cavity	T-11A
Series	1
Capacity	60 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.13 kg.

### **CONFIGURATION OPTIONS**

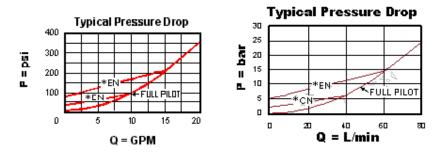
# Model Code Example: CKCDXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N) MATERIAL/COATING
X Standard Pilot	<b>C</b> 30 psi (2 bar)	N Buna-N	Standard Material/Coating
L Manual Load Release	A 4 psi (0,3 bar)	E EPDM	/AP Stainless Steel, Passivated
	<b>B</b> 15 psi (1 bar)	V Viton	/LH Mild Steel, Zinc-Nickel
	<b>D</b> 50 psi (3,5 bar)		
	E 75 psi (5 bar)		
	<b>F</b> 100 psi (7 bar)		

G 150 psi (10,5 bar)

- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Optional external porting out of the hex end of the cartridge is available for external piloting. In this configuration, port 3 is blocked. See Control options E, and P.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel
  components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of
  Construction page located under TECH RESOURCES.
- 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



# **RELATED MODELS**

- <u>CKCDS</u> Vented pilot-to-open check valve with SAE-4 external pilot port and sealed pilot
- CKCDV Vented pilot-to-open check valve with 1/4 NPTF external pilot port and sealed pilot



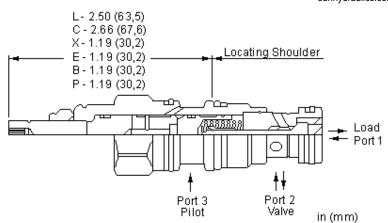
# 5:1 pilot ratio, pilot-to-open check valve with standard pilot SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-11A



sunhydraulics.com/model/CKCR







This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

Cavity	T-11A
Series	1
Capacity	60 L/min.
Pilot Ratio	5:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.13 kg.

# **CONFIGURATION OPTIONS**

# Model Code Example: CKCRXCN

CONTROL	X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N) MATERIAL/COATING
X Standard Pilot	<b>C</b> 30 psi (2 bar)	N Buna-N	Standard Material/Coating
B External 1/4 BSPP Pilot Port, Port 3	A 4 psi (0,3 bar)	V Viton	/AP Stainless Steel, Passivated
blocked	<b>B</b> 15 psi (1 bar)		/LH Mild Steel, Zinc-Nickel
C Manual Load Release - Tamper	<b>D</b> 50 psi (3,5 bar)		
Resistant	E 75 psi (5 bar)		
E External 4-SAE Pilot Port, Port 3	<b>F</b> 100 psi (7 bar)		
Blocked	<b>Z</b> 1 psi (0,07 bar)		
L Manual Load Release	po: (0,0. bal)		

P External 1/4 NPTF Pilot Port, Port 3 Blocked

1		
-	2	3

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Optional external porting out of the hex end of the cartridge is available for external piloting. In this configuration, port 3 is blocked. See Control options E, and P.
- · Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- For models with manual load release control option, turn load release clockwise to release load.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

MODEL CKCS

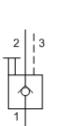
# 5:1 pilot ratio, pilot-to-open check valve with sealed pilot SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-11A

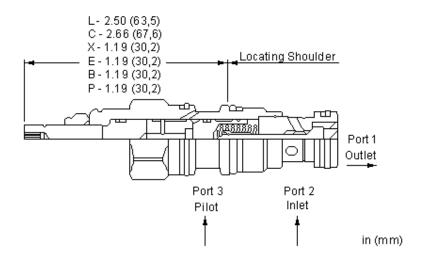


sunhydraulics.com/model/CKCS









This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

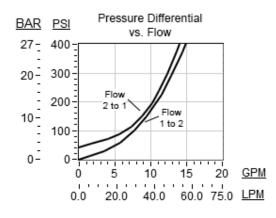
Cavity	T-11A
Series	1
Capacity	60 L/min.
Pilot Ratio	5:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.13 kg.

# **CONFIGURATION OPTIONS**

# Model Code Example: CKCSXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N)
X Standard Pilot	<b>C</b> 30 psi (2 bar)	N Buna-N	
<ul> <li>B External 1/4 BSPP Pilot Port, Port 3 blocked</li> <li>C Manual Load Release - Tamper</li> </ul>	<ul> <li>A 4 psi (0,3 bar)</li> <li>B 15 psi (1 bar)</li> <li>D 50 psi (3,5 bar)</li> </ul>	V Viton	
Resistant E External 4-SAE Pilot Port, Port 3 Blocked L Manual Load Release	<ul> <li>E 75 psi (5 bar)</li> <li>F 100 psi (7 bar)</li> <li>Z 1 psi (0,07 bar)</li> </ul>		
P External 1/4 NPTF Port, Port 3 block	ed		

- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- For models with manual load release control option, turn load release clockwise to release load.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Optional external porting out of the hex end of the cartridge is available for external piloting. In this configuration, port 3 is blocked. See Control options E, and P.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

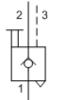


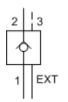
MODEL CKCV

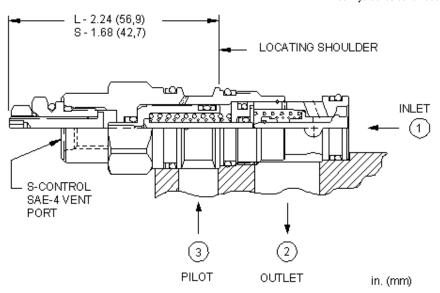


sunhydraulics.com/model/CKCV









This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) pilot port will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced out the back of the hex body.

### **TECHNICAL DATA**

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

Cavity	T-11A
Series	1
Capacity	60 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990311007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990311006
Model Weight	0.15 kg.

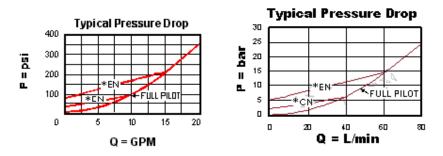
#### **CONFIGURATION OPTIONS**

#### Model Code Example: CKCVXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N) MATERIAL/COATING
X Standard Pilot, Atmospheric Vent	<b>C</b> 30 psi (2 bar)	N Buna-N	Standard Material/Coating
S External 4-SAE Vent Port	A 4 psi (0,3 bar)	V Viton	/AP Stainless Steel, Passivated
	<b>B</b> 15 psi (1 bar)		/LH Mild Steel, Zinc-Nickel
	<b>D</b> 50 psi (3,5 bar)		
	E 75 psi (5 bar)		

F 100 psi (7 bar)

- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can prevent the valve from closing.
- Atmospherically referenced pilot-to-open check valves are considered problem solvers for existing circuits using non-vented valves. However, the atmospherically
  referenced valve will eventually leak externally or allow moisture into the spring chamber. Four-port vented pilot-to-open check cartridges are recommended for new
  applications.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- 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.



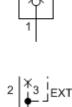
MODEL CKEB

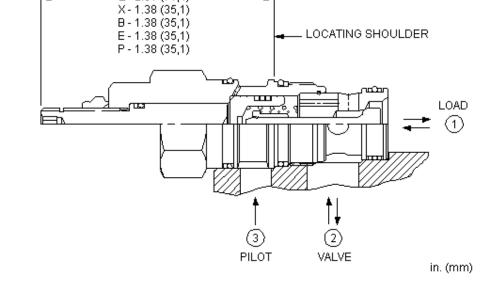
# Pilot-to-open check valve with standard pilot SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-2A

L-2.81 (71,4)



snhy.com/CKEB





This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

Cavity	T-2A
Series	2
Capacity	120 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.24 kg.

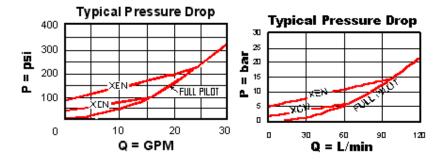
#### **CONFIGURATION OPTIONS**

### Model Code Example: CKEBXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N)	MATERIAL/COATING
X Standard Pilot	<b>C</b> 30 psi (2 bar)	N Buna-N		Standard Material/Coating
L Manual Load Release	A 4 psi (0,3 bar)	E EPDM		/AP Stainless Steel, Passivated
	<b>B</b> 15 psi (1 bar)	V Viton		/LH Mild Steel, Zinc-Nickel
	<b>D</b> 50 psi (3,5 bar)			
	E 75 psi (5 bar)			

- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Optional external porting out of the hex end of the cartridge is available for external piloting. In this configuration, port 3 is blocked. See Control options E, and P.
- · Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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



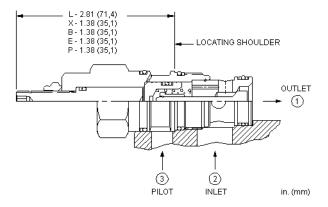
# **RELATED MODELS**

- CKEBS Vented pilot-to-open check valve with SAE-4 external pilot port and standard pilot
- <u>CKEBV</u> Vented pilot-to-open check valve with 1/4 NPTF external pilot port and standard pilot









This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

Cavity	T-2A
Series	2
Capacity	120 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.24 kg.

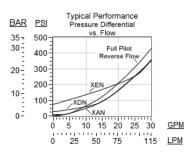
#### **CONFIGURATION OPTIONS**

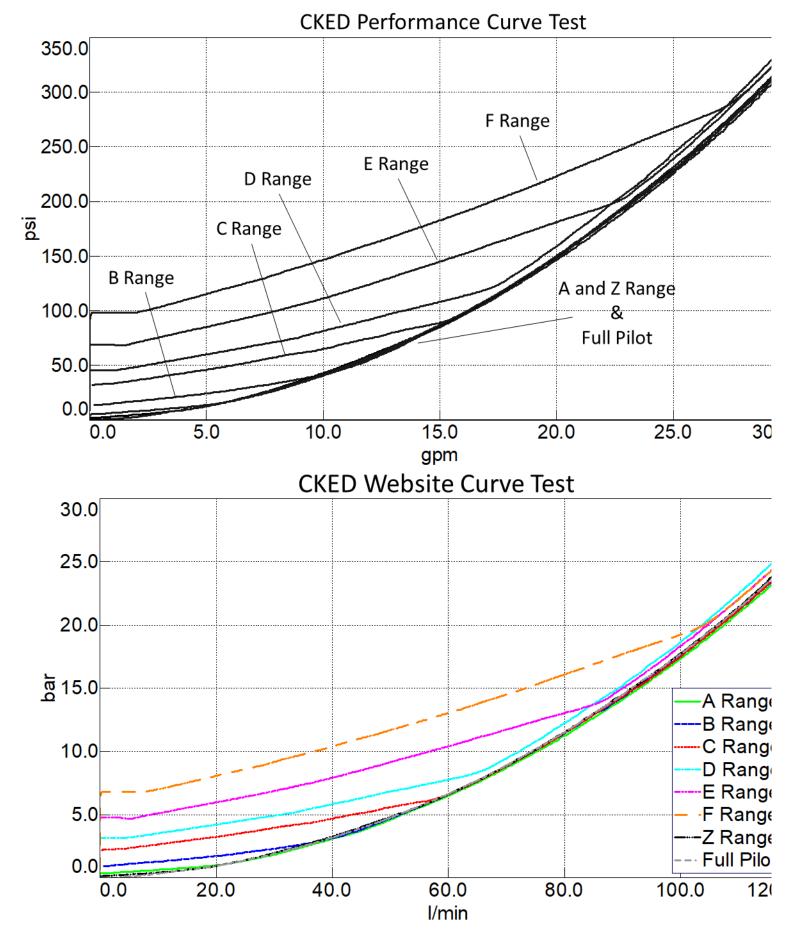
#### Model Code Example: CKEDXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIA	AL (N) MATERIAL/COATING	
X Standard Pilot	C 30 psi (2 bar)	N Buna-N	Standard Material/Coating	
L Manual Load Release	A 4 psi (0,3 bar)	V Viton	/AP Stainless Steel, Passivated	
	B 15 psi (1 bar)		/LH Mild Steel, Zinc-Nickel	
	D 50 psi (3,5 bar)			
	E 75 psi (5 bar)			
	F 100 psi (7 bar)			

#### TECHNICAL FEATURES

- · For models with manual load release control option, turn load release clockwise to release load.
- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size).
- However, cartridge extension dimensions from the mounting surface may vary. Provides hose break protection, prevents loads from drifting and positively locks pressurized loads. Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination • and the valve should be replaced.
- ٠
- Sealed pilot for use in circuits where cross port leakage is undesirable. Optional external porting out of the hex end of the cartridge is available for external piloting. In this configuration, port 3 is blocked. See Control options E, and P. ٠ Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of • Construction page located under TECH RESOURCES.
- 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.





#### **RELATED MODELS**

<u>CKEDS</u> Vented pilot-to-open check valve with SAE-4 external pilot port and sealed pilot
 <u>CKEDV</u> Vented pilot-to-open check valve with 1/4 NPTF external pilot port and sealed pilot

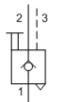


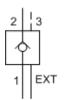
MODEL CKEV

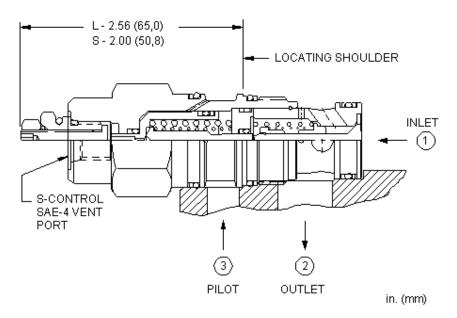


sunhydraulics.com/model/CKEV









This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) pilot port will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced out the back of the hex body.

#### **TECHNICAL DATA**

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

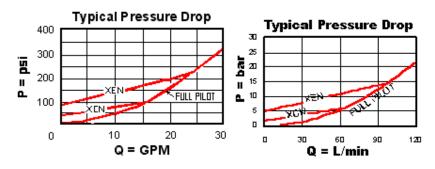
Cavity	T-2A
Series	2
Capacity	120 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.29 kg.

#### **CONFIGURATION OPTIONS**

### Model Code Example: CKEVXCN

CONTROL	(X) CRACKING PRESSURE	(C) SEAL MATERIAL	(N)
X Standard Pilot, Atmospheric Vent	<b>C</b> 30 psi (2 bar)	N Buna-N	
S External 4-SAE Vent Port	<b>A</b> 4 psi (0,3 bar)	V Viton	
	<b>B</b> 15 psi (1 bar)		
	<b>D</b> 50 psi (3,5 bar)		
	E 75 psi (5 bar)		
	<b>F</b> 100 psi (7 bar)		

- There is a positve seal between ports 2 and 3.
- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can prevent the valve from closing.
- Atmospherically referenced pilot-to-open check valves are considered problem solvers for existing circuits using non-vented valves. However, the atmospherically
  referenced valve will eventually leak externally or allow moisture into the spring chamber. Four-port vented pilot-to-open check cartridges are recommended for new
  applications.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.



MODEL CKGB

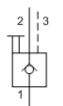
# Pilot-to-open check valve with standard pilot SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-17A

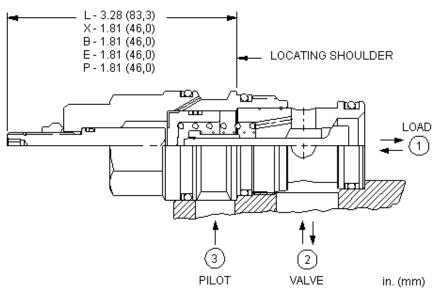


sunhydraulics.com/model/CKGB









This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

Cavity	T-17A
Series	3
Capacity	240 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	0.53 kg.

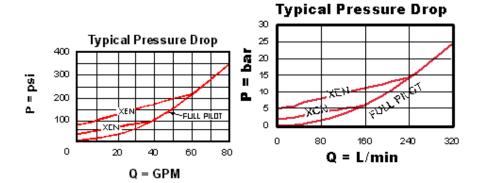
#### **CONFIGURATION OPTIONS**

# Model Code Example: CKGBXCN

CONTROL	(X)	CRACKING PRESSURE	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
X Standard Pilot		<b>C</b> 30 psi (2 bar)		N Buna-N		Standard Material/Coating
L Manual Load Release		A 4 psi (0,3 bar)		E EPDM		/AP Stainless Steel, Passivated
		<b>B</b> 15 psi (1 bar)		V Viton		/LH Mild Steel, Zinc-Nickel
		<b>D</b> 50 psi (3,5 bar)				
		E 75 psi (5 bar)				

F 100 psi (7 bar)

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Optional external porting out of the hex end of the cartridge is available for external piloting. In this configuration, port 3 is blocked. See Control options E, and P.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- · For models with manual load release control option, turn load release clockwise to release load.
- 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.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.



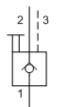


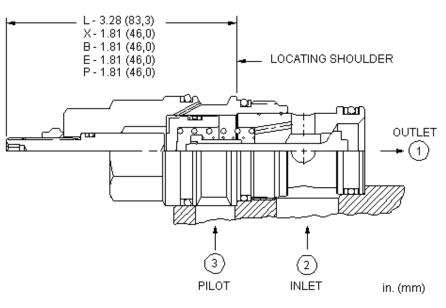


sunhydraulics.com/model/CKGD









This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

#### **TECHNICAL DATA**

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

Cavity	T-17A
Series	3
Capacity	240 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	0.53 kg.

### **CONFIGURATION OPTIONS**

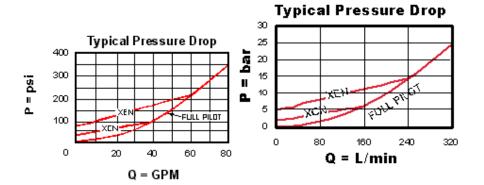
# Model Code Example: CKGDXCN

NTROL	(X)	CRACKING PRESSURE	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
Standard Pilot		<b>C</b> 30 psi (2 bar)		N Buna-N		Standard Material/Coating
Manual Load Release		A 4 psi (0,3 bar)		E EPDM		/AP Stainless Steel, Passivated
		<b>B</b> 15 psi (1 bar)		V Viton		/LH Mild Steel, Zinc-Nickel
		<b>D</b> 50 psi (3,5 bar)				

E 75 psi (5 bar)F 100 psi (7 bar)

CON X

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Optional external porting out of the hex end of the cartridge is available for external piloting. In this configuration, port 3 is blocked. See Control options E, and P.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- · For models with manual load release control option, turn load release clockwise to release load.
- 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.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

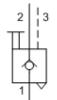


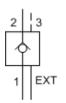
MODEL CKGV

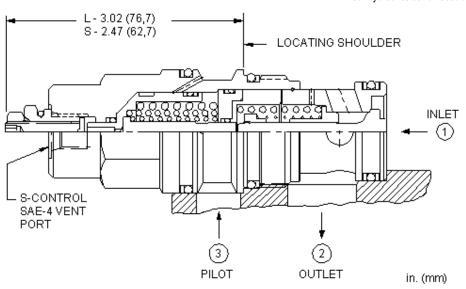


sunhydraulics.com/model/CKGV









This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) pilot port will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced out the back of the hex body.

#### **TECHNICAL DATA**

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

Cavity	T-17A
Series	3
Capacity	240 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	0.60 kg.

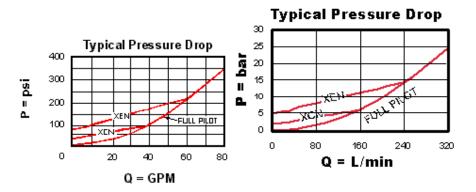
#### **CONFIGURATION OPTIONS**

#### Model Code Example: CKGVXCN

CONTROL	(X)	CRACKING PRESSURE	(	C) <u>s</u>	SEAL MATERIAL	(N)	MATERIAL/COATING
X Standard Pilot, Atmospheric Vent		<b>C</b> 30 psi (2 bar)			N Buna-N		Standard Material/Coating
S External 4-SAE Vent Port		A 4 psi (0,3 bar)			V Viton		/AP Stainless Steel, Passivated
		<b>B</b> 15 psi (1 bar)					
		<b>D</b> 50 psi (3,5 bar)					
		E 75 psi (5 bar)					

F 100 psi (7 bar)

- There is a positve seal between ports 2 and 3.
- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can prevent the valve from closing.
- Atmospherically referenced pilot-to-open check valves are considered problem solvers for existing circuits using non-vented valves. However, the atmospherically
  referenced valve will eventually leak externally or allow moisture into the spring chamber. Four-port vented pilot-to-open check cartridges are recommended for new
  applications.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.





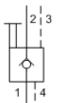
MODEL CKIV

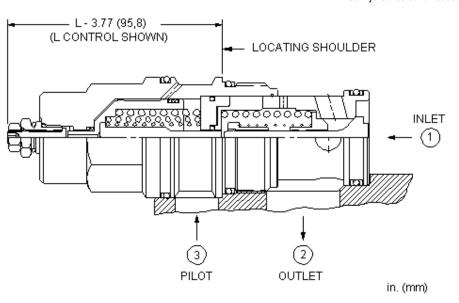


sunhydraulics.com/model/CKIV









This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) pilot port will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced out the back of the hex body.

#### **TECHNICAL DATA**

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

Cavity	T-19A
Series	4
Capacity	480 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	1.39 kg.

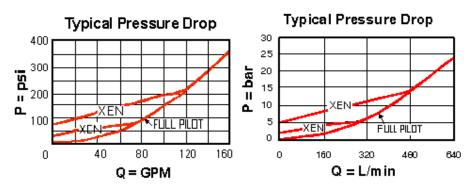
#### **CONFIGURATION OPTIONS**

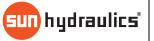
#### Model Code Example: CKIVXCN

CON	TROL	(X)	CRACKING PRESSURE	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
XS	Standard Pilot, Atmospheric Vent		<b>C</b> 30 psi (2 bar)		N Buna-N		Standard Material/Coating
SE	External 4-SAE Vent Port		A 4 psi (0,3 bar)		V Viton		/AP Stainless Steel, Passivated
			<b>B</b> 15 psi (1 bar)				
			<b>D</b> 50 psi (3,5 bar)				
			E 75 psi (5 bar)				

F 100 psi (7 bar)

- There is a positve seal between ports 2 and 3.
- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can prevent the valve from closing.
- Atmospherically referenced pilot-to-open check valves are considered problem solvers for existing circuits using non-vented valves. However, the atmospherically
  referenced valve will eventually leak externally or allow moisture into the spring chamber. Four-port vented pilot-to-open check cartridges are recommended for new
  applications.
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.





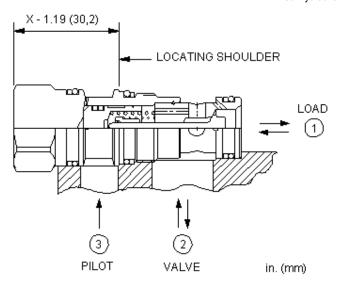
MODEL CNCE

# Pilot-to-open check valve with bypass orifice SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-11A



sunhydraulics.com/model/CNCE





This valve is a pilot to open check valve with a bypass orifice. It incorporates a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and restricts flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. The pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes the pilot pressure. Note: The bypass orifice diameter is specified by the customer. See Technical Data below for the allowable orifice range.

#### **TECHNICAL DATA**

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

Cavity	T-11A
Series	1
Capacity	60 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Orifice Range	0,4 - 3,9 mm
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.13 kg.

# **CONFIGURATION OPTIONS**

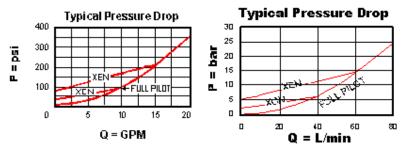
# Model Code Example: CNCEXCN

CONTROL	(X)	SETTING RANGE (C	<u>)</u>	SEAL MATERIAL	(N)	MATERIAL/COATING
X Not Adjustable		<ul> <li>C 30 psi (2 bar) Cracking Pressure, .016153 in. (0,4 - 3,9 mm)</li> <li>A 4 psi (0,3 bar) Cracking Pressure, .016153 in. (0,4 - 3,9 mm)</li> <li>B 15 psi (1 bar) Cracking Pressure, .016153 in. (0,4 - 3,9 mm)</li> <li>D 50 psi (3,5 bar) Cracking Pressure, .016153 in. (0,4 - 3,9 mm)</li> </ul>	6	N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel
		<ul> <li>E 75 psi (5 bar) Cracking Pressure, .016153 in. (0,4 - 3,9 mm)</li> <li>F 100 psi (7 bar) Cracking Pressure, .016153 in. (0,4 - 3,9 mm)</li> </ul>				

# **TECHNICAL FEATURES**

- Sealed pilot for use in circuits where cross port leakage is undesirable.
- The customer specified orifice diameter is stamped on one of the cartridge's hex faces.
- For models with manual load release control option, turn load release clockwise to release load.
- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- 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



Note: Performance data shown reflects a blocked orifice.



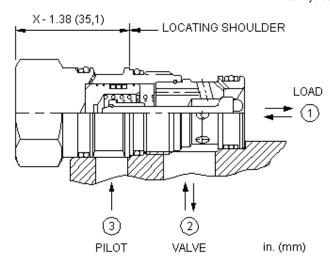
MODEL CNEE

# Pilot-to-open check valve with bypass orifice SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-2A



sunhydraulics.com/model/CNEE





This valve is a pilot to open check valve with a bypass orifice. It incorporates a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and restricts flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. The pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes the pilot pressure. Note: The bypass orifice diameter is specified by the customer. See Technical Data below for the allowable orifice range.

#### **TECHNICAL DATA**

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

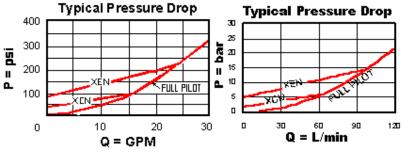
Cavity	T-2A	
Series	2	
Capacity	120 L/min.	
Pilot Ratio	3:1	
Maximum Operating Pressure	350 bar	
Orifice Range	0,4 - 3,4 mm	
Valve Hex Size	28,6 mm	
Valve Installation Torque	61 - 68 Nm	
Seal kit - Cartridge	Buna: 990202007	
Seal kit - Cartridge	Polyurethane: 990002002	
Seal kit - Cartridge	Viton: 990202006	
Model Weight	0.24 kg.	

#### **CONFIGURATION OPTIONS**

### Model Code Example: CNEEXCN

CONTROL	(X)	SETTING RANGE	(C) SEAL MATERIAL	(N)
X Not Adjustable		<ul> <li>C 30 psi (2 bar) Cracking Pr .135 in. (0,4 - 3,4 mm)</li> <li>A 4 psi (0,3 bar) Cracking P 135 in. (0,4 - 3,4 mm)</li> <li>B 15 psi (1 bar) Cracking Pr .135 in. (0,4 - 3,4 mm)</li> <li>D 50 psi (3,5 bar) Cracking I</li> </ul>	V Viton ressure, .016 - Pressure,	
		.016135 in. (0,4 - 3,4 m <b>E</b> 75 psi (5 bar) Cracking Pr .135 in. (0,4 - 3,4 mm) <b>F</b> 100 psi (7 bar) Cracking F 135 in. (0,4 - 3,4 mm)	essure, .016 -	

- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- The customer specified orifice diameter is stamped on one of the cartridge's hex faces.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.



Note: Performance data shown reflects a blocked orifice.

# sun hydraulics

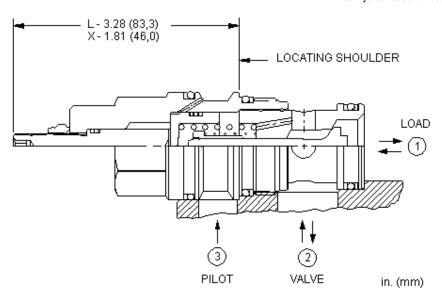
# Pilot-to-open check valve with bypass orifice SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-17A



sunhydraulics.com/model/CNGE







This valve is a pilot to open check valve with a bypass orifice. It incorporates a sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and restricts flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. The pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes the pilot pressure. Note: The bypass orifice diameter is specified by the customer. See Technical Data below for the allowable orifice range. An 'L' control option is available to manually release the load. See Option Selection below.

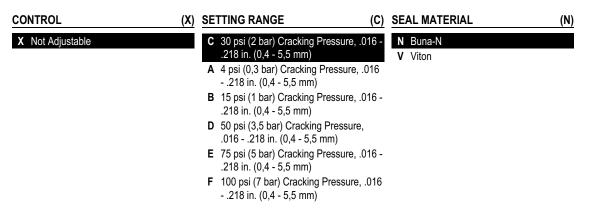
#### **TECHNICAL DATA**

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

Cavity	T-17A
Series	3
Capacity	240 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Orifice Range	0,4 - 5,5 mm
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	0.53 kg.

# CONFIGURATION OPTIONS

# Model Code Example: CNGEXCN



# **TECHNICAL FEATURES**

- This 3 port pilot-to-open check valve and 3 port counterbalance valves are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- · Sealed pilot for use in circuits where cross port leakage is undesirable.
- The customer specified orifice diameter is stamped on one of the cartridge's hex faces.
- For models with manual load release control option, turn load release clockwise to release load.
- 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

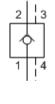


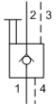
MODEL

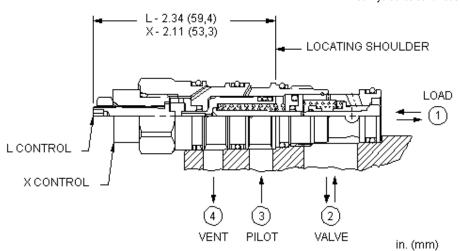
# Vented pilot-to-open check valve SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-21A



sunhydraulics.com/model/CVCV







This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced to the vent (port 4).

#### **TECHNICAL DATA**

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

Cavity	T-21A
Series	1
Capacity	60 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	EPDM: 990021014
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.18 kg.

#### **CONFIGURATION OPTIONS**

# Model Code Example: CVCVXCN

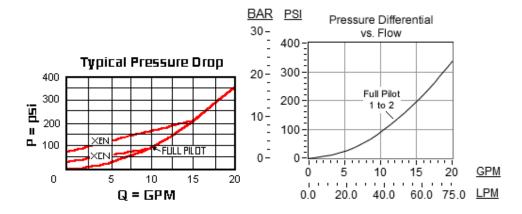
CONTROL	(X)	CRACKING PRESSURE	(C)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot		<b>C</b> 30 psi (2 bar)		N Buna-N	Standard Material/Coating
L Manual Load Release		A 4 psi (0,3 bar)		E EPDM	/AP Stainless Steel, Passivated
		<b>B</b> 15 psi (1 bar)		V Viton	/LH Mild Steel, Zinc-Nickel
		<b>D</b> 50 psi (3,5 bar)			
		E 75 psi (5 bar)			

**F** 100 psi (7 bar)

# **TECHNICAL FEATURES**

- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can prevent the valve from closing.
- Will accept pressure at port 4 (vent) but can not exceed 5000 psi (350 bar).
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Four-port pilot-to-open check cartridges and four-port counterbalance cartridges are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- 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.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Port 4 (vent) should never be blocked as seal weepage will eventually cause valve to malfunction.
- 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





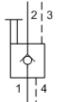
MODEL

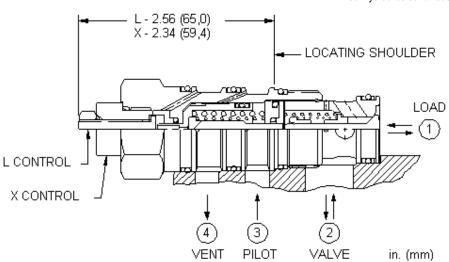
# Vented pilot-to-open check valve SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-22A



sunhydraulics.com/model/CVEV







This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced to the vent (port 4).

#### **TECHNICAL DATA**

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

Cavity	T-22A
Series	2
Capacity	120 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006
Model Weight	0.30 kg.

#### **CONFIGURATION OPTIONS**

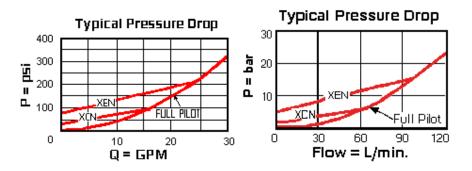
# Model Code Example: CVEVXCN

CONTROL	(X)	CRACKING PRESSURE	(C)	SEAL MATERIAL (I	N)	MATERIAL/COATING
X Standard Pilot		<b>C</b> 30 psi (2 bar)		N Buna-N		Standard Material/Coating
L Manual Load Release		A 4 psi (0,3 bar)		E EPDM		/AP Stainless Steel, Passivated
		<b>B</b> 15 psi (1 bar)		V Viton		/LH Mild Steel, Zinc-Nickel
		<b>D</b> 50 psi (3,5 bar)				
		E 75 psi (5 bar)				

# **TECHNICAL FEATURES**

- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can prevent the valve from closing.
- Will accept pressure at port 4 (vent) but can not exceed 5000 psi (350 bar).
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Four-port pilot-to-open check cartridges and four-port counterbalance cartridges are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Port 4 (vent) should never be blocked as seal weepage will eventually cause valve to malfunction.
- 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

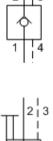


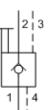


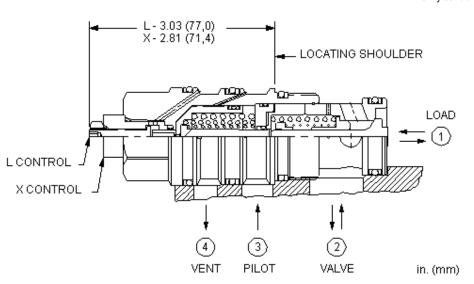
MODEL CVGV



snhy.com/CVGV







This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced to the vent (port 4).

#### **TECHNICAL DATA**

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

Cavity	T-23A
Series	3
Capacity	240 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006
Model Weight	0.68 kg.

#### **CONFIGURATION OPTIONS**

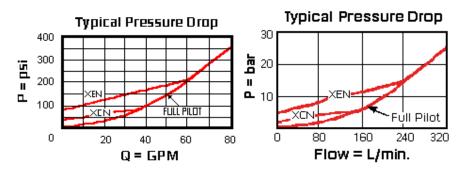
#### Model Code Example: CVGVXCN

CONTROL	(X)	CRACKING PRESSURE	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
X Standard Pilot		<b>C</b> 30 psi (2 bar)		N Buna-N		Standard Material/Coating
L Manual Load Release		A 4 psi (0,3 bar)		V Viton		/AP Stainless Steel, Passivated
		<b>B</b> 15 psi (1 bar)				/LH Mild Steel, Zinc-Nickel
		<b>D</b> 50 psi (3,5 bar)				
		E 75 psi (5 bar)				
		F 100 psi (7 bar)				

# **TECHNICAL FEATURES**

- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can prevent the valve from closing.
- Will accept pressure at port 4 (vent) but can not exceed 5000 psi (350 bar).
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Four-port pilot-to-open check cartridges and four-port counterbalance cartridges are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Port 4 (vent) should never be blocked as seal weepage will eventually cause valve to malfunction.
- 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

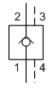


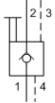


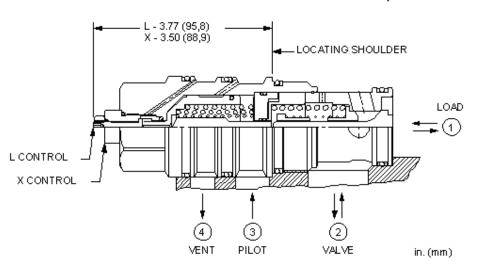
MODEL



sunhydraulics.com/model/CVIV







This valve is a pilot to open check valve. It has a sealed pilot, a steel seat, and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced to the vent (port 4).

# **TECHNICAL DATA**

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

Cavity	T-24A
Series	4
Capacity	480 L/min.
Pilot Ratio	3:1
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,07 cc/min.
Pilot Volume Displacement	4,9 cc
Pilot Passage into Valve	2,3 mm
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	EPDM: 990024014
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006
Model Weight	1.53 kg.

#### **CONFIGURATION OPTIONS**

#### Model Code Example: CVIVXCN

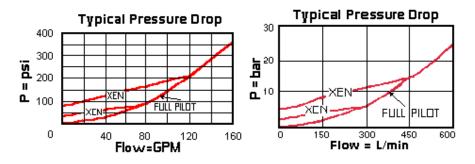
CONTROL	(X)	CRACKING PRESSURE	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
X Standard Pilot		<b>C</b> 30 psi (2 bar)		N Buna-N		Standard Material/Coating
L Manual Load Release		A 4 psi (0,3 bar)		V Viton		/AP Stainless Steel, Passivated
		<b>B</b> 15 psi (1 bar)				/LH Mild Steel, Zinc-Nickel
		<b>D</b> 50 psi (3,5 bar)				

E 75 psi (5 bar)F 100 psi (7 bar)

# **TECHNICAL FEATURES**

- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can prevent the valve from closing.
- Will accept pressure at port 4 (vent) but can not exceed 5000 psi (350 bar).
- Pilot-to-open check cartridges are locking valves, not motion control valves. For motion control applications, use counterbalance valves.
- Four-port pilot-to-open check cartridges and four-port counterbalance cartridges are physically interchangeable (i.e. same cavities, same flow path for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- Approximately 1 drop (0,07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.
- For models with manual load release control option, turn load release clockwise to release load.
- 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.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Sealed pilot for use in circuits where cross port leakage is undesirable.
- Port 4 (vent) should never be blocked as seal weepage will eventually cause valve to malfunction.
- 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





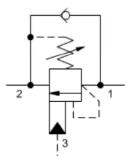
# **Cavity Information**

Series	Ports	Cavities
Series Z Cartridges 3/8-24 UNF Cartridge Thread 5 mm Valve Hex Size	2-Port	T-382A
11 - 14 Nm Valve Installation Torque		
Series P Cartridges	2-Port	T-8A
M16 Cartridge Thread	2-Port (Deep)	T-8DP
22,2 mm Valve Hex Size	3-Port	T-9A
27 - 33 Nm Valve Installation Torque		
Series 0 Cartridges	2-Port	T-162A
M16 Cartridge Thread	2-Port (Deep)	T-162DP
19.1 mm Valve Hex Size	3-Port	T-163A
25,4 mm Valve Hex Size		
27 - 33 Nm Valve Installation Torque		
Series 1 Cartridges	2-Port	T-10A
M20 Cartridge Thread	2-Port	T-13A
22,2 mm Valve Hex Size	3-Port	T-11A
41 - 47 Nm Valve Installation Torque	4-Port 4-Port	T-21A T-31A
	6-Port	T-61A
	0-1 011	1-017
Series 2 Cartridges	2-Port	T-3A
1"-14 UNS Cartridge Thread	2-Port	T-5A
28,6 mm Valve Hex Size	3-Port 4-Port	T-2A T-22A
61 - 68 Nm Valve Installation Torque	4-Port	T-32A
	4-Port (Dual path)	T-52AD
	6-Port	T-52A
	6-Port	T-62A
Series 3 Cartridges	2-Port	T-16A
M36 Cartridge Thread	3-Port	T-17A
31,8 mm Valve Hex Size	4-Port	T-23A
203 - 217 Nm Valve Installation Torque	4-Port 4-Port (Dual path)	T-33A T-53AD
	6-Port	T-53A
	6-Port	T-63A
Series 4 Cartridges	2-Port	T-18A
-	2-Port (Undercut)	T-18AU
M48 Cartridge Thread 41,3 mm Valve Hex Size	3-Port	T-19A
474 - 508 Nm Valve Installation Torque	3-Port (Undercut)	T-19AU
·····	4-Port 4 Port (Lindorcut)	T-24A T-24AU
	4-Port (Undercut) 4-Port	T-34A
	4-Port (Dual path)	T-54AD
	6-Port	T-54A
	6-Port	T-64A

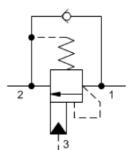




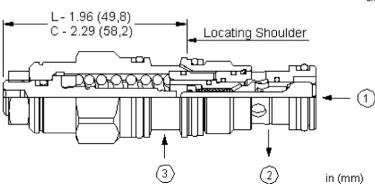
snhy.com/CBCB



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

Pilot Ratio	1.5:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

#### CONFIGURATION OPTIONS

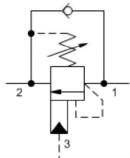
# Model Code Example: CBCBLHN

CONTROL	(L) FUNCTIONAL SETTING RANGE (H) SEAL MATER	AL (N) MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set	<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

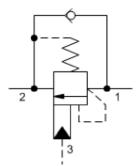


# 1.5:1 pilot ratio, standard capacity counterbalance valve SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-2A

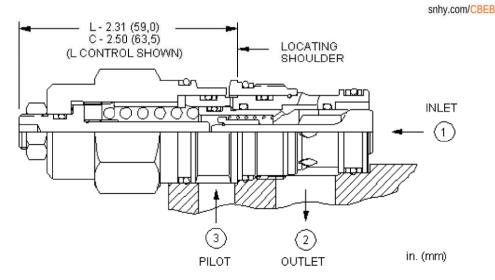




3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

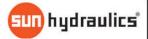
Pilot Ratio	1.5:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

### **CONFIGURATION OPTIONS**

# Model Code Example: CBEBLHN

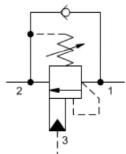
CONTROL	(L) FUNCTIONAL SETTING RANGE (H) SEAL MATER	RIAL (N) MATERIAL/COATING
<ul> <li>L Standard Screw Adjustment</li> <li>C Tamper Resistant - Factory Set</li> </ul>	H         1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting         N         Buna-N           A         1000 - 4000 psi w/4 psi Check (70 -         V         Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel
	280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting	
	<ul> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	

400 - 1000 psi w/20 psi Check (20 -105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting

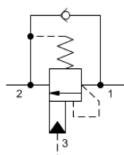




snhy.com/CBGB



3-Port Non-vented



3-Port Non-vented, Fixed Setting

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.

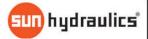
#### **TECHNICAL DATA**

Pilot Ratio	1.5:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

#### **CONFIGURATION OPTIONS**

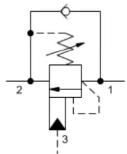
# Model Code Example: CBGBLHN

CONTROL	(L) FUNCTIONAL SETTING RANGE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set	<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel
Created on 11/05/2016	2016 Sun Hydraulics Corporation	See www.sunhydraulics.com.for.detaile	ed product information 4 of 20

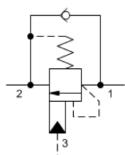








3-Port Non-vented



3-Port Non-vented, Fixed Setting

L - 3.50 (88,9) C - 4.09 (103,9) (L CONTROL SHOWN) (L CONTROL SHOWN) INLET INLET

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**

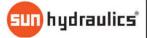
Pilot Ratio	1.5:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	19,1 mm
Locknut Torque	35 - 40 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

#### **CONFIGURATION OPTIONS**

#### Model Code Example: CBIBLHN

CONTROL	<u>(L)</u>	FUNCTIONAL SETTING RANGE (H)	SEAL MATERIAL (M	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>		H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting	N Buna-N V Víton	Standard Material/Coating /LH Mild Steel, Zinc-Nickel	
		A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting			
		B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting			
		I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70			
Created on 11/05/2016	@ 201	6 Sun Hydraulics Corporation	See www.sunhvdraulics.com.for.deta	iled product information	5 of 20

bar) Standard Setting



L - 1.97 (50,0) C - 2.29 (58,2)

(L CONTROL SHOWN)

ΠΩ

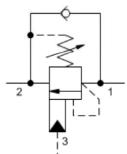


snhy.com/CBCY

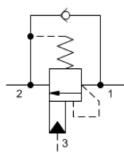
INLET

in (mm)

(1)



3-Port Non-vented



3-Port Non-vented, Fixed Setting

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.

3

PILOT

LOCATING SHOULDER

OUTLET

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

# TECHNICAL DATA

Pilot Ratio	2:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

# CONFIGURATION OPTIONS

# Model Code Example: CBCYLHN

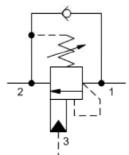
CONTROL	(L) FUNCTIONAL SETTING RANGE (H	) SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set	<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>		Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



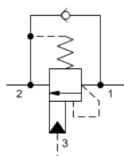
# 2:1 pilot ratio, standard capacity counterbalance valve SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-2A



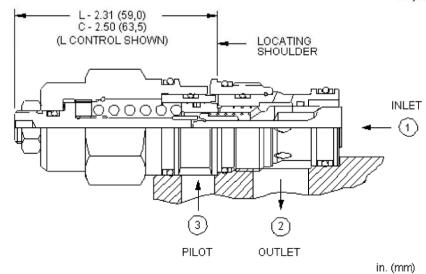
snhy.com/CBEY



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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.

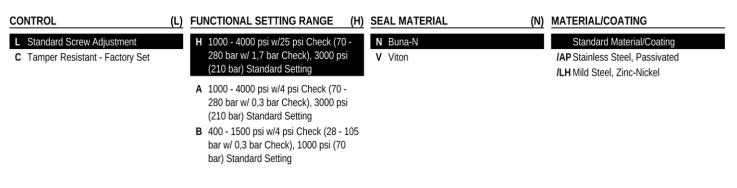
Other names for this valve include motion control valve and over center valve.

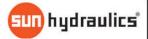
#### **TECHNICAL DATA**

Pilot Ratio	2:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

#### CONFIGURATION OPTIONS

#### Model Code Example: CBEYLHN

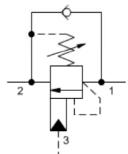




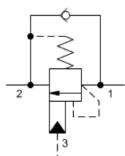
# 2:1 pilot ratio, standard capacity counterbalance valve SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-17A



snhy.com/CBGY



3-Port Non-vented



3-Port Non-vented, Fixed Setting

L - 2.75 (69,9) C - 3.31 (84,1) (L CONTROL SHOWN) INLET INLET (1) INLET (3) (2) PILOT OUTLET in. (mm)

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**

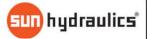
Pilot Ratio	2:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

#### **CONFIGURATION OPTIONS**

# Model Code Example: CBGYLHN

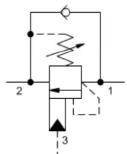
CONTROL	(L) FUNCTIONAL SETTING RANGE	(H) SEAL MATERIAL (N	) MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set	H 1000 - 4000 psi w/25 psi Check (70 280 bar w/ 1,7 bar Check), 3000 ps (210 bar) Standard Setting		Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel
	<ul> <li>A 1000 - 4000 psi w/4 psi Check (70 280 bar w/ 0,3 bar Check), 3000 ps (210 bar) Standard Setting</li> </ul>		
	B 400 - 1500 psi w/4 psi Check (28 - bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting		
	400 - 1500 psi w/25 psi Check (28 105 bar w/ 1,7 bar Check), 1000 ps		
created on 11/05/2016	© 2016 Sun Hydraulics Corporation	See www.sunhydraulics.com for detail	iled product information 9 of 207

bar) Standard Setting

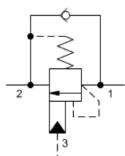


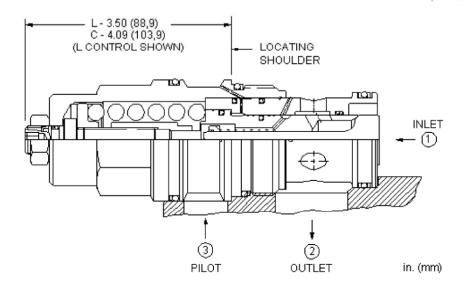


snhy.com/CBIY



3-Port Non-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.

3-Port Non-vented, Fixed Setting Other names for this valve include motion control valve and over center valve.

#### **TECHNICAL DATA**

Pilot Ratio	2:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	19,1 mm
Locknut Torque	35 - 40 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

#### **CONFIGURATION OPTIONS**

### Model Code Example: CBIYLHN

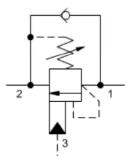
CONTROL	(L)	FUNCTIONAL SETTING RANGE (H)	SEAL MATERIAL (N	MATERIAL/COATING
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>	t	H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting	N Buna-N V Viton	Standard Material/Coating //LH Mild Steel, Zinc-Nickel
		A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting		
		B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting		
		I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70		
Created on $11/05/2016$	@ 201	6 Sup Hydraulias Corporation	See www.eurobydreulies.com for detai	ad product information 11 of

bar) Standard Setting

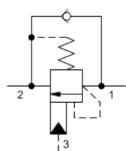




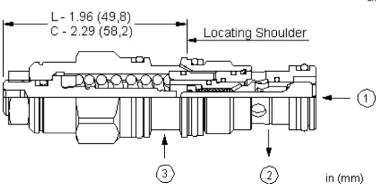
snhy.com/CBCL



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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.

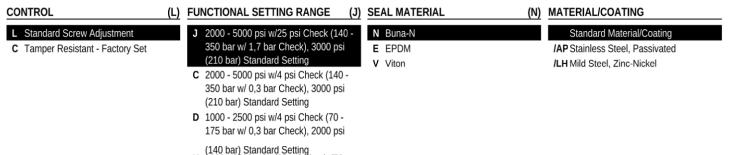
Other names for this valve include motion control valve and over center valve.

# **TECHNICAL DATA**

Pilot Ratio	2.3:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

#### CONFIGURATION OPTIONS

#### Model Code Example: CBCLLJN

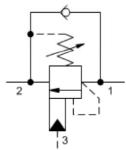


(140 bar) Standard Setting K 1000 - 2500 psi w/25 psi Check (70 -175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting

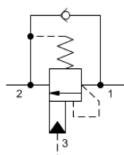




snhy.com/CBEL



3-Port Non-vented



3-Port Non-vented, Fixed Setting

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**

Pilot Ratio	2.3:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

#### CONFIGURATION OPTIONS

#### Model Code Example: CBELLJN

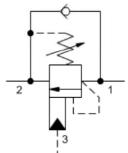
CONTROL	(L)	FUNCTIONAL SETTING RANGE (J)	SEAL MATERIAL (I	(N)	MATERIAL/COATING
L Standard Screw Adjustment		J 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi	N Buna-N		Standard Material/Coating
C Tamper Resistant - Factory Set		<ul> <li>(210 bar) Standard Settion</li> <li>C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

1/5 bar w/ 1,/ bar Check), 2000 psi (140 bar) Standard Setting

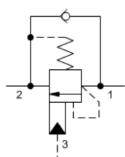




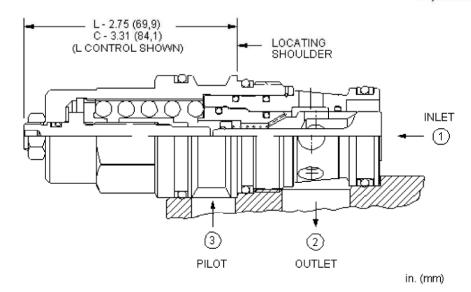




3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

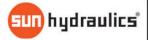
Pilot Ratio	2.3:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

#### **CONFIGURATION OPTIONS**

# Model Code Example: CBGLLJN

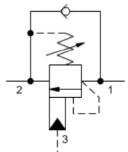
CONTROL	(L) FUNCTIONAL SETTING RANGE	(J) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	J 2000 - 5000 psi w/25 psi Check (140	) - N Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	<ul> <li>350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>C 2000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

K 1000 - 2500 psi w/25 psi Check (70 -175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting

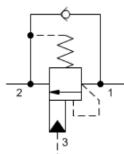




snhy.com/CBIL



3-Port Non-vented



3-Port Non-vented, Fixed Setting

L- 3.50 (88,9) C- 4.09 (103,9) (L CONTROL SHOWN) LOCATING SHOULDER INLET 

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**

Pilot Ratio	2.3:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	19,1 mm
Locknut Torque	35 - 40 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

#### **CONFIGURATION OPTIONS**

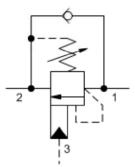
# Model Code Example: CBILLJN

CONTROL	(L)	FUNCTIONAL SETTING RANGE (J	) SEAL MATERIAL	(N)	MATERIAL/COATING	
L Standard Screw Adjustment C Tamper Resistant - Factory Set		J 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi	N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated	
		(210 bar) Standard Setting			/LH Mild Steel, Zinc-Nickel	
		C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting				
		D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting				
		K 1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi				
eated on 11/05/2016	© 201	6 Sun Hydraulics Corporation	See www.sunhydraulics.co	om for detaile	ed product information	18 of 20

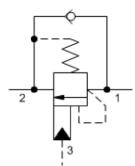




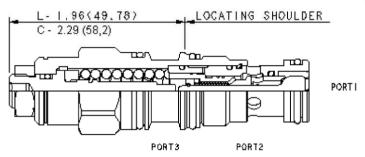
snhy.com/CBCA



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

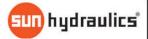
Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

# CONFIGURATION OPTIONS

# Model Code Example: CBCALHN

CONTROL	(L)	FUNCTIONAL SETTING RANGE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>		<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105</li> </ul>	N Buna-N E EPDM V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel
		<ul> <li>b 400 - 1500 psi W/4 psi Check (20 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70</li> </ul>		

bar) Standard Setting



# 3:1 pilot ratio, standard capacity counterbalance valve SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-2A

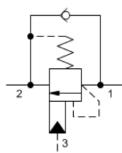
L - 2.31 (59,0) \_\_ C - 2.50 (63,5) (L CONTROL SHOWN)



snhy.com/CBEA

INLET

3-Port Non-vented



3-Port Non-vented, Fixed Setting

 PILOT
 OUTLET
 in. (mm)

 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.

3

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LOCATING SHOULDER

(2)

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

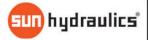
#### **TECHNICAL DATA**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

#### **CONFIGURATION OPTIONS**

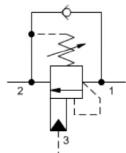
#### Model Code Example: CBEALHN

CONTROL	(L)	FUNCTIONAL SETTING RANGE (H)	SEAL MATERIAL	(N)	MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set		<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 -</li> </ul>	<ul><li>N Buna-N</li><li>E EPDM</li><li>V Viton</li></ul>		Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel
		<ul> <li>280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>			
		<ul> <li>400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>			

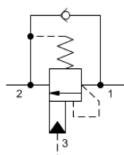




snhy.com/CBGA



3-Port Non-vented



3-Port Non-vented, Fixed Setting

L - 2.75 (69,9) C - 3.31 (84,1) (L CONTROL SHOWN) C - 000 C -

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.

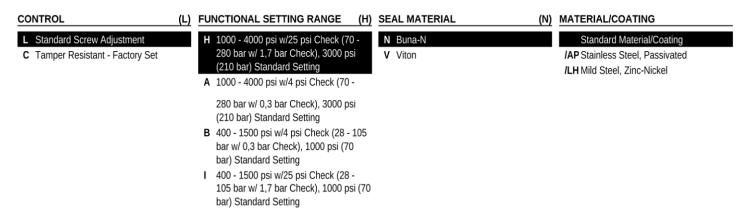
Other names for this valve include motion control valve and over center valve.

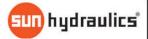
#### **TECHNICAL DATA**

Pilot Ratio 3:1		
Maximum Recommended Load Pressure at Maximum Setting	215 bar	
Maximum Setting	280 bar	
Factory Pressure Settings Established at	30 cc/min.	
Maximum Valve Leakage at Reseat	0,3 cc/min.	
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75	
Reseat	>85% of setting	
Locknut Hex Size	15 mm	
Locknut Torque	9 - 10 Nm	
Seal kit - Cartridge	Buna: 990017007	
Seal kit - Cartridge	Polyurethane: 990017002	
kit - Cartridge Viton: 990017006		

#### CONFIGURATION OPTIONS

#### Model Code Example: CBGALHN

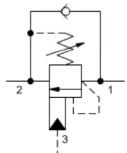




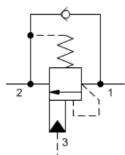
L - 3.50 (88,9) — C - 4.09 (103,9) (L CONTROL SHOWN)



snhy.com/CBIA



3-Port Non-vented



3-Port Non-vented, Fixed Setting

INLET IN

LOCATING SHOULDER

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**

Pilot Ratio 3:1		
Maximum Recommended Load Pressure at Maximum Setting	215 bar	
Maximum Setting 280 bar		
Factory Pressure Settings Established at	30 cc/min.	
Maximum Valve Leakage at Reseat	0,3 cc/min.	
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75	
Reseat	>85% of setting	
Locknut Hex Size	19,1 mm	
nut Torque 35 - 40 Nm		
Seal kit - Cartridge	Buna: 990019007	
Seal kit - Cartridge	Polyurethane: 990019002	
l kit - Cartridge Viton: 990019006		

#### CONFIGURATION OPTIONS

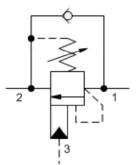
# Model Code Example: CBIALHN

CONTROL	(L) FUNCTIONAL SETTING RANGE (H) SEAL MA	TERIAL (N) MATERIAL/COATING
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>	H         1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting         N         Buna-h	N Standard Material/Coating IAP Stainless Steel, Passivated ILH Mild Steel, Zinc-Nickel
	A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting	
	<ul> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	
	400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70	

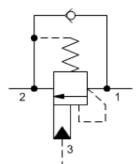
bar) Standard Setting



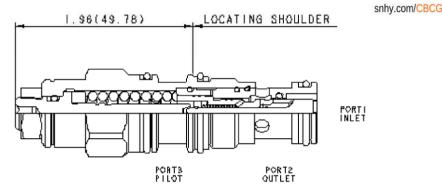




3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

ilot Ratio 4.5:1		
Maximum Recommended Load Pressure at Maximum Setting	270 bar	
Maximum Setting 350 bar		
Factory Pressure Settings Established at	30 cc/min.	
Maximum Valve Leakage at Reseat	0,3 cc/min.	
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75	
Reseat	>85% of setting	
Locknut Hex Size	15 mm	
Locknut Torque	9 - 10 Nm	
Seal kit - Cartridge	Buna: 990011007	
Seal kit - Cartridge	EPDM: 990011014	
Seal kit - Cartridge	Polyurethane: 990011002	
Seal kit - Cartridge Viton: 990011006		

NOTES A fixed setting version is available for this model. To view this product page, use Sun's search box and type in the 4 letter model code. The search result will include the fixed setting version.

### **CONFIGURATION OPTIONS**

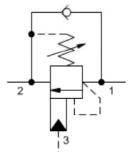
# Model Code Example: CBCGLJN

CONTROL	FUNCTIONAL SETTING RANGE (J) SEAL MATERIAL (N) MATERIAL/C	OATING
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>		Material/Coating Steel, Passivated II, Zinc-Nickel
	<ul> <li>D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting</li> <li>K 1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi</li> </ul>	

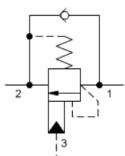




snhy.com/CBEG



3-Port Non-vented



3-Port Non-vented, Fixed Setting

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**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

## CONFIGURATION OPTIONS

## Model Code Example: CBEGLJN

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

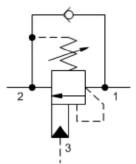
(140 bar) Standard Setting

 K 1000 - 2500 psi w/25 psi Check (70 -175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting

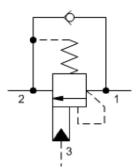




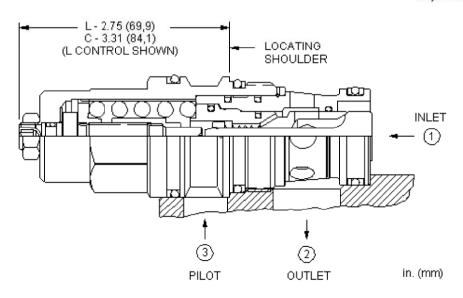
snhy.com/CBGG



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

## **CONFIGURATION OPTIONS**

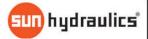
## Model Code Example: CBGGLJN

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

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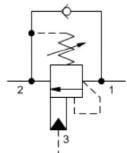
(140 bar) Standard Setting

K 1000 - 2500 psi w/25 psi Check (70 -175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting

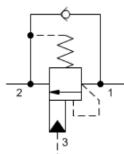




snhy.com/CBIG



3-Port Non-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.

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

## **TECHNICAL DATA**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	19,1 mm
Locknut Torque	35 - 40 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

## **CONFIGURATION OPTIONS**

## Model Code Example: CBIGLJN

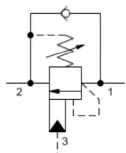
CONTROL	(L)	FUNCTIONAL SETTING RANGE (J	) SEAL MATERIAL	(N)	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>		J 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting	N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated	
		<ul> <li>C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> </ul>			ILH Mild Steel, Zinc-Nickel	
		<ul> <li>D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting</li> </ul>				
		K 1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi				
reated on 11/05/2016	© 201	6 Sun Hydraulics Corporation	See www.sunhydraulics.co	m for detaile	ed product information	31 of 20

3-Port Non-vented, Fixed Setting

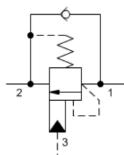


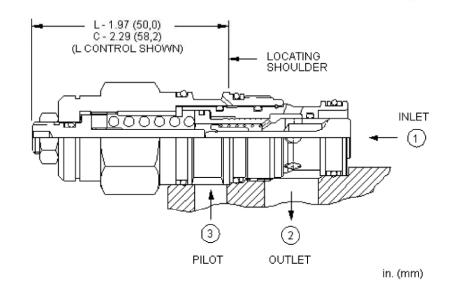


snhy.com/CBCH



3-Port Non-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.

3-Port Non-vented, Fixed Setting Other names for this valve include motion control valve and over center valve.

#### **TECHNICAL DATA**

Pilot Ratio	10:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

## CONFIGURATION OPTIONS

## Model Code Example: CBCHLJN

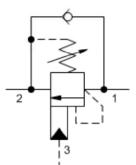
CONTROL	(L)	FUNCTIONAL SETTING RANGE (J	J) SE	AL MATERIAL	(N)	MATERIAL/COATING	
L Standard Screw Adjustment		J 2000 - 5000 psi w/25 psi Check (140 -	Ν	Buna-N		Standard Material/Coating	
C Tamper Resistant - Factory Set	t	350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting	v	Viton		IAP Stainless Steel, Passivated	
		C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting	•			ILH Mild Steel, Zinc-Nickel	
		<ul> <li>D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting</li> <li>K 1000 - 2500 psi w/25 psi Check (70 -</li> </ul>					
eated on 11/05/2016	© 201	6 Sun Hydraulics Corporation	See	e www.sunhydraulics.c	om for detaile	ed product information	33 of 207

1/5 bar w/ 1,/ bar Check), 2000 psi (140 bar) Standard Setting

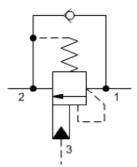




snhy.com/CBEH



3-Port Non-vented



3-Port Non-vented, Fixed Setting

L-2.31 (59,0) C-2.50 (63,5) (L CONTROL SHOWN) LOCATING SHOULDER INLET (1) (1) PILOT OUTLET in. (mm)

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**

Pilot Ratio	10:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

## CONFIGURATION OPTIONS

## Model Code Example: CBEHLJN

(J) SEAL MATERIAL

N Buna-N

V Viton

#### CONTROL

## L Standard Screw Adjustment

C Tamper Resistant - Factory Set

- J 2000 5000 psi w/25 psi Check (140 -350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting
- C 2000 5000 psi w/4 psi Check (140 -350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Satting

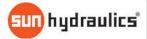
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(L) FUNCTIONAL SETTING RANGE

(N) MATERIAL/COATING

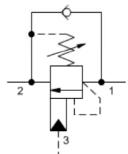
(210 มลา) อเฉกินลาน อธิแกญ

- D 1000 2500 psi w/4 psi Check (70 -175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting
- K 1000 2500 psi w/25 psi Check (70 -175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting

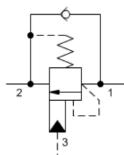




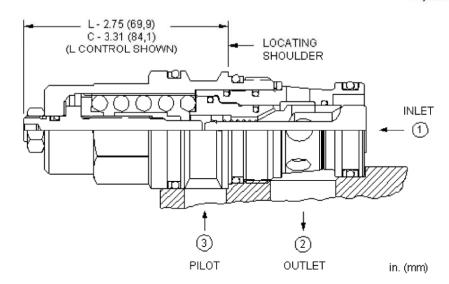
snhy.com/CBGH



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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.

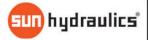
## **TECHNICAL DATA**

Pilot Ratio	10:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

## CONFIGURATION OPTIONS

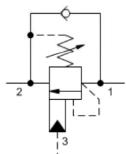
## Model Code Example: CBGHLJN

CONTROL	(L)	FUNCTIONAL SETTING RANGE (J	J) S	SEAL MATERIAL	(N)	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory S</li></ul>	et	J 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting		N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel	
		C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting					
		D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting					
		K 1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi					
Created on 11/05/2016	@ 201	6 Sun Hydraulics Corporation	S	ee www.sunbydraulics	com for detaile	d product information	37 of 20

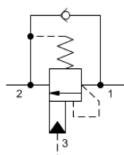




snhy.com/CBIH



3-Port Non-vented



3-Port Non-vented, Fixed Setting

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**

Pilot Ratio	10:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	19,1 mm
Locknut Torque	35 - 40 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

## CONFIGURATION OPTIONS

## Model Code Example: CBIHLJN

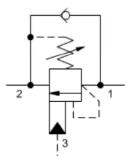
CONTROL	(L)	FUNCTIONAL SETTING RANGE	(J)	SEAL MATERIAL	(N)	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>		<ul> <li>J 2000 - 5000 psi w/25 psi Check (140-350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> </ul>		N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel	
		<ul> <li>D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting</li> </ul>					
		K 1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting					
Created on 11/05/2016	© 201	6 Sun Hydraulics Corporation		See www.sunhydraulics.ce	om for detaile	ed product information	39 of 207



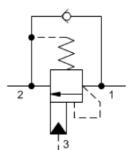
1.5:1 pilot ratio, semi-restrictive counterbalance valve SERIES 1 / CAPACITY: 40 L/min. / CAVITY: T-11A



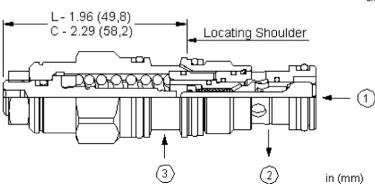
snhy.com/CBBB



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

Pilot Ratio	1.5:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

## CONFIGURATION OPTIONS

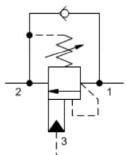
## Model Code Example: CBBBLHN

CONTROL	FUNCTIONAL SETTING RANGE (H) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set	<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

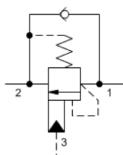




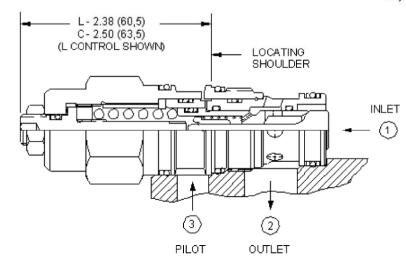




3-Port Non-vented



3-Port Non-vented, Fixed Setting



in. (mm)

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**

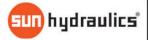
Pilot Ratio	1.5:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

## CONFIGURATION OPTIONS

## Model Code Example: CBDBLHN

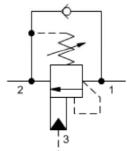
CONTROL	(L)	FUNCTIONAL SETTING RANGE (H	H) S	SEAL MATERIAL	(N)	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>		H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi		N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated	
		A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting				ILH Mild Steel, Zinc-Nickel	
		<ul> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 -</li> </ul>	5				
Created on 11/05/2016	© 201	6 Sun Hydraulics Corporation	ŝ	ee www.sunhydraulics.com fo	r detaile	ed product information	41 of 207

105 bar w/ 1,/ bar Check), 1000 psi (/0 bar) Standard Setting

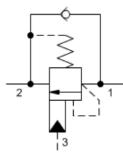




snhy.com/CBFB



3-Port Non-vented



3-Port Non-vented, Fixed Setting

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.

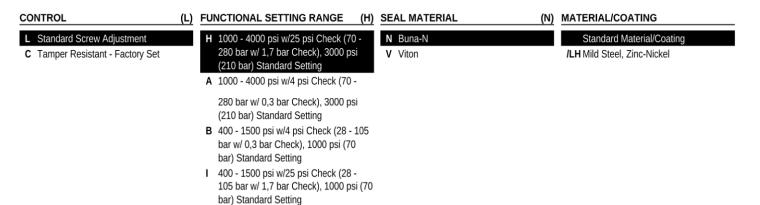
Other names for this valve include motion control valve and over center valve.

## **TECHNICAL DATA**

Pilot Ratio	1.5:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

## CONFIGURATION OPTIONS

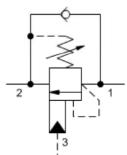
## Model Code Example: CBFBLHN



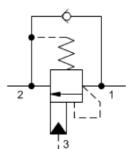




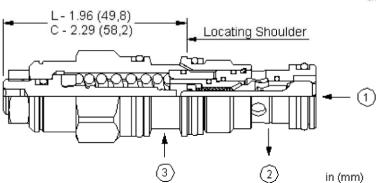
snhy.com/CBBL



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

Pilot Ratio	2.3:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

NOTES

A fixed setting version is available for this model. To view this product page, use Sun's search box and type in CBBLX and click on the resulting link.

## CONFIGURATION OPTIONS

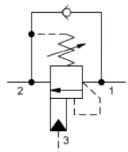
## Model Code Example: CBBLLJN

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

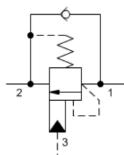




snhy.com/CBDL



3-Port Non-vented



3-Port Non-vented, Fixed Setting

L - 2.38 (60,5) C - 2.50 (63,5) (L CONTROL SHOWN) LOCATING SHOULDER τûn 1.2.7 പ്പ INLET (1)3 2 PILOT OUTLET in. (mm)

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**

Pilot Ratio	2.3:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

#### CONFIGURATION OPTIONS

## Model Code Example: CBDLLJN

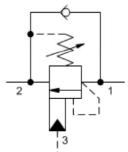
CONTROL	(L) FUNCTIONAL SETTING RANGE	(J) SEAL MATERIAL	(N)	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>	J 2000 - 5000 psi w/25 psi Check (14 350 bar w/ 1,7 bar Check), 3000 ps			Standard Material/Coating /AP Stainless Steel, Passivated	
	C 2000 - 5000 psi w/4 psi Check (140 350 bar w/ 0,3 bar Check), 3000 ps (210 bar) Standard Setting			ILH Mild Steel, Zinc-Nickel	
	<ul> <li>D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 ps (140 bar) Standard Setting</li> </ul>	i			
Created on 11/05/2016	K 1000 - 2500 psi w/25 psi Check (70 © 2016 Sun Hydraulics Corporation	) - See www.sunhvdraulics.c	om for dotaila	d product information	45 of 20

1/5 bar w/ 1,/ bar Check), 2000 psi (140 bar) Standard Setting

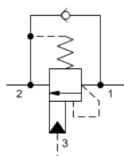




snhy.com/CBFL



3-Port Non-vented



3-Port Non-vented, Fixed Setting

L - 2.74 (69,6) C - 3.31 (84,1) - LOCATING SHOULDER (L CONTROL SHOWN) INLET (1)3 in. (mm) PILOT OUTLET

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**

Pilot Ratio	2.3:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

## CONFIGURATION OPTIONS

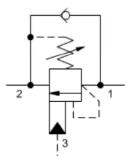
## Model Code Example: CBFLLJN

CONTROL	(L) FUNCTIO	NAL SETTING RANGE	(J)	SEAL MATERIAL	(N)	MATERIAL/COATING	
L Standard Screw Adjustment C Tamper Resistant - Factory Set	350 b (210 k 2000 350 b (210 k (210 k D 1000	- 5000 psi w/25 psi Check (1: ar w/ 1,7 bar Check), 3000 p bar) Standard Setting - 5000 psi w/4 psi Check (14: ar w/ 0,3 bar Check), 3000 p bar) Standard Setting - 2500 psi w/4 psi Check (70 ar w/ 0,3 bar Check), 2000 p	6 ) - Si	N Buna-N V Viton		Standard Material/Coating	
	К 1000 175 b	par) Standard Setting - 2500 psi w/25 psi Check (7 ar w/ 1,7 bar Check), 2000 p par) Standard Setting					
Created on 11/05/2016	© 2016 Sun Hy	draulics Corporation		See www.sunhydrauli	cs.com for detaile	ed product information	47 of 207

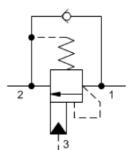




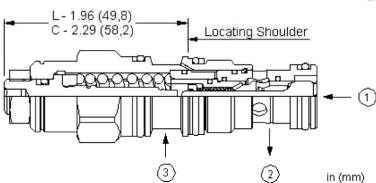
snhy.com/CBBC



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

## CONFIGURATION OPTIONS

## Model Code Example: CBBCLHN

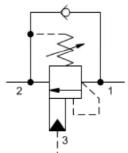
CONTROL	FUNCTIONAL SETTING RANGE (H) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set	<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



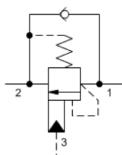
# 3:1 pilot ratio, semi-restrictive counterbalance valve SERIES 2 / CAPACITY: 80 L/min. / CAVITY: T-2A



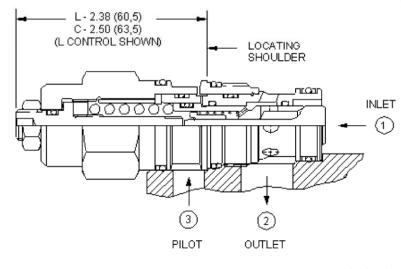
snhy.com/CBDC



3-Port Non-vented



3-Port Non-vented, Fixed Setting



in. (mm)

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**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

## CONFIGURATION OPTIONS

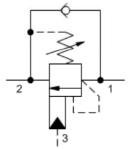
#### Model Code Example: CBDCLHN

CONTROL	(L)	FUNCTIONAL SETTING RANGE (H	I) <u>S</u>	EAL MATERIAL	(N)	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>		H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi		N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated	
		A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting	•			ILH Mild Steel, Zinc-Nickel	
		<ul> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 -</li> </ul>					
Created on 11/05/2016	© 201	6 Sun Hydraulics Corporation	^ S€	ee www.sunhydraulics.com for	r detaile	ed product information	49 of 207

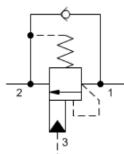
105 bar w/ 1,/ bar Check), 1000 psi (/0 bar) Standard Setting







3-Port Non-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.

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

## **TECHNICAL DATA**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

## CONFIGURATION OPTIONS

## Model Code Example: CBFCLHN

CONTROL	(L)	FUNCTIONAL SETTING RANGE (H	H)	SEAL MATERIAL	(N)	MATERIAL/COATING	
<ul> <li>L Standard Screw Adjustment</li> <li>C Tamper Resistant - Factory Set</li> </ul>		<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> </ul>		N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel	
		<ul> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 -</li> </ul>	5				
0		105 bar w/ 1,7 bar Check), 1000 psi (7 bar) Standard Setting		<b></b>	a ana fan alata il		51 -6 007
Created on 11/05/2016	C 201	6 Sun Hydraulics Corporation	3	See www.sunhydraulics	.com for detaile	ea product information	51 of 207

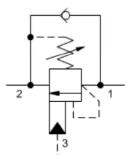
3-Port Non-vented, Fixed Setting



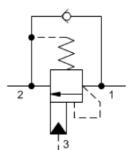
4.5:1 pilot ratio, semi-restrictive counterbalance valve SERIES 1 / CAPACITY: 40 L/min. / CAVITY: T-11A



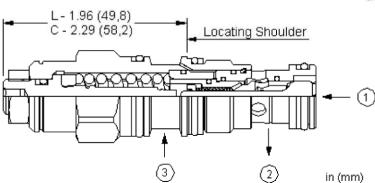
snhy.com/CBBD



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

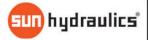
Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

NOTES A fixed setting version is available for this model. To view this product page, use Sun's search box and type in CBBDX and click on the resulting link.

## CONFIGURATION OPTIONS

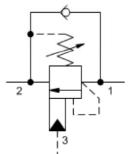
## Model Code Example: CBBDLJN

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

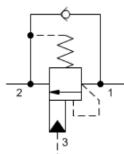








3-Port Non-vented



3-Port Non-vented, Fixed Setting

L - 2.38 (60,5) C - 2.50 (63,5) (L CONTROL SHOWN) LOCATING SHOULDER τΩ u.u 1 mar INLET ി 3 2 PILOT OUTLET in. (mm)

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**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

## CONFIGURATION OPTIONS

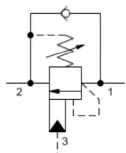
## Model Code Example: CBDDLJN

CONTROL	(L)	FUNCTIONAL SETTING RANGE	(J)	SEAL MATERIAL (N)	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>		J 2000 - 5000 psi w/25 psi Check (140 350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting	-	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel	
		C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting				
		D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting				
		K 1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi				
reated on 11/05/2016	© 201	6 Sun Hydraulics Corporation	5	See www.sunhydraulics.com for detail	ed product information	53 of 20

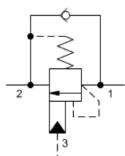




snhy.com/CBFD



3-Port Non-vented



3-Port Non-vented, Fixed Setting

L-2.75 (69,9) C-3.31 (84,1) (L CONTROL SHOWN) HULET INLET IN

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**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

## CONFIGURATION OPTIONS

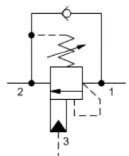
## Model Code Example: CBFDLJN

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

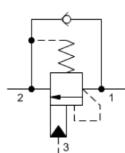


## 2:1 pilot ratio, restrictive counterbalance valve SERIES 1 / CAPACITY: 20 L/min. / CAVITY: T-11A

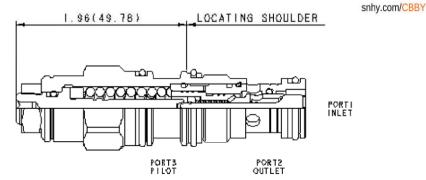




3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

Pilot Ratio	2:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

## CONFIGURATION OPTIONS

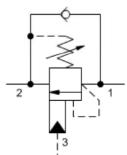
## Model Code Example: CBBYLHN

CONTROL	) FUNCTIONAL SETTING RANGE (H) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set	<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

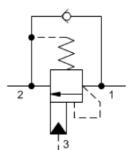




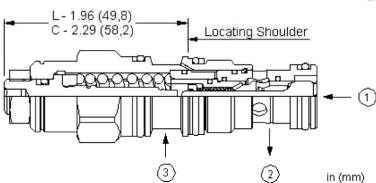
snhy.com/CBBA



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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.

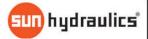
## **TECHNICAL DATA**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

## CONFIGURATION OPTIONS

## Model Code Example: CBBALHN

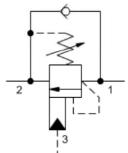
CONTROL	FUNCTIONAL SETTING RANGE (H) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set	<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check, 1000 psi (70 bar) Standard Setting</li> </ul>	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



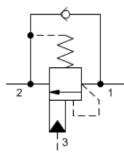
## 3:1 pilot ratio, restrictive counterbalance valve SERIES 2 / CAPACITY: 30 L/min. / CAVITY: T-2A







3-Port Non-vented



3-Port Non-vented, Fixed Setting

L - 2.38 (60,5) C - 2.50 (63,5) (L CONTROL SHOWN) LOCATING SHOULDER τOJ INLET (1)(3) (2)PILOT OUTLET in. (mm)

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.

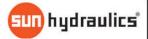
## **TECHNICAL DATA**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

## CONFIGURATION OPTIONS

## Model Code Example: CBDALHN

CONTROL	<u>(L)</u>	FUNCTIONAL SETTING RANGE (I	(H)	SEAL MATERIAL	(N)	MATERIAL/COATING
L Standard Screw Adjustment C Tamper Resistant - Factory Set		<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	)5	N Buna-N V Viton		Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

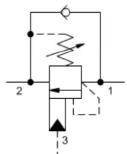


# 3:1 pilot ratio, restrictive counterbalance valve SERIES 3 / CAPACITY: 60 L/min. / CAVITY: T-17A

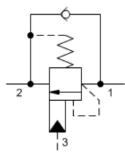
L-2.74 (69,6)



snhy.com/CBFA



3-Port Non-vented



3-Port Non-vented, Fixed Setting

C - 3.31 (84,1) (L CONTROL SHOWN) C - 3.31 (84,1) (L CONTROL SHOWN) C - 3.31 (84,1) C - 3.31 (84,1) C - 3.31 (84,1) C - 5.5 C

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.

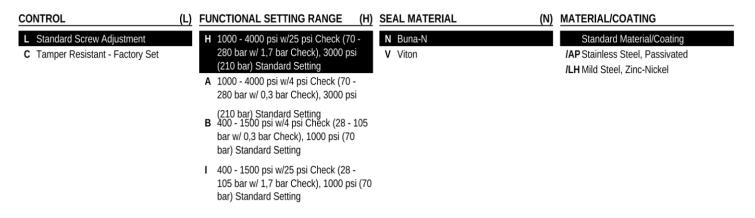
Other names for this valve include motion control valve and over center valve.

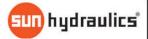
## **TECHNICAL DATA**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

## CONFIGURATION OPTIONS

## Model Code Example: CBFALHN

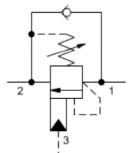




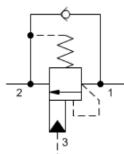
# 3:1 pilot ratio, restrictive counterbalance valve SERIES 4 / CAPACITY: 80 L/min. / CAVITY: T-19A



snhy.com/CBHA



3-Port Non-vented



3-Port Non-vented, Fixed Setting

L-3.50 (88,9) C-4.09 (103,9) LOCATING SHOULDER (L CONTROL SHOWN) INLET (1)3 (2)OUTLET in. (mm) PILOT

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**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	19,1 mm
Locknut Torque	35 - 40 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge Polyurethane: 99001900	
Seal kit - Cartridge	Viton: 990019006

## CONFIGURATION OPTIONS

## Model Code Example: CBHALHN

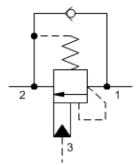
CONTROL	(L)	FUNCTIONAL SETTING RANGE (H)	SEAL MATERIAL	(N)
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory S</li></ul>	Set	H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting	N Buna-N V Viton	
		A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting		
		B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting		
		I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70		
Created on 11/05/2016	© 2016	Sun Hydraulics Corporation	See www.sunhydraulics.c	om for detailed prod

Cr ated on 11/05/20 bar) Standard Setting

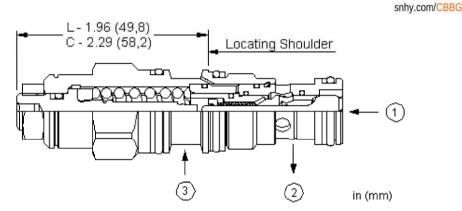




3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

# **CONFIGURATION OPTIONS**

# Model Code Example: CBBGLJN

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

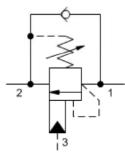


MODEL CBDG

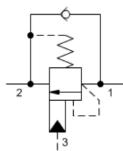
# 4.5:1 pilot ratio, restrictive counterbalance valve SERIES 2 / CAPACITY: 30 L/min. / CAVITY: T-2A



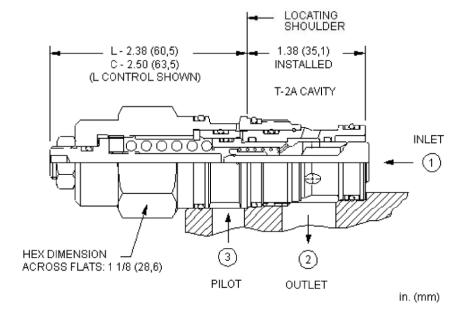
snhy.com/CBDG



3-Port Non-vented



3-Port Non-vented, Fixed Setting



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**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

# CONFIGURATION OPTIONS

# Model Code Example: CBDGLJN

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



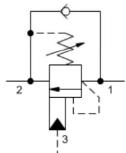
(140 bar) Standard Setting

 K 1000 - 2500 psi w/25 psi Check (70 -175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting

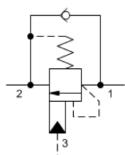


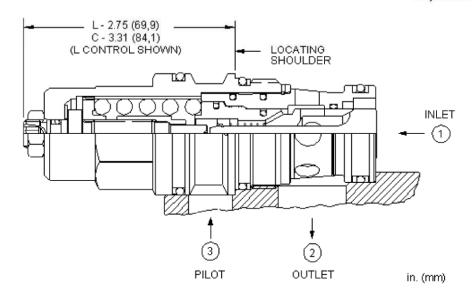


snhy.com/CBFG



3-Port Non-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.

3-Port Non-vented, Fixed Setting

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

# **TECHNICAL DATA**

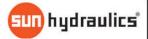
Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

#### CONFIGURATION OPTIONS

#### Model Code Example: CBFGLJN

CONTROL	(L)	FUNCTIONAL SETTING RANGE (J)	SEAL MATERIAL	(N)	MATERIAL/COATING	
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>	t	J 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi	N Buna-N V Viton		Standard Material/Coating /LH Mild Steel, Zinc-Nickel	
		C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting				
		<ul> <li>D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting</li> <li>K 1000 - 2500 psi w/25 psi Check (70 -</li> </ul>				
eated on 11/05/2016	© 201	6 Sun Hydraulics Corporation	See www.sunhydraulics.com	for detaile	ed product information	65 of 20

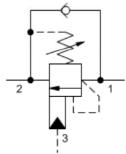
1/5 bar w/ 1,/ bar Check), 2000 psi (140 bar) Standard Setting



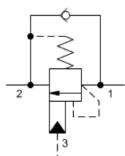
# 4.5:1 pilot ratio, restrictive counterbalance valve SERIES 4 / CAPACITY: 80 L/min. / CAVITY: T-19A

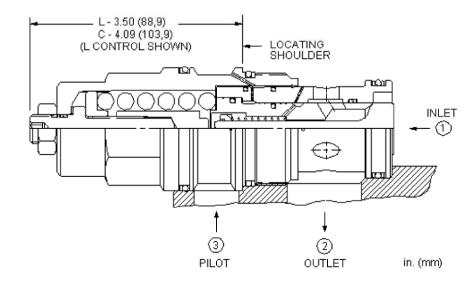






3-Port Non-vented





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.

3-Port Non-vented, Fixed Setting Other na

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

# **TECHNICAL DATA**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	19,1 mm
Locknut Torque	35 - 40 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

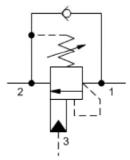
## CONFIGURATION OPTIONS

# Model Code Example: CBHGLJN

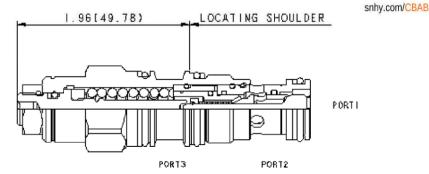
CONTROL	(L)	FUNCTIONAL SETTING RANGE (	J) SEAL MATERIAL	(N)
<ul><li>L Standard Screw Adjustment</li><li>C Tamper Resistant - Factory Set</li></ul>	et	J 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting	N Buna-N V Viton	
		C 2000 - 5000 psi w/4 psi Check (140 - 350 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting		
		<ul> <li>D 1000 - 2500 psi w/4 psi Check (70 - 175 bar w/ 0,3 bar Check), 2000 psi (140 bar) Standard Setting</li> </ul>		
		K 1000 - 2500 psi w/25 psi Check (70 - 175 bar w/ 1,7 bar Check), 2000 psi		
Created on 11/05/2016	@ 201	6 Sun Hydraulics Corporation	See www.sunbydraulics.co	om for detailed or







3-Port Non-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.

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

### **TECHNICAL DATA**

Pilot Ratio	1.5:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

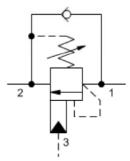
### **CONFIGURATION OPTIONS**

# Model Code Example: CBABLHN

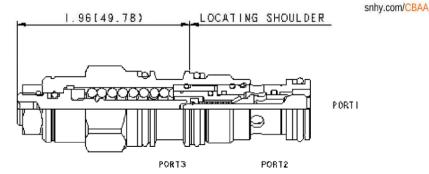
CONTROL	(L)	FUNCTIONAL SETTING RANGE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
<ul> <li>L Standard Screw Adjustment</li> <li>C Tamper Resistant - Factory Set</li> <li>R Lockwired Screw Adjustment</li> </ul>		<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel







3-Port Non-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.

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

#### **TECHNICAL DATA**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

### **CONFIGURATION OPTIONS**

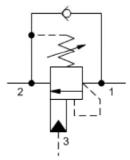
# Model Code Example: CBAALHN

CONTROL	(L)	FUNCTIONAL SETTING RANGE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
<ul> <li>L Standard Screw Adjustment</li> <li>C Tamper Resistant - Factory Set</li> <li>R Lockwired Screw Adjustment</li> </ul>		<ul> <li>H 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>A 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/ 0,3 bar Check), 3000 psi (210 bar) Standard Setting</li> <li>B 400 - 1500 psi w/4 psi Check (28 - 105 bar w/ 0,3 bar Check), 1000 psi (70 bar) Standard Setting</li> <li>I 400 - 1500 psi w/25 psi Check (28 - 105 bar w/ 1,7 bar Check), 1000 psi (70 bar) Standard Setting</li> </ul>	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

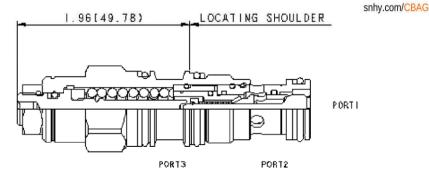


4.5:1 pilot ratio, ultra-restrictive counterbalance valve SERIES 1 / CAPACITY: 10 L/min. / CAVITY: T-11A





3-Port Non-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.

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

#### **TECHNICAL DATA**

Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

# CONFIGURATION OPTIONS

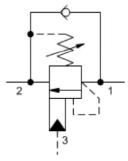
# Model Code Example: CBAGLJN

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

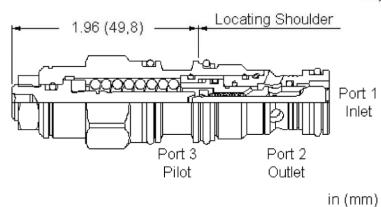








3-Port Non-vented



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.

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

# **TECHNICAL DATA**

Pilot Ratio	10:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Adjustment - Number of Counterclockwise Turns to Increase Setting	3.75
Reseat	>85% of setting
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

### CONFIGURATION OPTIONS

# Model Code Example: CBAHLJN

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

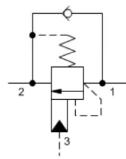
K 1000 - 2500 psi w/25 psi Čheck (70 -175 bar w/ 1,7 bar Check), 2000 psi (140 bar) Standard Setting

#### Created on 11/05/2016

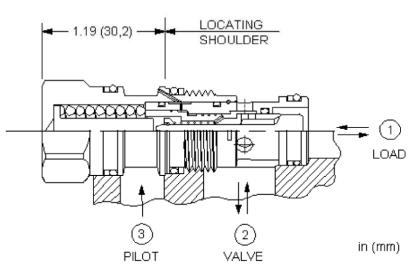




snhy.com/CBC



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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, pilotassisted 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**

Pilot Ratio	2.3:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

# CONFIGURATION OPTIONS

Z 4125 - 4900 psi (285 - 340 bar)

### Model Code Example: CBCLXMN

FIXED PRESSURE RANGE	SEAL MATERIAL	
M 4700 - 5600 psi (325 - 390 bar)		N Buna-N
V 3200 - 3800 psi (220 - 260 bar)		E EPDM
X 3500 - 4200 psi (245 - 290 bar)		V Viton

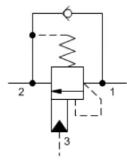
(N) MATERIAL/COATING Standard Material/Coating

ILH Mild Steel, Zinc-Nickel

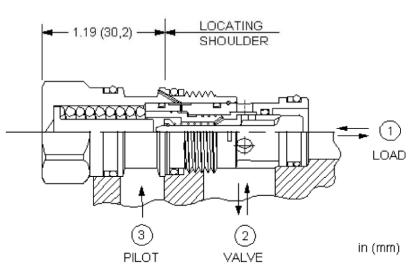




snhy.com/CBCAX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	3:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

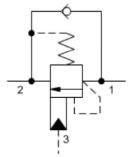
### CONFIGURATION OPTIONS

### Model Code Example: CBCAXNN

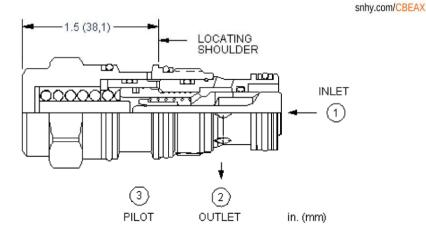
FIXED PRESSURE RANGE	(N)	SEAL MATERIAL (N	MATERIAL/COATING
N 2900 - 3500 psi (200 - 245 bar)		N Buna-N	Standard Material/Coating
P 2250 - 2680 psi (155 - 185 bar)		E EPDM	IAP Stainless Steel, Passivated
		V Viton	/LH Mild Steel, Zinc-Nickel







3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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.

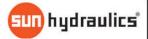
# **TECHNICAL DATA**

Pilot Ratio	3:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Reseat	>85% of setting
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

### **CONFIGURATION OPTIONS**

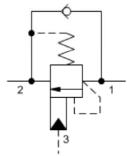
### Model Code Example: CBEAXNN

FIXED PRESSURE RANGE	(N) SEAL MATERIAL	(N) MATERIAL/COATING
N 2900 - 3500 psi (200 - 245 bar)	N Buna-N	Standard Material/Coating
P 2250 - 2680 psi (155 - 185 bar)	V Viton	/LH Mild Steel, Zinc-Nickel

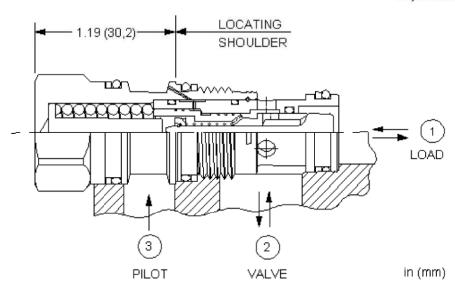




snhy.com/CBCGX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	4.5:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

### CONFIGURATION OPTIONS

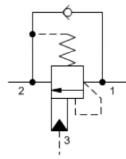
### Model Code Example: CBCGXMN

FIXED PRESSURE RANGE	(M) SEAL MATERIAL	(N) MATERIAL/COATING
M 4700 - 5600 psi (325 - 390 bar)	N Buna-N	Standard Material/Coating
V 3200 - 3800 psi (220 - 260 bar)	E EPDM	/LH Mild Steel, Zinc-Nickel
X 3500 - 4200 psi (245 - 290 bar)	V Viton	
Z 4125 - 4900 psi (285 - 340 bar)		

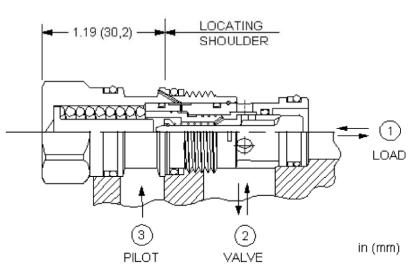




snhy.com/CBCHX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	10:1	
Factory Pressure Settings Established at	30 cc/min.	
Maximum Valve Leakage at Reseat	0,3 cc/min.	
Check Cracking Pressure	1,7 bar	
Seal kit - Cartridge	Buna: 990011007	
Seal kit - Cartridge	Polyurethane: 990011002	
Seal kit - Cartridge	Viton: 990011006	

# **CONFIGURATION OPTIONS**

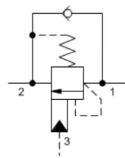
### Model Code Example: CBCHXMN

FIXED PRESSURE RANGE	(M) SEAL MATERIAL	(N) MATERIAL/COATING
M 4700 - 5600 psi (325 - 390 bar)	N Buna-N	Standard Material/Coating
V 3200 - 3800 psi (220 - 260 bar)	V Viton	<b>IAP</b> Stainless Steel, Passivated
X 3500 - 4200 psi (245 - 290 bar)		/LH Mild Steel, Zinc-Nickel
Z 4125 - 4900 psi (285 - 340 bar)		

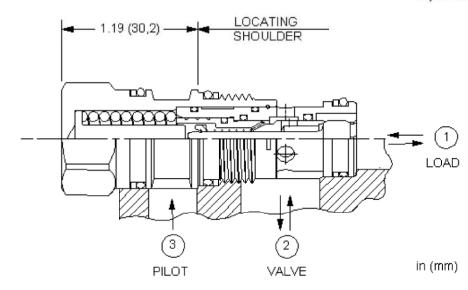




snhy.com/CBBLX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	2.3:1	
Factory Pressure Settings Established at	30 cc/min.	
Maximum Valve Leakage at Reseat	0,3 cc/min.	
Check Cracking Pressure	1,7 bar	
Seal kit - Cartridge	Buna: 990011007	
Seal kit - Cartridge	Polyurethane: 990011002	
Seal kit - Cartridge	Viton: 990011006	

### **CONFIGURATION OPTIONS**

# Model Code Example: CBBLXMN

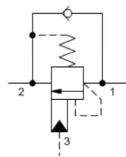
FIXED PRESSURE RANGE	(M) SEAL MATERIAL	(N) MATERIAL/COATING
M 4700 - 5600 psi (325 - 390 bar)	N Buna-N	Standard Material/Coating
V 3200 - 3800 psi (220 - 260 bar)	V Viton	/LH Mild Steel, Zinc-Nickel
X 3500 - 4200 psi (245 - 290 bar)		

**Z** 4125 - 4900 psi (285 - 340 bar)

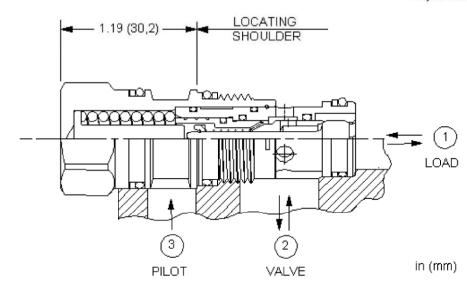




snhy.com/CBBCX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	3:1	
Factory Pressure Settings Established at	30 cc/min.	
Maximum Valve Leakage at Reseat	0,3 cc/min.	
Check Cracking Pressure	1,7 bar	
Seal kit - Cartridge	Buna: 990011007	
Seal kit - Cartridge	Polyurethane: 990011002	
Seal kit - Cartridge	Viton: 990011006	

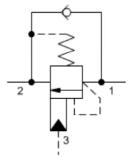
# CONFIGURATION OPTIONS

### Model Code Example: CBBCXNN

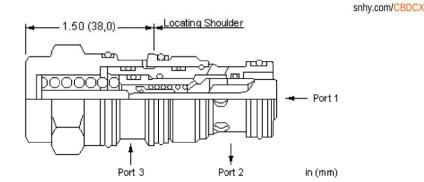
FIXED PRESSURE RANGE	(N)	SEAL MATERIAL (N	MATERIAL/COATING
N 2900 - 3500 psi (200 - 245 bar)		N Buna-N	Standard Material/Coating
P 2250 - 2680 psi (155 - 185 bar)		V Viton	/LH Mild Steel, Zinc-Nickel







3-Port Non-vented, Fixed Setting



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.

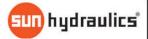
### **TECHNICAL DATA**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Reseat	>85% of setting
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

# CONFIGURATION OPTIONS

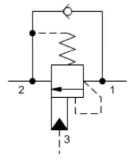
### Model Code Example: CBDCXNN

FIXED PRESSURE RANGE	(N)	SEAL MATERIAL	(N)	MATERIAL/COATING
N 2900 - 3500 psi (200 - 245 bar)		N Buna-N		Standard Material/Coating
P 2250 - 2680 psi (155 - 185 bar)		V Viton		/LH Mild Steel, Zinc-Nickel

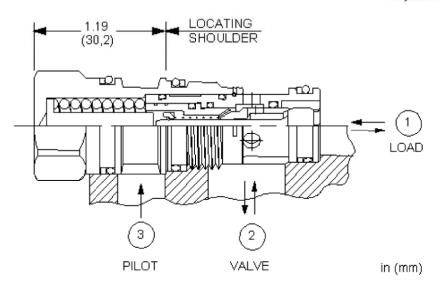




snhy.com/CBBDX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	4.5:1	
Factory Pressure Settings Established at	30 cc/min.	
Maximum Valve Leakage at Reseat	0,3 cc/min.	
Check Cracking Pressure	1,7 bar	
Seal kit - Cartridge	Buna: 990011007	
Seal kit - Cartridge	EPDM: 990011014	
Seal kit - Cartridge	Polyurethane: 990011002	
Seal kit - Cartridge	Viton: 990011006	

### CONFIGURATION OPTIONS

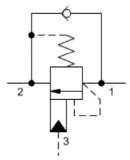
Z 4125 - 4900 psi (285 - 340 bar)

# Model Code Example: CBBDXXN

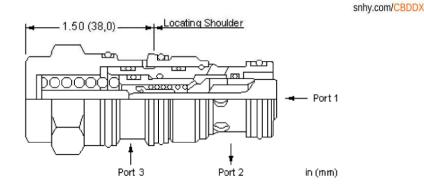
FIXED PRESSURE RANGE	(X) SEAL MATERIA	L (N) MATERIAL/COATING
X 3500 - 4200 psi (245 - 290 bar)	N Buna-N	Standard Material/Coating
M 4700 - 5600 psi (325 - 390 bar)	E EPDM	IAP Stainless Steel, Passivated
V 3200 - 3800 psi (220 - 260 bar)	V Viton	







3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	4.5:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Reseat	>85% of setting
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

# CONFIGURATION OPTIONS

# Model Code Example: CBDDXXN

FIXED PRESSURE RANGE	(X)	SEAL MATERIAL	(N)	MATERIAL/COATING	
X 3500 - 4200 psi (245 - 290 bar)		N Buna-N		Standard Material/Coating	
M 4700 - 5600 psi (325 - 390 bar)		V Viton		/LH Mild Steel, Zinc-Nickel	
V 2200 2000 pc; (220 260 hor)					

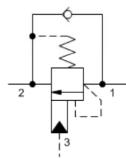
V 3200 - 3800 psi (220 - 260 bar) Z 4125 - 4900 psi (285 - 240 bar)

Z 4125 - 4900 psi (285 - 340 bar)

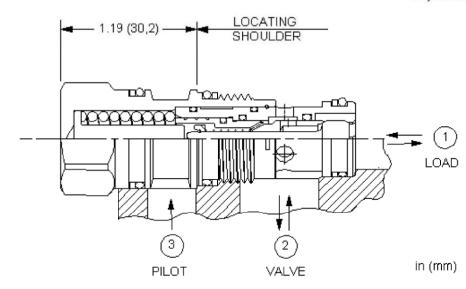




snhy.com/CBBAX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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.

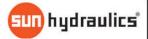
# **TECHNICAL DATA**

Pilot Ratio	3:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

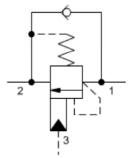
# CONFIGURATION OPTIONS

# Model Code Example: CBBAXNN

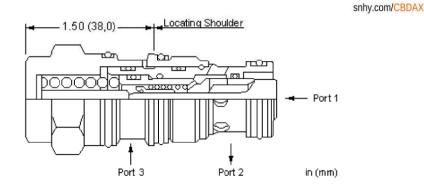
FIXED PRESSURE RANGE	(N) SI	EAL MATERIAL (N)	MATERIAL/COATING
N 2900 - 3500 psi (200 - 245 bar)	Ν	N Buna-N	Standard Material/Coating
P 2250 - 2680 psi (155 - 185 bar)	<u> </u>	/ Viton	IAP Stainless Steel, Passivated
			/LH Mild Steel, Zinc-Nickel







3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	3:1
Maximum Recommended Load Pressure at Maximum Setting	215 bar
Maximum Setting	280 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Reseat	>85% of setting
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

### CONFIGURATION OPTIONS

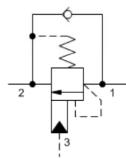
# Model Code Example: CBDAXNN

FIXED PRESSURE RANGE	(N) SEAL MATERIAL	(N) MATERIAL/COATING
N 2900 - 3500 psi (200 - 245 bar)	N Buna-N	Standard Material/Coating
P 2250 - 2680 psi (155 - 185 bar)	V Viton	ILH Mild Steel, Zinc-Nickel

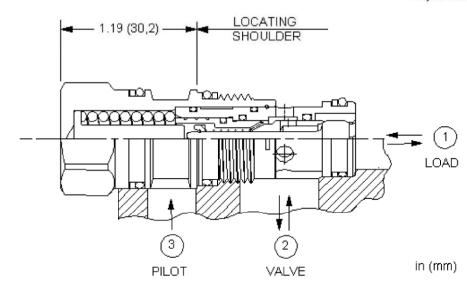




snhy.com/CBBGX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

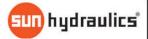
Pilot Ratio	4.5:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

### **CONFIGURATION OPTIONS**

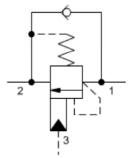
# Model Code Example: CBBGXMN

FIXED PRESSURE RANGE	(M) SEAL MATERIAL	(N) MATERIAL/COATING
M 4700 - 5600 psi (325 - 390 bar)	N Buna-N	Standard Material/Coating
V 3200 - 3800 psi (220 - 260 bar)	V Viton	/LH Mild Steel, Zinc-Nickel
X 3500 - 4200 psi (245 - 290 bar)		

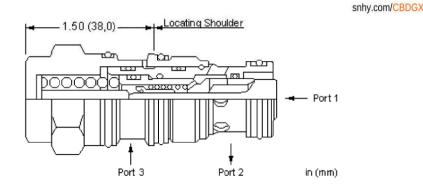
Z 4125 - 4900 psi (285 - 340 bar)







3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

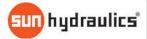
Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Reseat	>85% of setting
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

# CONFIGURATION OPTIONS

# Model Code Example: CBDGXXN

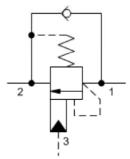
FIXED PRESSURE RANGE	(X) SEAL MATERIAL	(N) MATERIAL/COATING
X 3500 - 4200 psi (245 - 290 bar)	N Buna-N	Standard Material/Coating
M 4700 - 5600 psi (325 - 390 bar)	V Viton	/LH Mild Steel, Zinc-Nickel
V 3200 - 3800 psi (220 - 260 bar)		

Z 4125 - 4900 psi (285 - 340 bar)

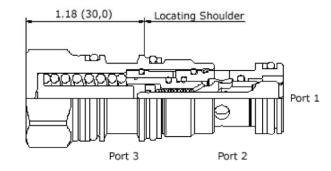




snhy.com/CBABX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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.

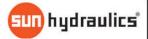
### **TECHNICAL DATA**

Pilot Ratio	1.5:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

# CONFIGURATION OPTIONS

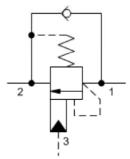
# Model Code Example: CBABXNN

FIXED PRESSURE RANGE	(N)	SEAL MATERIAL	(N)	MATERIAL/COATING	
N 2900 - 3500 psi (200 - 245 bar)		N Buna-N		Standard Material/Coating	
P 2250 - 2680 psi (155 - 185 bar)		V Viton		/LH Mild Steel, Zinc-Nickel	

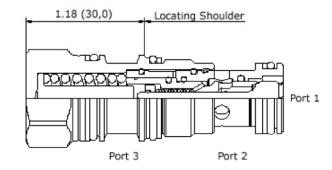




snhy.com/CBAAX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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.

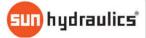
### **TECHNICAL DATA**

Pilot Ratio	3:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

# CONFIGURATION OPTIONS

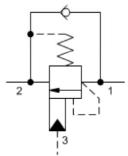
# Model Code Example: CBAAXNN

FIXED PRESSURE RANGE	(N) SEAL MATERIAL	(N) MATERIAL/COATING
N 2900 - 3500 psi (200 - 245 bar)	N Buna-N	Standard Material/Coating
P 2250 - 2680 psi (155 - 185 bar)	V Viton	/LH Mild Steel, Zinc-Nickel

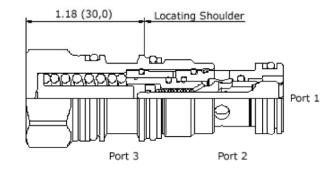




snhy.com/CBAGX



3-Port Non-vented, Fixed Setting



Fixed-setting, 3-port counterbalance valves with pilot assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves 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**

Pilot Ratio	4.5:1
Factory Pressure Settings Established at	30 cc/min.
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

# CONFIGURATION OPTIONS

# Model Code Example: CBAGXMN

FIXED PRESSURE RANGE	(M)	SEAL MATERIAL	(N)	MATERIAL/COATING
M 4700 - 5600 psi (325 - 390 bar)		N Buna-N		Standard Material/Coating
V 3200 - 3800 psi (220 - 260 bar)		V Viton		/LH Mild Steel, Zinc-Nickel
X 3500 - 4200 psi (245 - 290 bar)				

**Z** 4125 - 4900 psi (285 - 340 bar)

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