# 3:1 pilot ratio, vented counterbalance valve

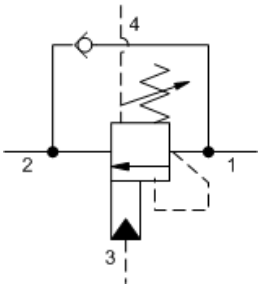
Capacity:
120 gpm (480 L/min.)

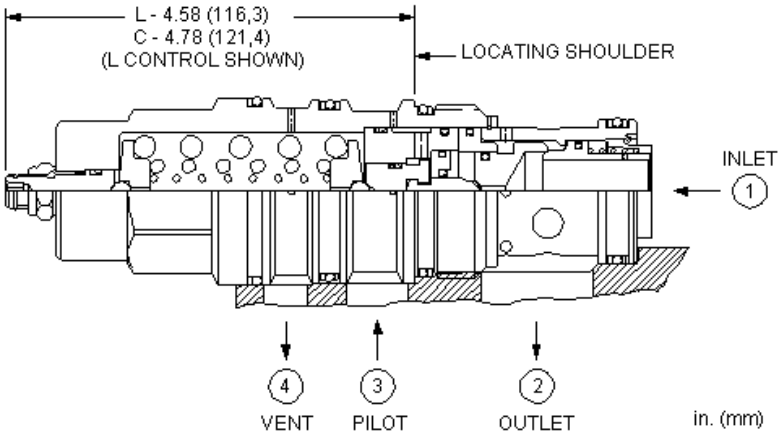
Model:
CWIA

## Product Description

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.



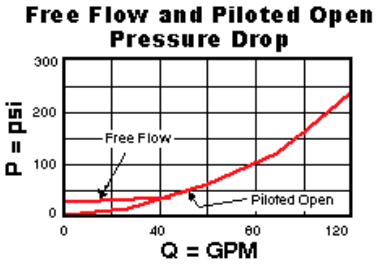

## Technical Features

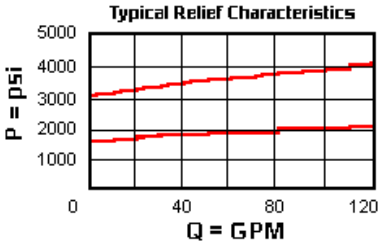
- Counterbalance valves should be set at least 1.3 times the maximum load induced pressure.
- Turn adjustment clockwise to decrease setting and release load.
- Full clockwise setting is 200 psi (14 bar).
- All 4-port counterbalance, load control, and pilot-to-open check cartridges are physically interchangeable (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 reseat 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.

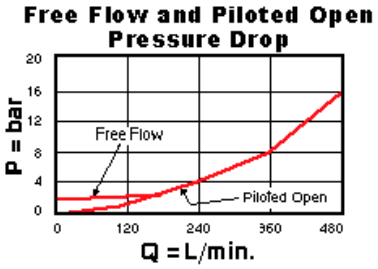
## Technical Data

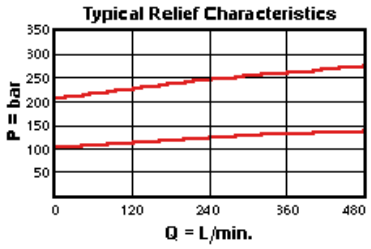
| | U.S. Units | Metric Units |
|---|---|---|
| Cavity | T-24A | |
| Capacity | 120 gpm | 480 L/min. |
| Pilot Ratio | 3:1 | |
| Maximum Recommended Load Pressure at Maximum Setting | 3075 psi | 215 bar |

| | | |
|---|---|---|
| Maximum Setting | 4000 psi | 280 bar |
| Adjustment - Number of Counterclockwise Turns to Increase Setting | 5 | |
| Check Cracking Pressure | 20 psi | 1,5 bar |
| Factory Pressure Settings Established at | 2 in³/min. | 30 cc/min. |
| Maximum Valve Leakage at Reseat | 5 drops/min. | 0,3 cc/min. |
| Series (from Cavity) | Series 4 | |
| U.S. Patent # | 4,834,135 | |
| Reseat | >85% of Set Pressure | |
| Valve Hex Size | 1 5/8 in. | 41,3 mm |
| Valve Installation Torque | 350 - 375 lbf ft | 475 - 500 Nm |
| Adjustment Screw Internal Hex Size | 5/32 in. | 4 mm |
| Adjustment Locknut/Cap Hex Size | 9/16 in. | 15 mm |
| Adjustment Nut Torque | 80 - 90 lbf in. | 9 - 10 Nm |
| Seal Kits - Cartridge | Buna: 990-024-007 | |
| Seal Kits - Cartridge | Viton: 990-024-006 | |
| Model Weight | 3.52 lb. | 1.60 kg. |




## CWIA-LHN

| Control | Functional Setting Range | Seal Material |
|---|---|---|
| Preferred Options | Preferred Options | Preferred Options |
| L Standard Screw Adjustment | H 1000 - 4000 psi (70 - 280 bar), 3000 psi (210 bar) Standard Setting | N Buna-N |
| Standard Options | Standard Options | Standard Options |
| C* Tamper Resistant - Factory Set | I 400 - 1500 psi (28 - 105 bar), 1000 psi (70 bar) Standard Setting | V Viton |

* Special Setting required, specify at time of order
Customer specified setting stamped on hex $2.00