



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. Backpressure at port 2 does not affect the valve setting because the spring chamber references the vent (port 4). Other names for this valve include motion control valve and over-center valve.

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

|   |                           |
|---|---------------------------|
| Cavity  | T-23A                     |
| Series  | 3                         |
| Capacity  | 60 gpm                    |
| Pilot Ratio   | 2:1                       |
| Maximum Recommended Load Pressure at Maximum Setting    | 4615 psi                  |
| Maximum Setting   | 6000 psi                  |
| Adjustment - No. of CCW Turns from Min. to Max. Setting | 5                         |
| Check Cracking Pressure                                 | 25 psi                    |
| Factory Pressure Settings Established at                | 2 in <sup>3</sup> /min.   |
| Maximum Valve Leakage at Reseat                         | 5 drops/min.              |
| Operating Characteristic                                | Standard                  |
| Reseat  | >85% of setting           |
| Valve Hex Size  | 1 1/4 in.                 |
| Valve Installation Torque                               | 150 - 160 lbf ft          |
| Adjustment Screw Internal Hex Size                      | 5/32 in.                  |
| Locknut Hex Size  | 9/16 in.                  |
| Locknut Torque  | 80 - 90 lbf in.           |
| Model Weight  | 1.45 lb                   |
| Seal kit - Cartridge                                    | Buna: 990-023-007         |
| Seal kit - Cartridge                                    | Polyurethane: 990-023-002 |
| Seal kit - Cartridge                                    | Viton: 990-023-006        |

## OPTION SELECTION EXAMPLE: CWGLLN

**CONTROL**

- L** Standard Screw Adjustment
- C** Tamper Resistant - Factory Set

**(L) SEAL MATERIAL**

- N** Buna-N
- V** Viton

**(N) MATERIAL/COATING**

- Standard Material/Coating**
- IAP** Stainless Steel, Passivated

### TECHNICAL FEATURES

- Counterbalance valves should be set at least 1.3 times the maximum load induced pressure.
- Turn adjustment clockwise to decrease setting and release load.
- Full clockwise setting is 200 psi (14 bar).
- All 4-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).
- 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.
- Pressure at port 4 is added to the effective relief setting at a rate of 1 plus the pilot ratio times the pressure.
- Sun counterbalance cartridges can be installed directly into a cavity machined in an actuator housing for added protection and improved stiffness in the circuit.
- This valve has positive seals between all ports.
- With vented valves, a lower pilot ratio may be required to achieve machine stability compared to non-vented 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.

### PERFORMANCE CURVES

