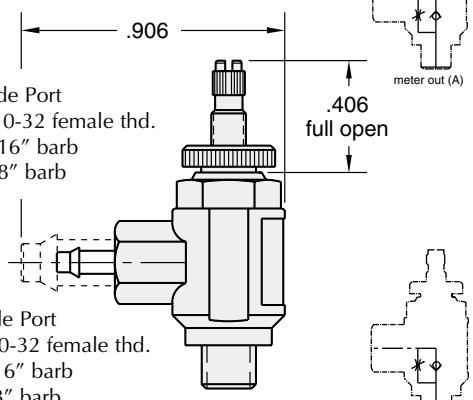
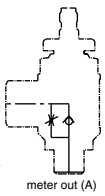
MFC-3A

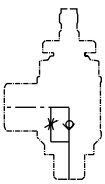
Meter Out

Meter out adjustable flow control valve.
Electroless Nickel plate brass body; stainless steel needle; Buna-N seals.



Part #	Side Port
MFC-3A	#10-32 female thd.
MFC-3A1	1/16″ barb
MFC-3A2	1/8″ barb





Medium: air, water, or oil

Input Pressure: 150 psig max.

Air Flow: @100 psig - 5 SCFM adjustable

Mounting: Directly into 10-32 port

Ports: Rotating input port allows 360° positioning 10-32 NPT

Temperature Range: 32° to 230° F

Flow Direction: Arrow on valve body shows direction of controlled flow

Adjustment: Screwdriver Slot

MFC-3B

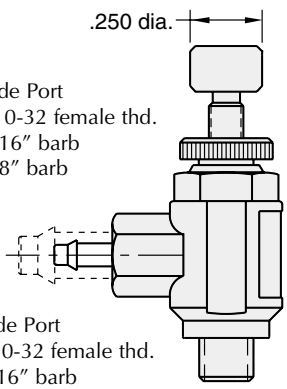
Meter In

Part #	Side Port
MFC-3B	#10-32 female thd.
MFC-3B1	1/16″ barb
MFC-3B2	1/8″ barb

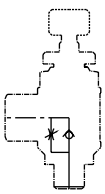
MFC-3AK

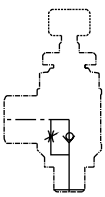
Meter Out

Meter out adjustable flow control valve.
Electroless Nickel plate brass body; stainless steel needle; Buna-N seals.



Part #	Side Port
MFC-3AK	#10-32 female thd.
MFC-3AK1	1/16″ barb
MFC-3AK2	1/8″ barb





Medium: air, water, or oil

Input Pressure: 150 psig max.

Air Flow: @100 psig - 5 SCFM adjustable

Mounting: Directly into 10-32 port

Ports: Rotating input port allows 360° positioning 10-32 NPT port

Temperature Range: 32° to 230° F

Flow Direction: Arrow on valve body shows direction of controlled flow

Adjustment: Slotted knurled knob with lock nut on #10-80 threaded needle shaft for fine adjustment

MFC-3BK

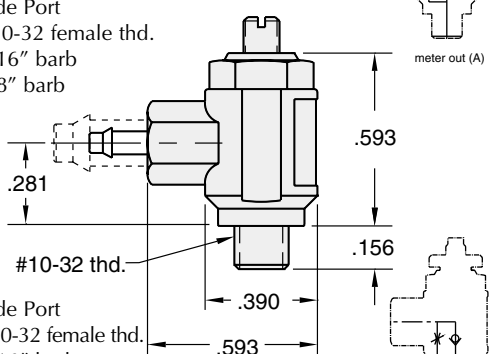
Meter In

Part #	Side Port
MFC-3BK	#10-32 female thd.
MFC-3BK1	1/16″ barb
MFC-3BK2	1/8″ barb

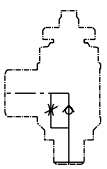
MFC-3AR

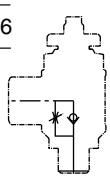
Meter Out

Meter out adjustable flow control valve.
Electroless Nickel plate brass body; stainless steel needle; Buna-N seals.



Part #	Side Port
MFC-3AR	#10-32 female thd.
MFC-3AR1	1/16″ barb
MFC-3AR2	1/8″ barb





Medium: air, water, or oil

Input Pressure: 150 psig max.

Air Flow: @100 psig - 5 SCFM adjustable

Mounting: Directly into 10-32 NPT port

Ports: Rotating input port allows 360° positioning 10-32 NPT port

Temperature Range: 32° to 230° F

Flow Direction: Arrow on valve body shows direction of controlled flow

Adjustment: Recessed slotted needle

MFC-3BR

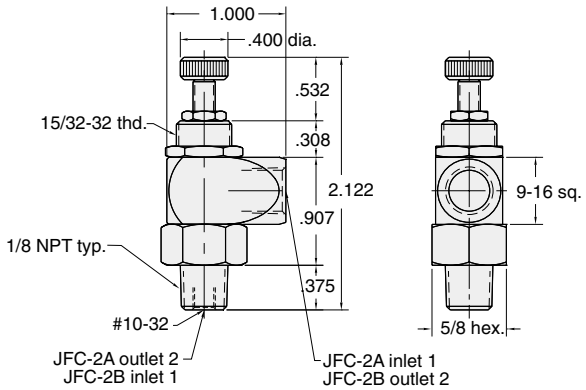
Meter In

Part #	Side Port
MFC-3BR	#10-32 female thd.
MFC-3BR1	1/16″ barb
MFC-3BR2	1/8″ barb

1/8 NPT Flow Control Valves

JFC-2A

Meter out adjustable flow control valve.
Electroless Nickel plate brass body;
stainless steel needle; Buna-N seals.



Medium: air, water, or oil

Input Pressure: 150 psig max.

Air Flow: @100 psig - 10.5 SCFM adjustable

Mounting: Directly into cylinder. Panel or inline

Ports: Rotating input port allows 360° positioning 1/8 NPT

Temperature Range: 32° to 230° F

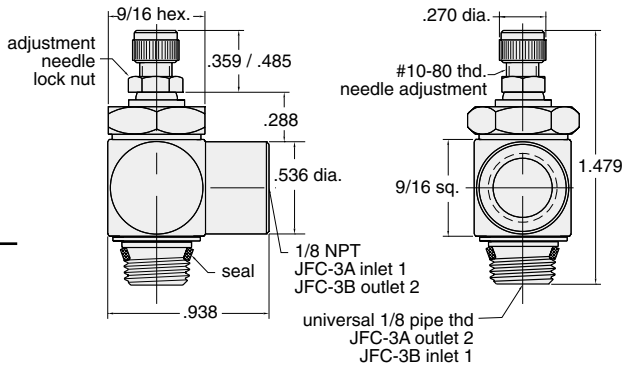
Flow Direction: Arrow on valve body shows direction of controlled flow

Adjustment: Knurled knob with lock nut on needle shaft

JFC-2B

JFC-3A

Meter out adjustable flow control valve.
Electroless Nickel plate brass body;
stainless steel needle; Buna-N seals.



Medium: air, water, or oil

Input Pressure: 150 psig max.

Air Flow: @100 psig - 10.5 SCFM adjustable

Mounting: Directly into cylinder. Panel or inline

Ports: Rotating input port allows 360° positioning 1/8 NPT

Temperature Range: 32° to 230° F

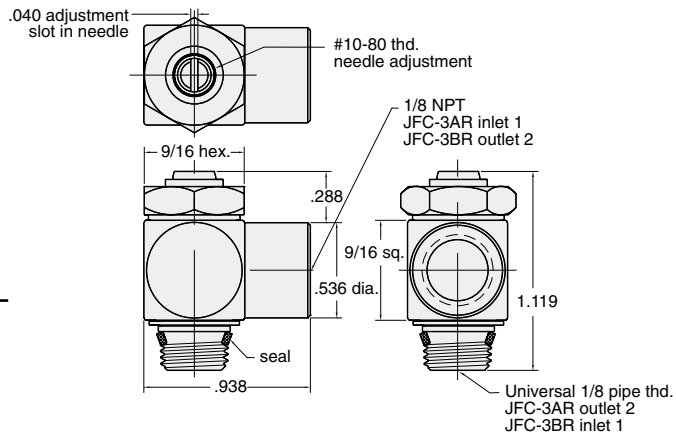
Flow Direction: Arrow on valve body shows direction of controlled flow

Adjustment: Slotted knurled knob with lock nut on #10-80 threaded needle shaft for fine adjustment

JFC-3B

JFC-3AR

Meter out adjustable flow control valve.
Electroless Nickel plate brass body;
stainless steel needle; Buna-N seals.



Medium: air, water, or oil

Input Pressure: 150 psig max.

Air Flow: @100 psig - 10.5 SCFM adjustable

Mounting: Directly into cylinder. Panel or inline

Ports: Rotating input port allows 360° positioning 1/8 NPT

Temperature Range: 32° to 230° F

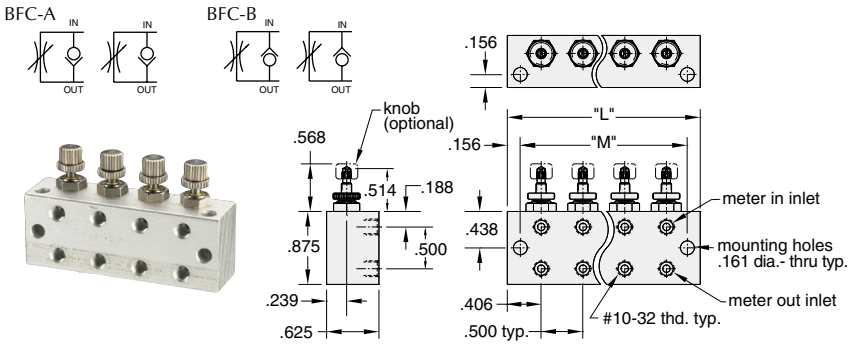
Flow Direction: Arrow on valve body shows direction of controlled flow

Adjustment: Recessed slotted needle

JFC-3BR

BFC-❑❑(❑)

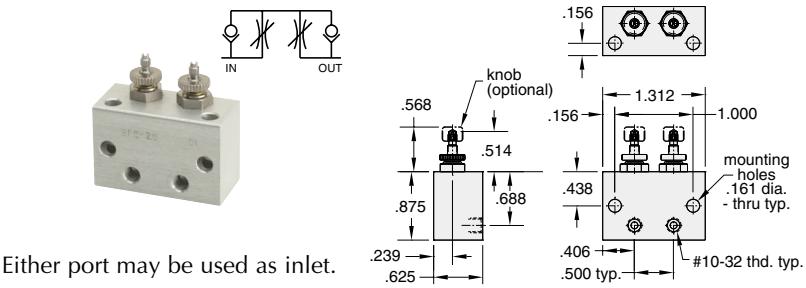
BFC-4A BFC-4B BFC-4AK BFC-4BK
BFC-6A BFC-6B BFC-6AK BFC-6BK
BFC-8A BFC-8B BFC-8AK BFC-8BK



BFC-2C(❑)

BFC-2C BFC-2CK

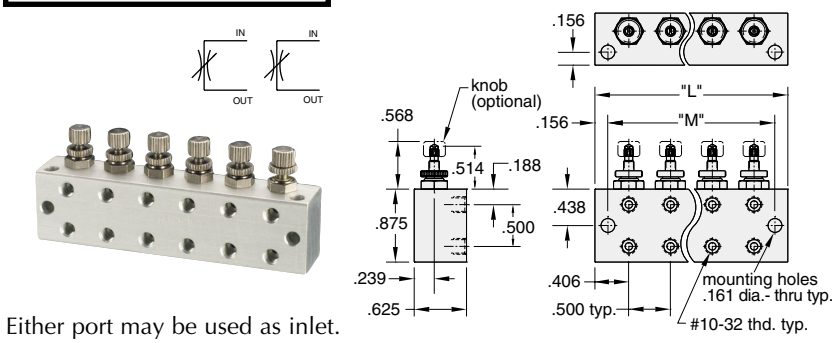
(2) Valves common meter in and meter out.



Either port may be used as inlet.

BNV-❑N(❑)

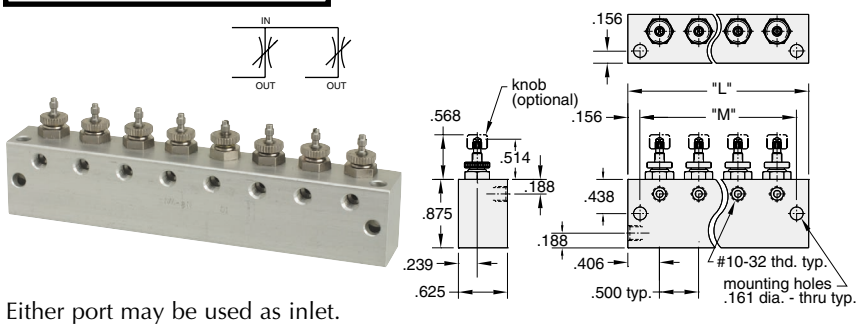
BNV-2N BNV-4N BNV-6N BNV-8N
BNV-2NK BNV-4NK BNV-6NK BNV-8NK



Either port may be used as inlet.

BNM-❑N(❑)

BNM-2N BNM-4N BNM-6N BNM-8N
BNM-2NK BNM-4NK BNM-6NK BNM-8NK



Either port may be used as inlet.

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 Buna-N rubber. Block flow controls and needle valves are ideal for controlling double acting cylinders.

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

B ❑ - ❑ ❑ ❑

Block

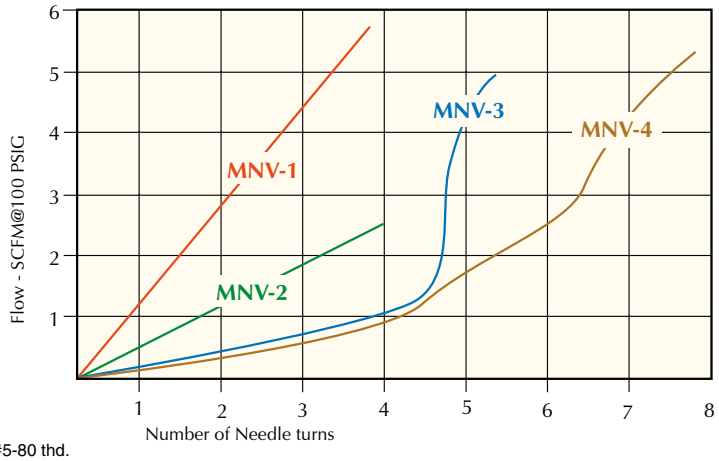
Number of stations
2 - (2) stations
4 - (4) stations
6 - (6) stations
8 - (8) stations

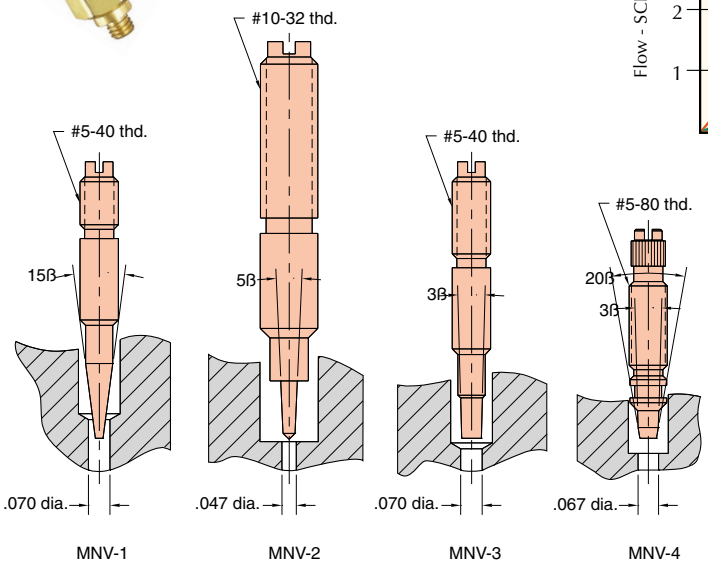
A - meter out flow
B - meter in flow
C - (2) valves common meter in and meter out
N - needle valve

Adjustment type
Blank - screwdriver slot
K - adjustment knob

Number of Stations "X"	"L"	"M"
2	1.312	1.000
4	2.312	2.000
6	3.312	3.000
8	4.312	4.000

Needle Valve Flow Specifications

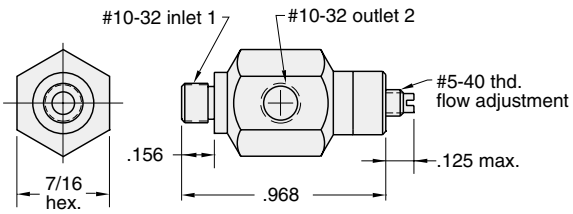




Adjustable control needle valves restrict flow in both directions. There are (4) four models offered by Clippard, all with 10-32 ports, but with various needle configurations to provide coarse or fine flow adjustment. The diagram of needle shapes and the chart on this page show the difference between these models.

MNV-1

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 2000 psig max.

Air Flow: @50 psig - 3 SCFM
@100 psig - 6 SCFM

Mounting: Direct or inline

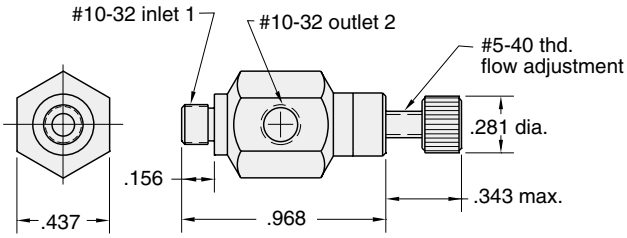
Ports: Inlet - 10-32, Outlet - 10-32

Temperature Range: 32° to 230° F

Adjustment: Screwdriver slot; clockwise adjustment provides less flow

MNV-1K

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 2000 psig max.

Air Flow: @50 psig - 3 SCFM
@100 psig - 6 SCFM

Mounting: Direct or inline

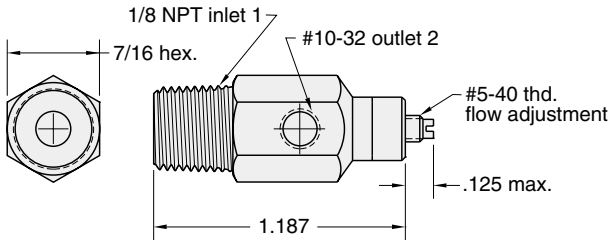
Ports: Inlet - 10-32, Outlet - 10-32

Temperature Range: 32° to 230° F

Adjustment: Knurled knob; clockwise adjustment provides less flow

MNV-1P

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 2000 psig max.

Air Flow: @50 psig - 3 SCFM
@100 psig - 6 SCFM

Mounting: Direct or inline

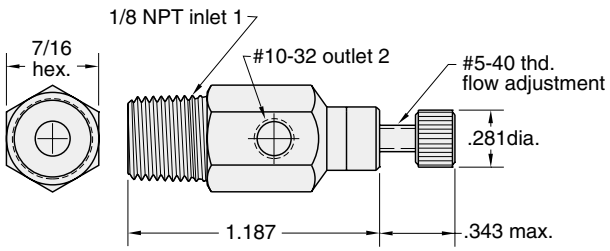
Ports: Inlet - 1/8 NPT, Outlet - 10-32

Temperature Range: 32˚ to 230˚ F

Adjustment: Screwdriver slot; clockwise adjustment provides less flow

MNV-1KP

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 2000 psig max.

Air Flow: @50 psig - 3 SCFM
@100 psig - 6 SCFM

Mounting: Direct or inline

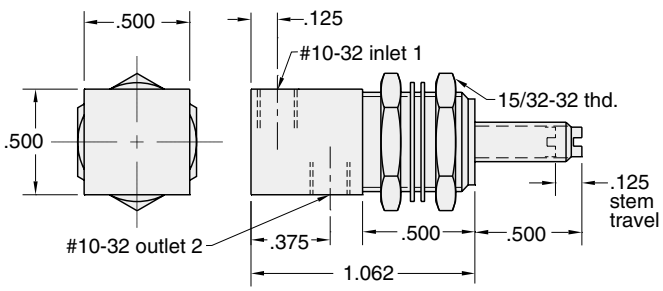
Ports: Inlet - 1/8 NPT, Outlet - 10-32

Temperature Range: 32˚ to 230˚ F

Adjustment: Knurled knob; clockwise adjustment provides less flow

MNV-2

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 300 psig max.

Air Flow: @50 psig - 1 SCFM
@100 psig - 2.5 SCFM

Mounting: 15/32-32 thread
Nut and lockwashers furnished

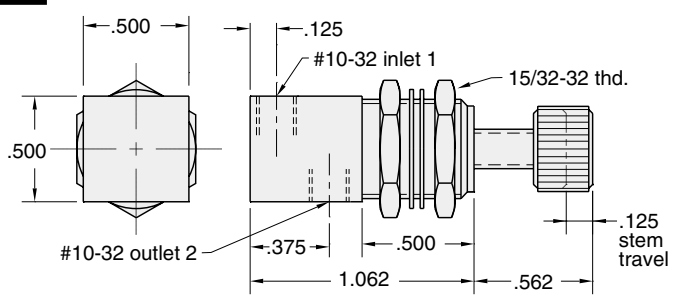
Ports: 10-32 female

Temperature Range: 32˚ to 230˚ F

Adjustment: Screwdriver slot; clockwise adjustment provides less flow

MNV-2K

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 300 psig max.

Air Flow: @50 psig - 1 SCFM
@100 psig - 2.5 SCFM

Mounting: 15/32-32 thread
Nut and lockwashers furnished

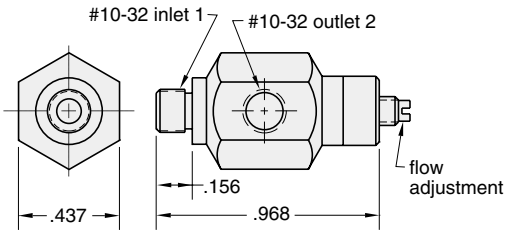
Ports: 10-32 female

Temperature Range: 32˚ to 230˚ F

Adjustment: Knurled knob; clockwise adjustment provides less flow

MNV-3

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 2000 psig max.

Air Flow: @50 psig - 2.5 SCFM
@100 psig - 5 SCFM

Mounting: Direct or inline

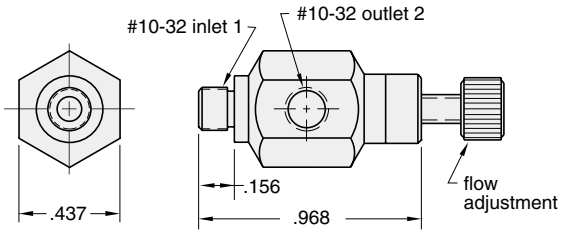
Ports: Inlet - 10-32, Outlet - 10-32

Temperature Range: 32° to 230° F

Adjustment: Screwdriver slot; clockwise adjustment provides less flow

MNV-3K

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 2000 psig max.

Air Flow: @50 psig - 2.5 SCFM
@100 psig - 5 SCFM

Mounting: Direct or inline

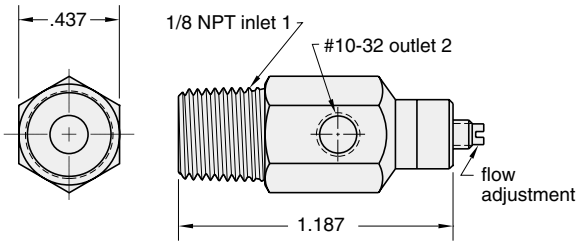
Ports: Inlet - 10-32 , Outlet - 10-32

Temperature Range: 32° to 230° F

Adjustment: Knurled knob; clockwise adjustment provides less flow

MNV-3P

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 2000 psig max.

Air Flow: @50 psig - 2.5 SCFM
@100 psig - 5 SCFM

Mounting: Direct or inline

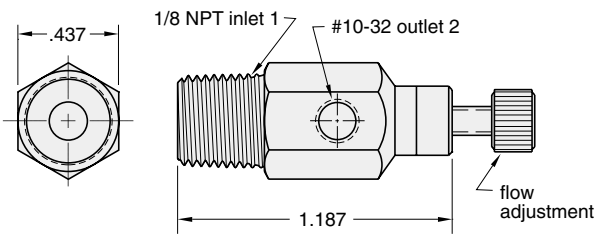
Ports: Inlet - 1/8 NPT, Outlet - 10-32

Temperature Range: 32° to 230° F

Adjustment: Screwdriver slot; clockwise adjustment provides less flow

MNV-3KP

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal



Medium: air, water, or oil

Input Pressure: 2000 psig max.

Air Flow: @50 psig - 2.5 SCFM
@100 psig - 5 SCFM

Mounting: Direct or inline

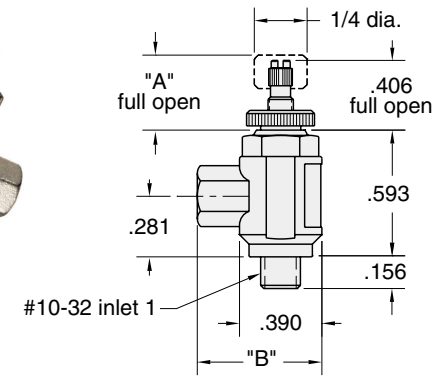
Ports: Inlet - 1/8 NPT, Outlet - 10-32

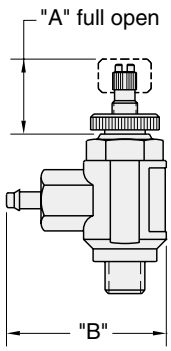
Temperature Range: 32° to 230° F

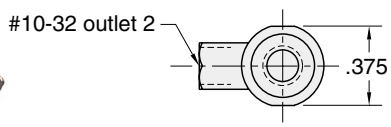
Adjustment: Knurled knob; clockwise adjustment provides less flow

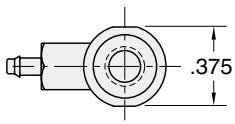
MNV-4

Adjustable control needle valve; brass body; stainless steel needle; Buna-N seal









Medium: air, water, or oil

Input Pressure: 300 psig max.

Air Flow: @100 psig - 0 to 5 SCFM

Mounting: Direct or inline

Ports: Inlet - 10-32, Outlet - 10-32

Temperature Range: 32˚ to 230˚ F

Adjustment: Knurled locking nut standard; screwdriver slot; knurled locking nut standard; clockwise adjustment of either provides less flow

Part #	Female Part	"A"	"B"
MNV-4	10-32 thd.	.406	.593
MNV-41	1/16 barb	.406	.750
MNV-42	1/8 barb	.406	.906

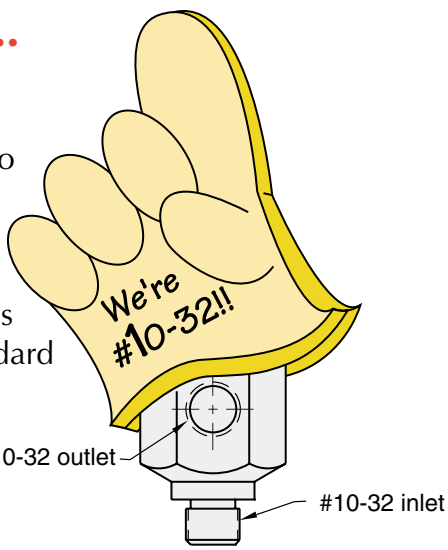
MNV-4K

Adjustment for MNV-4K: Knurled knob; clockwise adjustment of either provides less flow

Part #	Female Part	"A"	"B"
MNV-4K	10-32 thd.	.406	.593
MNV-4K1	1/16 barb	.406	.750
MNV-4K2	1/8 barb	.406	.906

Did you know...

Clippard was the first to use the 10-32 threaded port for miniature valves, cylinders, and fittings which continues to be the industry standard today.



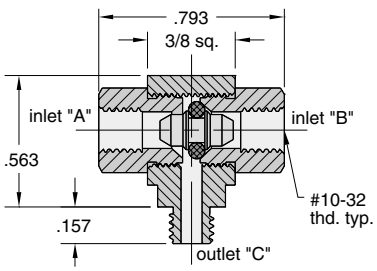
Shuttle Valves

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 inline using the hose barbs on the MSV models.

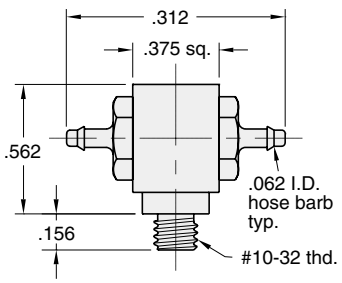
Poppet type shuttle (double check) valve. Brass body, and poppet, Buna-N seal

Medium: air, water, or oil
Input Pressure: 250 psig max.
Air Flow: @50 psig - 5.0 SCFM
@100 psig - 9.5 SCFM
Mounting: Direct or inline
Ports: Inlet - 10-32, Outlet - 10-32
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
Temperature Range: 32° to 230° F
Note: Shuttle valves should not be used as a pressure selector

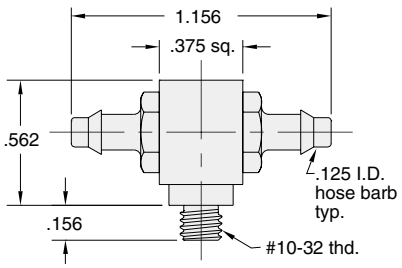
MSV-1



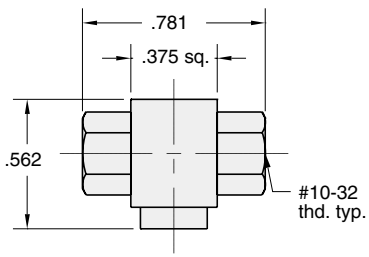
MSV-1M22



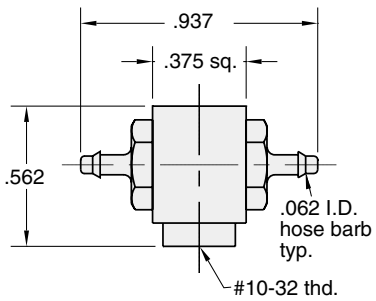
MSV-1M44



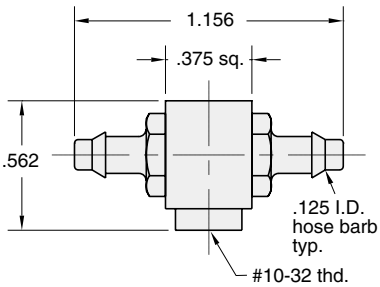
MSV-1FFF



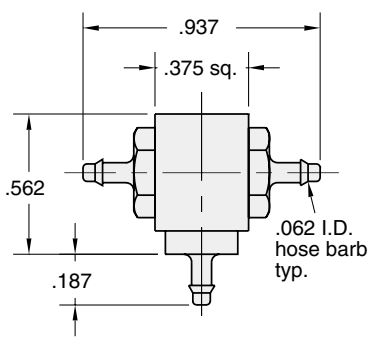
MSV-1F22



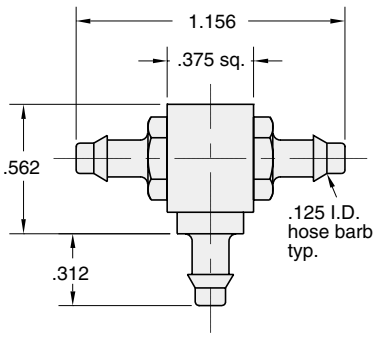
MSV-1F44



MSV-1222

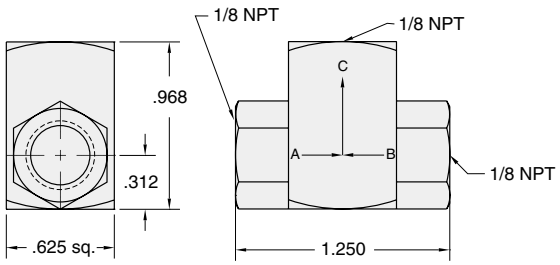


MSV-1444



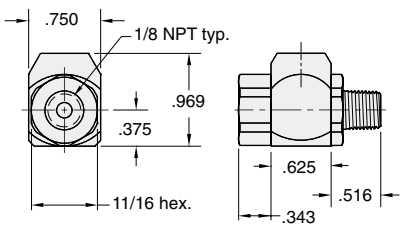
MJSV-1

Poppet type shuttle valve. Brass body, Delrin poppet, Buna-N seal



Medium: air, water, or oil
Input Pressure: 300 - psig air
1000 psig - hydraulic
Air Flow: @50 psig - 14 SCFM
@100 psig - 26 SCFM
Mounting: Direct or inline
Ports: Inlet - 1/8 NPT, Outlet - 1/8 NPT
Operation: Flow from "A" to "C" or "B" to "C"
Pressure to Shift: 1/2 psig approx.
Temperature Range: 32° to 230° F
Note: Shuttle valves should not be used as a pressure selector

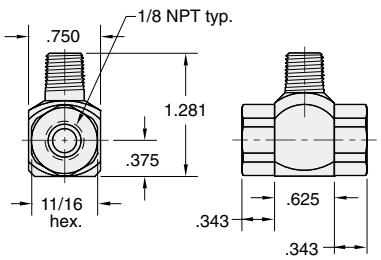
JSV-2FPF



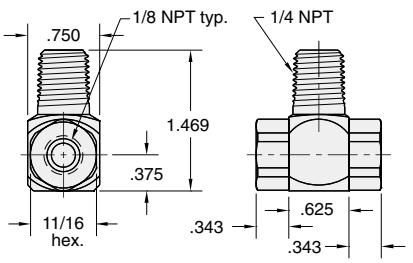
J-Series Shuttle Valve
Poppet type shuttle (double check) valve. Brass body, stainless steel shuttle, Buna-N seal

Medium: air, water, or oil
Input Pressure: 300 psig max.
Air Flow: @50 psig - 30 SCFM
@100 psig - 50 SCFM
Mounting: Direct or inline
Ports: Inlet & Outlet - 1/8 or 1/4 NPT, male or female
Temperature Range: 32° to 230° F
Pressure to Shift: 1 psig approx.

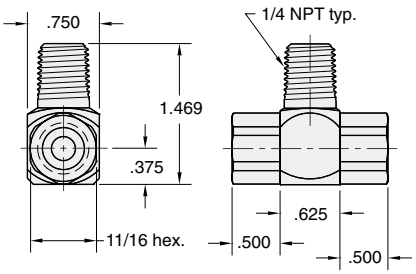
JSV-2PFF



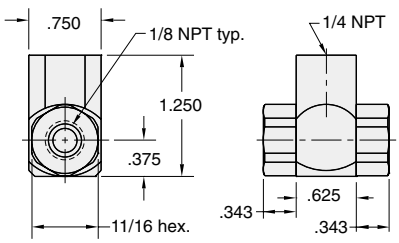
JSV-2WFF



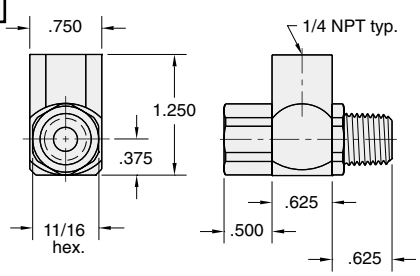
JSV-2WYY



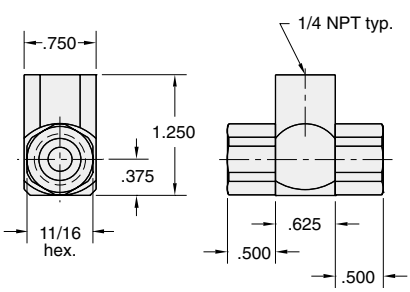
JSV-2YFF



JSV-2YWY

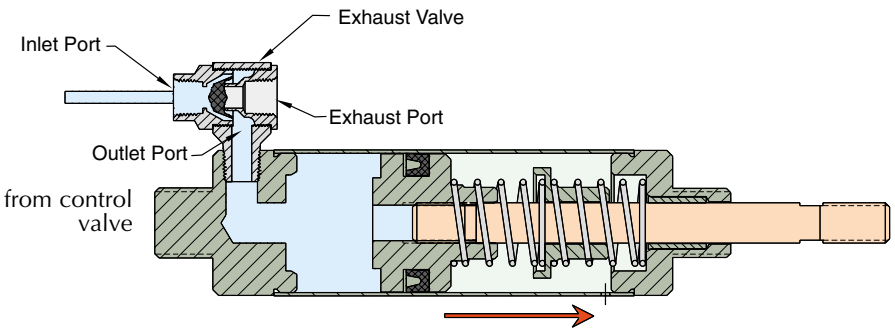


JSV-2YYY

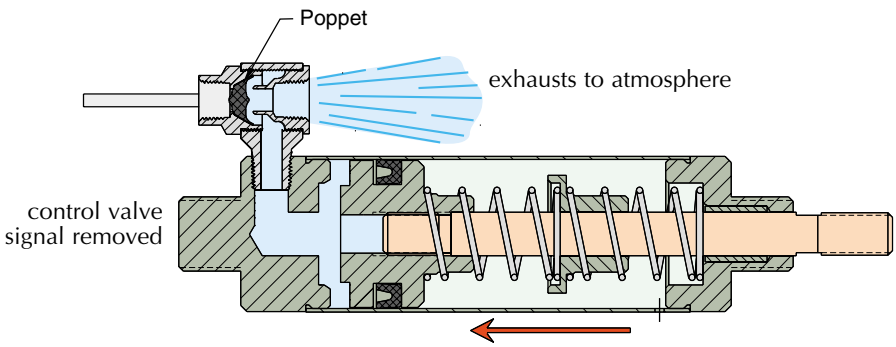


Exhaust Valve Application

Cylinder Extends



Cylinder Retracts - *Fast!*



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 Buna-N poppet seals the exhaust port and allows air to flow from the outlet port of the valve into the cylinder.

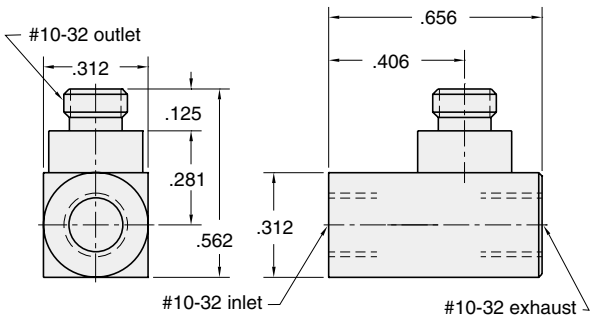
The pressurized air pushes against the piston and extends the rod, compressing the spring, until full rod extension is achieved.

When the control valve exhausts air from the exhaust valve inlet port, the Buna-N 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.

MEV-2

Poppet type quick exhaust valve. Brass body, Buna-N poppet



Medium: air

Working Range: 15-150 psig max.

Air Flow: @50 psig - 5 SCFM
@100 psig - 9 SCFM
(exhaust rate)

Mounting: Direct to cylinder

Ports: Inlet -10-32 female
Outlet -10-32 male
Exhaust -10-32 female

Pressure to Shift: @ 50 psig - opens after approx. 5 psig drop

Temperature Range: 32° to 230° F

Note: Not for use with cylinders larger than 7/8" dia.; moderate strokes up to 10"

J-SERIES EXHAUST VALVE

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.

Inlet Thread Size
2 - 1/8" pipe
4 - 1/4" pipe

Outlet Thread Type
M - Male Thread
F- Female Thread

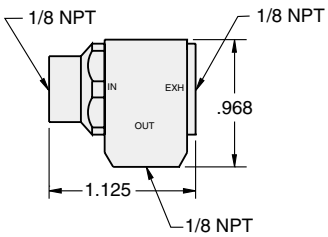
J E V - ❑ ❑ ❑ ❑

J-Series Exhaust Valve

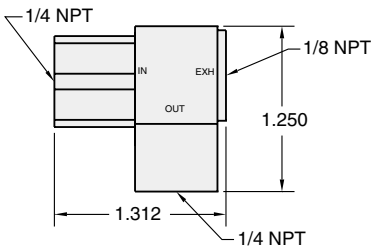
Inlet Thread Type
M - Male Thread
F- Female Thread

Outlet Thread Size
2 - 1/8 NPT
4 - 1/4 NPT

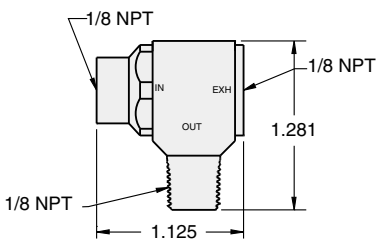
JEV-F2F2



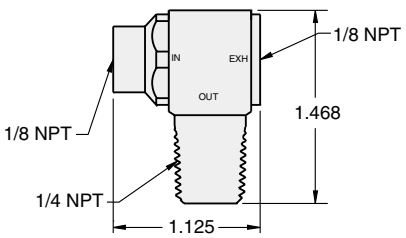
JEV-F4F4



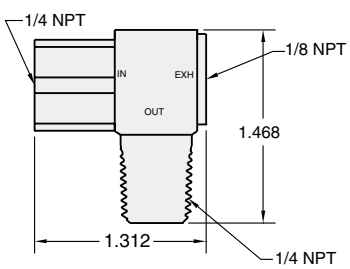
JEV-F2M2



JEV-F2M4



JEV-F4M4

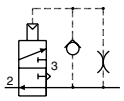


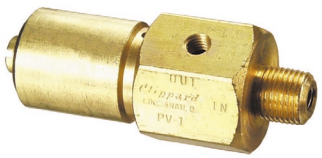
Features

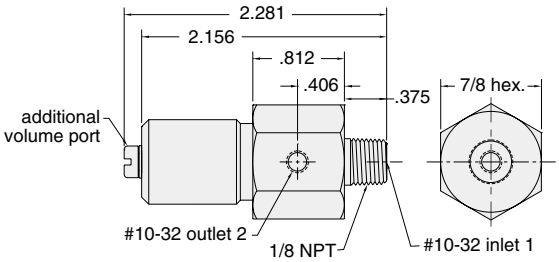
- Enables use of smaller control valves
- 15 to 150 psig maximum
- Male outlet offers direct connection to cylinder
- 36 SCFM @ 50 PSIG and 58 SCFM @ 100 PSIG
- Low shift ratio
- 5 standard configurations
- Custom configurations also available
- Brass construction with molded Buna-N seal

PV-1

Miniature pulse valve, 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.



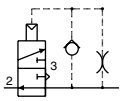


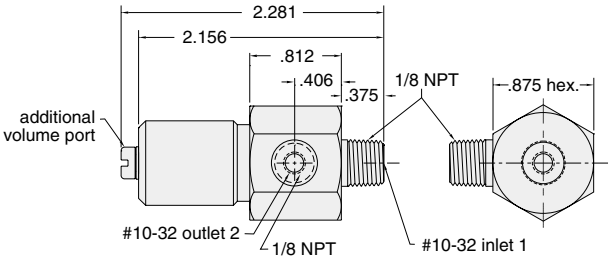


Medium: air
Input Pressure: 20 to 150 psig max.
Mounting: 1/8 NPT thread; nut furnished
Ports: Inlet - 10-32 female & 1/8 male, Outlet - 10-32 female
Exhaust: To atmosphere through hole
Volume Chamber: 10-32
Operation: Converts a continuous supply of inlet air into a pulse of approximately 100 milliseconds
Response: 300 cycles per minute; time delay may be increased by adding standard Clippard volume chambers not to exceed 3 cu. in.
Temperature Range: 32˚ to 230˚ F
Construction: Body - brass, Seals - Buna-N rubber, Spring - stainless steel, Poppet - Delrin®

PV-1P

Miniature pulse valve, 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.

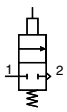


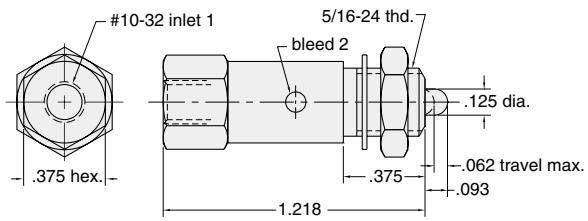


Medium: air
Input Pressure: 20 to 150 psig max.
Mounting: 1/8 NPT thread; nut furnished
Ports: Inlet & Outlet - combinations 10-32 female and 1/8 NPT male
Exhaust: To atmosphere through hole
Volume Chamber: 10-32
Operation: Converts a continuous supply of inlet air into a pulse of approximately 100 milliseconds
Response: 300 cycles per minute; time delay may be increased by adding standard Clippard volume chambers not to exceed 3 cu. in.
Temperature Range: 32˚ to 230˚ F
Construction: Body - brass, Seals - Buna-N rubber, Spring - stainless steel, Poppet - Delrin®

MPS-2

Normally closed 2-way poppet valve miniature pilot sensor, for use with pressure piloted control circuits, can repeatedly detect a position within .002″ properly mounted. In jigs or fixtures it will signal correct position and start-ok to control circuit.

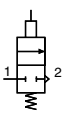


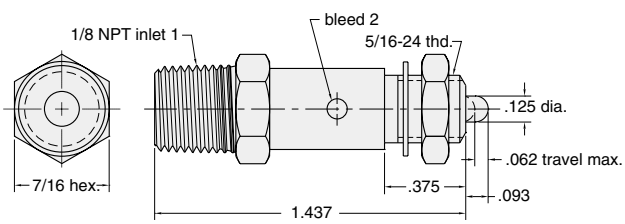


Medium: air
Stem Travel: 1/16″ max. will open and close in as little as .0005″
Input Pressure: 300 psig max.
Air Flow: @50 psig - 3 SCFM
@100 psig - 6 SCFM
Force For Full Stem Travel: 7 oz. nominal
Mounting: 15/16-24 thread
Nut and lockwashers furnished
Ports: Inlet -10-32,
Bleed -hole to atmosphere
Temperature Range: 32˚ to 230˚ F

MPS-2P

Normally closed 2-way poppet valve miniature pilot sensor, for use with pressure piloted control circuits, can repeatedly detect a position within .002″ properly mounted. In jigs or fixtures it will signal correct position and start-ok to control circuit.

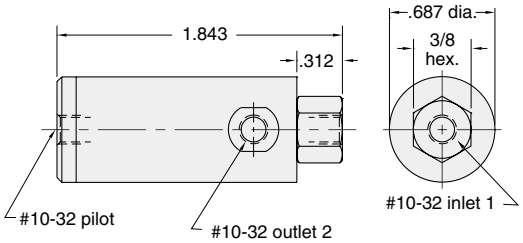




Medium: air
Stem Travel: 1/16″ max. will open and close in as little as .0005″
Input Pressure: 300 psig max.
Air Flow: @50 psig - 3 SCFM
@100 psig - 6 SCFM
Force For Full Stem Travel: 7 oz. nominal
Mounting: 15/16-24 thread
Nut and lockwashers furnished
Ports: Inlet -1/8 NPT male; bleed -hole to atmosphere
Temperature Range: 32˚ to 230˚ F

WDV-2

2-way normally closed poppet with air pilot. When valve closes a spring biased internal piston draws back a small volume on outlet side (approx. 6-7 inches 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. H_2O per min. @ 80 psig

Drawback: .07 cu. in. (1.2 ml)

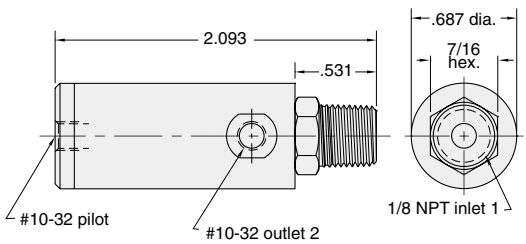
Mounting: Mounts inline

Ports: Inlet - 1 /8 NPT, Outlet - 10-32, Pilot - 10-32

Temperature Range: 32˚ to 230˚ F

WDV-2P

2-way normally closed poppet with air pilot. When valve closes a spring biased internal piston draws back a small volume on outlet side (approx. 6-7 inches 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. H_2O per min. @ 80 psig

Drawback: .07 cu. in. (1.2 ml)

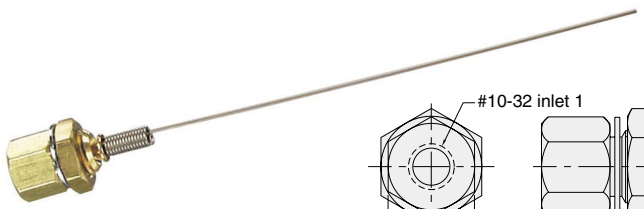
Mounting: Mounts inline

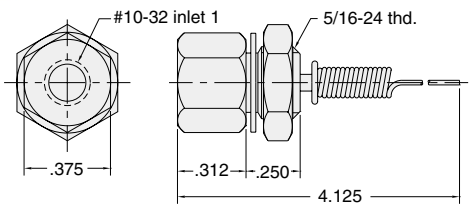
Ports: Inlet - 1 /8 NPT, Outlet - 10-32, Pilot - 10-32

Temperature Range: 32˚ to 230˚ F

MWV-1

Normally closed 2-way poppet whisker valve 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 max.

Air Flow: @50 psig - 1.0 SCFM
@100 psig - 1.5 SCFM

Force For Full Stem Travel: 1/4 oz. approx.

Mounting: 5/16-24 male thread
Nut and lockwashers furnished

Ports: Inlet - 10-32

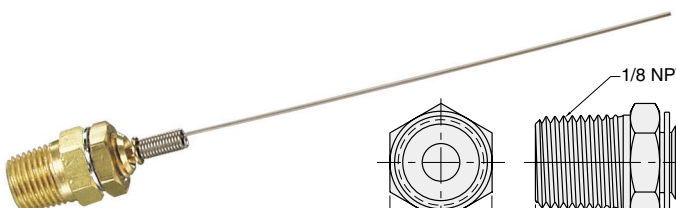
Temperature Range: 32˚ to 230˚ F

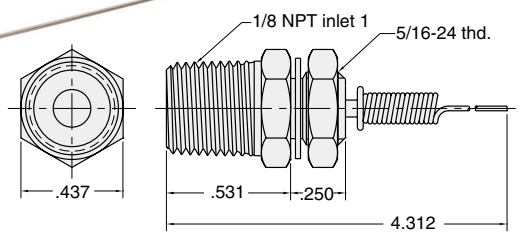
Bleed: To atmosphere around whisker stem

Whisker: Stainless steel, approx. 3″ length
Replaceable (Part Number 12375)

MWV-1P

Normally closed 2-way poppet whisker valve 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 max.

Air Flow: @50 psig - 1.0 SCFM
@100 psig - 1.5 SCFM

Force For Full Stem Travel: 1/4 oz. nominal

Mounting: 5/16-24 male thread
Nut and lockwashers furnished

Ports: Inlet - 1/8 NPT

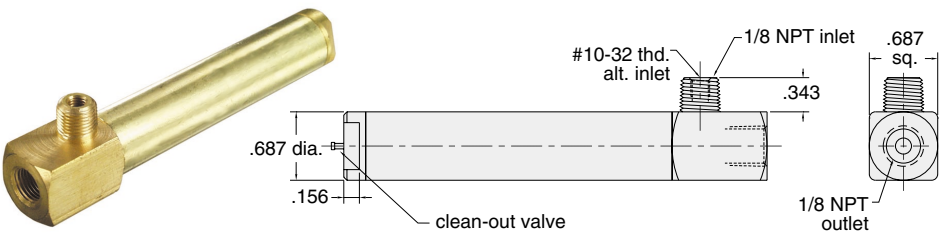
Temperature Range: 32˚ to 230˚ F

Bleed: To atmosphere around whisker stem

Whisker: Stainless steel, approx. 3″ length
Replaceable (Part Number 12375)

MAF-1

Replaceable miniature air filter with element



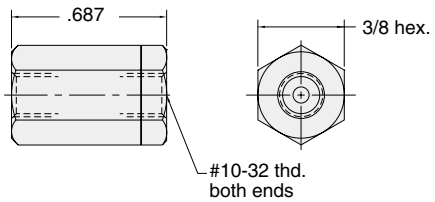
Medium: Air only
Filtration: 35 micron
Input Pressure: 0-250 psig max.
Air Flow: @50 psig - 5.0 SCFM
@100 psig - 9.0 SCFM
Material: Brass
Mounting: Direct or inline
Ports: Inlet - OD - 1/8 NPT male thread, ID - tapped for 10-32 fitting, Outlet - 1/8 NPT
Temperature Range: 32° to 230° F
Cleanout: Press clean-out valve stem periodically to remove accumulated water. For complete cleaning, filter body unscrews at point "A" without disturbing piping. DO NOT DISASSEMBLE UNDER PRESSURE. Remove screw and filter element to clean or replace

Uses replacement filter unit, part #12145.

12382 Low pressure drop, concentric, chemically inert 35-micron filter elements **Material:** Sintered bronze

MAC

Inline fixed orifice air chokes, each choke is calibrated for precise flow

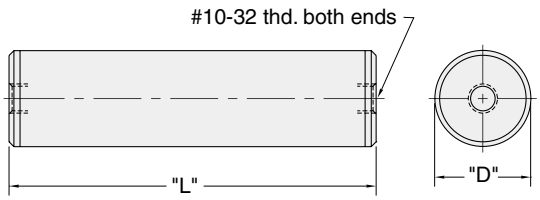


Medium: Air
Material: Brass
Working Range: 0-300 psig max.
Temperature Range: 32° to 230° F

Model #	Hole dia.	Color code
MAC-A	.0135	yellow
MAC-B	.010	green
MAC-C	.0075	blue
MAC-D	.006	red

MAT-❑

Inline volume chamber for providing time delay in pneumatic circuits



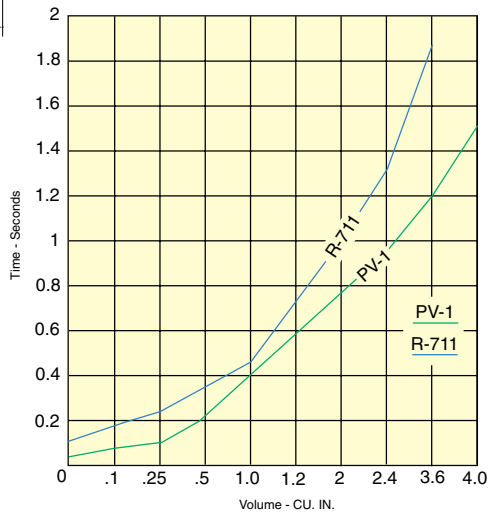
Medium: Air only
Material: Brass
Input Pressure: 150 psig max.
Mounting: Direct or inline; Mounting clamp furnished with MAT-2.0 and MAT-4.0
Ports: tapped for 10-32 fitting
Temperature Range: 32° to 230° F

Volume CU. IN.	Volume Chamber
0.1	MAT-.1
0.25	MAT-.25
0.50	MAT-.50
1.0	MAT-1.0
1.2	R-821
2.0	MAT-2.0
2.4	R-821 (2)
3.6	R-821 (3)
4.0	MAT-4.0

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

Dash #	Bore	"L"	"D"	Cu.In
.1	3/8	1.265	.437	0.1
.25	3/8	2.640	.437	0.25
.5	9/16	2.390	.625	0.5
1.0	9/16	4.390	.625	1.0
2.0	15/16	3.328	1	2.0
4.0	15/16	6.234	1	4.0

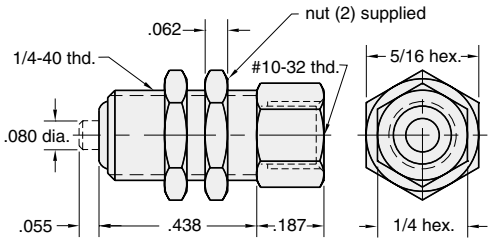
Time in Seconds Volume	PV-1	R-821
0	0.042	0.117
.1	0.074	0.180
.25	0.124	0.245
.5	0.210	0.350
1.0	0.390	0.450
1.2	0.580	0.700
2.0	0.760	1.000
2.4	0.950	1.300
3.6	1.200	1.900
4.0	1.500	N.R.



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

IND-1-WH

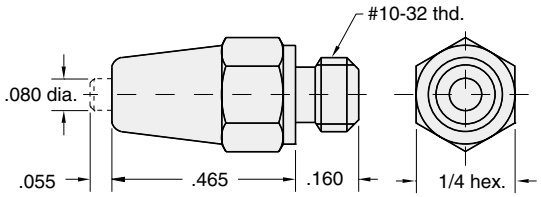
Single Pin Air Indicator plunger type (when extended white pin display signals "on")



Medium: Air only
Input Pressure: 150 psig max.
Minimum Actuation Pressure: 12 psig (approx)
Response: approx. 10 ms at 50 psig
Filtration: 40 micron recommended
Mounting: Panel mount 1/4 dia. hole. 1/4-40 thd. nuts provided
Ports: Inlet - 10-32 female
Temperature Range: 32° to 230° F
Maximum Panel Thickness: 3/16"

IND-1M-WH

Single Pin Air Indicator plunger type (when extended white pin display signals "on")



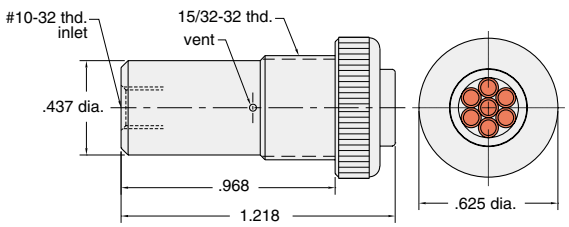
Medium: Air only
Input Pressure: 150 psig max.
Pressure: 12 psig (approx)
Response: approx. 10 ms at 50 psig
Filtration: 40 micron recommended
Mounting: Inline
Ports: Inlet - 10-32 male
Temperature Range: 32° to 230° F

Ordering Information Specify display color by adding two of the following letters to the end of the IND-3 series part #:

GN - Green | WH - White | RD - Red | YL - Yellow

IND-3 - ❑

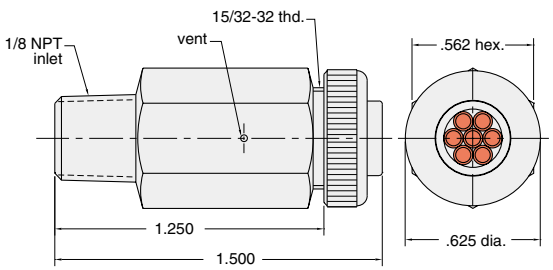
Multi Pin Air Indicator plunger type (when extended 7-pin color display signals "on")



Medium: Air only
Input Pressure: 150 psig max.
Minimum Actuation Pressure: 15 psig (approx)
Response: approx. 10 ms at 50 psig
Filtration: 40 micron recommended
Mounting: Panel mount in hole. 15/32-32 nut and lockwasher provided
Ports: Inlet - 10-32 female
Maximum Panel Thickness: 3/16"
Temperature Range: 32° to 230° F

IND-3P - ❑

Multi Pin Air Indicator plunger type (when extended 7-pin color display signals "on")

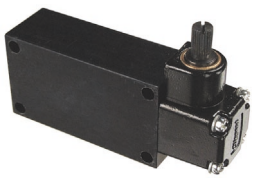


Medium: Air only
Input Pressure: 150 psig max.
Minimum Actuation Pressure: 15 psig (approx)
Response: approx. 10 ms at 50 psig
Filtration: 40 micron recommended
Mounting: Direct mount into 1/8 NPT hole
Ports: Inlet - 1/8 NPT male
Temperature Range: 32° to 230° F

Heavy Duty Limit Valves

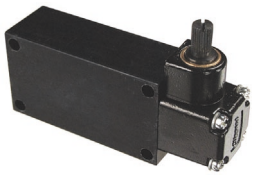
LVA-2

2-way poppet normally closed heavy duty air limit valve



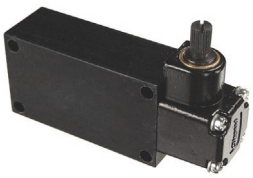
LVA-3

3-way poppet normally closed heavy duty air limit valve



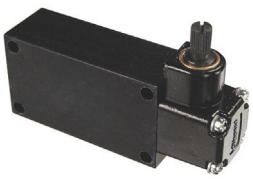
LVAO-2

2-way normally open heavy duty air limit valve



LVAO-3

3-way poppet normally open heavy duty air limit valve



These valves feature rugged construction to withstand heavy use. A zinc alloy die cast actuator head with a hardened steel shaft in a bronze bearing is mated to a solid aluminum valve body. Inside is a Clippard series cartridge valve (MJV-2C or 3C, MJVO 2C or 3C) made of brass and stainless steel with Buna-N seals. Valve cartridge is easily replaced in minutes. Three different style actuator arms are available on next page.

Medium: Air

Stem Travel: Actuator arm may move 50° in either direction

Input Pressure: 300 psig max.

Air Flow: @50 psig - 10 SCFM
@100 psig - 19 SCFM

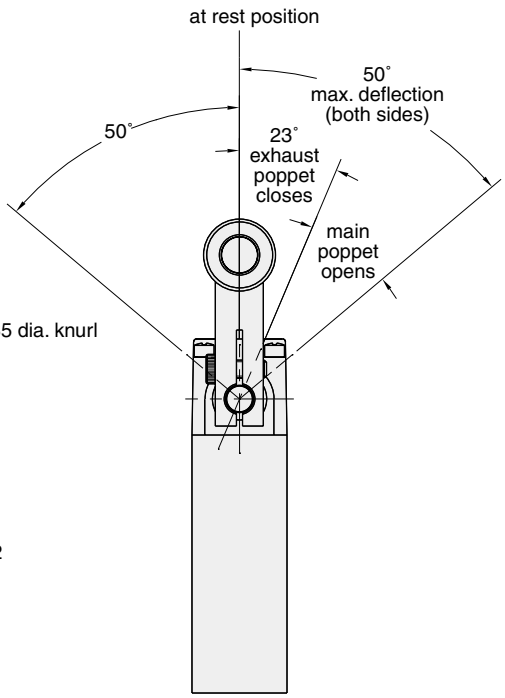
Torque to Actuate: 3 in./lbs.

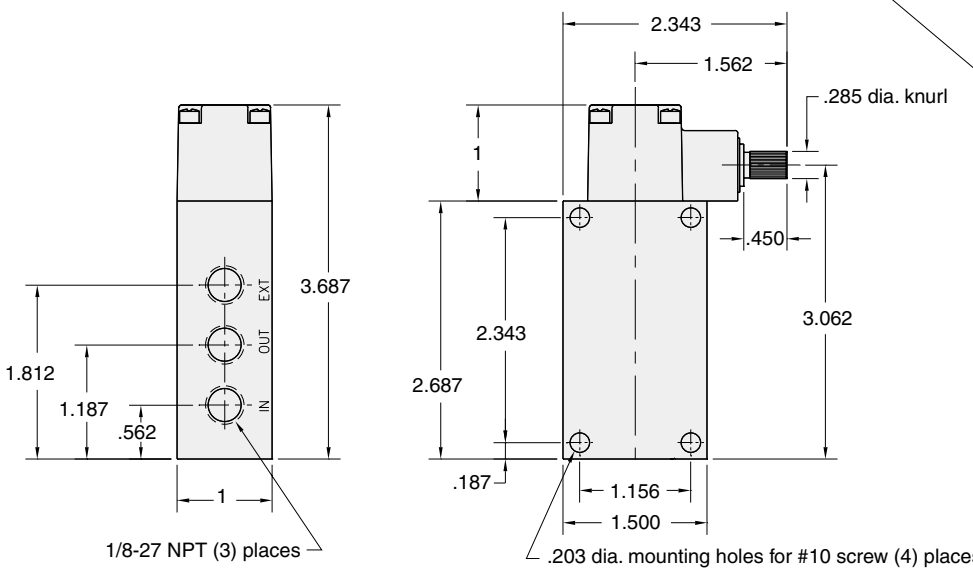
Actuation Range: 0-23° Off, 23-50° On
Maximum travel 50°

Temperature Range: 32° to 230° F

Mounting: Four 13/64" dia. mounting holes provided in valve body for use with #10 screw, or for tapping 1/4-20 by customer

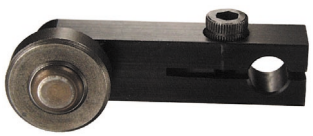
Ports: Inlet - 1/8-27 NPT, Outlet - 1/8-27 NPT, Exhaust - 1/8-27 NPT for convenience in porting away exhaust air or attaching muffler; it should not be restricted; exhaust port is not used on 2-ways

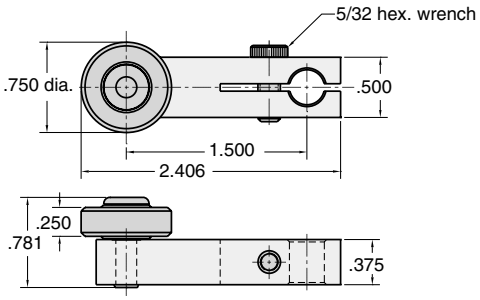




AR-K

Roller actuator arm for Clippard heavy duty air limit valves





Arm: Aluminum

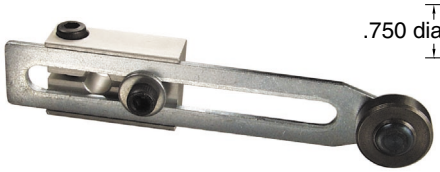
Roller: Hardened steel

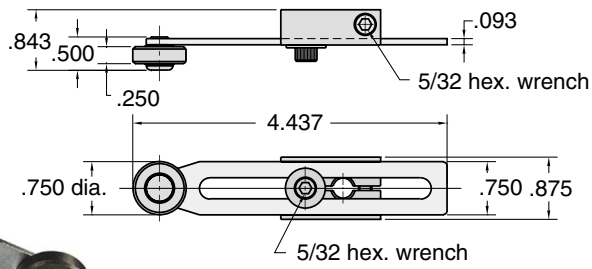
Temperature Range: 32˚ to 230˚ F

Mounting: Slotted mounting clamp tightens onto limit valve with 5/32″ hex wrench; may be positioned on limit valve shaft in any direction within a 360˚ circle

AR-L

Adjustable roller arm for Clippard heavy duty air limit valves





Arm: Aluminum base with steel extendable arm

Roller: Hardened steel

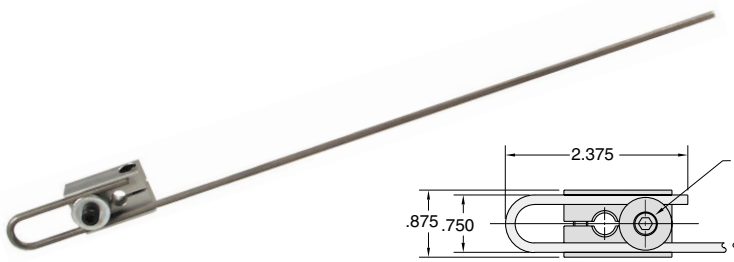
Adjustment: 1.0 to 3.5 in.

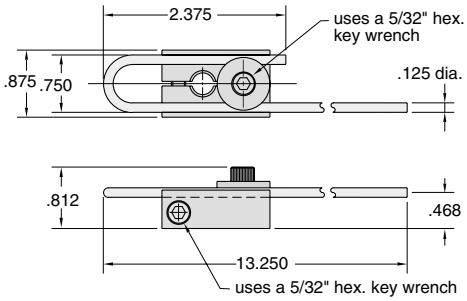
Temperature Range: 32˚ to 230˚ F

Mounting: Slotted mounting clamp tightens onto limit valve with 5/32″ hex. wrench; may be positioned on limit valve shaft in any direction within a 360˚ circle.

AR-M

Adjustable rod actuator arm for Clippard heavy duty air limit valves





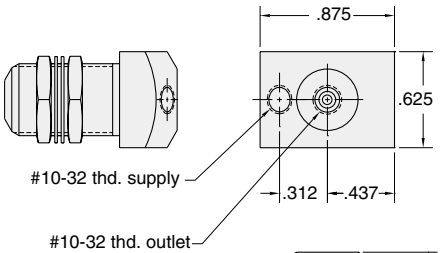
Arm: Steel 1/8″ rod 13 inches long retained by screw clamp; the rod may be shortened and/or bent to desired shape

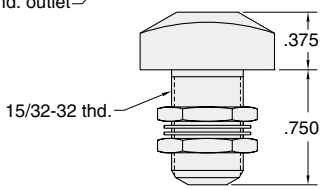
Mounting: Slotted aluminum mounting clamp may be positioned on limit valve shaft in any direction within a 360˚ circle

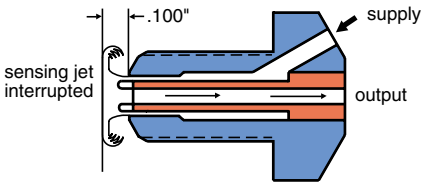
Temperature Range: 32˚ to 230˚ F

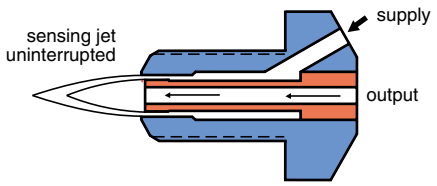
1022

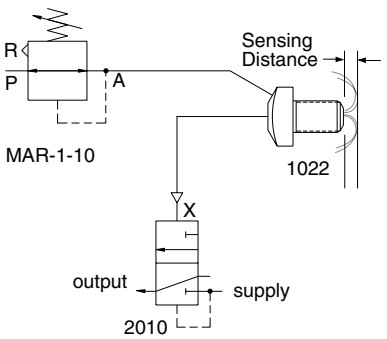
Non-contact air limit switch with no moving parts; will sense any flat or curved object which presents a sensing surface of 1/4″ or more to the sensing nozzle



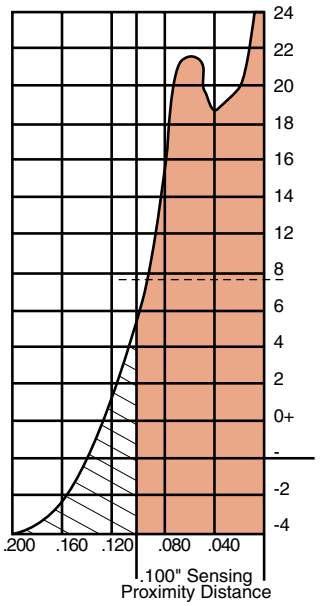






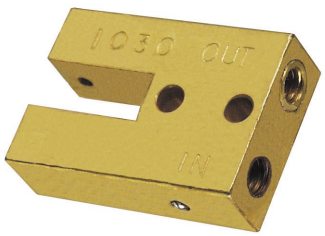


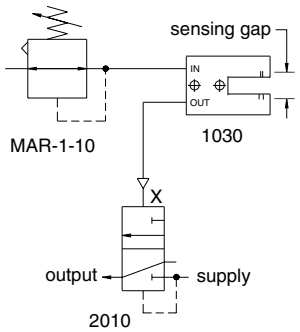
Medium: Air
Input Pressure: 4 to 10 psig
Nominal Proximity Distance: .100″
Output Signal at 4 psig supply:
Normal: 2″ H_2O actuated: 7 1/2″ H_2O
Frequency Response: 500 CPM
Air Consumption: 0.3 SCFM
Sensing Capability: Flat or curved surfaces with 1/8″ minimum radius
Connections: 10-32 female
Construction: Solid brass bright dipped
Temperature Range: 32° to 230° F

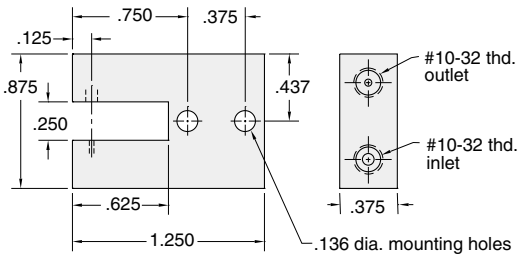


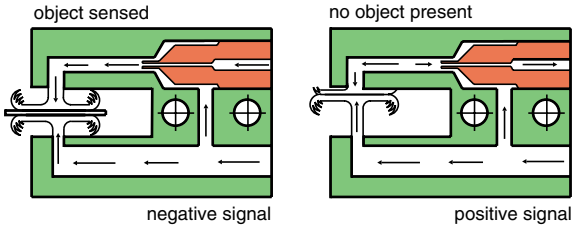
1030

Non-contact positive pressure 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

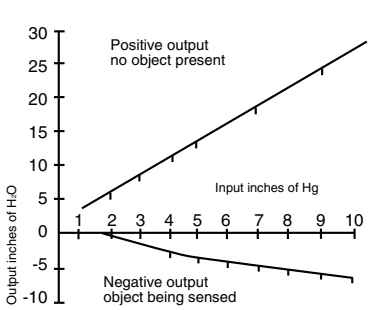






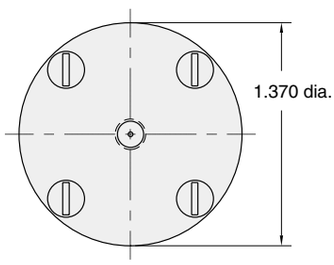


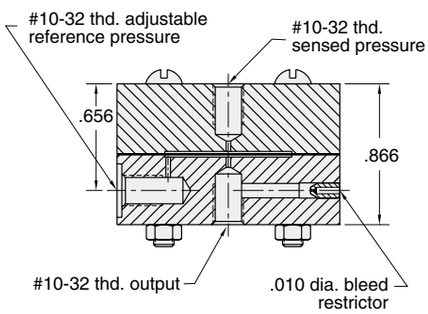
Medium: Air
Input Pressure: 0.5-5 psig
Output: -3″ to 26″ H_2O @ 4 psig
Frequency Response: 1000 cpm
Air Consumption: 1/4 SCFM @ 4 psig
Sensing Capability: Flat or curved surfaces with 1/32″ minimum radius. May be used for up to 4″ gap with an additional auxiliary jet
Connections: 10-32 female
Construction: Solid brass bright dipped
Temperature Range: 32° to 230° F

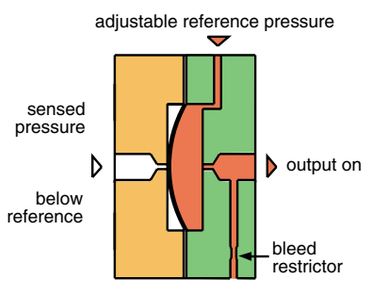


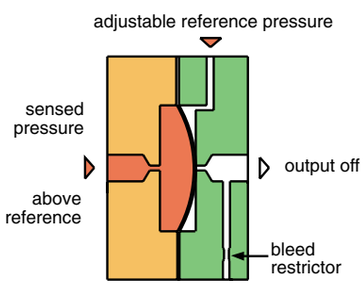
1043

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: 1-150 psig max.

Air Flow: .029" orifice

Response Time: 5 ms.

Differential Sensitivity: 2%

Frequency Response: 60 Hz

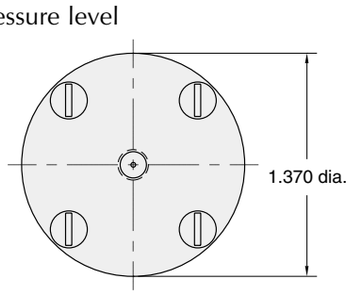
Ports: 10-32 female

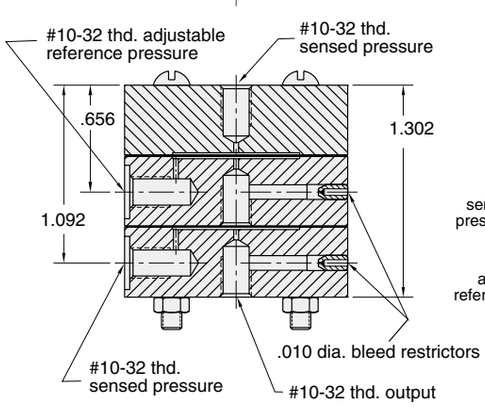
Materials: Anodized aluminum body, Buna-N diaphragms

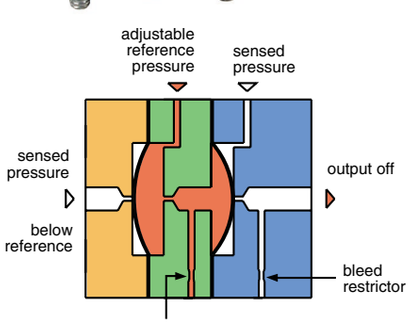
Temperature Range: 32˚ to 230˚ F

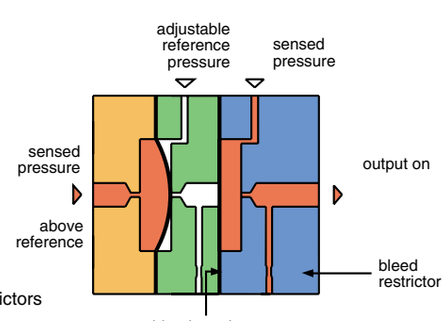
1044

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: 1-150 psig max.

Air Flow: .029" orifice

Response Time: 5 ms.

Differential Sensitivity: 2%

Frequency Response: 60 Hz

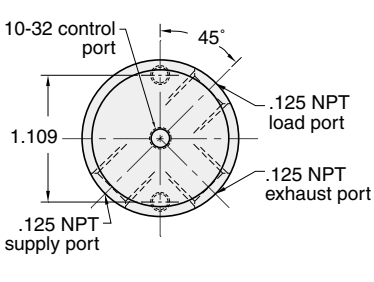
Ports: 10-32 female

Materials: Anodized aluminum body, Buna-N diaphragms

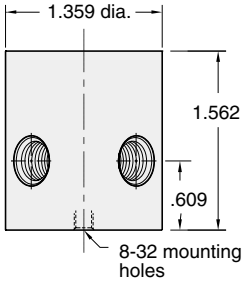
Temperature Range: 32˚ to 230˚ F

2010

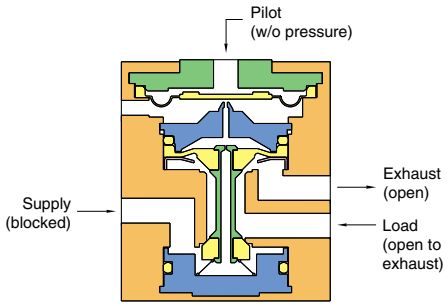
3-way valve normally closed interface amplifies very low pressure air-jet sensing signals to working power levels



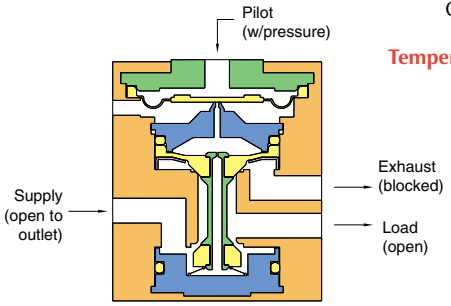
Top View



Side View



Valve Closed



Valve Open

Medium: air

Material: anodized aluminum body, Buna-N diaphragms

Input Pressure: 30-100 psig max.

Air Flow: 22 SCFM @ 100 psig

Pilot Pressure: 4″ H_2O @ 100 psig

Maximum Allowable Pilot Pressure: 5 psig

Response Time: 10 ms. dead headed

Operating Speed: 50 Hz

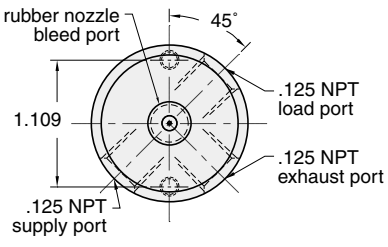
Bleed: 0.1 SCFM @ 100 psig

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

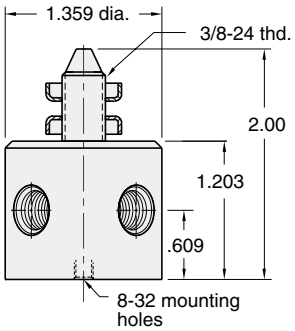
Temperature Range: 32° to 230° F

2011-1

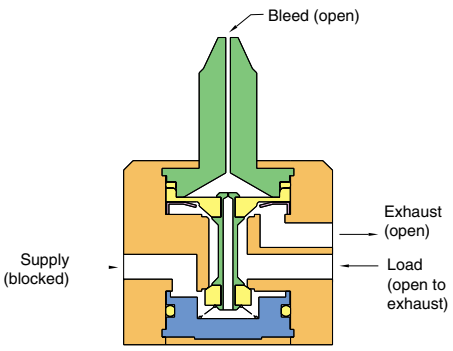
3-way bleed pressure piloted limit valve; blocking of the sensing port causes rapid valve opening



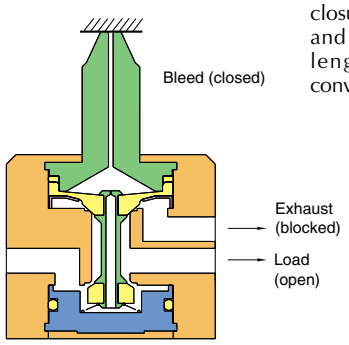
Top View



Side View



Valve Closed



Valve Open

Medium: air

Material: anodized aluminum body, Buna-N diaphragms

Input Pressure: 30-100 psig max.

Air Flow: 22 SCFM@100 psig

Bleed: 0.1 SCFM @ 100 psig

Response Time: 15 ms.
(response time will increase)

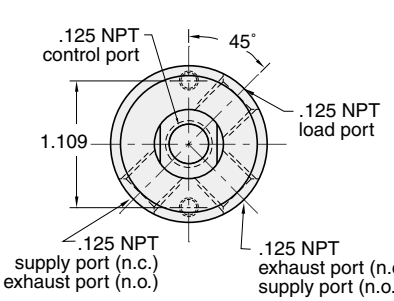
Ports: 1/8 NPT

Temperature Range: 32° to 230° F

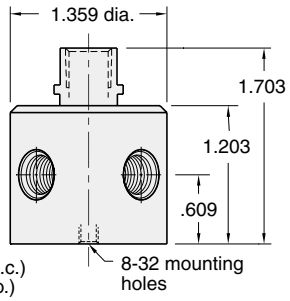
Note: Supplied with threaded bulkhead mount and integral rubber nozzle for direct actuation by mechanical closure. By removing rubber nozzle and inserting a 10-32 fitting and length of hose, 2011-1 can be converted to a remote sensing valve.

2012

3-way valve n.o. or n.c. air piloted



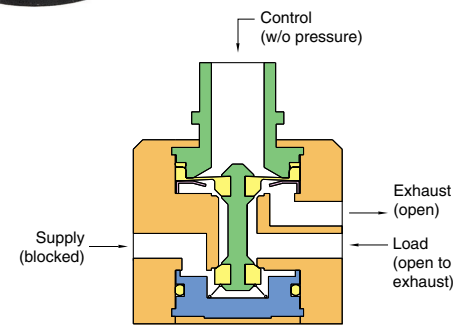
Top View



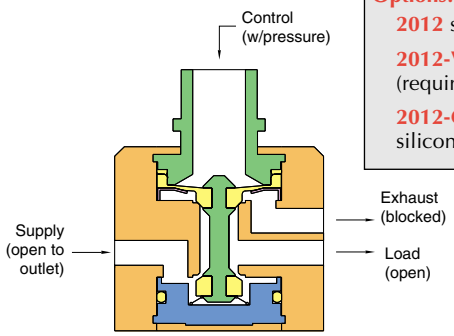
Side View

Medium: air
Material: anodized aluminum body, Buna-N diaphragms
Input Pressure: 1-100 psig max.
Air Flow: 22 SCFM @ 100 psig
Bleed: 0.1 SCFM @ 100 psig
Minimum Pilot Pressure:
n.o. - 90% of supply pr.
n.c. - 60% of supply pr.
Response Time: 15 ms. after pilot pressure reaches switch point
Operating Speed: 1100 CPM
Ports: 1/8 NPT female
Temperature Range: 32° to 230° F

Options:
2012 standard valve
2012-VAC for vacuum operation (requires positive pressure pilot signal)
2012-G for use with liquid adhesives - silicone diaphragm and seals



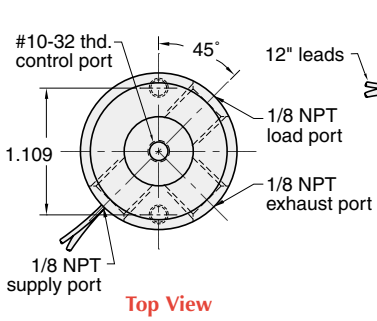
Valve Closed



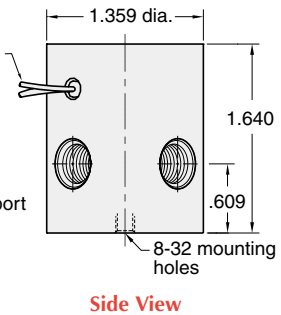
Valve Open

2013 - ❑

3-way normally closed electronic valve with low-power DC solenoid solid state output signals can be directly converted to high pressure pneumatic power without amplification



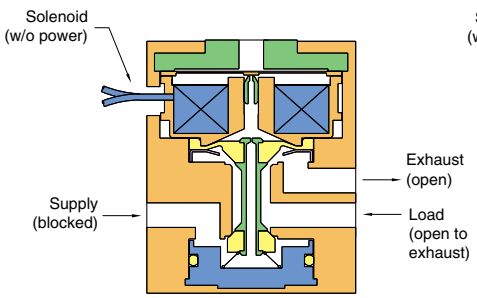
Top View



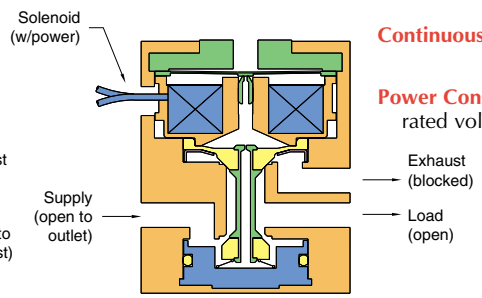
Side View

Medium: air
Material: anodized aluminum body, Buna-N diaphragms
Stem Travel: 1/8"
Input Pressure: 30-100 psig max.
Air Flow: 22 SCFM @ 100 psig
Bleed: 0.1 SCFM @ 100 psig
Filtration: 10 micron
Frequency Response: 50 Hz @ 100 psig
70 Hz @ 30 psig
Ports: 1/8 NPT female
Switching Speed: 10 ms.
Leads: 28 gauge stranded P.V.C. insulated
Temperature Range: 32° to 230° F

Standard Voltages: 2013-6 6 volts DC,
2013-12 12 volts DC,
2013-24 24 volts DC



Valve Closed



Valve Open

Continuous Overload: 350%@ 25° C ambient;
250%@ 50° C ambient

Power Consumption: less than 0.50 watts at rated voltage (80 ma.@ 6V
40 ma.@ 12V.
20 ma. @ 24V)

2020

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.

Medium: air

Input Pressure: 30-100 psig max.

Air Flow: 22 SCFM @ 100 psig

Pilot Pressure: 60% of supply pressure, min.

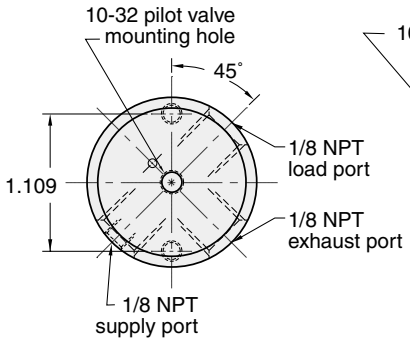
Response Time: approx. 20 ms.

Ports: Inlet, outlet, exhaust 1/8 NPT
Pilot supply is 10-32 female

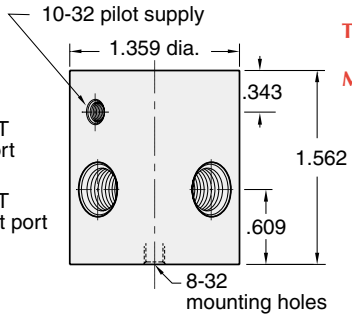
Mounting: Mounting holes provided

Temperature Range: 32˚ to 230˚ F

Materials: Anodized aluminum, stainless steel



Top View



Side View

2020 shown with ET Pilot Valve and external pilot supply

2021

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.

2050

3-way miniature valve interface

Medium: air

Input Pressure: 30-100 psig max.

Air Flow: 15 SCFM@100 psig

Pilot Pressure: 15″ H_2O

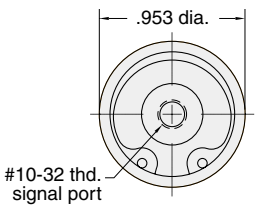
Maximum Allowable Pilot Pressure: 5 psig

Response Time: 10 ms.

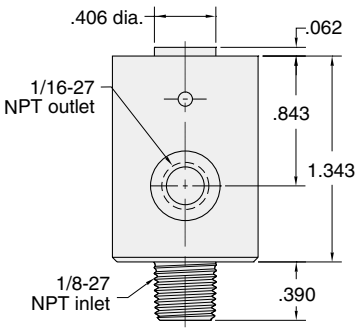
Ports: Inlet - 1/8 NPT male
Outlet - 1/16″ NPT female
Pilot - 10-32 female

Temperature Range: 32˚ to 230˚ F

Wow! Scratch -n- Sniff photo!



Top View

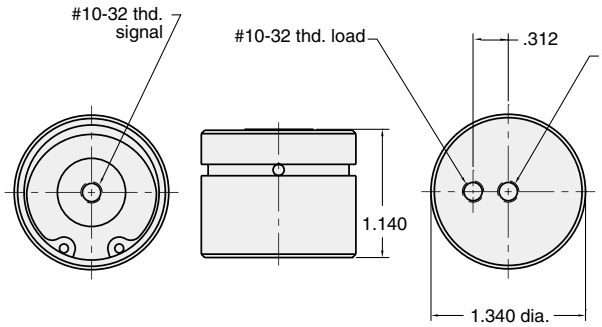


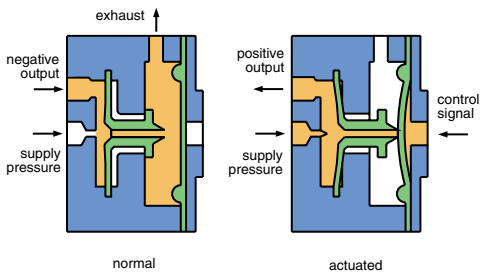
Side View

3200-A

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

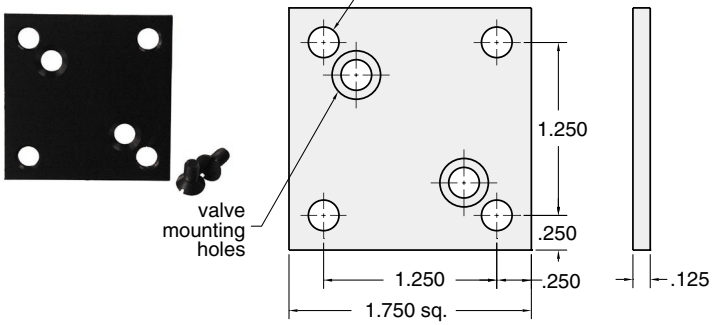
Medium: air
Input Pressure: 3-100 psig max.
Minimum Pilot Pressure: 1.5″ H_2O psig
Maximum Pilot Pressure: 1psig (28″ H_2O″)
Air Flow: .18 SCFM@100 psig
Bleed Orifice Diameter: .010″
Ports: 10-32 female
Temperature Range: 32˚ to 230˚ F





2010-050

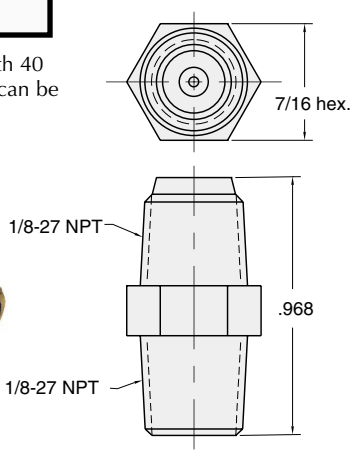
Flat bracket to mount 2010, 2011-1, 2012 and 2013 valves.



Construction: Black oxide finish, two mounting screws furnished.

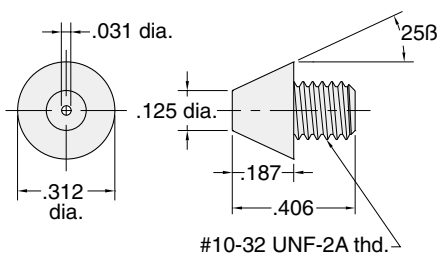
9002-01

1/8 NPT hex nipple with 40 micron filter / strainer, can be used as a muffler



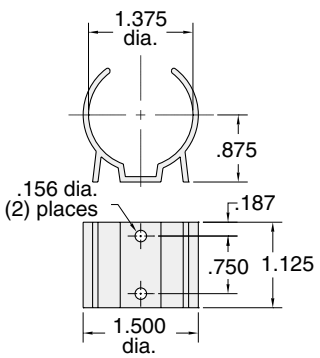
2011-012

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



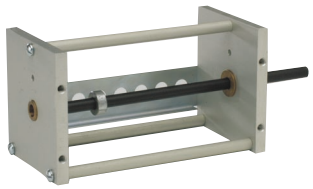
3200-006

Mounting bracket for 3200-A snap action relays.

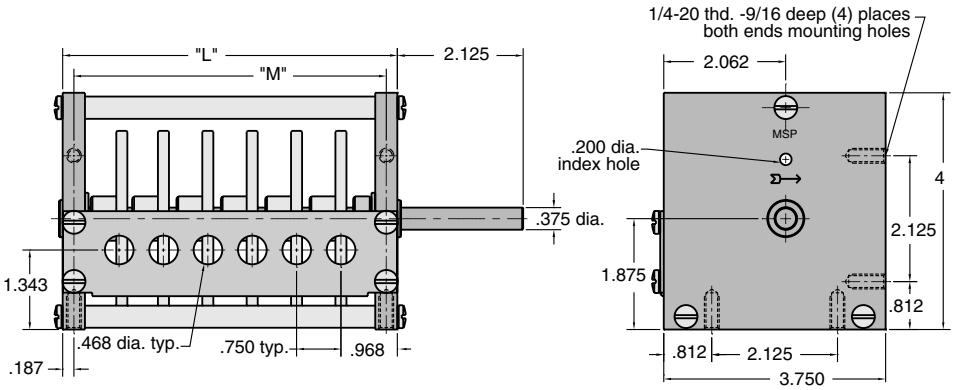


MSP-❑

Center shaft replaceable cam miniature **sequence programmer**



Use:** Power may be by machine controlled or by any small geared-down motor. Cams mounted on shaft operate up to 14 Clippard standard 2, 3, or 4-way valves (using cam follower 11925), and snap action switches such as Clippard ES-1. Valves on unit may control large pilot operated valves, or may be connected directly to cylinders, air limits, or circuitry, eliminating costly switches and solenoid valves. ** Cams not included



Furnished with valve mounting bracket and Allen wrench. May be used with standard, adjustable or special cut cams at extra charge. Please specify desired cams when ordering. Use Clippard wrench #11751 for Valve mounting.

Recommended Torque: approx. 2 in. lbs. per cam.

Timing: Cams aligned originally using rod through holes in end blocks and cams. Once locked to shaft, timing is permanently established, rotation of cams actuates valves according to lobes provided. (see cam data)

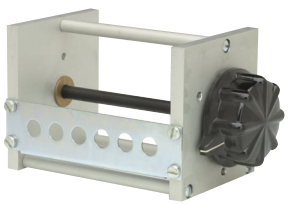
Construction Features:

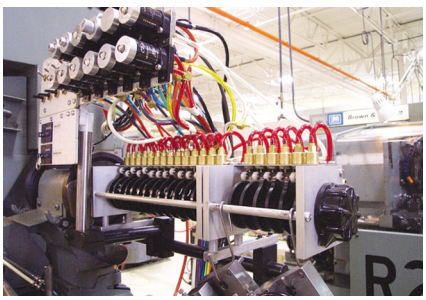
- Self-lubricating bronze bearings
- 1/8″ black oxided steel shaft-extendible either end
- One-piece phenolic cams - extendible either end
- Easy cam adjustment - one set screw
- Endplates tapped for mounting bottom or rear
- Positive cam indexing
- Heavy aluminum end blocks
- Rigid channel steel mounting bracket for valves, switches

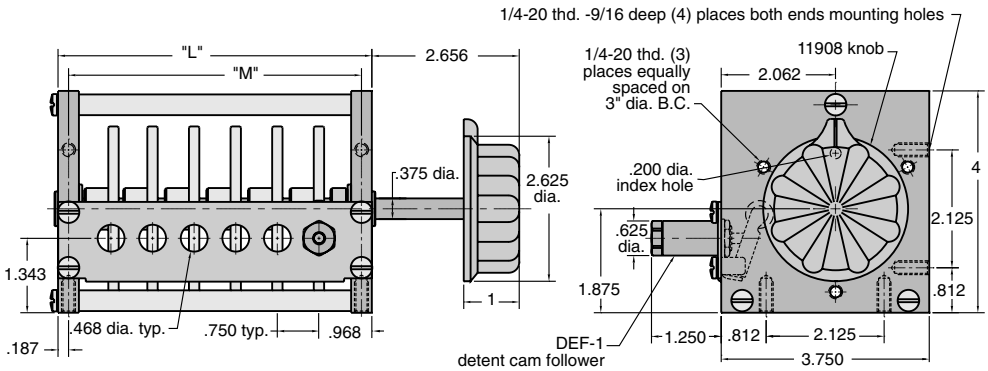
Part #	# of Cams	"L"	"M"
MSP-4	4	4.156	3.781
MSP-6	6	5.656	5.281
MSP-8	8	7.156	6.781
MSP-10	10	8.656	8.281
MSP-12	12	10.156	9.781
MSP-14	14	11.656	11.281

DSP-❑

Center shaft replaceable cam detect **sequence programmer.**







Construction: Basically the same as the MSP programmers with the addition of a spring plunger detent mechanism, an extended shaft with hand knob, and tapped mounting holes for panel mounting

No. Of Cams*: 3 to 13, depending upon model; six standard models (3, 5, 7, 9, 11 and 13 valve stations respectively)

Mounting: Mount on panel, or by bottom or rear, as required; three (3) 1/4-20 tapped holes provided on front plate for flush mount to panel; additional holes provided on front plate for flush mount to panel; additional holes at bottom and sides of end plates

***Cams not included**

Use: Manually to set a predetermined sequence; or as a stepping switch

Part #	# of Cams	"L"	"M"
DSP-3	3	4 5/32	3 25/32
DSP-5	5	5 21/32	5 9/32
DSP-7	8	7 5/32	6 25/32
DSP-9	9	8 21/32	8 9/32
DSP-11	11	10 5/32	9 25/32
DSP-13	13	11 21/32	11 9/32

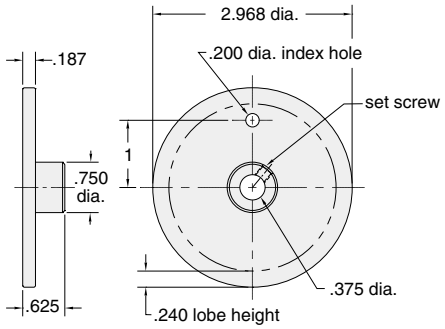
Specify desired standard Clippard programmer cams plus one detent cam. Use Clippard wrench #11751 for Valve mounting.

C-33-❑

Minimatic® sequence programmer cams. Use with Clippard MSP or DSP sequence programmers. Available in 8 models pre-cut with lobes from 15˚ to 340˚, also blank 360˚ cam for custom machining.

Construction: Cam body - one-piece phenolic; center hub - cadmium plated brass; set screw has Nylon tip

Alignment: 3/16" alignment hole located at 0˚ position; align through holes in programmer end blocks; degrees of cam lobes denotes approximate ON TIME using Clippard 11925 cam follower head



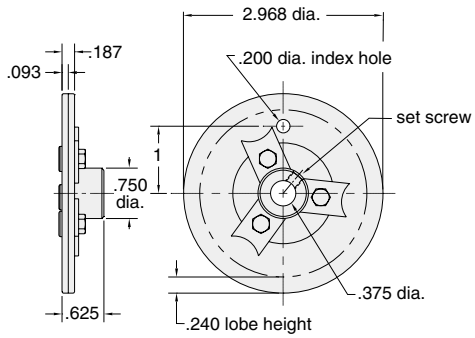
Model #	Lobe
C-33-15	15˚
C-33-30	30˚
C-33-60	60˚
C-33-90	90˚
C-33-120	120˚
C-33-180	180˚
C-33-270	270˚
C-33-340	340˚
C-33-360	uncut*

Special cuts available at nominal cost; send a drawing on a 3" dia. circle. *uncut blank cams may be ordered if your own machining is preferred; easily machined with end-mill saw, or belt-sander, and touched up with a file

A-33-❑

Adjustable programmer cams. Use with Clippard MSP or DSP sequence programmers. Available in five models with adjustable lobes covering from 30˚ to 360˚, also as a blank for custom machining.

Construction: cam body consists of two phenolic discs with common center point; may be rotated and locked for extended lobe; to set loosen three center screws, rotate cam to desired point and tighten



Lobe Adjustment		
Model #	From	To
A-33-30	30˚	50˚
A-33-45	45˚	80˚
A-33-70	70˚	130˚
A-33-120	120	230˚
A-33-210	210˚	360˚
A-33-360	uncut	

DC-❑

One standard phenolic detent cam with 4, 6, 8, 10 or 12 evenly spaced cuts is required with each DSP. Special cut detent cams are available at nominal cost

Model #	Number of Positions
DC-4	4
DC-6	6
DC-8	8
DC-10	10
DC-12	12