



## Series 50 Valves Configured For Precision Electronic Production Equipment



*Two examples of the new, sealed, Peter Paul Series 50 solenoid valves for electronics and chip manufacture are shown. A 24 VDC, 7.0 watt, 1/16 orifice, 100 psi solenoid valve (top) is offered with grommet housing and 1/4" O.D. stainless steel tubing welded to the body; the sleeve assembly is threaded to the body and sealed with an elastomeric gasket. The valve below incorporates welded 1/8" O.D. input/output tubing but with body and sleeve assembly welded together, eliminating the gasket and threads, for total, positive, permanent sealing.*

We've announced a new, completely sealed, Series 50 solenoid valve to meet today's stringent requirements for chip manufacturing, analysis equipment, and other types of ultra high purity equipment requiring welded components.

Available immediately in a 2-way, Normally Closed configuration, the valve can be produced in many AC or DC voltages. These Series 50 valves feature all 430F stainless steel construction with either 1/8" or 1/4" O.D. stainless steel welded tubing as their port connections. The sleeve assemblies of these valves can be attached with conventional threads and elastomeric seals or, for the most critical applications, with the body welded directly to the sleeve assembly. Both grommet and conduit-style housings are offered, with internal electro polish available.

Employing all our standard components for millions of trouble-free operating cycles, these fully sealed Series 50 solenoid valves are available with all standard options including 3-way operation, quiet operating diode rectified coils, and more for continuous operation at maximum rated pressures as required.

### . . . Special Options

## 3-Way and 2-Way Solenoid Valves For Quiet (No-Click) Operation

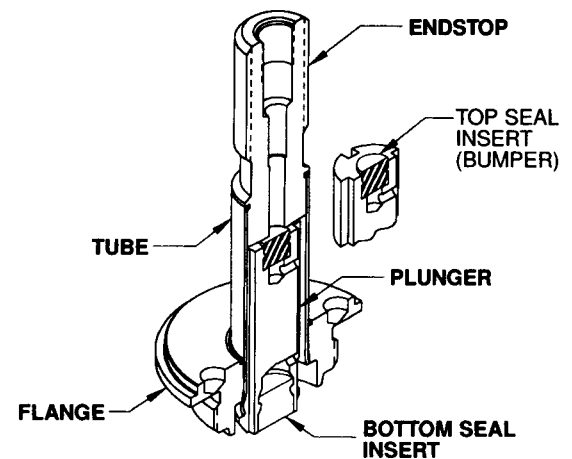
Peter Paul Electronics Co., Inc. has developed solenoid valves for use in medical applications such as hospital beds, breathing apparatus, and inflatable mattresses for burn patients in which a bumper is installed for quiet operation.

In normal industrial applications, the click of a solenoid valve is not an issue, but in the quiet of a hospital environment it can be nerve wracking to hear constant clicking as the valve is actuated. Several new plunger and bumper designs used in the 3-way function have a top seal but eliminate the metal-to-metal contact.

One way to "eliminate the click" is to put in a rigid top seal that's non-compensating and doesn't move. The top seal contacts the end stop, but no metal contact is made. It requires a unique plunger and uses a special end stop to accommodate it. Many times the pressure ratings are reduced just a bit due to the increased air gap in the valve, affecting magnetic performance. Usually these applications are low-pressure air or vacuum, therefore the reduced rating of the valve is generally not an issue.

Rectified coils are also often specified in medical equipment, either full bridge or half bridge, to eliminate the potential for noise. A valve, which might potentially cause a hum or buzz can be very annoying to a patient, so a full wave rectified unit for AC service is often preferred. A DC unit, not requiring a rectifier, is sometimes used in specific applications.

Also common is a bumper in a 2-way valve, usually just a flat disk with no sealing action. Bumpers may be urethane or filled Teflon or special low cold-flow Teflon, which doesn't become deformed like virgin Teflon.



*Typical Peter Paul Electronics 3-way and 2-way solenoid valves for use in medical applications such as hospital beds, breathing apparatus, and quiet, no-click operation (shown on cutaway).*

Occasionally, a bumper is included in a valve for a non-medical application where long life is critical. With a bit more cost, a Teflon-coated plunger combined with a bumper will provide very long, quiet valve life under many operating conditions.