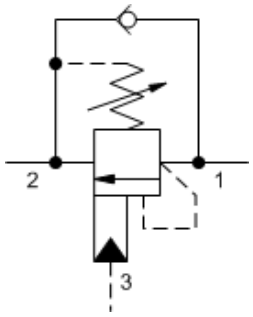
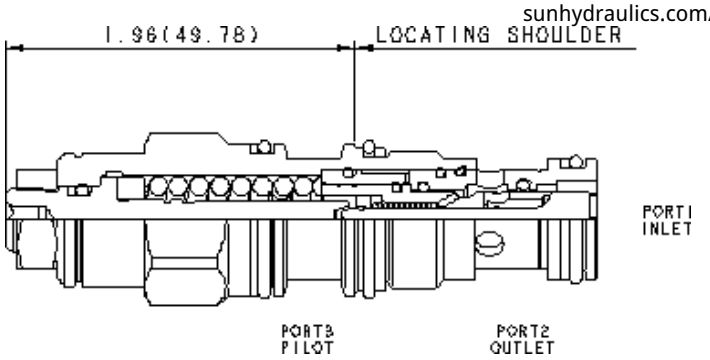
MODEL
CBBG

# 4.5:1 pilot ratio, restrictive counterbalance valve
## SERIES 1 / CAPACITY: 5 gpm / CAVITY: T-11A

sunhydraulics.com/model/CBBG




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.

## CONFIGURATION

| | | |
|---|---|---|
| **L** | Control | Standard Screw Adjustment |
| **J** | Functional Setting Range | 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting |
| **N** | Seal Material | Buna-N |
| **(none)** | Material/Coating | |

## TECHNICAL DATA

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

| | |
|---|---|
| Cavity | T-11A |
| Series | 1 |
| Capacity | 5 gpm |
| Pilot Ratio | 4.5:1 |
| Maximum Recommended Load Pressure at Maximum Setting | 3850 psi |
| Maximum Setting | 5000 psi |
| Pilot Configuration | Sealed |
| Factory Pressure Settings Established at | 2 $in^3$/min. |
| Maximum Valve Leakage at Reseat | 5 drops/min. |
| Adjustment - No. of CCW Turns from Min. to Max. Setting | 3.75 |
| Operating Characteristic | Restrictive |
| Reseat | >85% of setting |
| Valve Hex Size | 7/8 in. |
| Valve Installation Torque | 30 - 35 lbf ft |
| Adjustment Screw Internal Hex Size | 5/32 in. |
| Locknut Hex Size | 9/16 in. |
| Locknut Torque | 80 - 90 lbf in. |
| Seal kit - Cartridge | Buna: 990011007 |
| Seal kit - Cartridge | Polyurethane: 990011002 |
| Seal kit - Cartridge | Viton: 990011006 |
| Model Weight | 0.35 lb. |

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## CONFIGURATION OPTIONS

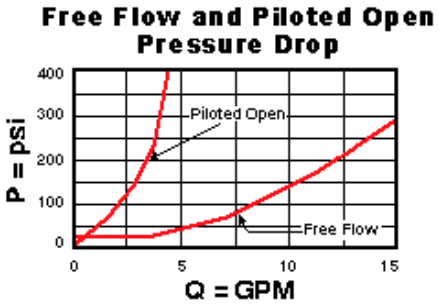
**Model Code Example: CBBGLJN**

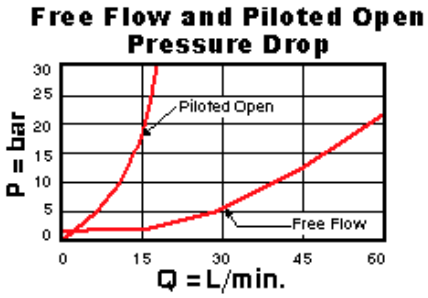
| CONTROL (L) | FUNCTIONAL SETTING RANGE (J) | SEAL MATERIAL (N) | MATERIAL/COATING |
|---|---|---|---|
| **L** Standard Screw Adjustment | **J** 2000 - 5000 psi w/25 psi Check (140 - 350 bar w/ 1,7 bar Check), 3000 psi (210 bar) Standard Setting | **N** Buna-N | Standard Material/Coating |
| **C** Tamper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

## TECHNICAL FEATURES

- Counterbalance valves should be set at least 1.3 times the maximum load induced pressure.
- Restrictive valves have no relief capacity other than as a thermal relief.
- Turn adjustment clockwise to decrease setting and release load.
- Full clockwise setting is less than 200 psi (14 bar).
- Backpressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the backpressure.
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages.
- Sun counterbalance cartridges can be installed directly into a cavity machined in an actuator housing for added protection and improved stiffness in the circuit.
- Two check valve cracking pressures are available. Use the 25 psi (1,7 bar) check unless actuator cavitation is a concern.
- This valve has positive seals between all ports.
- All 3-port counterbalance, load control, and pilot-to-open check cartridges are physically interchangeable (i.e. same flow path, same cavity for a given frame size).
- 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

- CBBGX Fixed setting, 4.5:1 pilot ratio, restrictive counterbalance valve

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