CBV Circuit Performance Improvement

Machine: | **Actuator:** Cylinder | **Function:** Counterbalance

Prepared for :

Prepared by :

Schematics

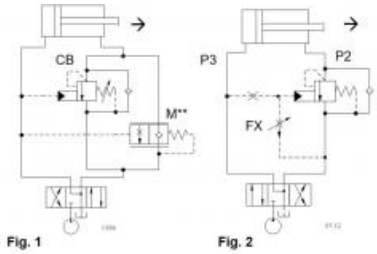


Fig. 1 Fig. 2

Related Products

Cartridges

CBAB - 1.5:1 pilot ratio, ultra-restrictive counterbalance valve
FXAA - Fixed-orifice, pressure compensated flow control valve
MBIM - Balanced, load control valve

Summary

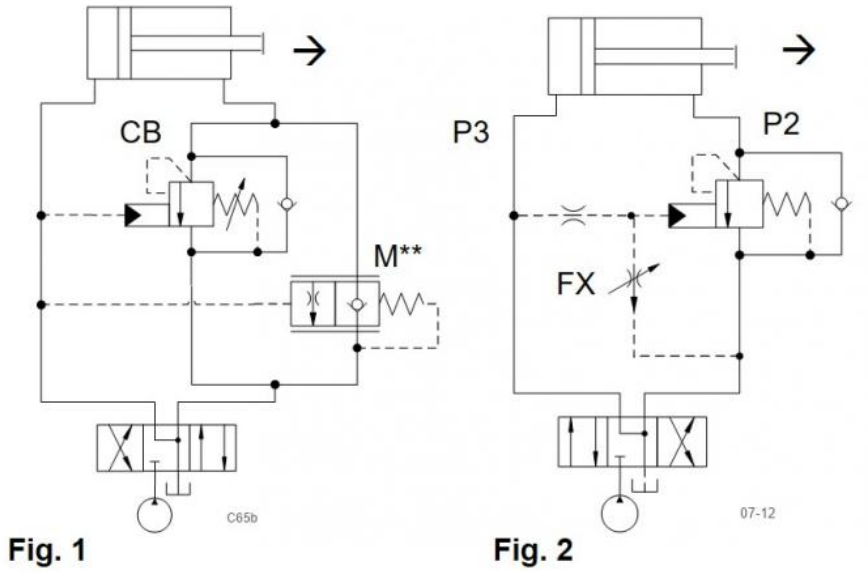


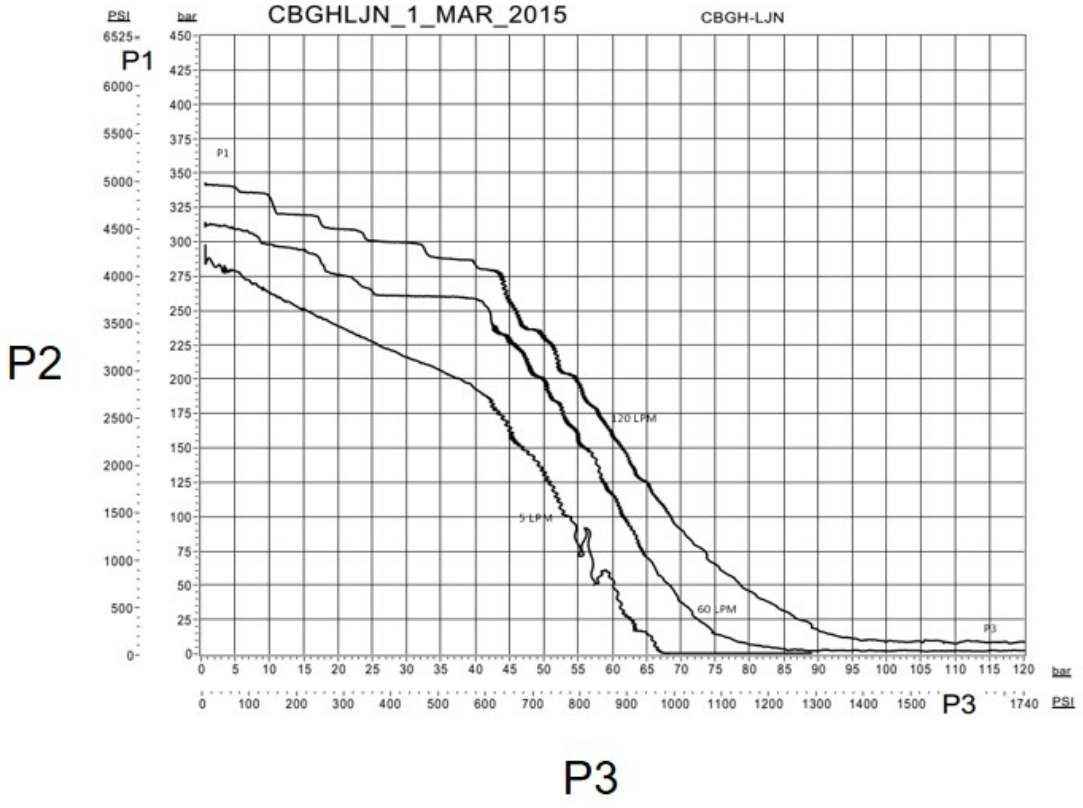
Fig. 1 Fig. 2

The following circuits show valve combinations that improve the control and stability of overrunning loads by opening an additional flow path to reduce pressure losses when the cylinder is moved against a positive load.

- **Standard counterbalance:** **CB****
- **Load-insensitive counterbalance:** **M**M-XM***
- **Pressure-compensated flow control:** **FX*A**

Benefits of this circuit arrangement:

- **Fig.1** shows a load-insensitive counterbalance valve (M- valve) in parallel with a standard CBV. The M-valve opens at an inlet pressure of 500 psi when the load is no longer negative / over-running, without causing instability.
- **Fig.2** shows a standard counterbalance valve with an orifice and a pressure-compensated flow control in the pilot line. At low pressure differentials (P3-P2), the pilot flow is low and the compensator of the flow control valve is still inactive. At a higher pressure differential, the flow control becomes active, resulting in a lower pressure drop across the orifice. In this way the effective pilot ratio of the counterbalance valve is reduced for low pilot pressure P3 only, as can be seen in the diagram.



For Sun technical support, contact Steve Weber.