

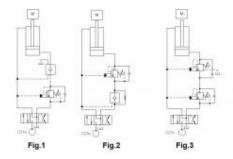
# **CBVs in Redundant Safety Circuits (1)**

Machine: | Actuator: Cylinder | Function: Counterbalance, Load Holding

Prepared for : Prepared by :

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### **Schematics**



#### **Related Products**

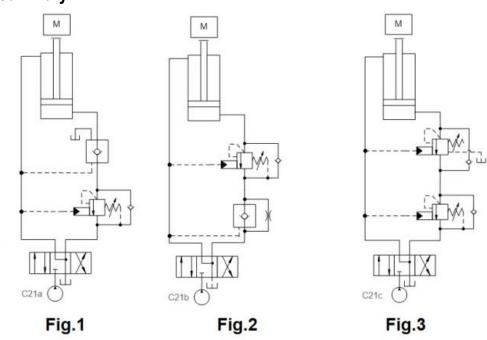
### **Cartridges**

CBEB - 1.5:1 pilot ratio, standard capacity counterbalance valve

CKCV - Vented pilot-to-open check valve - atmospherically referenced

CNBE - Pilot-to-open check valve with bypass orifice

## **Summary**



The circuits show three examples for redundancy in load-holding applications with counterbalance valves.

Load-sensitive counterbalance:
 Vented pilot-to-open check :
 Pilot-to-open check with bypass orifice:

CB\*\*, CW\*\*, CA\*\*
CV\*V, CK\*V
CN\*E

Benefits of this circuit arrangement:

- Fig.1 includes a vented pilot-to-open check valve on the cylinder.
- A 3:1 pilot ratio is the only available option and can only be installed on the full bore side as shown. This is a solution where regulations prevent springs being used to keep cylinders in position.
- Fig. 2 includes a pilot-to-open check below the CBV. Since there is no pressure build up between the two valves, the P.O. check valve can open at a low pressure. The orifice across the P.O. check valve limits the cylinder speed if the CBV upstream fails.
- Fig.3 offers redundancy with two CBVs in series. The valve upstream is a vented CBV with a high pilot ratio and will open first. The second CBV (lower pilot ratio) will then open and control the cylinder speed.

For Sun technical support, contact Steve Weber.

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