

# Miniature Pneumatic Products

*for Scientific Applications*

- *Medical*
- *Pharmaceutical*
- *Analytical*
- *Dental*

*Electronic Valves*

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*Check Valves*

•

*Control Valves*

•

*Proportional Valves*

•

*Air Cylinders*

•

*Regulators*

•

*Fittings & Tubing*

•

*and more*





Cincinnati, Ohio 1946-1952



Fairfield, Ohio 1997-today

Founded in 1941 by W. L. Clippard, Jr., the company initially manufactured electronic test equipment. In the 1950's, Mr. Clippard recognized a need for miniature pneumatic devices in manufacturing, and began to produce a small line of component products. The appeal of these products was such that by the late 1960's, Clippard Instrument Laboratory was strictly a pneumatic manufacturer.

The company has continued to have steady growth through the years bolstered by periodic introductions of new and innovative products. These have included such products as the Modular and Mouse Valve series, and the Electronic Proportional Valves.

Today, the company remains family-owned and operated. Manufacturing facilities are located in Cincinnati and Fairfield, Ohio as well as a distribution and technical support center in Louvain-La-Neuve, Belgium.

## Quality People

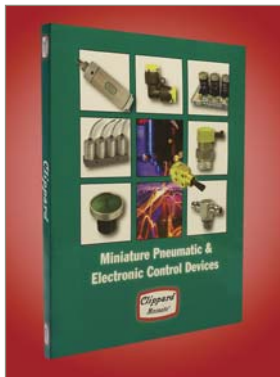
## Quality Products

This Scientific Products Brochure highlights Clippard applications and provides a product overview. Please visit [www.clippard.com](http://www.clippard.com) for a complete catalog.



Cincinnati, Ohio 1952-today





Clippard's Minimatic® line of miniature pneumatics has been providing solutions for fluid power, motion and process control devices to the Scientific, Medical, Dental, and Analytical markets for seven decades. We understand the need for precision, reliability and purity in your critical applications and are dedicated to providing expert solutions to meet and exceed your expectations. We ensure that every product meets the highest standards of quality and performance by 100% testing all products before they reach our customers.

In addition to the Scientific market segment, Clippard offers expertise in a wide variety of markets utilizing numerous types of applications. From Semiconductor to Printing, Automotive to Packaging, our products are engineered to the exact specifications you require. Supported by a platform of over 5,000 standard products, as well as *customized solutions*, we have the capability to provide you with a full range of products designed to meet the unique demands of your application. For a complete description of these products, please visit our website at [www.clippard.com](http://www.clippard.com) to request a [full line catalog](#).

Products and applications specific to these markets are featured in this catalog:

Analytical  
Dental

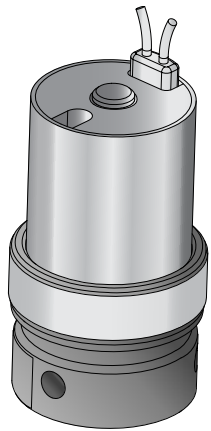
Medical  
Pharmaceutical

*Additional Markets Served:*

Aerospace  
Agriculture  
Animatronics  
Automation  
Automotive  
Dairy  
Electronics  
Food & Beverage  
HVAC  
Machinery  
Mining  
Packaging  
Printing  
Process  
Recreation  
Semiconductor  
Textile  
Transportation



## Electronic Mouse Valve Series



Wire leads out top to reduce spacing envelope. Special voltages available.

Low power coil  
0.5 to 1.9 watts

2- and 3-way design  
(2-way shown) with  
universal porting

Low heat rise, even when  
continuously energized

Variety of seal choices

Industry standard for  
leak-free operation

A **Billion** cycles at fast  
cycle rates

Single- or multiple-piece  
body for maximum  
flexibility

Simple and economical mounting to  
Clippard manifold or customer special  
block (or pipe ported #10-32)



# Electronic Mouse Valve Series

## Clippard Mouse Series Electronic Valves

- Functional Simplicity—One Moving Part!
- 1,000,000,000+ Cycle Life
- Fast Response
- Low Heat Rise
- Quiet Operation
- Industry Standard for Leak-Free Operation
- Low Power



**“E” Series Mouse Valves**  
2- and 3-way manifold and in-line mounting. Normally-Closed and fully-ported versions.



**Corrosion-Resistant Series Mouse Valves**  
Enhanced plating and some stainless steel components add to the life of this valve used with mildly corrosive media, such as moisture in air or gases.



**Proportional Mouse Valves**  
Proportional current control provides variable output flow. 2-way only.



**Intrinsically Safe Mouse Valves**  
Low power and suited for Intrinsically Safe barriers.



**“Oxygen Clean” EV Series Mouse Valves**  
Specially-cleaned valves for analytical or Oxygen use.



**EM Series Mouse Valves**  
The smallest valve in this series, for applications requiring high-density valve population.



**ECN, EVN, ETN Mouse Valves**  
Normally-Open, manifold mount to allow Normally-Closed and Normally-Open valves on the same manifold.



**ES Series Mouse Valves**  
Alternate mounting with same compact design and reliability.

## Clippard Functional Simplicity

- Minimal operating parts
- Low power operation
- The “spider” armature is the only moving part and its motion to operate the valve is a mere 0.007” (0.2 mm) travel.
- Low voltage DC



[www.clippard.com/electronic](http://www.clippard.com/electronic)

## Cleaned for Oxygen Service

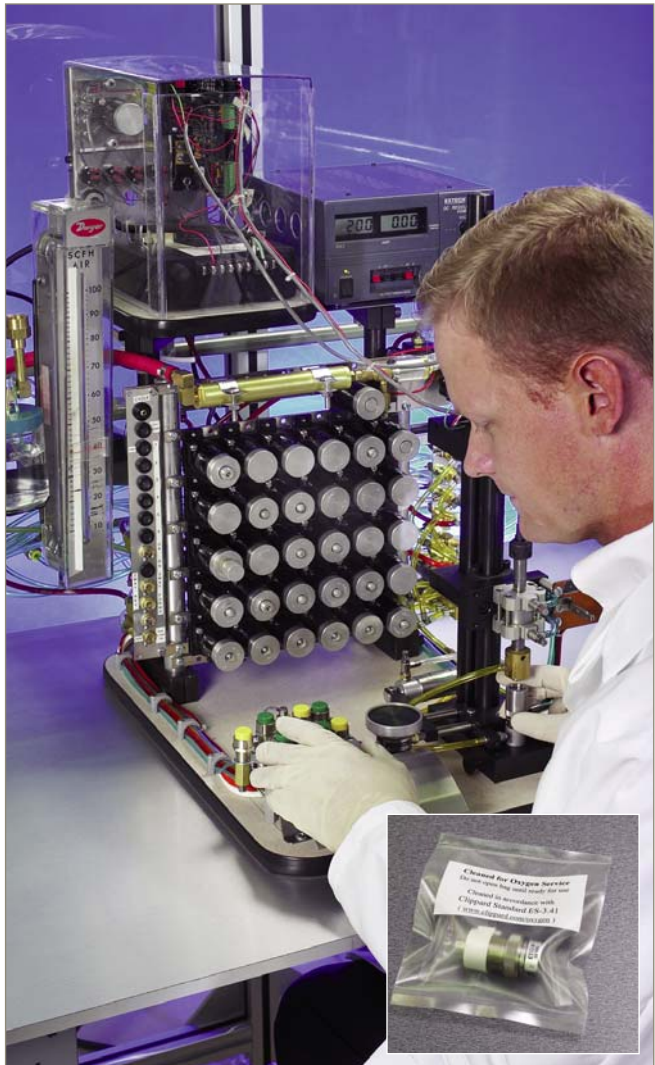
### Clippard's Oxygen Clean Series

All EV, ET, EC and EW series electronic valves are available manufactured and assembled for use in Oxygen-enriched environments for applications that are extremely sensitive to contamination.

- Valves are ultrasonically cleaned, assembled, inspected and tested in an enclosed controlled area with a state-of-the-art positive pressure HEPA filtration system
- Both organic and inorganic contaminants such as particulate matter and Hydrocarbon oils are removed
- No organic sealants, adhesives or lubricants are used in the manufacturing process
- Feature FKM (fluorocarbon) seals
- Component parts are lubricated with Oxygen-compatible PFPE (perfluoropolyether) grease, as needed for assembly
- Individual testing and inspection is accomplished utilizing compressed Nitrogen and ultraviolet light

For more information on the process, visit

[www.clippard.com/oxygen](http://www.clippard.com/oxygen)



### Medical Ventilators

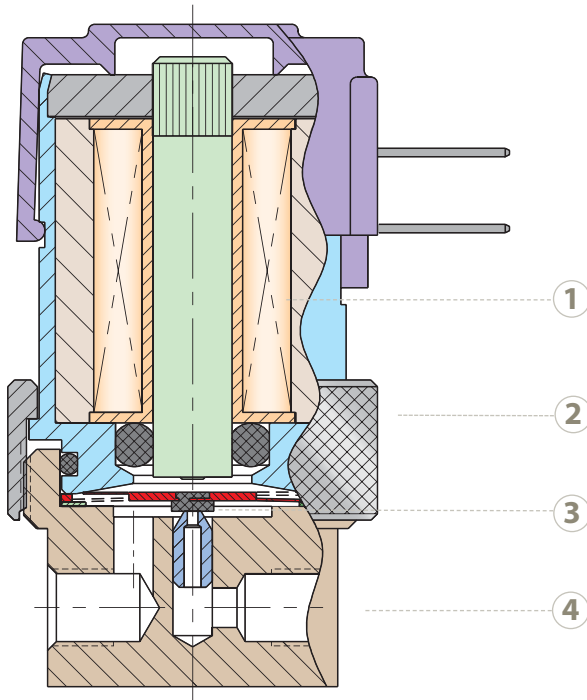
*For patients who need mechanical assistance in order to breathe efficiently, ventilators regulate exact adaptation of pressure and flow characteristics to suit their specific needs. Clippard electronic valves allow the device to deliver precise, adjustable volumes of oxygen with each breath. Due to the vital issues surrounding reliability, Clippard engineers pay careful attention to design details that will ensure consistent flow and will extend the life of the valve.*



## S-EVP Series Proportional Control Valves

The S-EVP series Proportional Control Valves combine the features of the existing S-EV series valve - long life, low power, and Clippard's reputation for high quality components - with the additional capability of proportional control.

The S-EVP series valve provides air or gas flow control, and varies the output flow based on the current input to the solenoid. The consistent gain of this valve provides a high degree of control for many applications.



## Features

Patented design uses single internal moving part

- Fast response and long life
- Small package
- Single moving part—low friction and wear
- Many orifice, voltage, connection, mounting and seal options

- 1 Low power coil uses only 1.9 watts at the rated voltage. Standard voltage ranges include 0 to 5, 0 to 10 and 0 to 20 volts.
- 2 Adjusting ring may be loosened for positioning to orient connections.
- 3 FKM seals, PFPE lubricant
- 4 Small in size with a variety of mounting options

[www.clippard.com/evp](http://www.clippard.com/evp)



## Ophthalmic Surgery

*Clippard EV and ET valves are trusted for use in Ophthalmic Surgery procedures. The valves are commonly used for controlling vacuum during cornea replacement surgery. The eye is an extremely delicate organ requiring acute care throughout the surgical procedure, so reliability and ease-of-use are crucial elements in this application.*



## High Flow EVB & 2020/2021 Piloted 3-Way Air Valves

Designed to be piloted by a Clippard EC, EV, ET and EW manifold mount electronic valves. Outputs up to 22 scfm/600 lpm @ 100 psig/7 bar. Combines low wattage, long life and cool running of the "E-" Series valves with quick response and high flow of Clippard "Fluidamp" type valves.



## Maximatic® Solenoid & Air Piloted Valves

Clippard's Maximatic line of pneumatic solenoid and air piloted valves are available in 2-, 3- and 4-way configurations, and feature maximum performance and maximum value. Available in port sizes from #10-32 to 1/2" NPT.

- Many models, flow rates, mounting and voltage options available
- Sturdy aluminum body withstands rough environments
- Easily accessible locking or non-locking manual override switch

[www.clippard.com/maximatic](http://www.clippard.com/maximatic)

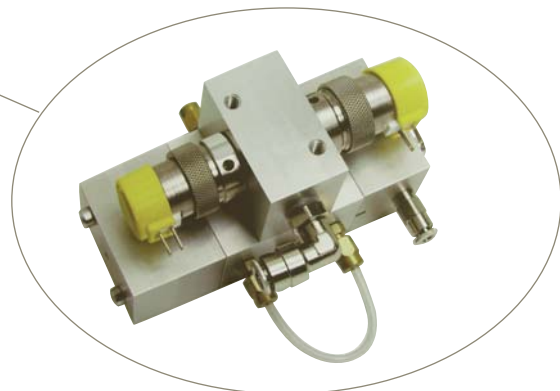
## Blood Pressure Monitoring

*Non-invasive blood pressure monitoring involves the external measurement of pressure and pulses. Clippard's proportional valve can provide the precise control needed for accurate measuring of the patients' blood pressure.*



## Differential Pressure Testing

*This leak tester is a fully automatic differential pressure testing device for detecting leaky parts during the cycle time of the production processed. The procedure is based on comparing the pressures in the test part volume and in a tight reference volume. This allows for a high degree of sensitivity.*





## 10 & 15 mm Solenoid Valves

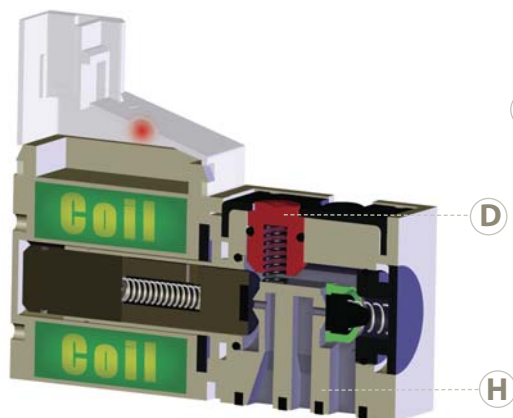


All of the benefits of Clippard quality and reliability are available in these 10 mm and 15 mm valves. Offered in both Normally-Open or Normally-Closed, latching or non-latching, these 2- and 3-way valves are perfect for small areas where compact electronically-controlled pneumatics are needed.

With exceptional life and reliability, this is the perfect sub-miniature valve for a wide variety of industries.

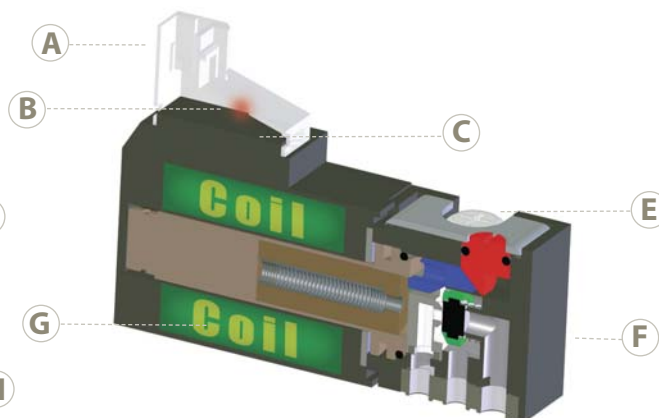


### 10 mm Valve



- A** Multiple connectors  
- Snap-in Plugs - Wire Leads - Custom Plugs - DIN
- B** LED for confirmation of operation
- C** Diodes for current spike suppression and a power saving circuit is available
- D** Highly visible manual override provides actuation without power

### 15 mm Valve



- E** Mounting Screws: 10 mm-M1.7 x 0.35, 15 mm-M3 x 0.5
- F** High durability and corrosion-resistant glass filled nylon housing
- G** Encapsulated low wattage coils available in many voltages
- H** One-piece gasket for manifold mount

[www.clippard.com/10and15mm](http://www.clippard.com/10and15mm)



### Patient Simulation

*Simulation of many symptoms and other external indicators can be easily performed using the 10 mm valve, along with other control valves, needle valves, fittings, and tubing. Pulse, heartbeat, and even jaw resistance can all be controlled using pneumatics and the control of the 10 mm valve.*



### Check Valves

Check valves permit flow in one direction only. The MCV-1 series has #10-32 ports and a brass poppet. The MJCV-1 series has 1/8" NPT ports and a Delrin® poppet. ENP brass.

- Up to 300 psig/21 bar input pressure



### Toggle Valves

2- and 3-way valves are the simplest pneumatic components—their function is merely to turn an air supply on and off via a toggle. Clippard adds selector, diverter, and 4-way versions. More models than any other manufacturer. ENP brass.



### Stem Valves

Stem valves are mechanically-actuated 2-, 3- or 4-way air valves with ENP brass bodies in either a body ported, rotating port or cartridge configuration. These can be manually-actuated, air-piloted, or may be part of a more complex control circuit. ENP brass.



### Needle Valves

Adjustable control needle valves restrict flow in both directions. There are several models with various needle configurations to provide coarse or fine flow adjustment. ENP brass.

[www.clippard.com/needlevalves](http://www.clippard.com/needlevalves)



### Sleeve Valves

Sleeve valves may be used to provide isolation of the air line by venting the system to the atmosphere. They can be directly installed in the circuit. ENP brass.



### Shuttle Valves

There are three models of shuttle valves offered by Clippard. These valves feature a shuttle that allows flow from one inlet to the outlet while blocking the other inlet. They may be mounted directly to valves and cylinders or in-line using hose barb. ENP brass.

[www.clippard.com/shuttlevalves](http://www.clippard.com/shuttlevalves)



### Anesthesia Machines



*In order to blend the proper amount of gases to obtain a desired level of anesthesia, these machines utilize the capabilities of Clippard check valves, control valves, and the electronic valve series. These valves allow the doctor to deliver an accurate and continuous supply of medical gases mixed with an accurate concentration of an aesthetic vapor to the patient at a safe pressure and flow.*



### Single Acting Air Pilot Actuators

Designed to mount to Clippard miniature valves and components. ENP brass.

- 250 psig/17 bar max. Input pressure



### Push Button Actuators

Easily actuated, clearly identifiable panel controls are the hallmark of a professional control system. These actuators will accommodate both pneumatic valves and electrical switches.

[www.clippard.com/actuators](http://www.clippard.com/actuators)



### Pressure Actuated Switches

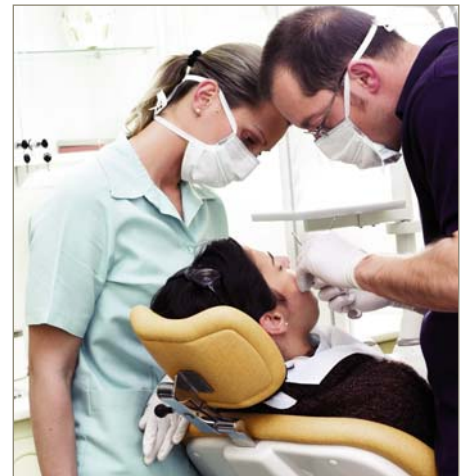
Clippard Air Actuated Electrical Switches enable the easy use of pressure to actuate electrical switches. Available in both sub-miniature and miniature sizes, with a variety of current ratings and terminal styles.

- Inlet Pressure of 5 to 150 psig/0.3 to 10.3 bar
- #10-32, 1/8" NPT, M5 ports



### Dental Industry

*Clippard has lead innovative solutions for a wide variety of applications in hundreds of industries. Dental applications desire the small size, high quality and low cost that Clippard provides. Whether it is a standard component or custom solution, dental manufacturers choose Clippard because of the overall value and superior customer service. Some applications are Ultra Sonic Systems, Delivery Systems, Air Polishing Systems, Air Abrasion Equipment, and Hand Piece Devices, just to name a few.*





## Manifold Flow Controls

Clippard's block flow control and needle valves have a variety of features that offer extra versatility for unique applications. These precision valves offer high performance, low cost, reliability and ease of installation. Each valve is independent of the other sharing only a common body. This allows separate pressures and/or gases to be used while simplifying mounting. Each needle adjustment is smooth, exact, and includes a locking ring to prevent tampering.

- #10-32 through 3/8" NPT ports
- Ideal for controlling double-acting cylinders.



## Miniature Pressure Regulators

Regulators are offered in either relieving or non-relieving versions. The relieving design maintains a constant pressure output even when downstream conditions change. As downstream pressure increases, the pressure overcomes the regulator piston and the pressure is relieved to atmosphere to maintain a constant output pressure.



## Air Cylinders

Clippard cylinders are of the finest quality available, and are fully tested for outstanding performance and long life. Stainless steel, brass, and corrosion-resistant models are available in 12 bore sizes from 5/32" to 3" with strokes up to 40".

[www.clippard.com/cylinders](http://www.clippard.com/cylinders)



## Air Volume Tanks

Clippard offers a line of Air Volume Tanks suitable for use with Clippard air components. Using the same quality rolled construction as Clippard stainless steel cylinders, tanks are manufactured to exacting standards.

## Gas Chromatography/ Mass Spectrometry

*Special EV/ET valves are used to select gases, provide mass flow and to isolate gas samples in gas chromatography applications. These valves use special seal materials and undergo extensive cleaning in order to help customers attain accuracies to parts per trillion. Mass spectrometers also use Clippard electronic valves in similar applications where leakage concerns are critical.*





### Minimatic® Slip-On Fittings

Minimatic Single-Barb Fittings are designed to be used with Clippard urethane hose to provide a flexible, easy alternative to ferrule and push-to-connect design fittings. ENP brass.

- Available with 1/16", 3/32" or 1/8" hose barb
- Available with #10-32 thread and 1/8" NPT
- Holds to the burst pressure of hose



### Minimatic® Push-Quick Fittings

Clippard Push-Quick Fittings provide a simple method of connecting pneumatic components to each other and system piping. Designed for use with both flexible hose and stiff tubing.

- Thread sizes #10-32 through 1/2" NPT
- Tubing sizes 1/8" OD through 1/2" OD

[www.clippard.com/fittings](http://www.clippard.com/fittings)



### Minimatic® J-Series Quick Connect Fittings

The J-Series quick connect series valves contain both a body and cap assembly which enables fast and easy connection, and tight shut-off when disconnected.

### Tube Compression Fittings

Joins standard size pipe to copper or nylon tubing. ENP brass.



### Miniature Hose & Tubing

Clippard offers an extensive variety of hose and tubing from copper and nylon tubing to flexible polyurethane, vinyl and Buna-N hose and tubing for the medical/analytical industries. 1/8", 1/4", 5/32", 6 mm, 8 mm, 3/8" and 1/2" OD.

### Maximatic® Filter-Regulator-Lubricators (FRL)

FRLs condition and prepare compressed air for use in fluid power systems. Pneumatic applications with properly conditioned air will operate longer, cost less and improve system efficiency. Five different FRL sizes are available from #10-32 to 1" NPT.

[www.clippard.com/maximatic](http://www.clippard.com/maximatic)



### Leak Testing

*The EV and ET valves are used for the protection of the differential pressure-sensors in leak test equipment. They are also used to pressurize and vent test chambers and cavities being tested for leaks. In portable gas mask leak tester devices, the EV valves pressurize the mask and hold that pressure for a given amount of time to ensure the mask is air tight. These devices are used by military troops out in the field so positive sealing and high reliability are key elements of these applications.*

## Integrated Value-Added Services

Clippard offers the following services:

- Pneumatic Assemblies
- Special Manifold Designs
- Manifold Assemblies
- Pneumatic Circuit Design
- Control Boxes
- Fitting & Tubing Harnesses
- Component Kitting
- Specialized Testing
- KanBan Services



### Advantages

- 100% tested sub-assemblies
- Less component stock/inventory
- Fewer vendors and purchase orders
- Requires less manufacturing time
- Increase production efficiency
- Specialized support
- Overall cost reduction
- Taking advantage of Clippard's expertise

[www.clippard.com/valueadded](http://www.clippard.com/valueadded)

### Plastic Subplate Features

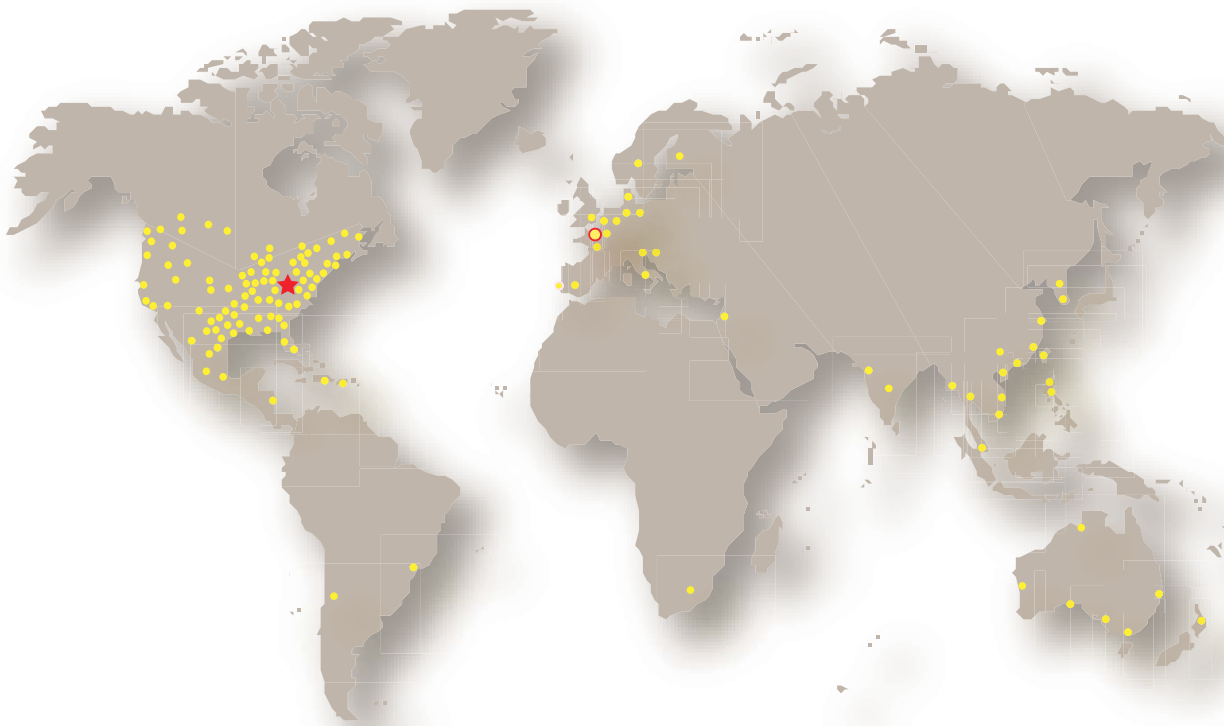
- Faster assembly time saves you money
- Greatly reduces the possibility of leakage
- Helps assure accuracy of connections
- Provides a more compact solution
- Aesthetically pleasing
- Inputs and outputs clearly marked
- Threaded inserts hold components securely
- Change valves quickly without affecting connections
- Less weight than metal manifolds
- Makes sophisticated circuitry manageable



### Analysis Equipment

*A manufacturer of point of care (doctor's office) immunoassay analyzers utilizes a custom Clippard acrylic subplate that provides a mounting for ES valves along with sensors and servos. This instrument enables doctors to obtain an instant analysis for TSH, Free T4, and PSA. The valves control actuators that punch reagent bags during the test. Cost, compact size, mounting ease and reliability are the main reasons Clippard products are used in this application.*

## Worldwide Distribution



- ★ *Clippard Sales & Manufacturing Facility, Cincinnati, Ohio*
- *Clippard European Sales Office, Belgium*
- *Clippard Distributor*

Clippard fluid power and control devices are distributed worldwide through a network of over 100 stocking distributors, with over 800 pneumatic specialists. Our distributors and/or technical support representatives will work with you to find superior business solutions to your critical application. We are committed to delivering an exceptional level of quality and service to create a competitive advantage for our customers. Please visit our web site to find a distributor in your region, detailed product information, helpful downloads, CAD files, conversion tables, product configurators and more.

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