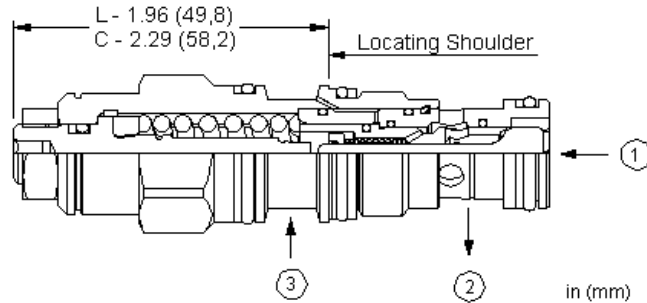
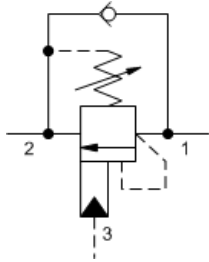


**MODEL**  
CBBG

**4.5:1 pilot ratio, restrictive counterbalance valve**  
**CAPACITY: 20 L/min. | CAVITY: T-11A**



**CONFIGURATION**

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

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.

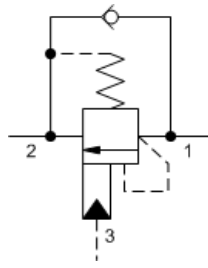
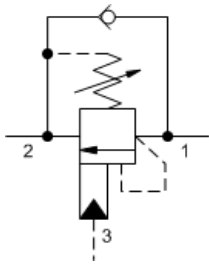
**TECHNICAL DATA**

Cavity	T-11A
Series	1
Capacity	20 L/min.
Pilot Ratio	4.5:1
Maximum Recommended Load Pressure at Maximum Setting	270 bar
Maximum Setting	350 bar
Pilot Configuration	Sealed
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
Operating Characteristic	Restrictive
Reseat	>85% of setting
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Adjustment Locknut/Cap Hex Size	15 mm
Adjustment Nut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990-011-007
Seal kit - Cartridge	Polyurethane: 990-011-002
Seal kit - Cartridge	Viton: 990-011-006
Model Weight	0.16 kg.

**SYMBOLS**

3-Port Non-vented

3-Port Non-vented, Fixed Setting

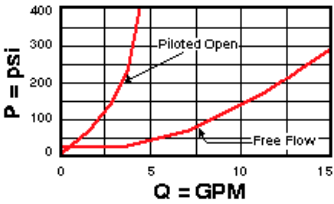


## TECHNICAL FEATURES

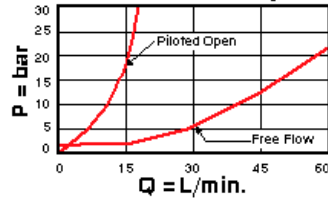
- Counterbalance valves should be set at least 1.3 times the maximum load induced pressure.
- Restrictive valves have no relief capacity other than as a thermal relief.
- Turn adjustment clockwise to decrease setting and release load.
- Full clockwise setting is less than 200 psi (14 bar).
- Backpressure 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 reseal percentages.
- Sun counterbalance cartridges can be installed directly into a cavity machined in an actuator housing for added protection and improved stiffness in the circuit.
- 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 (see Option Selection below). External parts are made from stainless steel with titanium or brass components, where applicable. Internal parts are made from carbon steel leaded alloy, the same as standard valves. For further details, please see the Materials of Construction page.
- 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

**Free Flow and Piloted Open Pressure Drop**



**Free Flow and Piloted Open Pressure Drop**



## CONFIGURATION OPTIONS

### CONTROL

<b>Standard Options</b>	<b>C</b>	Tamper Resistant - Factory Set
	<b>L</b>	Standard Screw Adjustment

### FUNCTIONAL SETTING RANGE

<b>Standard Options</b>	<b>C</b>	2000 - 5000 psi w/4 psi Check (140 - 350 bar w/0,3 bar Check), 3000 psi (210 bar) Standard Setting
	<b>D</b>	1000 - 2500 psi w/4 psi Check (70 - 175 bar w/0,3 bar Check), 2000 psi (140 bar) Standard Setting
	<b>J</b>	2000 - 5000 psi w/25 psi Check (140 - 350 bar w/1,7 bar Check), 3000 psi (210 bar) Standard Setting
	<b>K</b>	1000 - 2500 psi w/25 psi Check (70 - 175 bar w/1,7 bar Check), 2000 psi (140 bar) Standard Setting

### SEAL MATERIAL

<b>Standard Options</b>	<b>N</b>	Buna-N
	<b>V</b>	Viton

### MATERIAL/COATING

Standard Material/Coating

<b>Standard Options</b>	<b>/AP</b>	Stainless Steel, Passivated
	<b>/LH</b>	Mild Steel, Zinc-Nickel

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## **RELATED MODELS**

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### CBBGX

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

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