



# VALVE MOUNTING BRACKETS

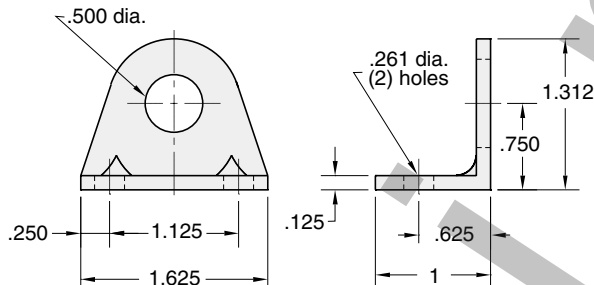
## 15018-2



90° angle, heavy duty **mounting bracket** for Clippard miniature valves

**Mounting:** 1/2" dia. hole for valve; two .261" dia. holes for attaching bracket

**Construction:** Stamped from 1/8" thick steel zinc plated



## MB-□

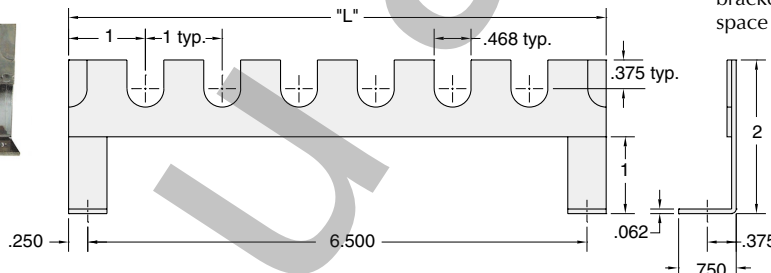


Quick mounting, slotted drop-in type metal **mounting bracket** for Clippard miniature valves, regulators, controls, cylinders and switches. Open tops make them ideal for quick, easy assembly of compact pneumatic logic control systems inside small spaces.

**Mounting:** 31/64" wide slots, with bottom radius. Mounted legs have .119" dia. mounting holes in feet

**Construction:** Machined from 16 gauge steel; spot welded legs; zinc plated.

**Piping Path:** 1" high open area below bracket horizontal member provides space for tubing or piping paths



| Part # | # of Slots | "L" |
|--------|------------|-----|
| MB-4   | 4          | 5"  |
| MB-6   | 6          | 7"  |
| MB-8   | 8          | 9"  |
| MB-10  | 10         | 11" |

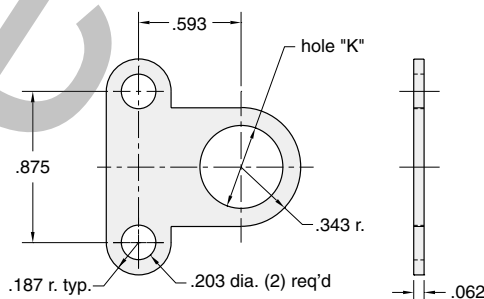
## 11917-1



Flat metal **bracket**, for mounting Clippard miniature valves

**Mounting:** two 31/64" dia. mounting hole for valve; two 13/64" dia. mounting holes for attaching bracket

**Construction:** Stamped from 1/16" thick steel, zinc plated



| Part #  | Hole "K" |
|---------|----------|
| 11917-1 | .484     |
| 11917-2 | .328     |

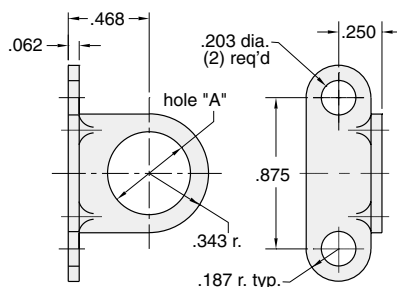
## 11918-1



90° angle, **footed metal mounting bracket** for Clippard miniature valves

**Mounting:** 31/64" dia. mounting hole for valve; two 13/64" dia. mounting holes for attaching bracket

**Construction:** Stamped from 1/16" thick steel, zinc plated



| Part #  | Hole "A" |
|---------|----------|
| 11918-1 | .484     |
| 11918-2 | .328     |

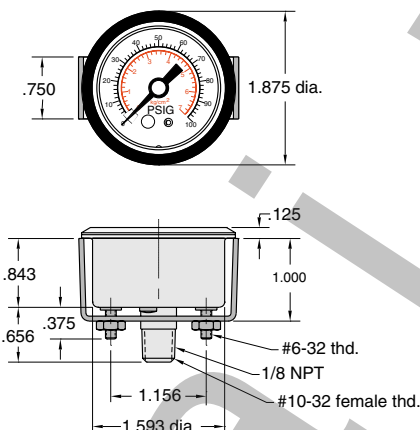
## GAUGES



## PG-100



Gauge measures pneumatic system pressure



**Input Pressure:** Scale reading from 0 to 100 psig and 0 to 7 Kg/cm<sup>2</sup>

**Construction:** Black case. Plastic face. Dial shows two ranges; PSIG in black. Kg/cm<sup>2</sup> in red. Built-in pressure snubber.

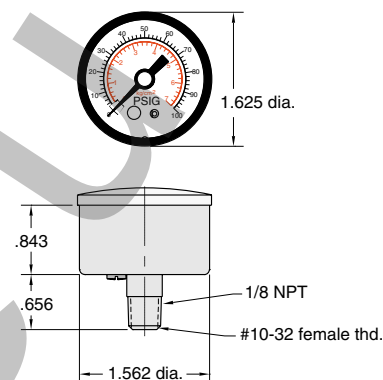
**Ports:** Connection located at rear is double threaded OD - male thread 1/8 NPT ID - tapped for 10-32 fitting

**Mounting:** With zinc plated steel bracket supplied

## PG-101



Gauge measures pneumatic system pressure



**Range:** Scale reading from 0 to 100 psig and 0 to 7 Kg/cm<sup>2</sup>

**Construction:** Stainless steel case. Plastic face. Dial shows two ranges; PSIG in black. Kg/cm<sup>2</sup> in red. Built-in pressure snubber.

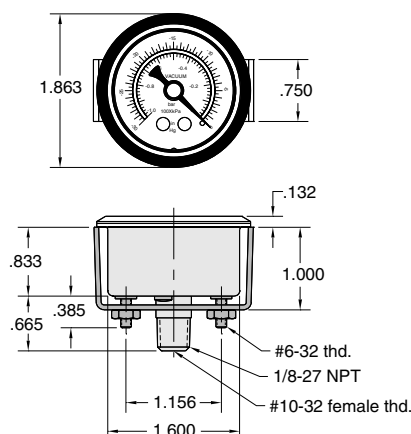
**Ports:** Connection located at rear is double threaded OD - male thread 1/8 NPT ID - tapped for 10-32 fitting

**Mounting:** Direct with 1/8 NPT

## VG-30



Gauge measures pneumatic vacuum pressure



**Range:** Scale reading from 0 to 30 in.Hg. and 0 to -1 bar

**Construction:** Black case. Plastic face. Dial shows two ranges; Hg in black. bars in red. Built-in pressure snubber.

**Ports:** Connection located at rear is double threaded OD - male thread 1/8 NPT ID - tapped for 10-32 fitting

**Mounting:** Stud mount using 1/8 NPT center stud or panel mount using the zinc plated steel bracket supplied.



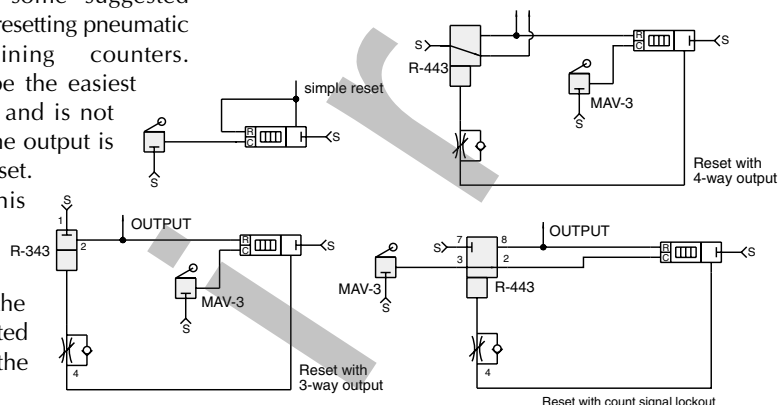
# PNEUMATIC COUNTERS

## PNEUMATIC COUNTERS

While the simple reset shown in Figure 1 appears to be the easiest means of resetting a counter, it has serious drawbacks and is not recommended. As soon as the counter begins to reset, the output is cut off and the counter may or may not be completely reset. If an output is taken from the reset loop (Figure 1), this further jeopardizes the completion of the reset conditions or, in fact, any reset at all.

The following circuits are suggested as means to reset the Clippard PC-3PM. All air logic circuits should be tested under actual conditions to determine their suitability for the intended application.

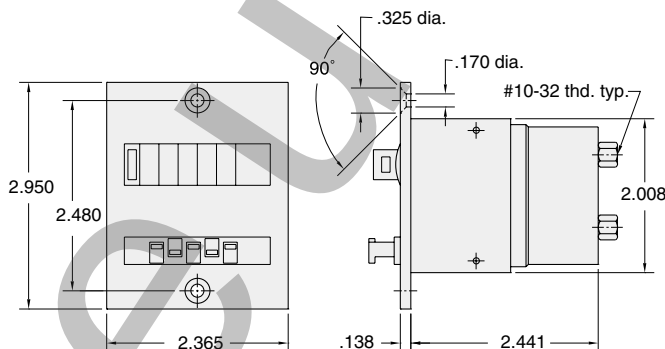
Here are some suggested means for resetting pneumatic predetermining counters.



## PC-3PM

This unit is a highly versatile **Pneumatic Predetermining Counter**. It counts down from a preselected number and gives a pneumatic signal output when zero is reached. The output can then be used to actuate or initiate machine functions. The PC-3PM can be used in combination with pneumatic logic controls, limit switches, proximity switches, and similar controls.

The counter is preset by depressing the reset button, and at the same time entering the desired preset figure by depressing the preset keys. It can be used to count products being packaged, count machine operations and cause a change in operation after the preset value has been reached.



**Type:** Predetermining counter

**Display:** 5 figures, numerals .100" to .160"

**Medium:** filtered compressed air containing no oil

**Connections:** Z (1) Counter impulse input  
Y (2) Reset impulse  
P (3) Air input  
A (4) Air output signal

**Reset:** Manual push button and pneumatic spring return

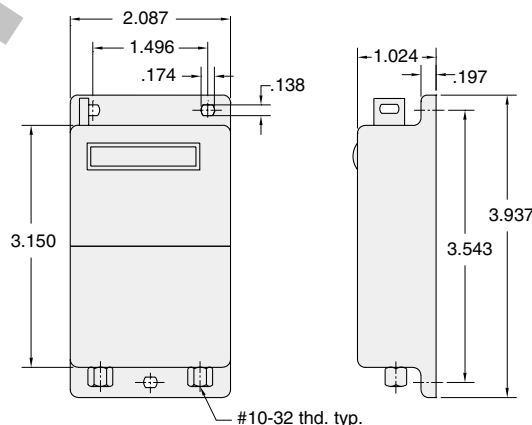
**Temperature Range:** 30° F to 140° F

**Input Pressure:** 30-120 psig

**Mounting:** panel mount

## PT-1SM

This model 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 for many other purposes. The PT-1SM is designed for surface mounting.



**Type:** Totalizing counter

**Display:** 6 figures, numerals .080" to .160"

**Medium:** filtered compressed air containing no oil

**Reset:** Manual push button and pneumatic spring return

**Temperature Range:** 30° F to 140° F

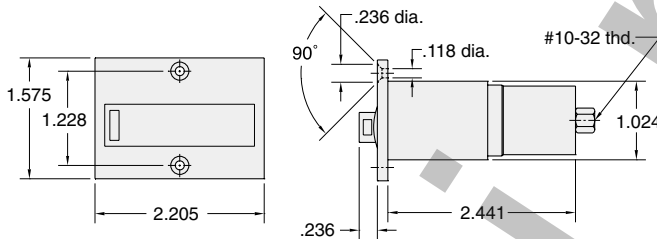
**Input Pressure:** 30-120 psig

**Mounting:** surface mount

# PALM BUTTONS



## PT-2PM



This unit is a **6-digit pneumatic totalizing counter**, designed for panel mounting. Its operation is identical to that of the PT-1SM, but in a different physical arrangement. Both units may be reset manually or by a pneumatic impulse. Operating pressure range is extremely wide (30 to 120 psig).

**Type:** Totalizing counter

**Display:** 6 figures, numerals .080" to .160"

**Medium:** filtered compressed air containing no oil

**Reset:** Manual push button and pneumatic spring return

**Temperature Range:** 30° F to 140° F

**Input Pressure:** 30-120 psig

**Mounting:** panel mount

## PB-1-□



**3-way poppet (MAV-3C) normally closed - bubble tight cartridge valve**  
(- replaceable)

**Medium:** air

**Stem Travel:** 1/8"

**Input Pressure:** 100 psig max.

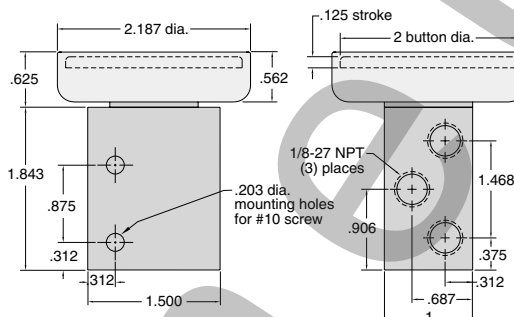
**Air Flow:** 3.5 SCFM @150 psig  
6.0 SCFM @100 psig

**Bleed:** 0.1 SCFM @ 100 psig

**Force to Actuate:** 1.75 lb. manual

**Ports:** 1/8 NPT - exhaust may be muffled or piped away but NOT restricted

**Mounting:** Mounting holes provided; optional Bracket Kit #12959 provides additional mounting versatility; valve available with anodized color buttons



**PB-1-RD** Red **PB-1-GN** Green **PB-1-BK** Black

## PB-2-□



**3-way low force poppet valve; normally closed; depressing button blocks the sensing port causing rapid valve opening**

**Medium:** Air

**Input Pressure:** 100 psig max.

**Air Flow:** 22 SCFM - @100 psig

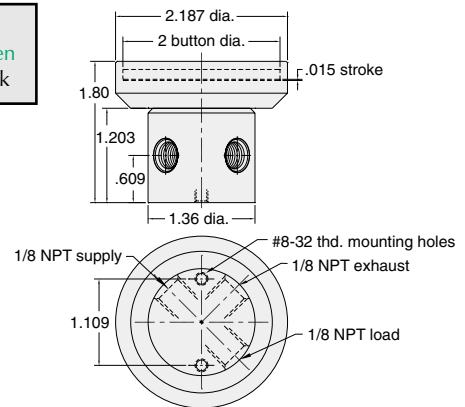
**Bleed:** 0.8 SCFM @ 100 psig

**Force to Actuate:** 1 oz. manual

**Ports:** 1/8 NPT

**Mounting:** Mounting holes provided; optional Bracket Kit #2010-50 provides additional mounting versatility; valve available with anodized color buttons

**PB-2-RD** Red  
**PB-2-GN** Green  
**PB-2-BK** Black

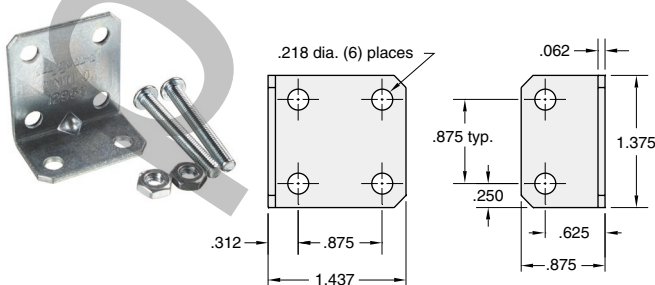


## 12959

**90° angle, heavy duty versatile mounting bracket for Clippard palm button valves**

**Mounting:** Six 7/32" dia. holes on 1/8" centers for attaching valves to bracket

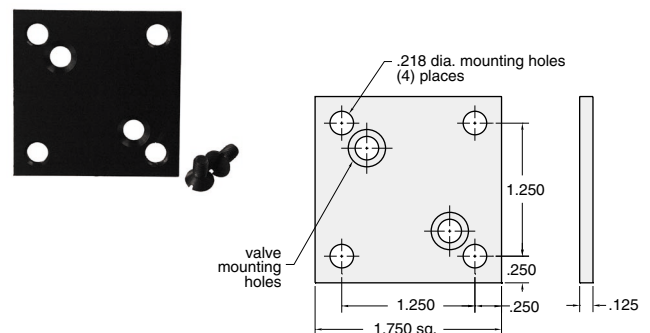
**Construction:** Stamped from 1/8" thick steel, zinc plated



## 2010-050

**Bracket to mount 2010, 2011-1, 2012 and 2013 valves.**

**Construction:** Black oxide finish, two mounting screws furnished







## TWO HAND NO TIE DOWN APPLICATION

### Typical Application

#### CM-023 Two Hand No Tie Down

Clippard's THNTD system has the capability of being interfaced with other subplates and valves to form a system for special manufacturing needs. A typical example of this would include the CM-034 subplate and modular valves. The CM-034 when used with the CM-023 subplate creates a back pressure clamp operation. This system is used for the operation of a clamp or collet system where two hand no tie down input is required to be held continuously until the clamp is fully engaged. The THNTD circuit is then reengaged to release the clamp mechanism.



The ongoing emphasis on employee safety and government regulations has created a tremendous need for two hand no tie down (THNTD) controls. Several types of controls have been introduced but most have been found to be somewhat restrictive or overly expensive. Many are too bulky or cumbersome which limits their effectiveness.

Clippard's THNTD control package offers ease of installation and maintenance in a compact design. This design, along with Clippard valves and the ability to interface the CM-023 with other packages, offers quality and flexibility in design at a moderate price.

Due to the variety of installations required for Clippard CM-023 THNTD circuits, parts are offered on a component basis only.

**WARNING: This device provides a THNTD function with an air output only.  
All other required safety devices must be used with it.**

## VALVE SPECIFICATIONS



| Model         | Page | Function               | Type                              | Medium* | Maximum Recommended Pressure psig | Flow - SCFM<br>@ 50 psig @ 100 psig |      | Nominal Force Full Stem Tr. | Port    |
|---------------|------|------------------------|-----------------------------------|---------|-----------------------------------|-------------------------------------|------|-----------------------------|---------|
| FBV-3D        | 131  | 3-way                  | toggle, fill and bleed            | A       | 120 max                           | 3.0                                 | 5.0  | 8 oz.                       | 10-32   |
| FBV-3DP       | 131  | 3-way                  | toggle, fill and bleed            | A       | 120 max                           | 3.0                                 | 5.0  | 8 oz.                       | 1/8 NPT |
| FBV-3M        | 131  | 3-way                  | toggle, fill and bleed            | A       | 120 max                           | 3.0                                 | 5.0  | 8 oz.                       | 10-32   |
| FBV-3MP       | 131  | 3-way                  | toggle, fill and bleed            | A       | 120 max                           | 3.0                                 | 5.0  | 8 oz.                       | 1/8 NPT |
| FBV-3DM       | 131  | 3-way                  | toggle, fill and bleed            | A       | 120 max                           | 3.0                                 | 5.0  | 8 oz.                       | 10-32   |
| FBV-3DMP      | 131  | 3-way                  | toggle, fill and bleed            | A       | 120 max                           | 3.0                                 | 5.0  | 8 oz.                       | 1/8 NPT |
| FTV-3         | 127  | 3-way                  | spool, 2 position toggle          | AOW     | 150 max                           | 6                                   | 10   | -                           | 10-32   |
| FTV-3P        | 127  | 3-way                  | spool, 2 position toggle          | AOW     | 150 max                           | 6.5                                 | 10.5 | -                           | 1/8 NPT |
| FV-3          | 126  | 3-way                  | spool                             | AOW     | 150 max                           | 6                                   | 10   | 4.5 lbs.                    | 10-32   |
| FV-3D         | 126  | 3-way                  | spool, 2 position, double plunger | AOW     | 150 max                           | 6                                   | 10   | 1.5 lbs.                    | 10-32   |
| FV-3DP        | 126  | 3-way                  | spool, 2 position, double plunger | AOW     | 150 max                           | 6.5                                 | 10.5 | 1.5 lbs.                    | 1/8 NPT |
| FV-3P         | 126  | 3-way                  | spool                             | AOW     | 150 max                           | 6.5                                 | 10.5 | 4.5 lbs.                    | 1/8 NPT |
| FV-4          | 128  | 4-way                  | spool                             | A       | 150 max                           | 6                                   | 10   | 4.5 lbs.                    | 10-32   |
| FV-4D         | 128  | 4-way                  | spool, 2 position, double plunger | A       | 150 max                           | 6                                   | 10   | 1.5 lbs.                    | 10-32   |
| FV-4DP        | 128  | 4-way                  | spool, 2 position, double plunger | A       | 150 max                           | 6.5                                 | 10.5 | 1.5 lbs.                    | 1/8 NPT |
| FV-4P         | 128  | 4-way                  | spool                             | A       | 150 max                           | 6.5                                 | 10.5 | 4.5 lbs.                    | 1/8 NPT |
| FV-5          | 129  | 4-way                  | spool                             | AOW     | 150 max                           | 6                                   | 10   | 4.5 lbs.                    | 10-32   |
| FV-5D         | 129  | 4-way                  | spool, 2 position, double plunger | AOW     | 150 max                           | 6                                   | 10   | 1/5 lbs.                    | 10-32   |
| FV-5DP        | 129  | 4-way                  | spool, 2 position, double plunger | AOW     | 150 max                           | 6.5                                 | 10.5 | 1.5 lbs.                    | 1/8 NPT |
| FV-5P         | 129  | 4-way                  | spool                             | AOW     | 150 max                           | 6.5                                 | 10.5 | 4.5 lbs.                    | 1/8 NPT |
| FBV-3D        | 131  | 3-way                  |                                   |         |                                   |                                     |      |                             |         |
| JFC-2A, 3B    | 156  | adj. flow control      | free air flow: female to male     | AOW     | 150 max                           | adjustable: 5 scfm                  |      | -                           | 1/8 NPT |
| JFC-3A, 3B    | 156  | adj. flow control      | free air flow: male to female     | AOW     | 150 max                           | adjustable: 5 scfm                  |      | -                           | 1/8 NPT |
| JFC-3AR, 3BR  | 156  | adj. flow control      | combination needle & check valve  | AOW     | 150 max                           | adjustable: 5 scfm                  |      | -                           | 1/8 NPT |
| JSLV-2 series | 149  | 2-way                  | sleeve                            | AOW     | 150 max                           | 23.0                                | 50.0 | 8 lbs.                      | 1/4 NPT |
| JSLV-3 series | 149  | 3-way                  | sleeve                            | A       | 150 max                           | 23.0                                | 50.0 | 8 lbs.                      | 1/4 NPT |
| JSV-2 series  | 163  | shuttle (double check) | ball type shuttle                 | AOW     | 300 max                           | 30.0                                | 50.0 | -                           | 1/4 NPT |
| LVA-2         | 170  | 2-way                  | normally CLOSED heavy duty limit  | A       | 300 max                           | 10.0                                | 19.0 | 3 in/lbs.                   | 1/8 NPT |
| LVA-3         | 170  | 3-way                  | normally CLOSED heavy duty limit  | A       | 300 max                           | 10.0                                | 19.0 | 3 in/lbs.                   | 1/8 NPT |
| LVAO-2        | 170  | 2-way                  | normally OPEN heavy duty limit    | A       | 300 max                           | 10.0                                | 19.0 | 3 in/lbs.                   | 1/8 NPT |
| LVAO-3        | 170  | 3-way                  | normally OPEN heavy duty limit    | A       | 300 max                           | 10.0                                | 19.0 | 3 in/lbs.                   | 1/8 NPT |
| MAR-1*        | 150  | air regulator          | piston                            | A       | 150 max                           | 3.0                                 | 5.0  | -                           | 10-32   |
| MAR-1C        | 151  | n.c. pressure control  | piston                            | A       | 150 max                           | 3.0                                 | 5.0  | -                           | 10-32   |
| MAR-1CP       | 151  | n.c. pressure control  | piston                            | A       | 150 max                           | 3.0                                 | 5.0  | -                           | #       |
| MAR-1NR**     | 150  | air regulator          | piston                            | A       | 150 max                           | 3.0                                 | 5.0  | -                           | 10-32   |
| MAR-1P*       | 150  | air regulator          | piston                            | A       | 150 max                           | 3.0                                 | 5.0  | -                           | #       |
| MAR-1PNR*     | 150  | air regulator          | piston                            | A       | 150 max                           | 3.0                                 | 5.0  | -                           | #       |
| MAV-2 / -2R   | 106  | 2-way                  | normally CLOSED poppet            | AOW     | 300 max                           | 4.0                                 | 6.8  | 24 oz.                      | 10-32   |
| MAV-2C        | 106  | 2-way                  | normally CLOSED poppet cartridge  | AOW     | 300 max                           | 3.0                                 | 6.0  | 24 oz.                      | *       |
| MAV-2P        | 106  | 2-way                  | normally CLOSED poppet            | AOW     | 300 max                           | 4.0                                 | 6.8  | 24 oz.                      | #       |
| MAV-3 / -3R   | 114  | 3-way                  | normally CLOSED poppet            | A       | 300 max                           | 4.0                                 | 6.8  | 24 oz.                      | 10-32   |
| MAV-3C        | 114  | 3-way                  | normally CLOSED poppet cartridge  | A       | 300 max                           | 3.5                                 | 6.0  | 24 oz.                      | *       |

\*A = Air    O = Oil    W = Water



# VALVE SPECIFICATIONS

| Model         | Page    | Function               | Type                               | Medium* | Maximum Recommended Pressure psig | Flow - SCFM<br>@ 50 psig @ 100 psig |      | Nominal Force Full Stem Tr. | Port    |
|---------------|---------|------------------------|------------------------------------|---------|-----------------------------------|-------------------------------------|------|-----------------------------|---------|
| MAV-3P        | 114     | 3-way                  | normally CLOSED poppet             | A       | 300 max                           | 4.0                                 | 6.8  | 24 oz.                      | #       |
| MAV-4         | 122     | 4-way                  | spool                              | A       | 150 max                           | 5.0                                 | 8.5  | 38 oz.                      | 10-32   |
| MAV-4D        | 122     | 4-way                  | spool double stem                  | A       | 150 max                           | 5.0                                 | 8.5  | 12 oz.                      | 10-32   |
| MAVO-2        | 107     | 2-way                  | normally OPEN spool                | AOW     | 150 max                           | 6.0                                 | 10.0 | 32 oz.                      | 10-32   |
| MAVO-2C       | 107     | 2-way                  | normally OPEN spool cartridge      | AOW     | 150 max                           | 6.0                                 | 10.0 | 32 oz.                      | *       |
| MAVO-2P/-3    | 107/115 | 2-way / 3-way          | normally OPEN spool                | A       | 150 max                           | 6.0                                 | 10.0 | 32 oz.                      | 10-32   |
| MAVO-3        | 115     | 3-way                  | normally OPEN spool                | A       | 150 max                           | 6.0                                 | 10.0 | 32 oz.                      | 10-32   |
| MAVO-3C       | 115     | 3-way                  | normally OPEN spool cartridge      | A       | 150 max                           | 6.0                                 | 10.0 | 32 oz.                      | *       |
| MCV-1         | 152     | check valve            | poppet                             | AOW     | 300 max                           | 6.5                                 | 11.5 |                             | 10-32   |
| MCV-2         | 151     | check valve            | "duckbill"                         | AOW     | 0-50/100 psig                     | 1.2                                 | -    |                             | 10-32   |
| MEV-2         | 164     | quick exhaust valve    | poppet                             | A       | 5-150                             | 4.8                                 | 8.8  |                             | 10-32   |
| MFC-2         | 154     | flow control valve     | combination needle & check valve   | AOW     | 300 max                           | 4.0                                 | 7.0  |                             | 10-32   |
| MFC-3 series  | 155     | flow control valve     | combination needle & check valve   | AOW     | 300 max                           | @100 psig 0-5 scfm                  |      |                             |         |
| MJCV-1        | 153     | check valve            | poppet                             | AOW     |                                   | 10.0                                | 17.0 |                             | 1/8 NPT |
| MJSV-1        | 163     | shuttle (double check) | poppet                             | AOW     |                                   | 14.0                                | 26.0 |                             | 1/8 NPT |
| MJTV-3        | 118     | 3-way                  | poppet 2 position toggle           | AOW     | 300 max                           | 14.0                                | 25.0 | 16 oz.                      | 1/8 NPT |
| MJTV-4        | 123     | 4-way                  | spool, 2 position toggle           | A       | 150 max                           | 6.5                                 | 10.5 | 16 oz.                      | 1/8 NPT |
| MJTV-5        | 124     | 4-way                  | spool, 2 position toggle           | AOW     | 150 max                           | 6.5                                 | 10.5 | 16 oz.                      | 1/8 NPT |
| MJV-2         | 108     | 2-way                  | normally CLOSED poppet             | AOW     | 300 max                           | 14.0                                | 25.0 | 38 oz.                      | 1/8 NPT |
| MJV-2C        | 108     | 2-way                  | normally CLOSED poppet cartridge   | AOW     | 300 max                           | 14.0                                | 25.0 | 38 oz.                      | **      |
| MJV-3         | 116     | 3-way                  | normally CLOSED poppet             | A       | 300 max                           | 14.0                                | 25.0 | 38 oz.                      | 1/8 NPT |
| MJV-3C        | 116     | 3-way                  | normally CLOSED poppet cartridge   | A       | 300 max                           | 14.0                                | 25.0 | 38 oz.                      | **      |
| MJV-4         | 122     | 4-way                  | spool                              | A       | 150 max                           | 8.0                                 | 14.0 | 38 oz.                      | 1/8 NPT |
| MJV-4D        | 122     | 4-way                  | spool double stem                  | A       | 150 max                           | 8.0                                 | 14.0 | 12 oz.                      | 1/8 NPT |
| MJVO-2        | 108     | 2-way                  | normally OPEN spool                | A       | 300 max                           | 14.0                                | 25.0 | 36 oz.                      | 1/8 NPT |
| MJVO-2C       | 108     | 2-way                  | normally OPEN spool cartridge      | A       | 300 max                           | 14.0                                | 25.0 | 38 oz.                      | **      |
| MJVO-3        | 116     | 3-way                  | normally OPEN spool                | A       | 300 max                           | 14.0                                | 25.0 | 38 oz.                      | 1/8 NPT |
| MJVO-3C       | 116     | 3-way                  | normally OPEN spool cartridge      | A       | 300 max                           | 14.0                                | 25.0 | 38 oz.                      | **      |
| MLV-3         | 121     | 3-way                  | normally CLOSED 3-way poppet       | A       | 150 max                           | 4.0                                 | 7.0  | 48 oz.                      | 10-32   |
| MNV-1 / -1K   | 158     | needle valve           | needle                             | AOW     | 2000 max                          | 3.3                                 | 6.0  | -                           | 10-32   |
| MNV-1P / -1KP | 159     | needle valve           | needle                             | AOW     | 2000 max                          | 3.3                                 | 6.0  | -                           | #       |
| MNV-2 / -2K   | 159     | needle valve           | adjustable needle                  | AOW     | 300 max                           | 1.0                                 | 2.5  | -                           | 10-32   |
| MNV-3P / 3KP  | 160     | needle valve           | adjustable needle                  | AOW     | 2000 max                          | 2.5                                 | 5.0  | -                           | 10-32   |
| MNV-3 / 3K    | 160     | needle valve           | adjustable needle                  | AOW     | 2000 max                          | 2.5                                 | 5.0  | -                           | 10-32   |
| MNV-4 series  | 161     | needle valve           | adjustable                         | AOW     | 300 max                           | @100 psig 0-5 scfm                  |      | -                           |         |
| MPS-2         | 166     | pilot sensor           | poppet                             | A       | 300 max                           | 2.0                                 | 3.5  | 7 oz.                       | 10-32   |
| MPS-2P        | 166     | pilot sensor           | poppet                             | A       | 300 max                           | 2.0                                 | 3.5  | 7 oz.                       | 1/8 NPT |
| MSV-1         | 162     | shuttle (double check) | poppet                             | AOW     | 250 max                           | 5.0                                 | 9.5  |                             | 10-32   |
| MTV-2         | 110     | 2-way                  | poppet 2 position toggle           | AOW     | 300 max                           | 4.0                                 | 7.3  | 16 oz.                      | 10-32   |
| MTV-2P        | 110     | 2-way                  | poppet 2 position toggle, n.CLOSED | AOW     | 300 max                           | 4.0                                 | 7.3  | 16 oz.                      | #       |
| MTV-3         | 118     | 3-way                  | poppet 2 position toggle           | AOW     | 300 max                           | 4.0                                 | 7.3  | 16 oz.                      | 10-32   |
| MTV-3P        | 118     | 3-way                  | poppet 2 position toggle           | AOW     | 300 max                           | 4.0                                 | 7.3  | 16 oz.                      | #       |

\*A = Air    O = Oil    W = Water

## VALVE SPECIFICATIONS



| Model        | Page    | Function          | Type                                    | Medium* | Maximum Recommended Pressure psig | Flow - SCFM<br>@ 50 psig @ 100 psig |               | Nominal Force Full Stem Tr. | Port          |
|--------------|---------|-------------------|-----------------------------------------|---------|-----------------------------------|-------------------------------------|---------------|-----------------------------|---------------|
| MTV-4        | 123     | 4-way             | spool, 2 position toggle                | A       | 150 max                           | 6.0                                 | 10.0          | 16 oz.                      | 10-32         |
| MTV-5        | 124     | 4-way             | spool, 2 position toggle                | AOW     | 150 max                           | 6.0                                 | 10.0          | 16 oz.                      | 10-32         |
| MWV-1        | 167     | whisker valve     | poppet                                  | A       | 150 max                           | 1.0                                 | 1.5           | 0.25 oz.                    | 10-32         |
| MWV-1P       | 167     | whisker valve     | poppet                                  | A       | 150 max                           | 1.0                                 | 1.5           | 0.25 oz.                    | 10-32         |
| PAV-2 / -3   | 09/117  | 2-way / 3-way     | normally CLOSED poppet                  | AOW     | 150 max                           | 4.0                                 | 6.8           | -                           | 10-32         |
| PAV-2P / -3P | 09/117  | 2-way / 3-way     | normally CLOSED poppet                  | AOW     | 150 max                           | 4.0                                 | 6.8           | -                           | #             |
| PAVO-2 / -3  | 09/117  | 2-way / 3-way     | normally OPEN poppet                    | AOW     | 150 max                           | 4.0                                 | 6.8           | -                           | 10-32         |
| PAVO-2P / 3P | 109/117 | 2-way / 3-way     | normally OPEN poppet                    | AOW     | 150 max                           | 4.0                                 | 6.8           | -                           | #             |
| PB-1         | 183     | 3-way             | normally CLOSED poppet                  | A       | 150 max                           | 3.5                                 | 6.0           |                             | 1/8 NPT       |
| PB-2         | 183     | 3-way             | normally CLOSED poppet                  | A       | 30-100                            |                                     | 22            |                             | 18 NPT        |
| PV-1         | 166     | pulse valve       | poppet                                  | A       | 150 max                           | -                                   | -             | -                           | ***           |
| PV-1P        | 166     | pulse valve       | poppet                                  | A       | 150 max                           | -                                   | -             | -                           | ***           |
| SLV-2        | 148     | 2-way             | sleeve                                  | AOW     | 150 max                           | 6.5                                 | 11.5          | 2.5 lb                      | 10-32         |
| SLV-3        | 148     | 3-way             | sleeve                                  | A       | 150 max                           | 6.5                                 | 11.5          | 2.5 lb                      | 10-32         |
| SMAV-3       | 113     | 3-way             | n.OPEN or n.CLOSED, spool               | A       | 100 max                           | -                                   | 1.4           | 20 oz.                      | 3-56          |
| SMTV-3       | 113     | 3-way             | 2 position toggle, normally CLOSED      | A       | 100 max                           | -                                   | 1.4           | -                           | 3-56          |
| TV-2 series  | 110     | 2-way             | spool position toggle                   | AOW     | 150 max                           | 4.5                                 | 8.0           | 12 oz.                      | 10-32         |
| TV-3 series  | 119     | 3-way             | spool, 2 position toggle                | A       | 150 max                           | 4.5                                 | 8.0           | 12 oz.                      | 10-32         |
| TV-4D        | 130     | 4-way poppet      | 3-pos., toggle actuated, detented       | A       | 120 max                           | 4.5                                 | 7.5           | 8 oz.                       | 10-32         |
| TV-4DM       | 131     | 4-way poppet      | 3-pos., toggle actuated, momentary      | A       | 120 max                           | 4.5                                 | 7.5           | 8 oz.                       | 10-32         |
| TV-4DMP      | 131     | 4-way poppet      | 3-pos., toggle actuated, momentary      | A       | 120 max                           | 4.5                                 | 7.5           | 8 oz.                       | 1/8 NPT       |
| TV-4DP       | 130     | 4-way poppet      | 3-pos., toggle actuated, detented       | A       | 120 max                           | 4.5                                 | 7.5           | 8 oz.                       | 1/8 NPT       |
| TV-4M        | 130     | 4-way poppet      | 3-pos., toggle actuated, momentary      | A       | 120 max                           | 4.5                                 | 7.5           | 8 oz.                       | 10-32         |
| TV-4MP       | 131     | 4-way poppet      | 3-pos., toggle actuated, momentary      | A       | 120 max                           | 4.5                                 | 7.5           | 8 oz.                       | 1/8 NPT       |
| WDV-2        | 167     | 2-way             | normally CLOSED poppet w/air pilot      | WL      | 100 max                           | -                                   | -             | -                           | 10-32         |
| WDV-2P       | 167     | 2-way             | normally CLOSED poppet w/air pilot      | WL      | 100 max                           | -                                   | -             | -                           | 1/8 NPT       |
| 1022         | 172     | proximity switch  | non-contacting air limit switch         | A       | 4-10                              | -                                   | -             | -                           |               |
| 1030         | 172     | gap sensor        | non-contacting positive pressure sensor | A       | .5-5                              |                                     |               | -                           | 10-32         |
| 1043         | 173     | pressure repeater | single stage                            | AGL     | 1-150                             |                                     | .029" orifice | -                           | 10-32         |
| 1044         | 173     | pressure repeater | 2-stage inverter                        | AGL     | 1-150                             |                                     | .029" orifice | -                           | 10-32         |
| 2010         | 174     | 3-way             | n.CLOSED poppet, fluidic interface      | A       | 30-100                            |                                     | 22            | -                           | ##            |
| 2011         | 174     | 3-way             | bleed pressure, limit valve             | A       | 30-100                            |                                     | 22            | -                           | 1/8 NPT       |
| 2012         | 175     | 2 or 3-way        | n.CLOSED or n.OPEN poppet               | A       | 0-100                             |                                     | 22            | -                           | 1/8 NPT       |
| 2012-G       | 175     | 3-way             | n.CLOSED or n.OPEN poppet               | A       | 0-100                             |                                     | -             | -                           | 1/8 NPT       |
| 2013         | 203     | 3-way electronic  | normally CLOSED poppet                  | A       | 30-100                            |                                     | 22            | -                           | 1/8 NPT       |
| 2020         | 176     | piloted 3-way     | normally CLOSED, pressure pilot         | A       | 30-100                            |                                     | 22scfm        | -                           | 10-32 1/8 NPT |
| 2021         | 176     | piloted 3-way     | normally CLOSED, pressure pilot         | A       | 30-100                            |                                     | 22scfm        | -                           | 10-32 1/8 NPT |
| 2050         | 176     | 3-way             | miniature, poppet, fluidic interface    | A       | 30-100                            |                                     | 15            | -                           | ###           |
| 3200         | 177     | amplifying valve  | pressure piloted                        | A       | 3-100                             |                                     | -             | -                           | 10-32         |

\* Cartridge fits into 3/8 bore

\*\* Cartridge fits into 5/8 bore

\*\*\* PV-1 has 1/8 male and 10-32 female inlet, 10-32 female outlet  
PV-1P has combo, 1/8 male and 10-32 female inlet and outlet

# 1/8 NPT male inlet, 10-32 outlet ports

## Control port 10-32 female

Load, supply, and exhaust ports 1/8 NPT female

### Supply port 1/8 NPT male  
Outlet port 1/16 NPT female  
Control port 10-32 female

A air

O oil

W water

L liquid

G gas