



NEW! EFB ELECTRONIC FILL & BLEED CIRCUITS

Manifold Only

Material: Black anodized aluminum



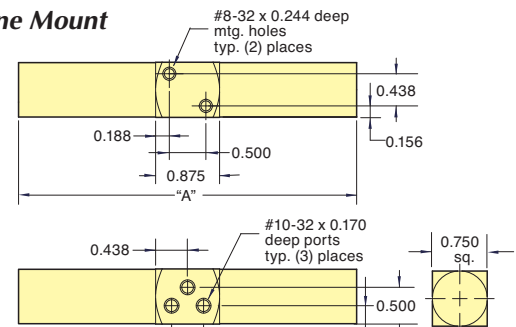
Part No.	Description
EFB-1M*	In-Line Manifold Only
EFB-2M**	Manifold Mount Manifold Only

- * Specify your own manifold mount DV, DT or EM valve when selecting the manifold only.
- ** Specify your own manifold mount DV, DT, EV or EM valve when selecting the manifold only.

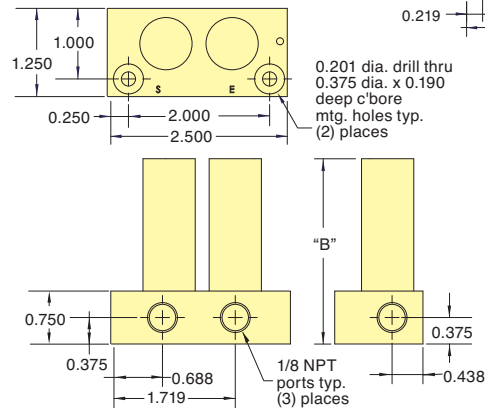
See Pages 177 through 203

Circuit	"A"	"B"
EFB-1DV	4.874	
EFB-1EM	3.057	
EFB-2EV		2.310
EFB-2DV		2.812

In-Line Mount



Manifold Mount



Three Typical Examples of Fill and Bleed Applications

Pressure **control systems** typically use a fill and bleed type circuit to add or subtract air in maintaining pressure. They can also be referred to as E/P or Electronic Pressure Control when feedback is provided to read the downstream or output pressure and looped back to tell a PLC or System to fill or bleed more pressure. These can be tremendously accurate depending on the speed and orifice of the valves used in the circuit and the accuracy of a pressure transducer.

Clippard EV valves are commonly used in these applications in analytical and instrumentation equipment, medical devices such as blood pressure cuffs, and pressure control industrial applications.



In **lumbar support applications**, pressure would be better defined as firmness, where a pneumatic fill and bleed circuit is controlling the air pressure in a flexible bladder built into a seat. Massage or therapy chairs use multiple bladders filling and bleeding pressure that changes the firmness in a sequential pattern massaging the user. These applications can be found in first-class airline seats, train seats, truck or mobile cabs where the operator is sitting for extended periods of time.



Position is based on the same principle when applying a fill and bleed circuit along with the basic cylinder formula of $PRESSURE \times AREA = FORCE$ and linear spring force. Using a single acting cylinder, the linear spring force on the cylinder needs to be overcome with a particular pressure in order to move. As the cylinder moves, the force required to push against the spring force changes, therefore varying the pressure can simply vary the position. For example, if a cylinder was used to move the position of a table up or down, a fill and bleed circuit can be applied to the bottom of the cylinder to adjust pressure, which in turn changes the position.

The components can be quite simple and robust, such as the FBV manual fill and bleed valves. Or, for integration with electronic controls, a combination of electronics valves can achieve very simple or more complex circuit for your fill and bleed applications.