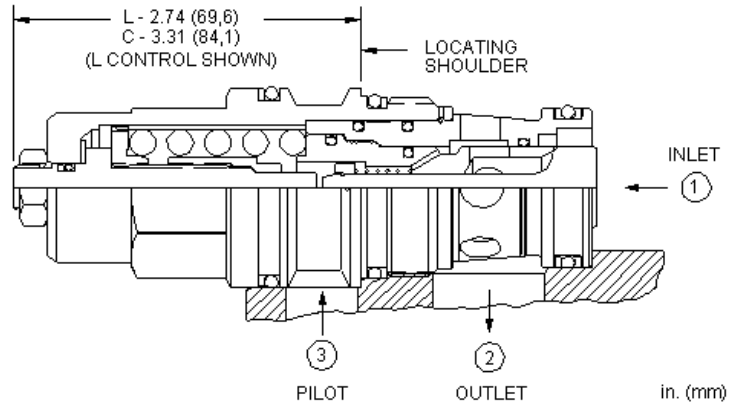
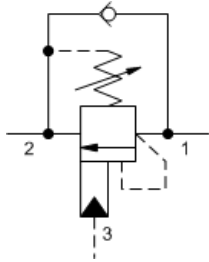


**MODEL**  
CBFA

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



**CONFIGURATION**

|               |                          |  |
|---------------|--------------------------|--|
| <b>L</b>      | Control                  | Standard Screw Adjustment  |
| <b>H</b>      | Functional Setting Range | 1000 - 4000 psi w/25 psi Check (70 - 280 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.

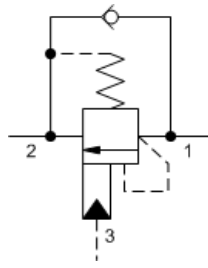
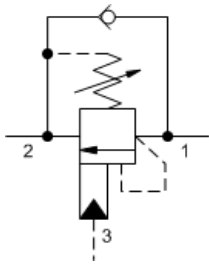
**TECHNICAL DATA**

|   |                           |
|---|---------------------------|
| Cavity  | T-17A                     |
| Series  | 3                         |
| Capacity  | 60 L/min.                 |
| 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                      |
| Operating Characteristic  | Restrictive               |
| Reseat  | >85% of setting           |
| Valve Hex Size  | 31,8 mm                   |
| Valve Installation Torque   | 203 - 217 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: 990-017-007         |
| Seal kit - Cartridge  | Polyurethane: 990-017-002 |
| Seal kit - Cartridge  | Viton: 990-017-006        |
| Model Weight  | 0.62 kg.                  |

**SYMBOLS**

3-Port Non-vented

3-Port Non-vented, Fixed Setting

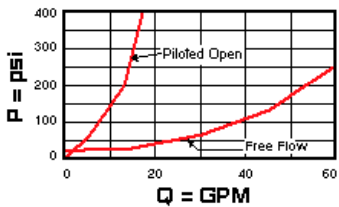


## TECHNICAL FEATURES

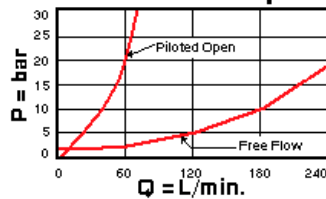
- Counterbalance valves should be set at least 1.3 times the maximum load induced pressure.
- Restrictive valves have no relief capacity other than as a thermal relief.
- Turn adjustment clockwise to decrease setting and release load.
- Full clockwise setting is less than 200 psi (14 bar).
- Backpressure 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).
- 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>A</b> | 1000 - 4000 psi w/4 psi Check (70 - 280 bar w/0,3 bar Check), 3000 psi (210 bar) Standard Setting  |
|                         | <b>B</b> | 400 - 1500 psi w/4 psi Check (28 - 105 bar w/0,3 bar Check), 1000 psi (70 bar) Standard Setting    |
|                         | <b>H</b> | 1000 - 4000 psi w/25 psi Check (70 - 280 bar w/1,7 bar Check), 3000 psi (210 bar) Standard Setting |
|                         | <b>I</b> | 400 - 1500 psi w/25 psi Check (28 - 105 bar w/1,7 bar Check), 1000 psi (70 bar) Standard Setting   |

### SEAL MATERIAL

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

### MATERIAL/COATING

|                         |            |                           |
|-------------------------|------------|---------------------------|
| <b>Standard Options</b> |            | Standard Material/Coating |
|                         | <b>/LH</b> | Mild Steel, Zinc-Nickel   |

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