CONTROL VALVES

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**PRESSURE ACTUATED SWITCHES**

Medium: Air

Inlet Pressure: 5 to 150 psig

Pilot Port: #10-32, 1/8" NPT

Mounting: External thread and nut for panel, bracket, or bulkhead mounting; 5/8-32 pressure actuated; #15/32-32 manually operated

Accuracy: Actuation pressures listed are nominal values only. For applications where a tight tolerance for actuation or deactuation is needed, please contact Clippard.

### Switch Current Rating:

**SAS**
- A: 5A @ 125/250 VAC
- 3A @ 30 VDC
- 1A @ 60 VDC
- X: no switch

**MAS**
- B: 3A @ 125/250 VAC
- 3A @ 30 VDC
- C: 10A @ 125/250 VAC
- 5A @ 50 VDC

### Switch Terminals:

**SAS**: 0: no switch
- 1: 110 series Q.C.

**MAS**: 0: no switch
- 2: 187 series Q.C.
- 3: screw terminals

*Actuation pressure is nominal only. For applications where accuracy is critical, please contact Clippard.*

### Inlet Port:
- Blank: #10-32 thd
- F: 1/8" NPT female
- P: 1/8" NPT male

### Design Series

- **SAS**: Sub-Miniature Air Switch
- **MAS**: Miniature Air Switch

### Nominal Actuation Pressure

- 06: 6 psig
- 20: 20 psig
- 40: 41 psig
- 65: 65 psig
- MN: Manual

### Pressure Actuated vs. Mechanically Actuated

Tools needed to distinguish between Pressure Actuated (PA) and Mechanically Actuated (MA) switches:
- 4-40 switch mounting screw
- 2-56 switch mounting screw
- 0.630 dia.
- 0.400 dia.
- 1.100 dia.

### Dimensions

- See side view for different models

---

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800-999-7378
**Single Pole Electrical Switch**

**Rating A.C.:** 120 volts - 15 amperes
240 volts - 15 amperes
480 volts - 15 amperes

**Rating D.C.:** 125 volts - 0.5 amperes
250 volts - 0.25 amperes

**Mounting:** #15/32-32 thread; nut and lockwashers furnished, also two 0.140” dia. mounting holes in body

**Approvals:** UL and CE

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-1</td>
<td>Single Pole, Double Throw Snap-Action Electrical Switch</td>
</tr>
<tr>
<td>15601</td>
<td>Terminal Cover</td>
</tr>
</tbody>
</table>

**Pneumatic Electric Switches**

**Electrical Rating:** 60 ma. AC resistive 40 ma. DC resistive @ 120 volts

**Switching Speed:** 125 Hz, Normally-Open

**Actuating Pressure:** 3” H2O 10% pressure vacuum, or DP

**Maximum Pressure:** 8 psig (continuous)

**Construction:** ABS plastic case gold plated contacts
natural rubber diaphragm

**Use:** For interfacing fluidic or other low pressure air signals with electronic circuitry dual inputs operates on pressure, vacuum, or differential pressure signals

If you need a product that fits your application perfectly, Clippard has the capability to design or modify one of its products to suit your exact needs. We understand that a standard catalog product may be close but not be exactly what you need. Let us know YOUR Need, and we will help to find YOUR Solution!

**Needle valves are common in controlling the flow of fluids and gases. This special needle valve uses a “D” stem for adapting to standard panel knobs. It also incorporates a special left-handed thread to provide a more intuitive clockwise movement to increase flow of the back for ease-of-assembly in a tight space. It also incorporates a special toggle to match the customers’ aesthetic requirements.**

A combination assembly using a toggle or push button operator and Clippard’s pressure-actuated electrical switches provides a simultaneous air and electrical output.

**Alternate materials, seals and/or lubrication a for specific applications are common (and welcomed) requests at Clippard. Stainless steel, aluminum, plastic or brass. All available, just ask!**

This air-piloted valve is designed for a water application where limited space is available.
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.

The non-relieving regulator does not automatically compensate for changes in downstream flow or pressure. There is no vent to atmosphere, as in a relieving type regulator, and the output pressure can increase due to a downstream event.

### Adjustable Pressure Regulators

**Medium:** Air  
**Materials:** Brass body, Nitrile seals, stainless steel stem and spring  
**Air Flow:** 3 scfm @ 50 psig; 5 scfm @ 100 psig  
**Input Pressure:** 300 psig  
**Mounting:** #15/32-32 thd. Nuts and lockwashers furnished  
**Adjustment:** By means of a knob with micro-adjustment (40 pitch thd.)

### Plunger-Type Pressure Regulators

**Plunger Travel:** 7/32”  
**Force For Full Stem Travel:** 25 lb. nominal  
**Operation:** As plunger is depressed pressure increases proportionally to the travel; when plunger is released the input is closed and the output pressure is exhausted to atmosphere

<table>
<thead>
<tr>
<th>Range (psig) *</th>
<th>#10-32</th>
<th>Knob</th>
<th>1/8” NPT Non-Relieving</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20</td>
<td>MAR-1-2</td>
<td>MAR-1K-2</td>
<td>MAR-1P-2 MAR-1NR-1</td>
</tr>
<tr>
<td>0-30</td>
<td>MAR-1-3</td>
<td>MAR-1K-3</td>
<td>MAR-1P-3 MAR-1NR-1</td>
</tr>
<tr>
<td>0-40</td>
<td>MAR-1-4</td>
<td>MAR-1K-4</td>
<td>MAR-1P-4 MAR-1NR-4</td>
</tr>
<tr>
<td>0-50</td>
<td>MAR-1-5</td>
<td>MAR-1K-5</td>
<td>MAR-1P-5 MAR-1NR-5</td>
</tr>
<tr>
<td>0-60</td>
<td>MAR-1-6</td>
<td>MAR-1K-6</td>
<td>MAR-1P-6 MAR-1NR-6</td>
</tr>
<tr>
<td>0-70</td>
<td>MAR-1-7</td>
<td>MAR-1K-7</td>
<td>MAR-1P-7 MAR-1NR-7</td>
</tr>
<tr>
<td>0-100</td>
<td>MAR-1-8</td>
<td>MAR-1K-8</td>
<td>MAR-1P-8 MAR-1NR-8</td>
</tr>
</tbody>
</table>

* Outlet pressure is based on 7/32” stem travel. If stem is depressed further, the outlet pressure will increase.

### MAR Series Regulators

**Special Configurations & Assemblies**

- Robust
- Compact
- Reliable
- Multiple Medias
- Manifold Mount
- Cartridge Style
- Preset to Pressure
- Pre-Assembled & Tested

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150  
800-999-7378
EXPANDED CHECK VALVES

Four varieties of check valves are offered by Clippard. Each permits flow in one direction only. All have bright-dipped brass bodies that provide in-line mounting, Nitrile seals and stainless steel springs as standard. The MCV-2 has #10-32 ports and a “duck-bill” seal. The MCV-1 series has #10-32 ports and a brass poppet. The MJCV-1 series has 1/8” NPT ports and a Zytel 80G33 poppet. The GCV has 1/4” and 3/8” NPT ports.

**Materials:** Brass body, Nitrile seals, stainless steel spring

**Medium:** Air or Hydraulic

**Input Pressure:** 300 psig max. (MJCV Series: 1,000 psig hydraulic max.)

**Pressure To Open:** Cracks at approx. 1/2 psig

**Part No.**
- MCV-1
  - Air Flow: 6.5 scfm @ 50 psig; 11.5 scfm @ 100 psig

**Part No.**
- MCV-1AA
  - Air Flow: 6.5 scfm @ 50 psig; 11.5 scfm @ 100 psig

**Part No.**
- MJCV-1
  - Air Flow: 20 scfm @ 50 psig; 36 scfm @ 100 psig

**Part No.**
- MJCV-1AA
  - Air Flow: 20 scfm @ 50 psig; 36 scfm @ 100 psig

**Part No.**
- GCV-4
  - Pressure To Crack: 1.5 psig
  - Air Flow: 39 scfm @ 50 psig; 70 scfm @ 100 psig

**Part No.**
- GCV-5
  - Pressure To Crack: 1.5 psig
  - Air Flow: 84 scfm @ 50 psig; 150 scfm @ 100 psig
PILOT-OPERATED CHECK VALVES

Pilot-Operated Check Valves work as standard check valves, but can be opened with an air pilot signal to permit free flow in the normally “checked” direction. The Clippard Pilot-Operated Check Valve provides the user with a reliable method to check flow in one direction, with the ability to remotely signal a free flow through the valve. Ideal for any circuit that requires this useful function—all in one valve that is easy to connect!

- High flow valve means low pressure drop
- Uses Clippard’s superior poppet design
- Variety of port configurations available
- “Auxiliary” port allows ease of plumbing
- Side port (port 2) rotates for ease of positioning

Medium: Air, Water or Oil
Pressure Range: Up to 300 psig (see chart below)
Temperature Range: 32 to 230°F
Materials: ENP brass, anodized aluminum, stainless steel, Nitrile seals

For specialty options such as various seal materials, manual override, or specific pilot to supply ratios, please consult factory.

Function/Porting Options

<table>
<thead>
<tr>
<th>Pilot-Operated Check Valve</th>
<th>High Flow 2-Way Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 3 (pilot)</td>
<td>Port 3 (pilot)</td>
</tr>
<tr>
<td>Port 2 (input)</td>
<td>Port 1 (supply)</td>
</tr>
<tr>
<td>Port 1 (cylinder port)</td>
<td>Port 2 (output)</td>
</tr>
</tbody>
</table>

Flow-to-Supply Pressure

Minimum Pilot-to-Supply Pressure

* Also available in corrosion-resistant materials. Add “CR-” to the beginning of the Part No.
NEEDLE VALVES

Adjustable control needle valves restrict flow in both directions. There are four models offered by Clippard, all with #10-32 ports, but with various needle configurations to provide coarse or fine flow adjustment. The diagram of needle shapes and the chart on this page show the difference between these models.

Medium: Air, Water or Oil

Materials: Brass body; stainless steel needle; Nitrile seal

Mounting: Direct, in-line or #15/32-32 thread nut and lockwashers furnished as illustrated

15° Needle Valves, #10-32

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNV-1</td>
<td>Needle Valve, #10-32, Screwdriver Slot</td>
</tr>
<tr>
<td>MNV-1K</td>
<td>Needle Valve, #10-32, Knurled Knob</td>
</tr>
</tbody>
</table>

Input Pressure: 2,000 psig max.
Air Flow: 3 scfm @ 50 psig; 6 scfm @ 100 psig

5° Needle Valves, #10-32

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNV-2</td>
<td>Needle Valve, #10-32, Screwdriver Slot</td>
</tr>
<tr>
<td>MNV-2K</td>
<td>Needle Valve, #10-32, Knurled Knob</td>
</tr>
</tbody>
</table>

Input Pressure: 300 psig max.
Air Flow: 1 scfm @ 50 psig; 2.5 scfm @ 100 psig

3° Needle Valves, #10-32

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNV-3</td>
<td>Needle Valve, #10-32, Screwdriver Slot</td>
</tr>
<tr>
<td>MNV-3K</td>
<td>Needle Valve, #10-32, Knurled Knob</td>
</tr>
</tbody>
</table>

Input Pressure: 2,000 psig max.
Air Flow: 2.5 scfm @ 50 psig; 5 scfm @ 100 psig

Metric line available. Visit www.clippard.com
### EXPANDED NEEDLE VALVES & MUFFLERS

#### 3° Needle Valves, 1/8” NPT

- **Part No.** MNV-3P
- **Description** Needle Valve, #10-32, Screwdriver Slot
- **Part No.** MNV-3KP
- **Description** Needle Valve, #10-32, Knurled Knob

**Input Pressure:** 2,000 psig max.
**Air Flow:** 2.5 scfm @ 50 psig; 5 scfm @ 100 psig

#### 3° Needle Valves, #10-32

- **Part No.** MNV-4
- **Side Port** #10-32
- **Description** Needle Valve, Screwdriver Slot
- **Part No.** MNV-4K
- **Side Port** #10-32
- **Description** Needle Valve, Knurled Knob

**Input Pressure:** 300 psig max.
**Air Flow:** 5 scfm @ 100 psig

#### Speed Control Mufflers

- **Part No.** SCM-P
- **Description** Muffler, 1/8-27 NPT
- **Part No.** SCM-Q
- **Description** Muffler, 1/4-18 NPT
- **Part No.** SCM-W
- **Description** Muffler, 3/8-18 NPT
- **Part No.** SCM-Z
- **Description** Muffler, 1/2-14 NPT

**Material:** Solid brass body; sintered bronze muffler (40 micron)

**Knurled knob length based on minimum thread engagement.**

#### 3° Cartridge Needle Valves

- **Part No.** MNV-4C
- **Description** 4-Way Needle Cartridge Valve, Screwdriver Slot
- **Part No.** MNV-4CK
- **Description** 4-Way Needle Cartridge Valve, Knurled Knob

**Input Pressure:** 150 psig max.
**Air Flow:** 5 scfm @ 100 psig

---

**Metric line available. Visit www.clippard.com**
Needle Valves are used to control the rate of flow in a pneumatic system by controlling flow in both directions. Material enters the input port, travels through an adjustable orifice and out the output port. Available with multiple port sizes, flow rates, mounting options and adjustment styles.

**Medium:** Air, Water or Oil  
**Input Pressure:** 300 psig max.  
**Air Flow:**  
- GNV-3: 11 scfm @ 100 psig  
- GNV-4: 45 scfm @ 100 psig  
- GNV-5: 60 scfm @ 100 psig  
**Materials:** Electroless nickel plated brass body and needle, anodized aluminum housing  
**Mounting:** Direct, in-line or cartridge style  
**Ports:** Rotating input allows 360° positioning  
**Adjustment:** Recessed slotted needle or knurled knob  
**Seals:** Nitrile standard. FKM optional.

- Provide bidirectional flow control  
- Rugged and compact design  
- Multiple mounting options  
- 360° rotating ports  
- Ideal for use with Push-Quick fittings

---

**Direct Mount Needle Valves, 1/8” NPT**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNV-3R</td>
<td>Needle Valve, 1/8” NPT, Screwdriver Slot</td>
</tr>
<tr>
<td>GNV-3K</td>
<td>Needle Valve, 1/8” NPT, Knurled Knob</td>
</tr>
</tbody>
</table>

**Direct Mount Needle Valves, 1/4” NPT**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNV-4R</td>
<td>Needle Valve, 1/4” NPT, Screwdriver Slot</td>
</tr>
<tr>
<td>GNV-4K</td>
<td>Needle Valve, 1/4” NPT, Knurled Knob</td>
</tr>
</tbody>
</table>

**Direct Mount Needle Valves, 3/8” NPT**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNV-5R</td>
<td>Needle Valve, 3/8” NPT, Screwdriver Slot</td>
</tr>
<tr>
<td>GNV-5K</td>
<td>Needle Valve, 3/8” NPT, Knurled Knob</td>
</tr>
</tbody>
</table>

**In-Line Mount Needle Valves, 1/8” NPT**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNV-3RI</td>
<td>Needle Valve, 1/8” NPT, Screwdriver Slot</td>
</tr>
<tr>
<td>GNV-3KI</td>
<td>Needle Valve, 1/8” NPT, Knurled Knob</td>
</tr>
</tbody>
</table>
NEW! **NEEDLE VALVES**

**In-Line Mount Needle Valves, 1/4” NPT**

- Part No. GNV-4RI: Needle Valve, 1/4” NPT, Screwdriver Slot
- Part No. GNV-4KI: Needle Valve, 1/4” NPT, Knurled Knob

**In-Line Mount Needle Valves, 3/8” NPT**

- Part No. GNV-5RI: Needle Valve, 3/8” NPT, Screwdriver Slot
- Part No. GNV-5KI: Needle Valve, 3/8” NPT, Knurled Knob

**Cartridge Needle Valves**

- Part No. GNV-3RC: Cartridge Needle Valve, Screwdriver Slot
- Part No. GNV-3KC: Cartridge Needle Valve, Knurled Knob

**Cartridge Needle Valves**

- Part No. GNV-4RC: Cartridge Needle Valve, Screwdriver Slot
- Part No. GNV-4KC: Cartridge Needle Valve, Knurled Knob

**Cartridge Needle Valves**

- Part No. GNV-5RC: Cartridge Needle Valve, Screwdriver Slot
- Part No. GNV-5KC: Cartridge Needle Valve, Knurled Knob

**Clippard Push-Quick Fittings** provide a simple method to connect pneumatic components to each other and system piping, and accept both flexible hose and rigid tubing. Both fittings and tubing are available in many styles, sizes and colors.

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800-999-7378
Clippard offers five models of adjustable flow controls with #10-32 through 3/8" NPT ports. They feature a combination needle and check valve that controls flow in one direction and allows free flow in the opposite direction.

They are an ideal valve for use with a cylinder, providing a slow extend stroke while allowing a fast retract stroke. The chart on this page illustrates the flow versus the number of needle adjustments turns for the MFC-2, MFC-3, BFC-3, JFC-2, JFC-3, JFC-4 and JFC-5.

Medium: Air, Water or Oil

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFC-2</td>
<td>Adjustable Flow Control Valve, #10-32</td>
</tr>
</tbody>
</table>
FLOW CONTROL VALVES

Input Pressure: 150 psig max.
Mounting: Directly into #10-32 port
Ports: Rotating input port allows 360˚ positioning #10-32 port
Flow Direction: Arrow on valve body shows direction of controlled flow
Adjustment: Screwdriver slot; slotted knurled knob with lock nut on
#5-80 (MFC) or #10-80 (JFC) threaded needle shaft for fine
adjustment; or recessed slotted needle

#10-32 Valves, Knurled Knob

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFC-3AK</td>
<td>Meter Out Control Valve, #10-32 Female Side Port</td>
</tr>
<tr>
<td>MFC-3AK1</td>
<td>Meter Out Control Valve, 1/16” Barb Side Port</td>
</tr>
<tr>
<td>MFC-3AK2</td>
<td>Meter Out Control Valve, 1/8” Barb Side Port</td>
</tr>
<tr>
<td>MFC-3BK</td>
<td>Meter In Control Valve, #10-32 Female Side Port</td>
</tr>
<tr>
<td>MFC-3BK1</td>
<td>Meter In Control Valve, 1/16” Barb Side Port</td>
</tr>
<tr>
<td>MFC-3BK2</td>
<td>Meter In Control Valve, 1/8” Barb Side Port</td>
</tr>
</tbody>
</table>

#10-32 Valves, Screwdriver Slot

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFC-3A</td>
<td>Meter Out Control Valve, #10-32 Female Side Port</td>
</tr>
<tr>
<td>MFC-3A1</td>
<td>Meter Out Control Valve, 1/16” Barb Side Port</td>
</tr>
<tr>
<td>MFC-3A2</td>
<td>Meter Out Control Valve, 1/8” Barb Side Port</td>
</tr>
<tr>
<td>MFC-3B</td>
<td>Meter In Control Valve, #10-32 Female Side Port</td>
</tr>
<tr>
<td>MFC-3B1</td>
<td>Meter In Control Valve, 1/16” Barb Side Port</td>
</tr>
<tr>
<td>MFC-3B2</td>
<td>Meter In Control Valve, 1/8” Barb Side Port</td>
</tr>
</tbody>
</table>

1/8” NPT Control Valves, Knurled Knob

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFC-2A</td>
<td>Meter Out Control Valve, 1/8” NPT</td>
</tr>
<tr>
<td>JFC-2B</td>
<td>Meter In Control Valve, 1/8” NPT</td>
</tr>
</tbody>
</table>

1/8” NPT Valves, Recessed Needle

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFC-3A</td>
<td>Meter Out Control Valve, 1/8” NPT</td>
</tr>
<tr>
<td>JFC-3B</td>
<td>Meter In Control Valve, 1/8” NPT</td>
</tr>
<tr>
<td>JFC-3AR</td>
<td>Meter Out Control Valve, 1/8” NPT (Universal)</td>
</tr>
<tr>
<td>JFC-3BR</td>
<td>Meter In Control Valve, 1/8” NPT (Universal)</td>
</tr>
<tr>
<td>JFC-3AP08</td>
<td>Meter Out Control Valve, 1/4” Push-Quick Fitting</td>
</tr>
<tr>
<td>JFC-3BP08</td>
<td>Meter In Control Valve, 1/4” Push-Quick Fitting</td>
</tr>
</tbody>
</table>

1/8” NPT Valves, Recessed Needle

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFC-3A</td>
<td>Meter Out Control Valve, 1/8” NPT</td>
</tr>
<tr>
<td>JFC-3B</td>
<td>Meter In Control Valve, 1/8” NPT</td>
</tr>
<tr>
<td>JFC-3AP08</td>
<td>Meter Out Control Valve, 1/4” Push-Quick Fitting</td>
</tr>
<tr>
<td>JFC-3BP08</td>
<td>Meter In Control Valve, 1/4” Push-Quick Fitting</td>
</tr>
</tbody>
</table>
These combination needle and check valve flow controls are typically used to control air flow from air cylinders, thereby controlling the speed at which the piston strokes, either while extending or retracting, depending on their location in the circuit.

J-Series Flow Control Valves allow free flow in one direction. In the opposite direction the flow is metered by the needle valve.

Models listed in the chart have either a 1/4” NPT (JFC-4) or 3/8” NPT (JFC-5) male threaded outlets, recessed screwdriver slot (R) or knurled knob (K) flow adjustment needles and female NPT or push-to-connect tubing (Push-Quick) inlets. The P08 models feature a 1/4” Push-Quick fitting, and the P12 versions have a 3/8” Push-Quick fitting.

| Medium: Air, Water or Oil  | Material: Electroless nickel plated brass needle and stem, anodized aluminum body, Nitrile seals  | Input Pressure: 150 psig max.  | Air Flow: JFC-4: 45 scfm @ 100 psig adjustable  | JFC-5: 60 scfm @ 100 psig adjustable  | Mounting: Directly into cylinder. Panel or in-line. |

<table>
<thead>
<tr>
<th>Part #</th>
<th>“D”</th>
<th>“W”</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFC-4K &amp; JFC-4R</td>
<td>0.710”</td>
<td>0.875”</td>
</tr>
<tr>
<td>JFC-4K-P08 &amp; JFC-4R-P08</td>
<td>0.562”</td>
<td>1.062”</td>
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<tr>
<td>JFC-4K-P12 &amp; JFC-4R-P12</td>
<td>0.710”</td>
<td>1.250”</td>
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<tr>
<td>JFC-5K &amp; JFC-5R</td>
<td>0.827”</td>
<td>1.125”</td>
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<tr>
<td>JFC-5K-P12 &amp; JFC-5R-P12</td>
<td>0.750”</td>
<td>1.375”</td>
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### 1/4” NPT Valves, Recessed Needle

- **Part No.** JFC-4R
- **Description** Meter Out Control Valve, 1/4” NPT
- **Part No.** JFC-4R-P08
- **Description** Meter Out Control Valve, 1/4” Push-Quick Fitting
- **Part No.** JFC-4R-P12
- **Description** Meter Out Control Valve, 3/8” Push-Quick Fitting

### 1/4” NPT Valves, Adjusting Knob

- **Part No.** JFC-4K
- **Description** Meter Out Control Valve, 1/4” NPT
- **Part No.** JFC-4K-P08
- **Description** Meter Out Control Valve, 1/4” Push-Quick Fitting
- **Part No.** JFC-4K-P12
- **Description** Meter Out Control Valve, 3/8” Push-Quick Fitting

### 3/8” NPT Valves, Adjusting Knob

- **Part No.** JFC-5K
- **Description** Meter Out Control Valve, 3/8” NPT
- **Part No.** JFC-5K-P12
- **Description** Meter Out Control Valve, 3/8” Push-Quick Fitting

### 3/8” NPT Valves, Recessed Needle

- **Part No.** JFC-5R
- **Description** Meter Out Control Valve, 3/8” NPT
- **Part No.** JFC-5R-P12
- **Description** Meter Out Control Valve, 3/8” Push-Quick Fitting
NEW! PQ Flow Controls

PQ-FV In-Line Flow Controls can be easily added to existing circuitry and are lightweight and compact in size. Since it is a tube-to-tube connection, in-line flow controls may be installed as a meter-in or meter-out device.

The PQ-C Elbow Controls are ideal for low cost and lightweight applications when mounting directly to an NPT port on a cylinder or valve is required.

In the meter-out versions, intake air flows freely through the flow control; exhaust air is metered out through an adjustment screw. With the meter-in series, air is metered in through an adjustment screw; exhaust air flows freely. Control is varied through a finely threaded adjustment screw. A locking nut is provided so it can be secured in its final setting.

- Small, compact size
- Design flexibility and fast response
- Complete rotation of the valve body around the bolt allows for optimum positioning of tubing
- Special adjustment needle design allows large adjustment ranges with high precision
- Ideal for use with polyurethane, nylon, polyethylene and polypropylene tubing (see www.clippard.com)

### Pressures

**Medium:** Air

**Pressure Range:** 0 to 150 psig

**Vacuum:** 0 to 29.5” Hg

**Ports:** #10-32, 1/8” NPT, 1/4” NPT, 3/8” NPT, 1/2” NPT

**Adjustment:** Knurled knob

**Material:** Nickel plated brass, plastic resin, stainless steel gripper ring, Nitrile seals

---

**Right Angle Meter-Out Controls**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PQ-CV04N</td>
<td>1/8”</td>
<td>#10-32</td>
<td>5/16”</td>
<td>1.230</td>
<td>0.990</td>
</tr>
<tr>
<td>PQ-CV055</td>
<td>5/32”</td>
<td>#10-32</td>
<td>5/16”</td>
<td>1.210</td>
<td>0.990</td>
</tr>
<tr>
<td>PQ-CV05P</td>
<td>5/32”</td>
<td>1/8” NPT</td>
<td>7/16”</td>
<td>1.570</td>
<td>1.130</td>
</tr>
<tr>
<td>PQ-CV08N</td>
<td>1/4”</td>
<td>#10-32</td>
<td>5/16”</td>
<td>1.240</td>
<td>1.090</td>
</tr>
<tr>
<td>PQ-CV08P</td>
<td>1/4”</td>
<td>1/8” NPT</td>
<td>7/16”</td>
<td>1.615</td>
<td>1.215</td>
</tr>
<tr>
<td>PQ-CV08Q</td>
<td>1/4”</td>
<td>1/4” NPT</td>
<td>9/16”</td>
<td>1.900</td>
<td>1.360</td>
</tr>
<tr>
<td>PQ-CV12Q</td>
<td>3/8”</td>
<td>1/4” NPT</td>
<td>9/16”</td>
<td>1.950</td>
<td>1.610</td>
</tr>
<tr>
<td>PQ-CV12W</td>
<td>3/8”</td>
<td>3/8” NPT</td>
<td>3/4”</td>
<td>2.395</td>
<td>1.690</td>
</tr>
<tr>
<td>PQ-CV16Q</td>
<td>1/2”</td>
<td>3/8” NPT</td>
<td>3/4”</td>
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<td>1.745</td>
</tr>
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</table>

**Right Angle Meter-In Controls**

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<td>#10-32</td>
<td>5/16”</td>
<td>1.230</td>
<td>0.990</td>
</tr>
<tr>
<td>PQ-CI055</td>
<td>5/32”</td>
<td>#10-32</td>
<td>5/16”</td>
<td>1.210</td>
<td>0.990</td>
</tr>
<tr>
<td>PQ-CI05P</td>
<td>5/32”</td>
<td>1/8” NPT</td>
<td>7/16”</td>
<td>1.570</td>
<td>1.130</td>
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<tr>
<td>PQ-CI08N</td>
<td>1/4”</td>
<td>#10-32</td>
<td>5/16”</td>
<td>1.240</td>
<td>1.090</td>
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<tr>
<td>PQ-CI08P</td>
<td>1/4”</td>
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<tr>
<td>PQ-CI08Q</td>
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<td>1/4” NPT</td>
<td>9/16”</td>
<td>1.900</td>
<td>1.360</td>
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<tr>
<td>PQ-CI12Q</td>
<td>3/8”</td>
<td>1/4” NPT</td>
<td>9/16”</td>
<td>1.950</td>
<td>1.610</td>
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<tr>
<td>PQ-CI12W</td>
<td>3/8”</td>
<td>3/8” NPT</td>
<td>3/4”</td>
<td>2.395</td>
<td>1.690</td>
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<tr>
<td>PQ-CI16W</td>
<td>1/2”</td>
<td>3/8” NPT</td>
<td>3/4”</td>
<td>2.270</td>
<td>1.745</td>
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</table>

**In-Line Controls**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Tubing Size</th>
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<th>“G”</th>
<th>“A”</th>
<th>“W”</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO-FV04</td>
<td>1/8”</td>
<td>0.125</td>
<td>0.550</td>
<td>1.087</td>
<td>1.570</td>
</tr>
<tr>
<td>PO-FV05</td>
<td>5/32”</td>
<td>0.125</td>
<td>0.550</td>
<td>1.250</td>
<td>1.570</td>
</tr>
<tr>
<td>PO-FV06M</td>
<td>6 mm</td>
<td>0.170</td>
<td>0.787</td>
<td>1.683</td>
<td>1.952</td>
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<tr>
<td>PO-FV08</td>
<td>1/4”</td>
<td>0.170</td>
<td>0.787</td>
<td>1.739</td>
<td>2.010</td>
</tr>
<tr>
<td>PO-FV08M</td>
<td>8 mm</td>
<td>0.170</td>
<td>0.860</td>
<td>1.744</td>
<td>2.173</td>
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<tr>
<td>PO-FV12</td>
<td>3/8”</td>
<td>0.170</td>
<td>1.023</td>
<td>2.105</td>
<td>2.520</td>
</tr>
<tr>
<td>PO-FV16</td>
<td>1/2”</td>
<td>0.170</td>
<td>1.260</td>
<td>2.156</td>
<td>2.881</td>
</tr>
</tbody>
</table>

Metric line available. Visit www.clippard.com
Clippard's block flow control and needle valves have a variety of features that offer extra versatility for unique applications. These precision made valves offer high performance, low cost, reliability and ease of installation. Each valve is independent of the other (except the BFC-2C), 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. The valve body is machined and anodized aluminum; the compound angle needle stems are machined from 303 stainless steel; the valve sleeve is electroless nickel plated brass; and the seals are Nitrile rubber. Block flow controls and needle valves are ideal for controlling double acting cylinders.

Precision flow controls and needle valves available in blocks for rigid mounting.

Specification same as MFC-3

Clippard’s block flow control and needle valves have a variety of features that offer extra versatility for unique applications. These precision made valves offer high performance, low cost, reliability and ease of installation. Each valve is independent of the other (except the BFC-2C), 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. The valve body is machined and anodized aluminum; the compound angle needle stems are machined from 303 stainless steel; the valve sleeve is electroless nickel plated brass; and the seals are Nitrile rubber. Block flow controls and needle valves are ideal for controlling double acting cylinders.

FC - Flow Control
NV - Needle Valve
NM - Needle Manifold

<table>
<thead>
<tr>
<th>Block Number of Stations</th>
<th>“X”</th>
<th>“L”</th>
<th>“M”</th>
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<tbody>
<tr>
<td>2</td>
<td>1.312”</td>
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<td>4</td>
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</tr>
<tr>
<td>6</td>
<td>3.312”</td>
<td>3.000”</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4.312”</td>
<td>4.000”</td>
<td></td>
</tr>
</tbody>
</table>
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 the hose barbs on the MSV models.

### Part No. MSV-1
- **Medium:** Air, Water or Oil
- **Input Pressure:** 250 psig max.
- **Air Flow:** 5.0 scfm @ 50 psig; 9.5 scfm @ 100 psig
- **Mounting:** Direct or in-line
- **Operation:** Flow from “A” to “C” or “B” to “C”
- **Pressure to Shift:** 1/2 psig approx.
- **Exhaust:** Through port where pressure was last applied
- **Note:** Shuttle valves should not be used as a pressure selector

### Part No. MSV-1M22
- **Part No. MSV-1M44
- **Part No. MSV-1F22
- **Part No. MSV-1F44
- **Part No. MSV-1222
- **Part No. MSV-1444

Metric line available. Visit www.clippard.com
**SHUTTLE VALVES**

**Poppet Type Shuttle Valves**

Brass body, Delrin Poppet, Nitrile seal

Medium: Air, Water or Oil

Input Pressure: 300 psig max.

Air Flow: 14 scfm @ 50 psig; 26 scfm @ 100 psig

Mounting: Direct or in-line

Operation: Flow from “A” to “C” or “B” to “C”

Pressure to Shift: 1/2 psig approx.

Note: Shuttle valves should not be used as a pressure selector

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MJSV-1</td>
<td>Poppet Shuttle Valve, 1/8” NPT</td>
</tr>
</tbody>
</table>

**J-Series Shuttle Valves**

Poppet type shuttle (double check) valve. Brass body, stainless steel shuttle, Nitrile seal

Medium: Air, Water or Oil

Input Pressure: 300 psig max.

Air Flow: 30 scfm @ 50 psig; 50 scfm @ 100 psig

Mounting: Direct or in-line

Pressure to Shift: 1 psig approx.

Note: Shuttle valves should not be used as a pressure selector

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSV-2PF</td>
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<tr>
<td>JSV-2PFF</td>
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<tr>
<td>JSV-2WYY</td>
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<tr>
<td>JSV-2YFF</td>
<td></td>
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<tr>
<td>JSV-2YWY</td>
<td></td>
</tr>
<tr>
<td>JSV-2YYY</td>
<td></td>
</tr>
</tbody>
</table>
Quick Exhaust Valve Application

In a typical application the exhaust valve is installed in the inlet of a spring return or double acting pneumatic cylinder.

Supply air from a control valve is directed into the inlet port of the exhaust valve. The Nitrile poppet seals the exhaust port and allows air to flow from the outlet port of the valve into the cylinder.

The pressurized air pushes against the piston and extends the rod, compressing the spring, until full rod extension is achieved.

When the control valve exhausts air from the exhaust valve inlet port, the Nitrile poppet shifts to seal the inlet port and open the exhaust port to the cylinder. The pressurized air is allowed to exhaust directly through the exhaust valve to atmosphere.

Normally the air must travel back through the long air line to the control valve to exhaust. By mounting the exhaust valve directly on the cylinder, the piston retracts quickly since the distance to atmosphere is very short and unrestricted.

Poppet Quick Exhaust Valve

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEV-2</td>
<td>Poppet Type Quick Exhaust Valve, #10-32</td>
</tr>
</tbody>
</table>

Medium: Air  
Material: Brass body, Nitrile poppet  
Working Range: 15 to 150 psig  
Air Flow: 5 scfm @ 50 psig; 9 scfm @ 100 psig (exhaust rate)  
Mounting: Direct to cylinder  
Pressure to Shift: @ 50 psig - opens after approx. 5 psig drop;  
@ 3.5 bar - opens after approx. 0.350 bar drop  
Note: Not for use with cylinders larger than 7/8" dia.; moderate strokes up to 10"

Packaging Solutions

A leader in miniature pneumatics, Clippard provides the packaging industry a variety of products and solutions. We understand the needs of this industry, and are prepared to serve you with our expanding product lines and expertise in applications.

- Conveying applications  
- Case erectors  
- Process solutions  
- Bottle/container filling  
- Palletizing  
- Controls for a variety of applications

Metric line available. Visit www.clippard.com
Clippard’s J-Series Exhaust Valve offers a variety of design features and provides fast response times and high flow with 1/8” and 1/4” NPT ports. This compact poppet type valve is constructed of brass and is 100% tested to assure the highest quality. The JEV’s primary function is to increase cylinder speed. However, it also enables the use of smaller directional valves, longer control lines and can be used as a shuttle valve. 32 versions available.

Features
- Enables use of smaller control valves
- 15 to 150 psig maximum
- Male outlet offers direct connection to cylinder
- 36 scfm @ 50 psig and 58 scfm @ 100 psig
- Low shift ratio
- 7 standard configurations
- Custom configurations also available
- Brass construction with molded Nitrile seal

RoHS
Miniature Pulse Valves

A Normally-Open 3-way valve that closes shortly after being pressurized and remains closed until supply pressure is exhausted and repressurized. Widely used in control circuits.

**Medium:** Air

**Input Pressure:** 40 to 150 psig max.

**Mounting:** 1/8" NPT thread; nut furnished

**Volume Chamber:** #10-32

**Operation:** Converts a continuous supply of inlet air into a pulse of approximately 100 milliseconds

**Response:** 300 cycles per minute; time delay may be increased by adding standard Clippard volume chambers not to exceed 3 cu. in.

**Construction:** Body - ENP brass, Seals - Nitrilerubber, Spring - stainless steel, Poppet - Delrin®

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In-Line Volume Chamber

Used for providing a time delay in pneumatic circuits

The time delay of the PV-1, PV-1P and R-711 may be increased by adding standard Clippard volume chambers. The charts show total TIME versus VOLUME for these combinations.

**Volume - CU. IN.**

<table>
<thead>
<tr>
<th>Volume Chamber</th>
<th>0.1</th>
<th>0.25</th>
<th>0.50</th>
<th>1.0</th>
<th>1.2</th>
<th>2.0</th>
<th>2.4</th>
<th>3.6</th>
<th>4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suffix</td>
<td>MAT-1</td>
<td>MAT-25</td>
<td>MAT-50</td>
<td>MAT-1.0</td>
<td>R-821</td>
<td>MAT-2.0</td>
<td>R-821 (2)</td>
<td>R-821 (3)</td>
<td>MAT-4.0</td>
</tr>
</tbody>
</table>

**Suffix**

- 0.1
- 0.25
- 0.5
- 1.0
- 1.2
- 2.0
- 2.4
- 3.6
- 4.0

**Bore**

- 3/8" 1.265" 0.437" 0.1
- 3/8" 2.640" 0.437" 0.25
- 9/16" 2.390" 0.625" 0.5
- 9/16" 4.390" 0.625" 1.0
- 15/16" 6.234" 1" 2.0

**Volume**

- 0
- 0.042
- 0.074
- 0.124
- 0.210
- 0.390
- 0.580
- 1.000
- 2.000
- 3.600
- 4.000

**Time in Seconds**

<table>
<thead>
<tr>
<th>Volume</th>
<th>PV-1</th>
<th>R-711</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.042</td>
<td>0.117</td>
<td></td>
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<tr>
<td>0.074</td>
<td>0.180</td>
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</tr>
<tr>
<td>0.124</td>
<td>0.245</td>
<td></td>
</tr>
<tr>
<td>0.210</td>
<td>0.350</td>
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</tr>
<tr>
<td>0.390</td>
<td>0.450</td>
<td></td>
</tr>
<tr>
<td>0.580</td>
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<td>2.000</td>
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<tr>
<td>3.600</td>
<td>1.900</td>
<td></td>
</tr>
<tr>
<td>4.000</td>
<td>1.500</td>
<td></td>
</tr>
</tbody>
</table>

R-821 volume charts are shown in the Modular Section of this catalog.

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In-Line Volume Chamber

Used for providing a time delay in pneumatic circuits

**Medium:** Air only

**Material:** Brass

**Input Pressure:** 150 psig

**Mounting:** Direct or in-line; Mounting clamp with MAT-20 and MAT-4.0

**Volume - CU. IN.**

<table>
<thead>
<tr>
<th>Volume Chamber</th>
<th>0.1</th>
<th>0.25</th>
<th>0.50</th>
<th>1.0</th>
<th>1.2</th>
<th>2.0</th>
<th>2.4</th>
<th>3.6</th>
<th>4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suffix</td>
<td>MAT-.1</td>
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<td>MAT-.50</td>
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<td>R-821</td>
<td>MAT-2.0</td>
<td>R-821 (2)</td>
<td>R-821 (3)</td>
<td>MAT-4.0</td>
</tr>
</tbody>
</table>

**Chart @ 100 psig inlet pressure**

**Part No.**

- PV-1
- PV-1P

**Description**

- Pulse Valve, #10-32
- Pulse Valve, 1/8" NPT

---

**Metric line available. Visit www.clippard.com**
When this Normally-Closed valve closes a spring biased internal piston draws back a small volume on outlet side (approx. 6-7" in 1/8" I.D. tube) thus preventing overflow or dribbles. Ideal for use in quenching or water spray applications.

| Medium: Water or Other Light Liquids |
| Input Pressure: 100 psig max. |
| Pilot Pressure: 25 psig min. |
| Flow: 74 cu. in. H₂O per min. @ 80 psig |
| Drawback: 0.07 cu. in. (1.2 ml) |
| Mounting: Mounts in-line |

Part No. Description
WDV-2 Poppet Valve with Air Pilot, #10-32
WDV-2P Poppet Valve with Air Pilot, 1/8" NPT

For use with bleed pressure piloted control circuits, coil spring stainless steel whisker is easily replaceable and can be formed to different shapes.

| Medium: Air |
| Input Pressure: 150 psig |
| Air Flow: 1.0 scfm @ 50 psig; 1.5 scfm @ 100 psig |
| Force For Full Stem Travel: 1/4 oz. approx. |
| Mounting: 5/16-24 male thread. Nut and lock washers furnished |
| Bleed: To atmosphere around whisker stem |

Whisker: Stainless steel, approx. 3" length. Replacement Part No. 12375

Part No. Description
MWV-1 Normally-Closed Whisker Valve, #10-32
MWV-1P Normally-Closed Whisker Valve, 1/8" NPT

Each choke is calibrated for precise flow.

| Medium: Air |
| Material: Brass |
| Working Range: 0 to 300 psig max. |

Part No. Description
MAC-A Air Choke, 0.0135" Hole, Yellow Disk
MAC-B Air Choke, 0.010" Hole, Green Disk
MAC-C Air Choke, 0.0075" Hole, Blue Disk
MAC-D Air Choke, 0.006" Hole, Red Disk

Materials: Brass body, Nitrile seals, stainless steel stem and spring

Temperature Range: 32 to 230°F

Options: Consult the factory concerning the price and availability of the following standard options:
ENP - Electroless Nickel Plating E - EPDM Seals
V - FKM Seals
**Multi-Pin Air Indicator**

Plunger type (when extended 7-pin color display signals “on”)

Medium: Air Only
Input Pressure: 150 psig max.
Minimum Actuation Pressure: 15 psig approx.
Response: Approx. 10 milliseconds @ 50 psig
Filtration: 40 micron recommended
Mounting: IND-3: Panel mount in hole. #15/32-32 nut and lockwasher provided; IND-3P: Direct mount into 1/8” NPT hole
Maximum Panel Thickness: 3/16”

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IND-3-(color)</td>
<td>Multi-Pin Air Indicator, #10-32</td>
</tr>
<tr>
<td>IND-3P-(color)</td>
<td>Multi-Pin Air Indicator, 1/8” NPT, GN-Green, WH-White, RD-Red, YL-Yellow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IND-1-WH</td>
<td>Single Pin Air Indicator</td>
</tr>
</tbody>
</table>

**Single Pin Air Indicator**

Plunger type (when extended white pin display signals “on”)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IND-1M-WH</td>
<td>Single Pin Air Indicator</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Part No.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>IND-3-(color)</td>
<td>Multi-Pin Air Indicator, #10-32</td>
</tr>
<tr>
<td>IND-3P-(color)</td>
<td>Multi-Pin Air Indicator, 1/8” NPT, GN-Green, WH-White, RD-Red, YL-Yellow</td>
</tr>
</tbody>
</table>

**Vacuum Gauge**

Gauge measures pneumatic vacuum pressure. Mounting bracket included.

Range: Scale reading from 0 to 30” Hg. and 0 to -1 bar
Ports: Connection located at rear is double threaded O.D. - male thread 1/8” NPT, I.D. - tapped for #10-32 fitting
Mounting: Stud mount using 1/8” NPT center stud or panel mount using the zinc plated steel bracket supplied.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-30</td>
<td>Vacuum Gauge</td>
</tr>
</tbody>
</table>

**Pressure Gauges**

Gauge measures pneumatic system pressure. Stud mounted.

Range: Scale reading from 0 to 100 psig and 0 to 6.9 bar
Ports: Connection located at rear is double threaded O.D. - male thread 1/8” NPT, I.D. - tapped for #10-32 fitting
Mounting: Direct with 1/8” NPT

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG-101-BK</td>
<td>Pressure Gauge, Black Case</td>
</tr>
<tr>
<td>PG-101-NP</td>
<td>Pressure Gauge, Nickel-Plated</td>
</tr>
</tbody>
</table>

Gauge measures pneumatic system pressure. Mounting bracket included.

Input Pressure: Scale reading from 0 to 100 psig and 0 to 6.9 bar
Ports: Connection located at rear is double threaded O.D. - male thread 1/8” NPT, I.D. - tapped for #10-32 fitting
Mounting: With zinc plated steel bracket supplied

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG-100</td>
<td>Pressure Gauge</td>
</tr>
</tbody>
</table>
6-Digit Pneumatic Totalizing Counter

The PT-1SM is a 6-digit pneumatic totalizing counter. A pneumatic signal or impulse adds the value of 1 to the display. When the indicator reaches its maximum value, the counter starts again at zero. The counter may be reset manually by depressing the reset push button, or by an air impulse. The counter is useful for event recording, piece or part counting, for indicating program steps, cycle counting, machine time logging, and many other purposes. The PT-1SM is designed for surface mounting.

Display: 6 figures, numerals 0.080” to 0.160”
Medium: Filtered compressed air containing no oil
Reset: Manual push button and pneumatic spring return
Input Pressure: 30 to 120 psig
Mounting: Surface mount

Pneumatic Counter Solutions

Pneumatic counters are used in a variety of pneumatic applications including filling machines, cut counting, stamping, multi-spindle operations and more. They count pulses generated by cylinders, push buttons, pedals, and other actuation devices.

Clippard’s 6-digit totalizing counter can be found in many places throughout their manufacturing operations.
Non-Contact Air Proximity Switch

Non-Contact Air Proximity Switch with no moving parts; will sense any flat or curved object which presents a sensing surface of 1/4" or more to the sensing nozzle.

Non-Contact Gap Sensor

Non-Contact Gap Sensor will sense any flat or round object with a 1/32" minimum radius. Produces a positive signal when no object is present and a negative signal when an object interrupts its sensing system.

Part No.         Description
1022              Non-Contact Air Limit Switch, #10-32

Part No.         Description
1030              Non-Contact Positive Pressure Sensor, #10-32
DIFFERENTIAL PRESSURE SENSORS

Normally-On Single Stage Pressure Repeater

Normally-On Single Stage Pressure Repeater for off-on control of an adjustable reference pressure when a sensed pressure moves above or below the reference pressure level.

Medium: Reference pressure - air
Sensed pressure - Air, gas, or liquid

Input Pressure: 1 to 150 psig max.

Air Flow: 0.029" orifice

Response Time: 5 milliseconds

Differential Sensitivity: 2%

Frequency Response: 60 Hz

Materials: Anodized aluminum body, Nitrile diaphragms

Part No. Description
1043 Single Stage Pressure Repeater

Part No. Description
1044 Two Stage Pressure Repeater

Normally-Off Two Stage Pressure Repeater

Normally Off Two Stage Pressure Repeater for off-on control of an adjustable reference pressure when a sensed pressure moves above or below the reference pressure level.

Medium: Reference pressure - air
Sensed pressure - Air, gas, or liquid

Input Pressure: 1 to 150 psig max.

Air Flow: 0.029" orifice

Response Time: 5 milliseconds

Differential Sensitivity: 2%

Frequency Response: 60 Hz

Materials: Anodized aluminum body, Nitrile diaphragms

Part No. Description
1043 Single Stage Pressure Repeater

Part No. Description
1044 Two Stage Pressure Repeater
3-Way Normally-Closed Amplifier Valves

3-Way Valve Normally-Closed Interface amplifies very low pressure air-jet sensing signals to working power levels

- **Medium:** Air
- **Material:** Anodized aluminum body, Nitrile diaphragms
- **Input Pressure:** 30 to 100 psig
- **Air Flow:** 22 scfm @ 100 psig
- **Pilot Pressure:** 4" H2O @ 100 psig
- **Maximum Allowable Pilot Pressure:** 5 psig
- **Response Time:** 10 milliseconds dead headed
- **Operating Speed:** 50 Hz
- **Bleed:** 0.1 scfm @ 100 psig

- **Ports:**
  - Load - 1/8" NPT female
  - Supply - 1/8" NPT female
  - Exhaust - 1/8" NPT female
  - Control - #10-32 female

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3-Way Bleed Pressure Piloted Limit Valves

3-Way Bleed Pressure Piloted Limit Valve; blocking of the sensing port causes rapid valve opening

- **Medium:** Air
- **Material:** Anodized aluminum body, Nitrile diaphragms
- **Input Pressure:** 30 to 100 psig max.
- **Air Flow:** 22 scfm @ 100 psig
- **Bleed:** 0.1 scfm @ 100 psig
- **Response Time:** 15 milliseconds
- **Ports:** 1/8" NPT

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**Rubber Nozzles**

#10-32 rubber nozzles for replacement 2011-1 limit valves. #10-32 thread, five to a package

---

**Part No.** | **Description**
---|---
2010 | Normally-Closed Interface, 1/8" NPT
2011-1 | Piloted Limit Valve, 1/8" NPT
2011-012 | Rubber Nozzles

**Note:** Supplied with threaded bulkhead mount and integral rubber nozzle for direct actuation by mechanical closure. By removing rubber nozzle and inserting a #10-32 fitting and length of hose, 2011-1 can be converted to a remote sensing valve.
SPECIAL PILOTED 3-WAY VALVES

3-Way N.O. or N.C. Air-Piloted Valves

Top View

Side View

Valve Closed

Valve Open

3-Way N.O. or N.C. Electronically Piloted Valves

3-Way Normally-Closed Electronic Valve with low-power DC solenoid can be directly converted to high pressure pneumatic power without electronic amplification.

Part No. | Description
---|---
2012 | Piloted Valve, 1/8” NPT
2012-VAC | Valve for Vacuum Operation (requires positive pressure pilot signal)
2012-G | Valve for Liquid Adhesives (silicone diaphragm and seals), 1/8” NPT

Flat Bracket

Flat mounting bracket available. See page 146.

Part No. | Description
---|---
2010-050 | Flat Bracket

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SHOP ONLINE at www.airlinehyd.com

800-999-7378
**SPECIAL PILOTEED 3-WAY VALVES**

### 3-Way Normally-Closed Pressure Piloted Valve

Designed to be piloted by a Clippard EV or ET manifold mount electronic valve. Output from the EV/ET actuates the valve to produce outputs up to 22 scfm at 100 psig. Combines low wattage, long life and cool running of the EV/ET valves with quick response and high flow of Clippard booster type valves.

The 2020 and 2021 are identical in all respects except one. The 2020 has an external #10-32 port for the pressure supply to the EV/ET electronic pilot valve. The 2021 has an internal pressure supply to the EV/ET.

![Top View](image1.png)  ![Side View](image2.png)  ![2020 shown with ET Pilot Valve and external pilot supply](image3.png)

### Pressure Piloted Snap Action Amplifying Valve

Provides a sharp, clean output signal, even with slow-changing pressure input signals; output is stabilized without chatter or oscillation.

![Top View](image4.png)  ![Side View](image5.png)  ![Bottom View](image6.png)

### Medium:
Air

### Input Pressure:
30 to 100 psig max.

### Air Flow:
22 scfm @ 100 psig

### Pilot Pressure:
60% of supply pressure, minimum

### Response Time:
Approx. 20 milliseconds

### Mounting:
Mounting holes provided

### Materials:
Anodized aluminum, stainless steel

#### Part No.  Description
| 2020 | Piloted Valve, Ext. Port |
| 2021 | Piloted Valve, Int. Port |

#### Pressure Piloted Snap Action Amplifying Valve

Provides a sharp, clean output signal, even with slow-changing pressure input signals; output is stabilized without chatter or oscillation.

![Top View](image7.png)  ![Side View](image8.png)  ![Bottom View](image9.png)

Medium: Air

Input Pressure: 3 to 100 psig max.

Minimum Pilot Pressure: 1.5” H2O psig

Maximum Pilot Pressure: 1 psig (28” H2O)*

Air Flow: 0.18 scfm @ 100 psig;

Bleed Orifice Diameter: 0.010”*

#### Part No.  Description
| 3200-A | Amplifying Valve, #10-32 |

#### Bracket for Action Relays
Mounting bracket for snap action relays available. See page 146.

#### Part No.  Description
| 2010-050 | Flat Bracket |

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Metric line available. Visit [www.clippard.com](http://www.clippard.com)

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SHOP ONLINE at [www.airlinehyd.com](http://www.airlinehyd.com)

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* RoHS