

# Proportional valve gives precise, variable flow



Proportional pneumatic valves can have hysteresis levels as high as 15%, which can wreak havoc on closed-loop control systems. Another problem with proportional valves is that they often vary from one to another in terms of maximum flow and gain. Gain is the rate of flow change to valve input current, and engineers require consistency and linearity for tight control.

To solve these problem Clippard Instrument Laboratory, Cincinnati ([www.clippard.com](http://www.clippard.com)), redesigned its EV valves, combining elements of low power and fast operation with a single moving part of provide a high cycle life. They found these characteristics could be used to make superior proportional valves.

The company adjusts the valve's magnetic field to compensate for mechanical tolerance limitations. This adjustment, combined with a low-mass element and virtually no internal friction, makes gain more consistent and linear. Maximum flow variation is held to  $\pm 10\%$ , and hysteresis to less than 10%, thus improving performance of most closed-loop systems.

The new valves, dubbed the EVP Series, are said to provide the same reliability and long life as the company's EV valves. The new valves have standard and manifold mounting options, a variety of orifice sizes and control voltage ranges, and three electrical connector options.

