



SELECTION CHARTS

4-Way Valves

Order No.	Style	Flow (@ 100 psig/7 bar)	Ports			Normally-Open	Normally-Closed	Momentary/Detented	Brass Toggle	Plastic Toggle	Page No.
			Inlet	Outlet	Exhaust						
Toggle Valves	TV-4D	Spool	7.5 scfm	#10-32	#10-32	holes in body	▲	D	▲	126	
	TV-4D-M5	Spool	180 l/min	M5	M5	holes in body	▲	D	▲	126	
	TV-4M	Spool	7.5 scfm	#10-32	#10-32	holes in body	▲	D	▲	126	
	TV-4M-M5	Spool	180 l/min	M5	M5	holes in body	▲	D	▲	126	
	TV-4DM	Spool	7.5 scfm	#10-32	#10-32	holes in body	▲	D	▲	126	
	TV-4DM-M5	Spool	180 l/min	M5	M5	holes in body	▲	D	▲	126	
	TV-4DP	Spool	7.5 scfm	1/8" NPT	1/8" NPT	holes in body	▲	D	▲	126	
	TV-4MP	Spool	7.5 scfm	1/8" NPT	1/8" NPT	holes in body	▲	D	▲	126	
	TV-4DMP	Spool	7.5 scfm	1/8" NPT	1/8" NPT	holes in body	▲	D	▲	126	
	MTV-4	Spool	10 scfm	#10-32	#10-32	holes in body	▲	▲	D	▲	125
	MTV-4-M5	Spool	240 l/min	M5	M5	holes in body	▲	▲	D	▲	125
	MTV-4F	Spool	10 scfm	#10-32	#10-32	holes in body	▲	▲	D	▲	125
	MTV-4F-M5	Spool	240 l/min	M5	M5	holes in body	▲	▲	D	▲	125
	MJTV-4	Spool	10.5 scfm	1/8" NPT	1/8" NPT	holes in body	▲	▲	D	▲	125
	MJTV-4-MG	Spool	250 l/min	G1/8	G1/8	holes in body	▲	▲	D	▲	125
	MJTV-4F	Spool	10.5 scfm	1/8" NPT	1/8" NPT	holes in body	▲	▲	D	▲	125
	MJTV-4F-MG	Spool	250 l/min	G1/8	G1/8	holes in body	▲	▲	D	▲	125
	MTV-5	Spool	10 scfm	#10-32	#10-32	#10-32	▲	▲	D	▲	125
	MTV-5-M5	Spool	240 l/min	M5	M5	M5	▲	▲	D	▲	125
	MTV-5F	Spool	10 scfm	#10-32	#10-32	#10-32	▲	▲	D	▲	125
MTV-5F-M5	Spool	240 l/min	M5	M5	M5	▲	▲	D	▲	125	
Stem Valves	MJTV-5	Spool	10.5 scfm	1/8" NPT	1/8" NPT	1/8" NPT	▲	▲	D	▲	125
	MJTV-5-MG	Spool	250 l/min	G1/8	G1/8	G1/8	▲	▲	D	▲	125
	MJTV-5F	Spool	10.5 scfm	1/8" NPT	1/8" NPT	1/8" NPT	▲	▲	D	▲	125
	MJTV-5F-MG	Spool	250 l/min	G1/8	G1/8	G1/8	▲	▲	D	▲	125
	MAV-4	Spool	8.5 scfm	#10-32	#10-32	holes in body	▲	▲			128
	MAV-4-M5	Spool	240 l/min	M5	M5	holes in body	▲	▲			128
	MAV-4D	Spool	8.5 scfm	#10-32	#10-32	holes in body	▲	▲			128
	MAV-4D-M5	Spool	240 l/min	M5	M5	holes in body	▲	▲			128
	MJV-4	Spool	14 scfm	1/8" NPT	1/8" NPT	holes in body	▲	▲			128
	MJV-4-MG	Spool	396 l/min	G1/8	G1/8	holes in body	▲	▲			128
	MJV-4D	Spool	14 scfm	1/8" NPT	1/8" NPT	holes in body	▲	▲			128
	MJV-4D-MG	Spool	396 l/min	G1/8	G1/8	holes in body	▲	▲			128
FV-4	Spool	10 scfm	#10-32	#10-32	holes in body	▲	▲			128	
FV-4-M5	Spool	240 l/min	M5	M5	holes in body	▲	▲			128	
FV-4-MG	Spool	250 l/min	G1/8	G1/8	holes in body	▲	▲			128	
FV-4P	Spool	10.5 scfm	1/8" NPT	1/8" NPT	holes in body	▲	▲			128	

4-Way Valves Cont'd.

Order No.	Style	Flow (@ 100 psig/7 bar)	Ports			Normally-Open	Normally-Closed	Momentary/Detented	Brass Toggle	Plastic Toggle	Page No.
			Inlet	Outlet	Exhaust						
Stem Valves	FV-4-MG	Spool	250 l/min	G1/8	G1/8	holes in body	▲	▲			128
	FV-4D	Spool	10 scfm	#10-32	#10-32	holes in body	▲	▲			128
	FV-4D-M5	Spool	240 l/min	M5	M5	holes in body	▲	▲			128
	FV-4DP	Spool	10.5 scfm	1/8" NPT	1/8" NPT	holes in body	▲	▲			128
	FV-4D-MG	Spool	250 l/min	G1/8	G1/8	holes in body	▲	▲			128
	FV-5	Spool	10 scfm	#10-32	#10-32	#10-32	▲	▲			129
	FV-5-M5	Spool	240 l/min	M5	M5	#10-32	▲	▲			129
	FV-5P	Spool	10.5 scfm	1/8" NPT	1/8" NPT	1/8" NPT	▲	▲			129
	FV-5-MG	Spool	250 l/min	G1/8	G1/8	G1/8	▲	▲			129
	FV-5D	Spool	10 scfm	#10-32	#10-32	#10-32	▲	▲			129
	FV-5D-M5	Spool	240 l/min	M5	M5	M5	▲	▲			129
	FV-5DP	Spool	10.5 scfm	1/8" NPT	1/8" NPT	1/8" NPT	▲	▲			129
	FV-5D-MG	Spool	250 l/min	G1/8	G1/8	G1/8	▲	▲			129

Options

-NP Nickel Plating

This option provides a bright finish on brass parts for decorative purposes that also protects the surface from corrosion and tarnishing. It has a nominal thickness of 0.0015", and does not affect the fit or function of the part.

-ENP Electroless Nickel Plating

This option provides a low luster finish on brass parts for decorative purposes that also protects the surface from corrosion and tarnishing. It has a nominal thickness of 0.0002", and does not affect the fit or function of the part.

-V Viton

This option replaces the standard Buna-N seals with Viton seals either for high temperature (up to + 400°F) applications or those that require Viton for chemical compatibility.

Clippard miniature valves and associated products have evolved into a widely used system of fluid power control devices, known for quality, value and performance.

Over the past five decades, a diverse range of industries in the U.S. and throughout the world have come to rely on Minimatics



to control machines, systems, and processes through an unlimited list of applications. Clippard quality in design, engineering, manufacturing, as well as an expansive product offering, make Minimatics the preferred choice for miniature and subminiature pneumatic applications.

Temperature Range



All Control Valves in this section have a temperature range of 32° to 230°F/0° to 110°C

Recognized as the original and most complete line of miniature fluid power components, Clippard's Minimatic line is available across the globe through a network of fully-trained, stocking distributors. Clippard and our distributors stand ready to provide expert application assistance, support, and technical answers, to help you achieve the highest level of performance in your system.

4-WAY TOGGLE VALVES



4-WAY TOGGLE VALVES

4-way valves can supply and exhaust two different outlets, and are commonly used with double-acting cylinders. When the toggle is in one position air flows from the inlet to one of the outlets. The second outlet is open to the exhaust port which is vented to atmosphere. Moving the toggle to the opposite position opens the inlet to the second outlet

while exhausting the first outlet. 4-way toggle valves are spool valves that by movement of the toggle may either be 2-position or have a momentary actuation.

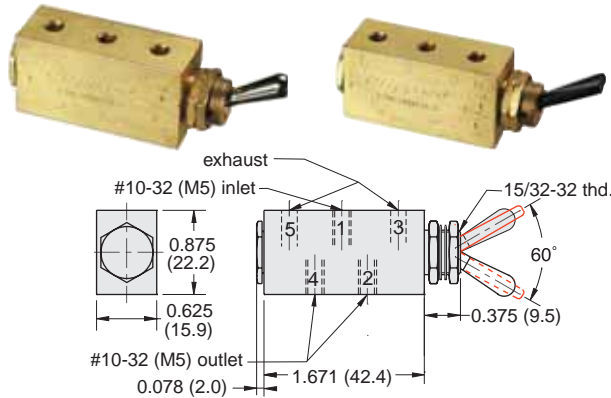
Medium: Air

Stem Travel: 1/8" (3.2)

Materials: Brass body, Buna-N seals, stainless steel stem and spring

Mounting: 15/32-32 thread. Nuts and lockwashers furnished.

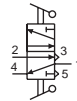
2 Position Spool Valves



Input Pressure: 150 psig/10 bar max.

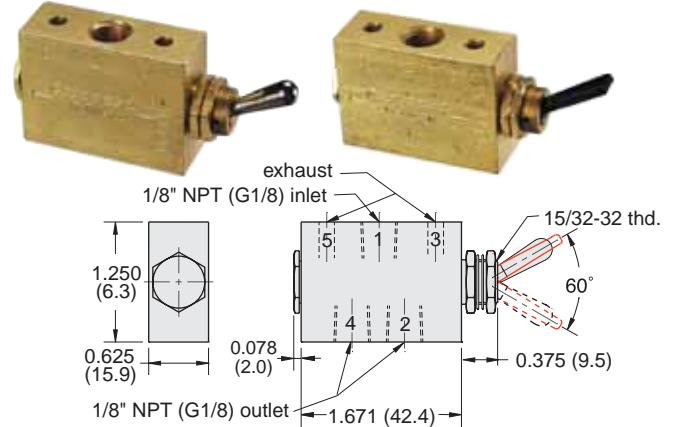
Air Flow: 6 SCFM @ 50 psig; 10 SCFM @ 100 psig;
240 l/min @ 6 bar

Force For Full Stem Travel: 12 oz. nominal



Part No.	Description
MTV-4	.2 Position Spool Valve, NP Brass Toggle, #10-32
MTV-4-M5	.2 Position Spool Valve, NP Brass Toggle, M5
MTV-4F	.2 Position Spool Valve, Plastic Toggle, #10-32
MTV-4F-M5	.2 Position Spool Valve, Plastic Toggle, M5

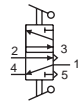
J-Series 2 Position Spool Valves



Input Pressure: 150 psig/10 bar max.

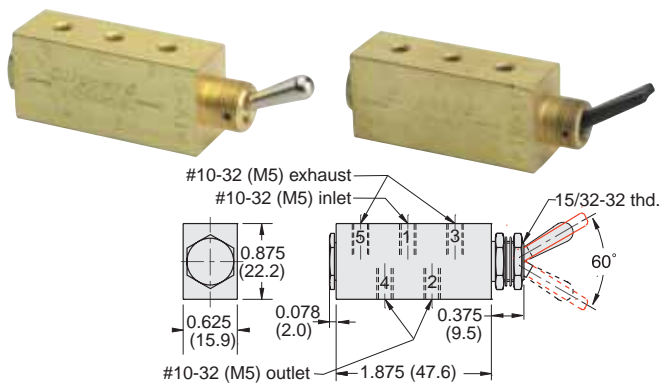
Air Flow: 6.5 SCFM @ 50 psig; 10.5 SCFM @ 100 psig;
250 l/min @ 6 bar

Force For Full Stem Travel: 12 oz. nominal



Part No.	Description
MJTV-4	.2 Position Spool Valve, NP Brass Toggle, 1/8" NPT
MJTV-4-MG	.2 Position Spool Valve, NP Brass Toggle, G1/8
MJTV-4F	.2 Position Spool Valve, Plastic Toggle, 1/8" NPT
MJTV-4F-MG	.2 Position Spool Valve, Plastic Toggle, G1/8

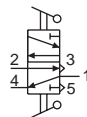
2 Position Fully-Ported Spool Valves



Input Pressure: 150 psig/10 bar max.

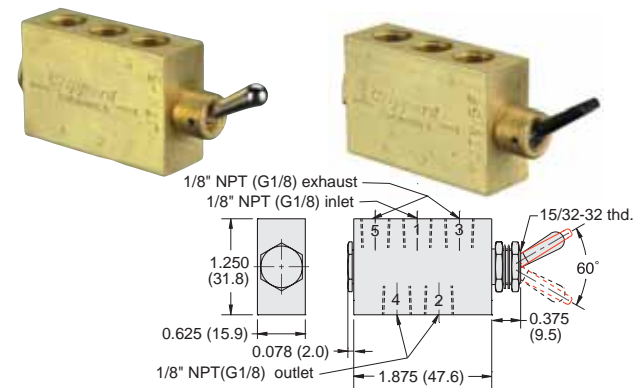
Air Flow: 6 SCFM @ 50 psig; 10 SCFM @ 100 psig;
240 l/min @ 6 bar

Force For Full Stem Travel: 16 oz. nominal



Part No.	Description
MTV-5	.2 Position Spool Valve, NP Brass Toggle, #10-32
MTV-5-M5	.2 Position Spool Valve, NP Brass Toggle, M5
MTV-5F	.2 Position Spool Valve, Plastic Toggle, #10-32
MTV-5F-M5	.2 Position Spool Valve, Plastic Toggle, M5

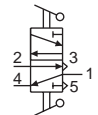
J-Series 2 Position Fully-Ported Spool



Input Pressure: 150 psig/10 bar max.

Air Flow: 6.5 SCFM @ 50 psig; 10.5 SCFM @ 100 psig;
250 l/min @ 6 bar

Force For Full Stem Travel: 16 oz. nominal



Part No.	Description
MJTV-5	.2 Position Spool Valve, NP Brass Toggle, 1/8" NPT
MJTV-5-MG	.2 Position Spool Valve, NP Brass Toggle, G1/8
MJTV-5F	.2 Position Spool Valve, Plastic Toggle, 1/8" NPT
MJTV-5F-MG	.2 Position Spool Valve, Plastic Toggle, G1/8

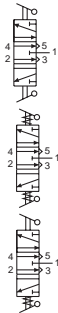


4-WAY TOGGLE VALVES

3 Position Toggle Valves

By choosing valves with different toggle position options the user can customize the application to best suit the needs. For example, the DM model can be used on the momentary side as a "jog" or "manual" control, and with the detented side for "automatic" or "run" mode.

Valves are made of solid brass, bright dipped finish to resist corrosion; stems and springs are of stainless steel, toggle of black acetyl plastic, and seals of Buna-N rubber.



Model Number					
TV-4D	#10-32	Detented	SPRING CENTERED supply blocked both sides exhausted	Detented	
TV-4D-M5	M5				
TV-4DP	1/8" NPT				
TV-4M	#10-32	Momentary		SPRING CENTERED supply blocked both sides exhausted	Momentary
TV-4M-M5	M5				
TV-4MP	1/8" NPT				
TV-4DM	#10-32	Detented	SPRING CENTERED supply blocked both sides exhausted		Momentary
TV-4DM-M5	M5				
TV-4DMP	1/8" NPT				

Medium: Air

Materials: Brass body, Buna-N seals, stainless steel stem and spring

Input Pressure: 150 psig/10 bar max.

Air Flow: 4.5 SCFM @ 50 psig; 7.5 SCFM @ 100 psig;
180 l/min @ 6 bar

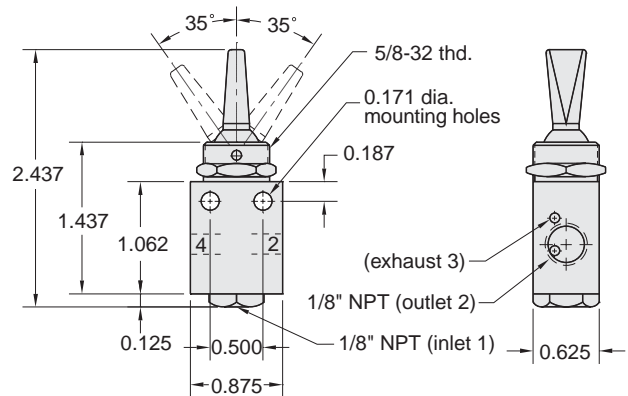
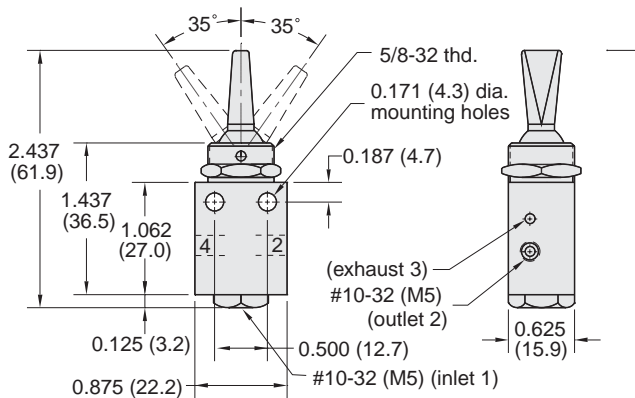
Force For Full Stem Travel: 8 oz. nominal

Toggle: Plastic

Mounting: 5/8-32 thread. Nut and lockwashers furnished.

3 Position Toggle Valves, #10-32/M5

3 Position Toggle Valves, 1/8" NPT



Part No.	Description
TV-4D	Toggle Valve, Detented/Detented, #10-32
TV-4D-M5	Toggle Valve, Detented/Detented, M5
TV-4M	Toggle Valve, Momentary/Momentary, #10-32
TV-4M-M5	Toggle Valve, M5, Momentary/Momentary, M5
TV-4DM	Toggle Valve, Detented/Momentary, #10-32
TV-4DM-M5	Toggle Valve, Detented/Momentary, M5

Part No.	Description
TV-4DP	Toggle Valve, Detented/Detented, 1/8" NPT
TV-4MP	Toggle Valve, Momentary/Momentary, 1/8" NPT
TV-4DMP	Toggle Valve, Detented/Momentary, 1/8" NPT

FILL & BLEED TOGGLE VALVES



Fill and Bleed Applications

The FBV-3 may be used to pressurize or "fill" a chamber or bladder by depressing the toggle in one direction and then de-pressurize or "bleed" that same chamber or bladder by depressing the toggle in the other direction. Toggling back and forth between the inlet and exhaust provides a fine adjustment of the required pressure in the chamber or bladder.

Model Number				
FBV-3D & FBV-3D-F FBV-3DP	#10-32 1/8" NPT	Detented	SPRING CENTERED all ports blocked	Detented
FBV-3M & FBV-3M-F FBV-3MP	#10-32 1/8" NPT	Momentary		Momentary
FBV-3DM & FBV-3DM-F FBV-3DMP	#10-32 1/8" NPT	Detented		Momentary

Medium: Air

Materials: Brass body, Buna-N seals, stainless steel stem and spring

Input Pressure: 120 psig max.

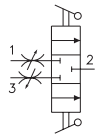
Air Flow:

Adjustable	Full-Flow (-F)
3.0 scfm @ 50 psig	4.5 scfm @ 50 psig
5.0 scfm @ 100 psig	7.5 scfm @ 100 psig

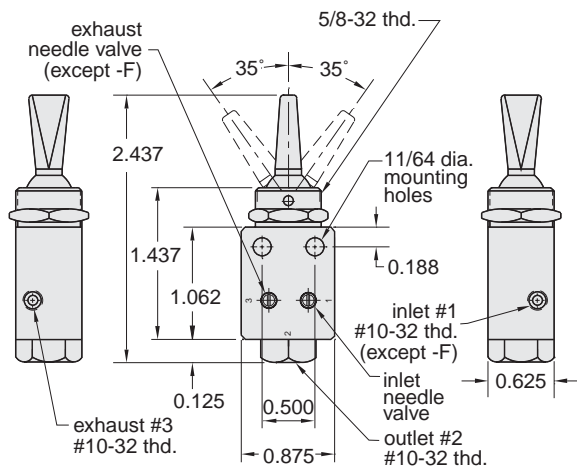
Force For Full Stem Travel: 8 oz. nominal

Toggle: Plastic

Mounting: 5/8-32 thread. Nut and lockwashers furnished.
(2) 0.171 mounting holes in body or may be mounted directly on a cylinder

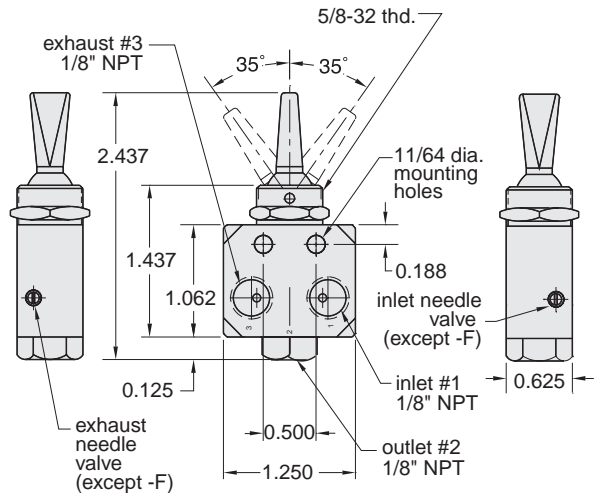
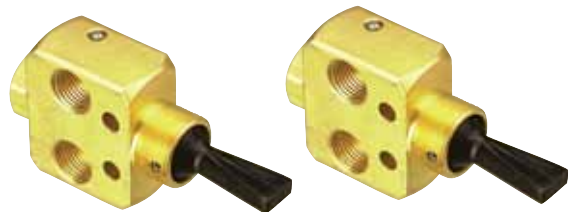


3 Position Fill & Bleed Valves, #10-32



Part No.	Description
FBV-3D	Fill & Bleed Valve, Adjustable, Detented/Detented
FBV-3D-F	Fill & Bleed Valve, Full-Flow, Detented/Detented
FBV-3M	Fill & Bleed Valve, Adjustable, Momentary/Momentary
FBV-3M-F	Fill & Bleed Valve, Full-Flow, Momentary/Momentary
FBV-3DM	Fill & Bleed Valve, Adjustable, Detented/Momentary
FBV-3DM-F	Fill & Bleed Valve, Full-Flow, Detented/Momentary

3 Position Fill & Bleed Valves, 1/8" NPT



Part No.	Description
FBV-3DP	Fill & Bleed Valve, Adjustable, Detented/Detented
FBV-3DP-F	Fill & Bleed Valve, Full-Flow, Detented/Detented
FBV-3MP	Fill & Bleed Valve, Adjustable, Momentary/Momentary
FBV-3MP-F	Fill & Bleed Valve, Full-Flow, Momentary/Momentary
FBV-3DMP	Fill & Bleed Valve, Adjustable, Detented/Momentary
FBV-3DMP-F	Fill & Bleed Valve, Full-Flow, Detented/Momentary



4-WAY STEM VALVES

4-WAY STEM VALVES

4-way valves can supply and exhaust two different outlets, and are commonly used with double-acting cylinders. When the stem is in one position air flows from the inlet to one of the outlets. The second outlet is open to the exhaust port. Moving the stem to the opposite position opens the inlet to the second

outlet while exhausting the first outlet. 4-way stem valves are spool valves that may either be spring return or double acting.

Medium: Air

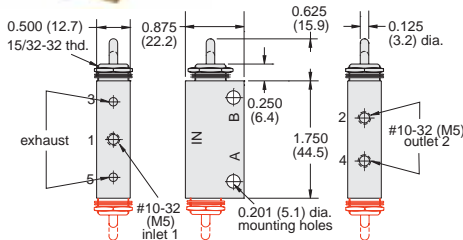
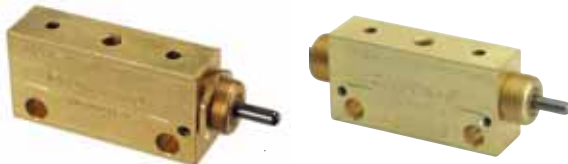
Stem Travel: 1/8" (3.2)

Materials: Brass body, Buna-N seals, stainless steel stem and spring

Input Pressure: 150 psig/10 bar max.

Mounting: 15/32-32 thread. Nut and lockwasher furnished.

Miniature 4-Way Spool Valves



Air Flow: 5.0 SCFM @ 50 psig; 8.5 SCFM @ 100 psig; 240 l/min @ 6 bar

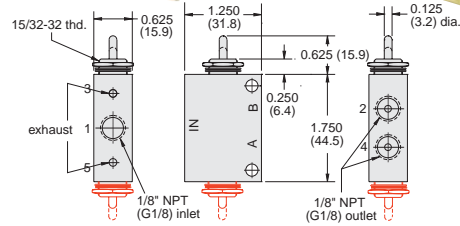
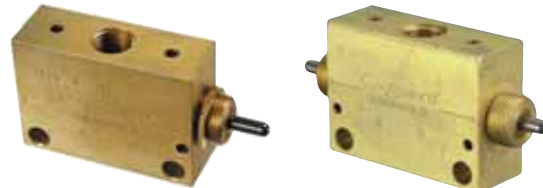
Force For Full Stem Travel: MAV-4 - 38 oz. nominal; MAV-4D - 12 oz. nominal

Mounting: Also two 0.201" dia. mounting holes in valve body.

Part No. Description

- MAV-4 Spool Valve with Spring Return, #10-32
- MAV-4-M5 Spool Valve with Spring Return, M5
- MAV-4D 2 Position Spool Valve, #10-32
- MAV-4D-M5 2 Position Spool Valve, M5

J-Series 4-Way Spool Valves



Air Flow: 8.0 SCFM @ 50 psig; 14.0 SCFM @ 100 psig; 390 l/min @ 6 bar

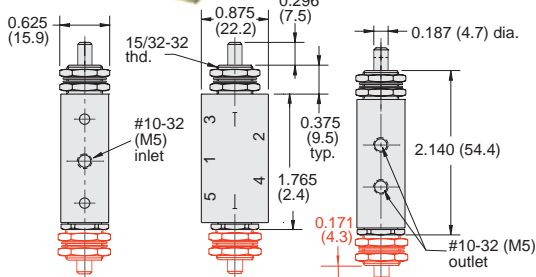
Force For Full Stem Travel: MAV-4 - 38 oz. nominal; MAV-4D - 12 oz. nominal

Mounting: Also two 0.201" dia. mounting holes in valve body.

Part No. Description

- MJV-4 Spool Valve with Spring Return, 1/8" NPT
- MJV-4-MG Spool Valve with Spring Return, G1/8
- MJV-4D 2 Position Spool Valve, 1/8" NPT
- MJV-4D-MG 2 Position Spool Valve, G1/8

FV-Series 4-Way Spool Valves



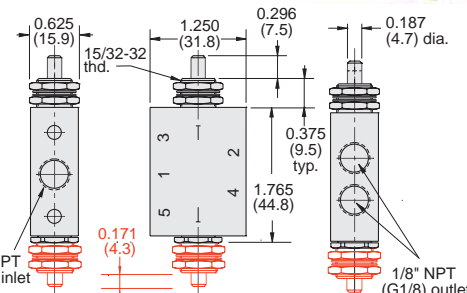
Air Flow: 6.0 SCFM @ 50 psig; 10 SCFM @ 100 psig; 240 l/min @ 6 bar

Force For Full Stem Travel: FV-4 & FV-4-M5 - 4 1/2 lb. nominal; FV-4P & FV-4P-M5 - 1 1/2 lb. nominal

Part No. Description

- FV-4 Plunger Actuated Spring Return Valve, #10-32
- FV-4-M5 Plunger Actuated Spring Return Valve, M5
- FV-4D 2 Position Double Plunger Valve, #10-32
- FV-4D-M5 2 Position Double Plunger Valve, M5

FV-Series 4-Way Spool Valves



Air Flow: 6.5 SCFM @ 50 psig; 10 SCFM @ 100 psig; 250 l/min @ 6 bar

Force For Full Stem Travel: FV-4P & FV-4-MG - 4 1/2 lb. nominal; FV-4DP & FV-4D-MG - 1 1/2 lb. nominal

Part No. Description

- FV-4P Plunger Actuated Spring Return Valve, 1/8" NPT
- FV-4-MG Plunger Actuated Spring Return Valve, G1/8
- FV-4DP 2 Position Double Plunger Valve, 1/8" NPT
- FV-4D-MG 2 Position Double Plunger Valve, G1/8

4-WAY FULLY-PORTED STEM VALVES

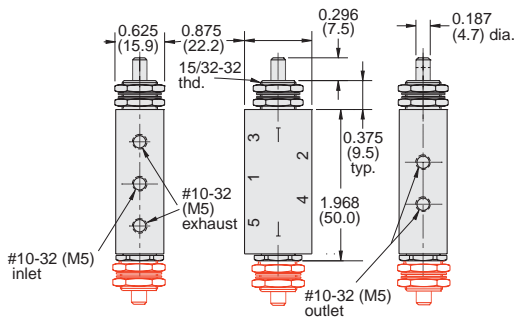
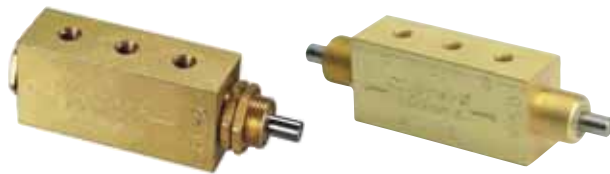


4-WAY FULLY-PORTED STEM VALVES

4-way fully-ported valves have two inlets, two

outlets and one exhaust port. When the stem is in one position air flows from one inlet to its outlet while the other inlet is blocked. Moving the stem to the opposite position reverses this action. This may be defined as two 3-way valves, one Normally Closed and one Normally Open operating simultaneously. 4-way fully ported stem valves may either be spring return or double acting. A double acting stem must be moved from one position to the other, a spring return stem will move to the opposite position when released.

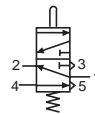
4-Way Fully-Ported Valves



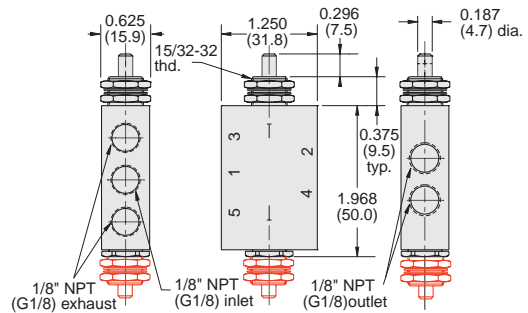
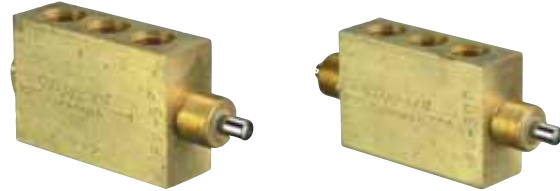
Medium: Air or Oil

Air Flow: 6.0 SCFM @ 50 psig; 10 SCFM @ 100 psig;
240 l/min @ 6 bar

Force For Full Stem Travel: FV-5 & FV-5-M5 - 4 1/2 lb. nominal;
FV-5D & FV-5D-M5 - 1 1/2 lb. nominal



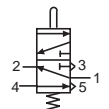
4-Way Fully-Ported Valves



Medium: Air or Oil

Air Flow: 6.5 SCFM @ 50 psig; 10.5 SCFM @ 100 psig;
250 l/min @ 6 bar

Force For Full Stem Travel: FV-5P & FV-5-MG - 4 1/2 lb. nominal;
FV-5DP & FV-5D-MG - 1 1/2 lb. nominal



Part No. Description

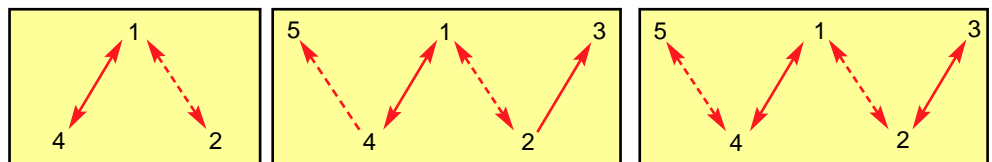
- FV-5 Plunger Actuated Spring Return Valve, #10-32
- FV-5-M5 . . Plunger Actuated Spring Return Valve, M5
- FV-5D 2 Position Double Plunger Valve, #10-32
- FV-5D-M5 . 2 Position Double Plunger Valve, M5

Part No. Description

- FV-5P Plunger Actuated Spring Return Valve, 1/8" NPT
- FV-5-MG Plunger Actuated Spring Return Valve, G1/8
- FV-5DP 2 Position Double Plunger Valve, 1/8" NPT
- FV-5D-MG . . 2 Position Double Plunger Valve, G1/8

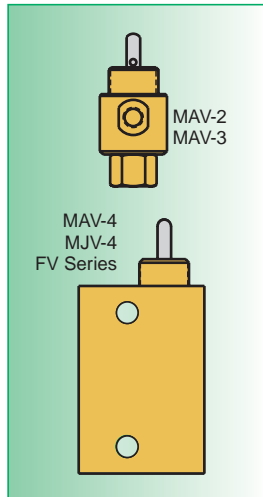
Flow Paths for "FTV & FV" Series

Solid lines indicate flow paths with toggle or stem in one direction. Dotted lines indicate flow paths when the toggle or stem are shifted.



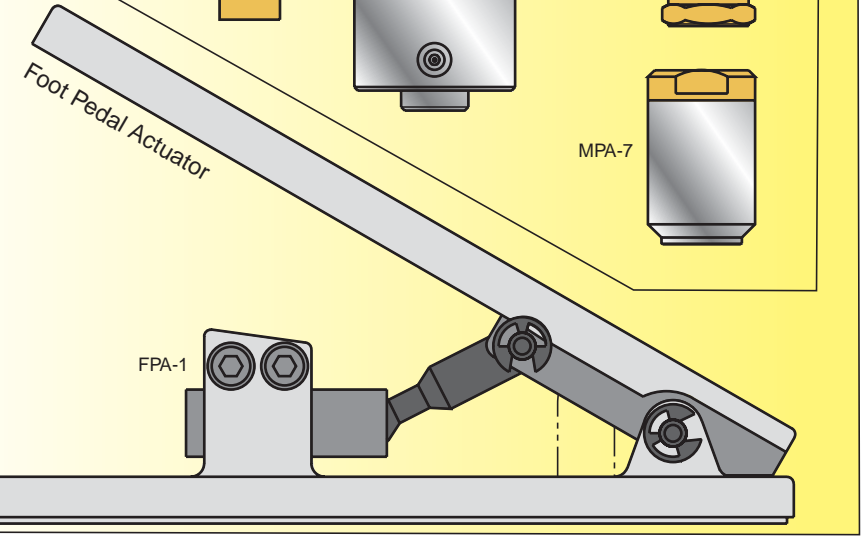
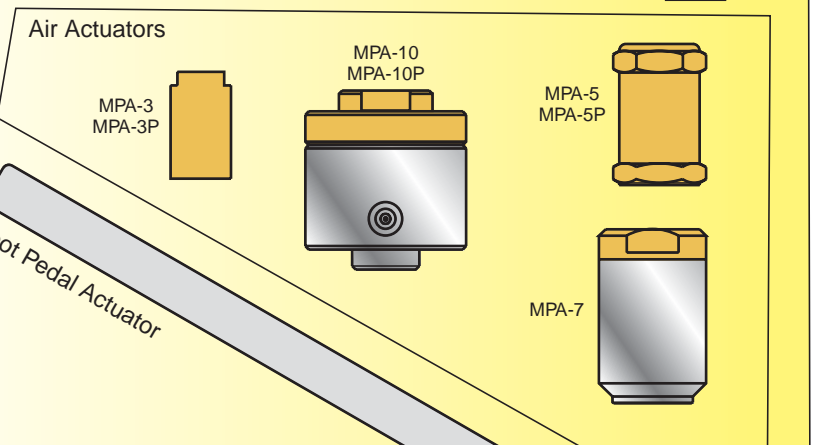
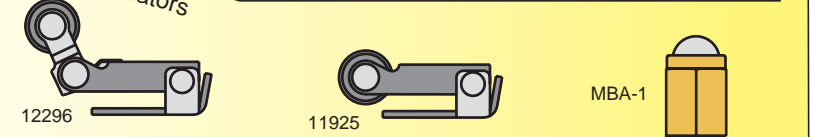
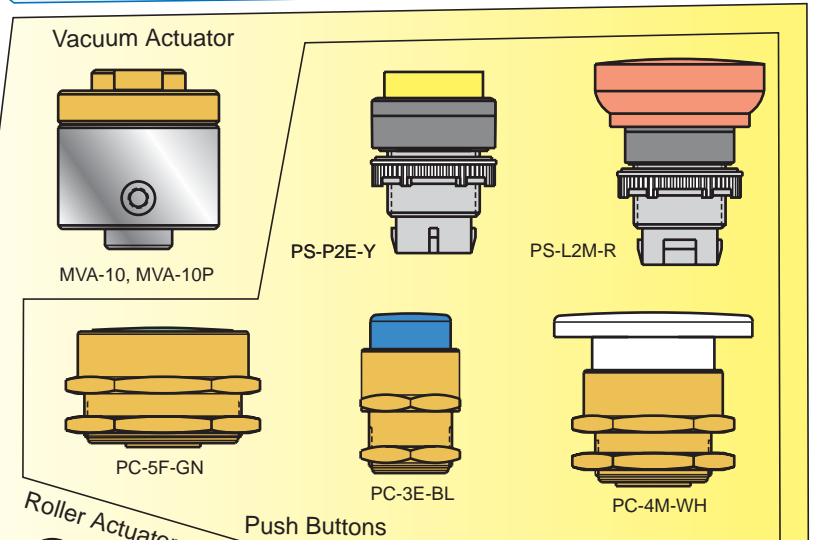
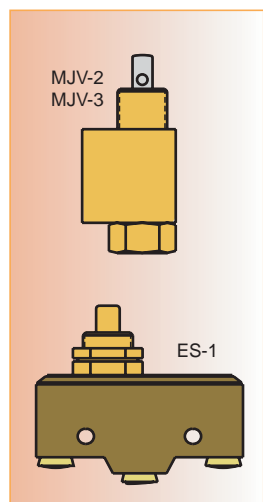
The following valve actuators are compatible with all Clippard MAV, MAVO, MJV, MJVO, ES-1, & FV series valves.

One of the most versatile items in the Clippard line. Permits wide circuit flexibility and allows many control functions to be accomplished pneumatically with less cost, hazards and complexity. Threads onto the tops of our Miniature 2-way, 3-way, and 4-way valves and ES-1 electric switch to provide fast pilot actuation from a pneumatic signal.



MPA Actuators Can:

- Remotely actuate any number of valves and switches simultaneously in different strategic locations from a single miniature 3-way valve
- Make an ES-1 into a pressure switch
- Act as an air relay, i.e., one pressure source to another.
- Operate the MAV-4D from a single impulse.
- Serve as a pressure interlock or safety device, i.e., turn off power when pressure fails, etc.
- Provide an electric take off from a pneumatic source to start and stop power, actuate electric counters, indicator lights on panel boards, etc.

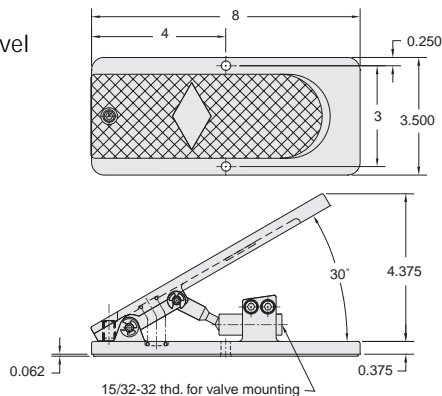




VALVE ACTUATORS

Foot Pedal

Adjustable travel foot pedal



Construction: Sturdy cast aluminum and black oxidized steel

Control Devices: May be fitted with any Clippard 2-, 3- or 4-way valve or MAR-1C pressure controller with a #15/32-32 mounting thread

Mounting: To floor or other structure with two 9/32" mounting holes stroke plunger adjustable to accommodate a variety of valves

"Hands-free" touch-of-toe operation of endless types of automated and semi-automated machinery and equipment, jigs and fixtures, is possible thru use of this sturdy treadle type foot pedal, combined with Clippard miniature valves, plunger type air pressure controls, and electrical switch.

A sliding link mechanism between treadle and mounting sleeve actuates the component, and a set screw at the back of pedal base adjusts treadle travel.

Pedal is spring loaded at approximately 1/2 lb. for return to "off" position.

Part No.	Description
FPA-1	Adjustable Travel Foot Pedal

Note for MBA-1, 11925 & 12296:

When mounting on a valve, a space should be provided between the body and the actuator according to the chart to the right:

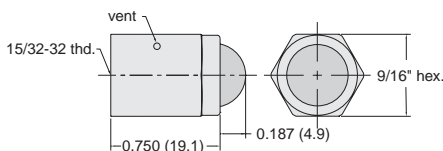
Valve mtg. thd.	MBA-1	11925	12296
0.250 thd length	0.125"	0.062"	0.062"
0.373 thd length	0.218"	0.188"	0.188"

A mounting nut (supplied with valve), mounting bracket or washers should be used to obtain the required spacing.

Ball Cam Actuator



Ball Cam Actuator permits the valves and electrical switch to be operated by mechanical movement depressing the ball from any direction



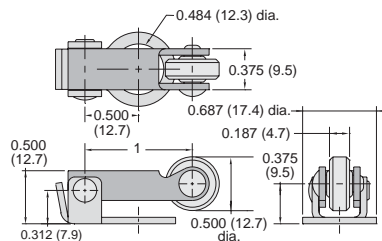
Construction: Body - brass
Ball - stainless steel retained in housing

Operation: Will actuate valve while depressed from any (360°) direction

Mounting: 15/32-32 female to mount to Clippard miniature valves and electric switch

Part No.	Description
MBA-1	Ball Cam Actuator

Roller Cam Actuator



Construction: Stainless steel with nylon roller

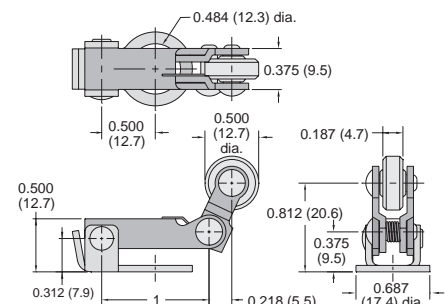
Temperature Range: 32° to 230° F

Mounting: 31/64" dia. mounting hole fits 15/32-32 threaded mounting section of valve bodies

Operation: Mounts to valve body, actuates valve when mechanically depressed; valve spring provides return

Part No.	Description
11925	Roller Cam Follower Actuator

Double-Pivoted Actuator



Construction: Stainless steel with nylon roller

Mounting: 31/64" dia. mounting hole fits 15/32-32 threaded mounting section of valve bodies

Operation: Mounts to valve body, actuates valve when depressed by activating cam or linear travel device in one direction only; no actuation on return travel

Part No.	Description
12296	Roller, Double-Pivoted One-Way Cam Follower Actuator

AIR PILOTED VALVE ACTUATORS



MINIMUM PRESSURE REQUIRED (psig)*											
Clippard Valve	Pressure (psig)					Clippard Valve	Pressure (psig)				
	Pressure (psig)	Pressure (psig)	Pressure (psig)	Pressure (psig)	Vacuum (in Hg)		Pressure (psig)	Pressure (psig)	Pressure (psig)	Pressure (psig)	Vacuum (in Hg)
	w/MPA3	w/MPA-5	w/MPA-7	w/MPA-10	w/MVA-10		w/MPA3	w/MPA-5	w/MPA-7	w/MPA-10	w/MVA-10
ES-1 Switch	12	4	2	*	*	FV-3	41	15	7.5	4.0	8.2
MAV-2 Valve	23	8	4	2.0	4.2	FV-3P	41	15	7.5	4.0	8.2
MAV-3 Valve	23	8	4	2.0	4.2	FV-4	41	15	7.5	4.0	8.2
MAV-4 Valve	36	11	5.5	3.5	7.2	FV-4P	41	15	7.5	4.0	8.2
MJV-4 Valve	36	11	5.5	3.5	7.2	FV-5	41	15	7.5	4.0	8.2
MAV-4D Valve	13	4	1.5	1.0	2.0	FV-5P	41	15	7.5	4.0	8.2
MJV-4D Valve	13	4	1.5	1.0	2.0	FV-3D	14	5	2.5	1.5	3.2
MJV-2 Valve	30	10	5	3.0	6.2	FV-3DP	14	5	2.5	1.5	3.2
MJV-3 Valve	30	10	5	3.0	6.2	FV-4D	14	5	2.5	1.5	3.2
MAVO-2 Valve	27	9	4.5	2.5	5.2	FV-4DP	14	5	2.5	1.5	3.2
MAVO-3 Valve	27	9	4.5	2.5	5.2	FV-5D	14	5	2.5	1.5	3.2
MJVO-2 Valve	30	10	5	3.0	6.2	FV-5DP	14	5	2.5	1.5	3.2
MJVO-3 Valve	30	10	5	3.0	6.2						

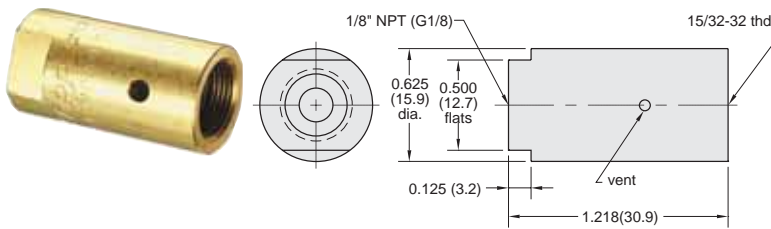
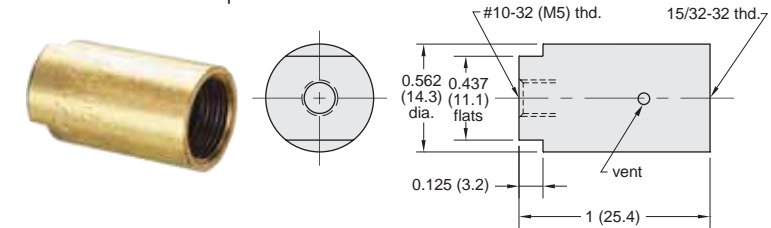
*with 100 psig to valve inlet

Single Acting Air Pilot Actuators

Input Pressure: 250 psig/17 bar max.

Construction: Body - brass; Springs - stainless steel; Seals - Buna N rubber; Piston - Delrin®

Mounting: 15/32-32 female thread to mount to Clippard miniature valves and components



Bore Size: 0.375 (9.5)

Force Factor: 0.1

Part No.	Description
MPA-3	Single Acting, Spring Return Actuator, #10-32
MPA-3-M5	Single Acting, Spring Return Actuator, M5
MPA-3P	Single Acting, Spring Return Actuator, 1/8" NPT
MPA-3-MG	Single Acting, Spring Return Actuator, G1/8



Bore Size: 0.625 (15.9)

Force Factor: 0.3

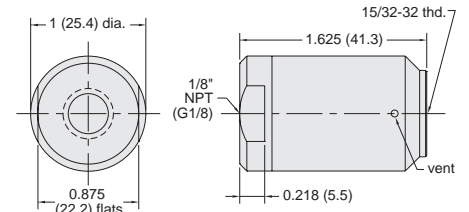
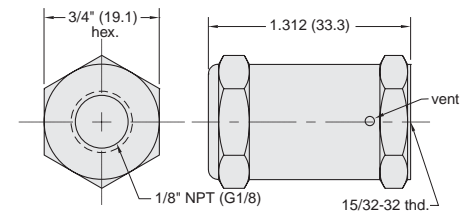
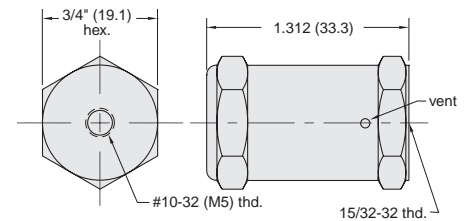
Part No.	Description
MPA-5	Single Acting, Spring Return Actuator, #10-32
MPA-5-M5	Single Acting, Spring Return Actuator, M5 Metric
MPA-5P	Single Acting, Spring Return Actuator, 1/8" NPT
MPA-5-MG	Single Acting, Spring Return Actuator, G1/8



Bore Size: 0.825" (21.0) dia.

Force Factor: 0.6

Part No.	Description
MPA-7	Single Acting, Spring Return Actuator, 1/8" NPT
MPA-7-MG	Single Acting, Spring Return Actuator, G1/8



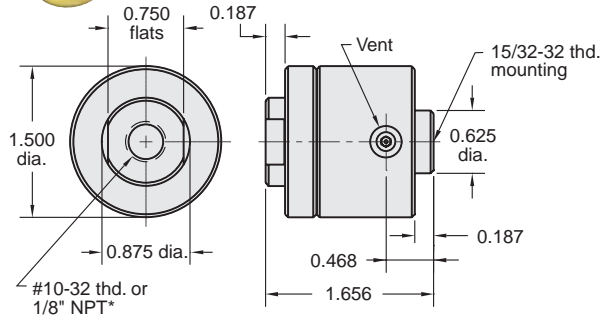


VALVE ACTUATORS

Pilot Actuators



Single Acting Spring Return Pilot Actuator



Bore Size: 1.250" dia.

Input Pressure: 150 psig max.

Mounting: 15/32-32 female thread to mount to Clippard Minimatic® valves and components; no spacers or washers are required when assembled to any Clippard valve; may be used with 15018-2 mounting bracket

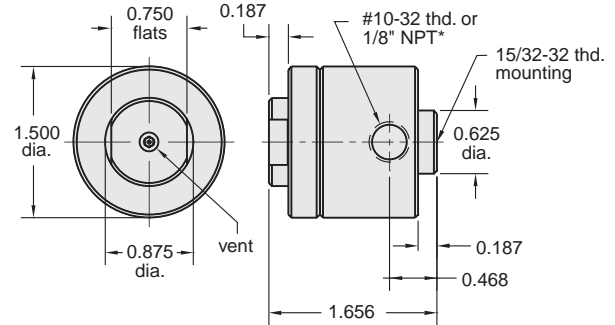
Force Factor: 1.2

Part No.	Description
MPA-10	Single Acting, Spring Return Actuator, #10-32
MPA-10P	Single Acting, Spring Return Actuator, 1/8" NPT

Vacuum Actuators



Single Acting Spring Return Vacuum Actuator



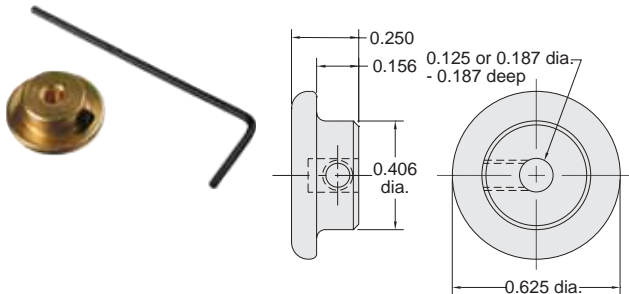
Input Pressure: 30 in. Hg vacuum

Mounting: 15/32-32 female thread to mount to Clippard Minimatic® valves and components; no spacers or washers are required when assembled to any Clippard valve; may be used with 15018-2 mounting bracket

Part No.	Description
MVA-10	Single Acting, Spring Vacuum Actuator, #10-32
MVA-10P	Single Acting, Spring Vacuum Actuator, 1/8" NPT

Push Button Actuators, 5/8"

Round Solid Brass 5/8" dia. Push Button



Use: Mounts directly on valve stem for manual operation of valve; prevents overtravel of valve stem by providing a positive stop

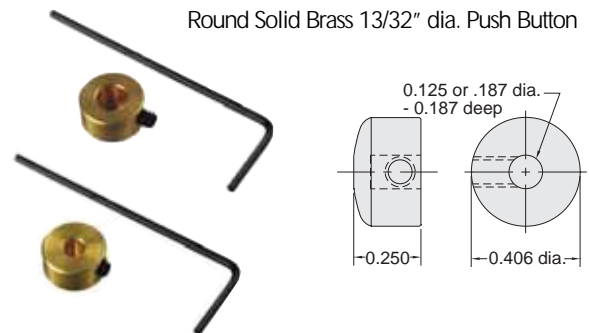
Mounting: 1/8" or 3/16" dia. mounting hole fits valve stems; locks in place by set screw (Allen wrench furnished)

Note: Individually packaged or bulk quantities available

Part No.	Description
11916-1	.5/8" Brass Push Button, 1/8" Stem
11916-2	.5/8" Brass Push Button, 3/16" Stem

Push Button Actuators, 13/32"

Round Solid Brass 13/32" dia. Push Button



Use: Mounts directly on valve stem for manual operation of valve; small size permits attachment to valve before valve is mounted through 15/32" dia. hole; prevents overtravel of valve stem by providing a positive stop

Mounting: 1/8" or 3/16" dia. mounting hole fits valve stems; locks in place by set screw (Allen wrench furnished)

Note: Individually packaged or bulk quantities available

Part No.	Description
11916-3	.13/32" Brass Push Button, 1/8" Stem
11916-4	.13/32" Brass Push Button, 3/16" Stem

Captivated Push Buttons



Clippard also offers the captivated push button for use with a large variety of stem operated valves. Captivated push buttons are sold as kits, adaptable to either 1/8" diameter stems or 3/16" diameter stems. Each kit includes a colored acetyl push button, brass housing nut, 1/16" brass spacer, and lock washer for assembly.

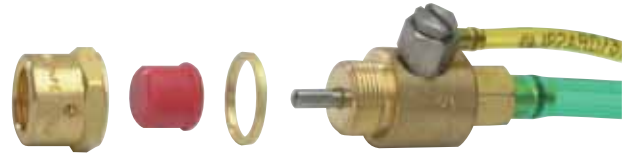
The standard furnished mounting nut has a bright chromate finish. Black chrome or nickel-plated finishes are also available by adding the suffix -BC or -NP to the part number.

Captivated push buttons can be used on individual stem operated valves or in panel mount application by omitting the 1/16" brass spacer. These push buttons are available in a variety of colors, allowing you to color code, or easily differentiate between valves when designing control systems. The design of these push buttons allows maximum actuation of the valve with no overtravel or side load to the valve stem.

This assures superior performance and long life.



Captivated push buttons are commonly used as limit valves in conjunction with pneumatic cylinders, slides, and any variety of mechanical actuators. The rugged design coupled with precise actuation of stem operated valves make it perfect for applications where repetitive cycling of the valve is necessary. Designed to work with Clippard MAV, MJV, and FV series, these push buttons integrate easily into Minimatic® systems, providing optimal quality and efficiency in Miniature pneumatic control.



P C - □ □ (- □)

Push Button Captivated

Valve Stem dia.

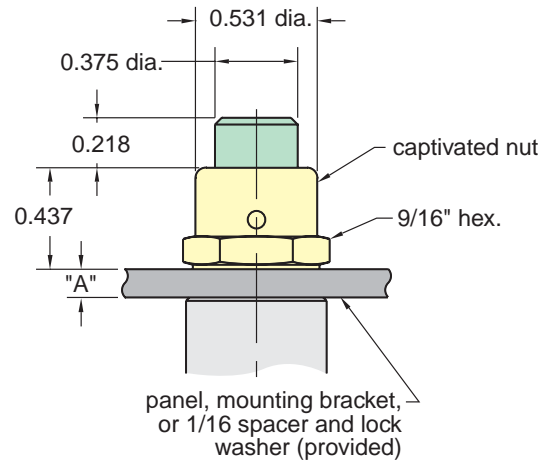
- 1 1/8" dia.
- 2 3/16" dia.

Push Button color

- B - Black
- G - Green
- R - Red
- W - White
- Y - Yellow

Options

- BC - Black chrome
- NP - Nickel plated



Spacing Required for Proper Actuation of Push Button

Valve	"A" Dim.
MAV-2, MAV-3 MAVO-2, MAVO-3	3/32"
MAV-4, MAV-4D MJV-4, MJV-4D	5/32"
MJV-2, MJV-3 MJVO-2, MJVO-3 FV-3, FV-4, FV-5	7/32"

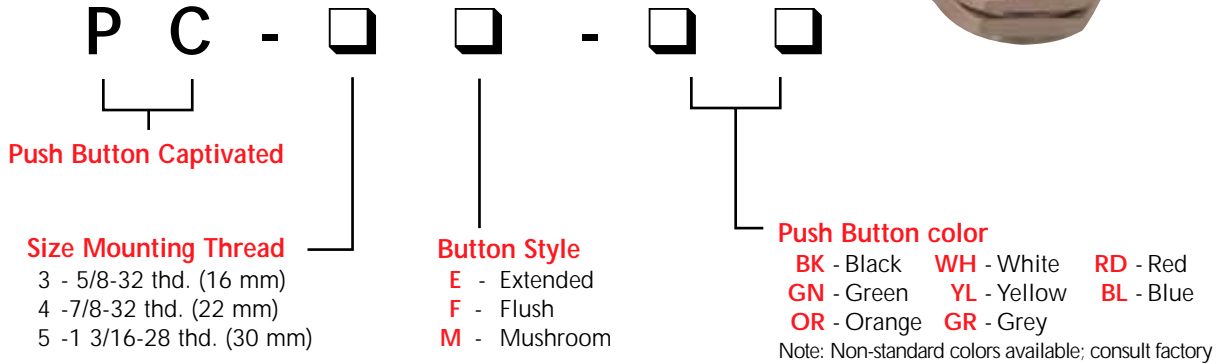


PUSH BUTTON ACTUATORS

Heavy-Duty Push Button Actuators

Heavy Duty Push Button Actuators can be used on individual stem operated valves or in panel mounting applications. These push buttons are available in a variety of colors, allowing you to color code, or easily differentiate between valves when designing control systems. They feature a built-in spring so the button always returns to the extended position when released with no additional load on the valve.

The design of these push buttons allows complete actuation of the valve with no overtravel or side load to the valve assuring superior performance and long life.



Part No. Description
 PC-3E-(color) . . . 5/8-32 Thd., Extended
(specify color)



Part No. Description
 PC-4E-(color) . . . 7/8-32 Thd., Extended
(specify color)



Part No. Description
 PC-5E-(color) . . 1 3/16-28 Thd., Extended
(specify color)



Part No. Description
 PC-3F-(color) . . . 5/8-32 Thd., Flush
(specify color)



Part No. Description
 PC-4F-(color) . . . 7/8-32 Thd., Flush
(specify color)



Part No. Description
 PC-5F-(color) . . 1 3/16-28 Thd., Flush
(specify color)



Part No. Description
 PC-3M-(color) . . . 5/8-32 Thd., Mushroom
(specify color)



Part No. Description
 PC-4M-(color) . . . 7/8-32 Thd., Mushroom
(specify color)



Part No. Description
 PC-5M-(color) . . 1 3/16-28 Thd., Mushroom
(specify color)

Features

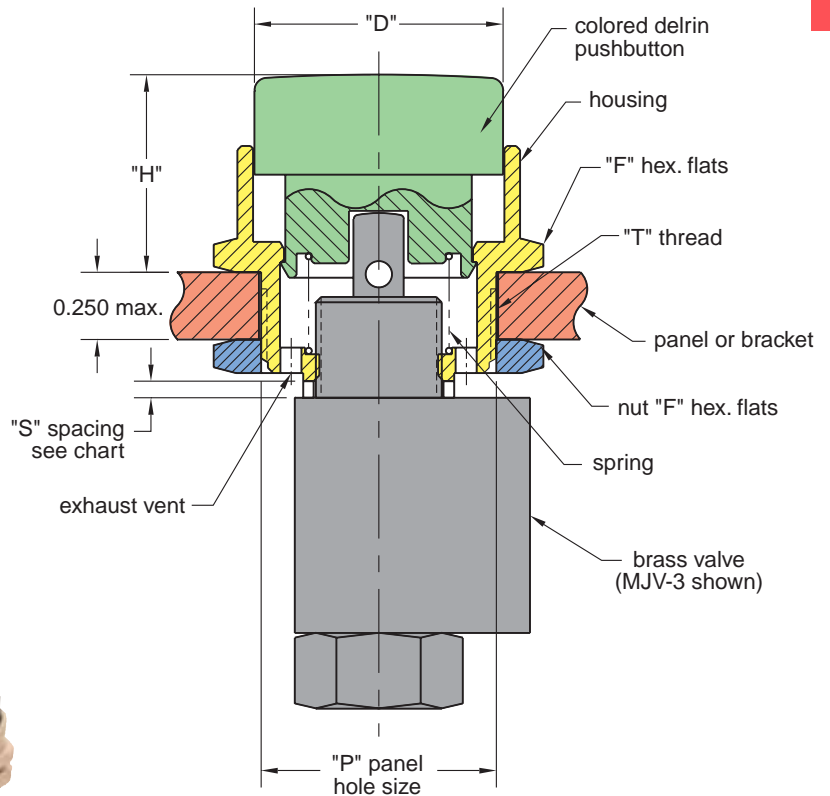
- Assembles directly to the valve; no adapters required
- Ideal for mounting on panels or brackets, up to 1/4" thick panel
- Self-contained assembly; no loose parts
- Stainless steel spring returns button to extended position with no added load to the valve stem
- Three sizes: 16 mm (5/8" dia.), 22 mm (7/8" dia.) and 30 mm (1-3/16" dia.)
- Flush, extended and mushroom style buttons
- Five bright colors for visibility and operator recognition. Other colors available upon request
- Nickel plated brass housing and nut, molded Delrin® button and stainless steel spring for long life and corrosion resistance
- Protects the valve from overtravel and side load

Different valve models vary in mounting thread length, stem extension and stroke. To accommodate these differences, the chart below lists the recommended spacing ("S") to insure complete valve actuation. Provided with each button is a 1/16" thick spacer ring that may be used in place of a panel or bracket to obtain proper spacing. The lockwasher provided may be used with no significant effect on spacing.



DIMENSIONS

SIZE	MODEL	"D" Dia.	"H" Hgt.	"T" Thd.	"P" Panel Hole	+1/32 -0 "F" Hex Flats
5/8-32 (16 mm) mtg. thd.	PC-3E-□□	0.625"	0.734"			
	PC-3F-□□	0.625"	0.500"	5/8-32	5/8" dia.	3/4"
	PC-3M-□□	1.165"	0.906"			
7/8-32 (22 mm) mtg. thd.	PC-4E-□□	0.925"	0.734"			
	PC-4F-□□	0.925"	0.500"	7/8-32	7/8" dia.	1-1/16"
	PC-4M-□□	1.500"	0.906"			
1 3/16-28 (30 mm) mtg. thd.	PC-5E-□□	1.165"	0.734"			
	PC-5F-□□	1.165"	0.500"	1 3/16-28	1-3/16" dia.	1-5/16"
	PC-5M-□□	1.500"	0.906"			



SPACING "S" REQUIRED FOR PROPER VALVE ACTUATION						
Valve series	MAV-2 MAV-3	MAVO-2 MAVO-3	MAV-4 MJV-4	MAV-4D MJV-4D	MJV-2,-3 MJVO-2,-3 FV-3, FV-4, FV-5	
• Mounting thd.	1/4"		1/4"		3/8"	
• Stem extension	5/16"		3/8"		5/16"	
• Valve stroke	1/8"		3/16"		1/8"	
"S" Minimum	none		none		1/16"	
Maximum	1/16"		1/16"		1/8"	



PUSH BUTTON ACTUATORS

Minimatic® Actuators

Easily actuated, clearly identifiable panel controls are the hallmark of a professional control system.

Whether the system is a single valve machine control . . . or an operating console for controlling complex pneumatic systems . . . you will find the actuator you require.

The line includes round push buttons, in flush, extended, and mushroom styles. Also included are key locking controls, and twist actuators. An electric switch is also available where a combination of electric and pneumatic switching is desired in a single panel.

As shown in the drawing, a PB-85 is required to connect a push button and a Clippard valve.

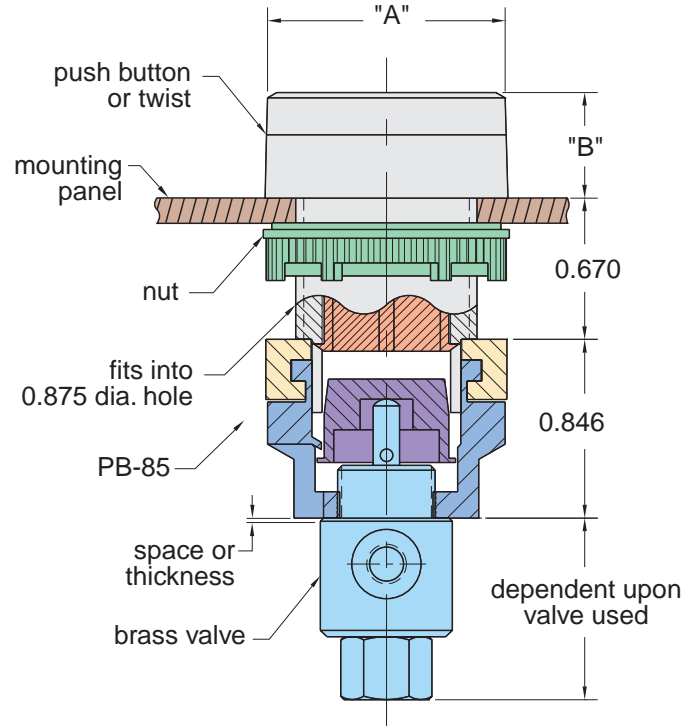
Dimensions

Size 22			Size 30		
Model	"A"	"B"	Model	"A"	"B"
PS-P2F	1.156"	0.492"	PL-P2F	1.440"	0.550"
PS-P2E	1.156"	0.736"	PL-P2E	1.440"	0.960"
PS-P2M	1.575"	0.965"	PL-P2M	1.575"	1.043"
PS-L3M	1.575"	0.965"	PL-L3M	1.575"	1.043"
PS-P4K	1.156"	2.320"	PL-P4K	1.440"	2.280"
PS-L4M	1.575"	2.320"	PL-L4M	1.575"	2.280"
PS-T2T	1.156"	1.043"	PL-T2T	1.440"	1.403"
PS-T3T	1.156"	1.043"	PL-T3T	1.440"	1.043"
PS-T3K	1.156"	2.320"	PL-T3K	1.440"	2.280"

Actuator Mounting Chart

The following chart gives the necessary spacing required between the shoulder of the valve and the base of the adapter.

Valves	PB-85
MAV-2, -2P, -2R, -3R, -3, -3P MAVO-2, -3	None
MJV-2, -3 MJVO-2, -3	1/8"
MAV-4, -4D MJV-4, -4D	None
ES-1	None
FV-3, -3P, -3D, -3DP FV-4, -4P, -4D, -4DP FV-5, -5P, -5D, -5DP	1/8"



Manual Actuator Features

- Attractive and rugged: precision molded ABS plastic
- Two sizes: 30 mm (1 13/64" dia.) in 20 models
22 mm (7/8" dia.) in 20 models
- 4 bright colors for visibility and operator recognition
- Flush, extended, and mushroom styles
- Custom adapter mates manual actuator with 26 different Clippard 2-, 3-, and 4-way valves. Valve and adapter slide on and lock onto actuator in seconds. Easily removed.
- Special wrench fits both sizes, speeds assembly
- Actuators may be mounted or dismounted in panel independent of valve and adapter
- 19 legend plates available plus blank plates in each size
- Valve and adapter may be locked onto actuator in any of four positions to ease installation inside panel
- Anti-rotation rings available for secure mounting
- Key lockable push buttons for security and/or safety



Legend Text	22 Size Part #	33 Size Part #
Blank	PS-01	PL-01
Start	PS-02	PL-02
Stop (red)	PS-03	PL-03
Forward	PS-04	PL-04
Reverse	PS-05	PL-05
Fast	PS-06	PL-06
Slow	PS-07	PL-07
On	PS-08	PL-08
Off (red)	PS-09	PL-09
Reset	PS-10	PL-10
Raise	PS-11	PL-11
Lower	PS-12	PL-12
Emergency Stop (red)	PS-13	PL-13
Run / Jog	PS-31	PL-31
Auto / Hand	PS-32	PL-32
Forward / Reverse	PS-33	PL-33
Fast / Slow	PS-34	PL-34
Open / Close	PS-35	PL-35
Up / Down	PS-36	PL-36
Off / On	PS-37	PL-37

Legend Plates

Plastic legend plate, two sizes, with a black field and white inscription (red as noted). Inscription plates are interchangeable in both sizes.



Accessories for Manual Actuators

Mounting Wrench

Fits both 22 Size and 30 Size manual actuators.

Part No. Description
PB-60Mounting Wrench



Valve Adapter

Adapts all manual actuators to any Clippard standard 2-, 3-, or 4-way brass valve. Made of ZYTEL® ST-901 Supertough Nylon.

Part No. Description
PB-85Valve Adapter



Square Bezel

Converts any 22 Size actuator to a square actuator.

Part No. Description
PS-65Square Bezel



Replacement Mounting Nut

Mounting nut that holds manual actuators to panel. Included with manual actuators. 22 Size only.

Part No. Description
PS-55Replacement Mounting Nut



Anti-Rotation Ring

Holds push button in one position. Included with all twist manual actuators.

Part No. Description
PS-50Anti-Rotation Ring, 22 mm
PL-50Anti-Rotation Ring, 30 mm



Mounting Clippard Manual Actuators

These drill plans are for units fitted with optional anti-rotation ring

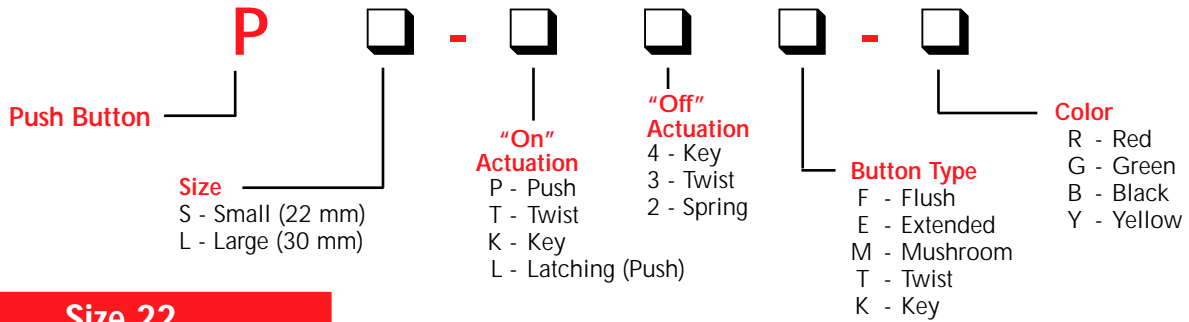
Size 22 - Typical drill plan

Size 30 - Typical drill plan



PUSH BUTTON ACTUATORS

Manual Actuators



Size 22



Flush Push Button.
Manual Push "In".
Spring Return.

Part No.	Description
PS-P2F-R . . .	Red
PS-P2F-G . . .	Green
PS-P2F-B . . .	Black
PS-P2F-Y . . .	Yellow



Extended Push Button.
Manual Push "In".
Spring Return.

Part No.	Description
PS-P2E-R . . .	Red
PS-P2E-G . . .	Green
PS-P2E-B . . .	Black
PS-P2E-Y . . .	Yellow



Manual Push Mushroom. Manual Push "In". Spring Return.

Part No.	Description
PS-P2M-R . . .	Red
PS-P2M-G . . .	Green
PS-P2M-B . . .	Black



Automatic Push/Turn Mushroom. Manual push "In" Latches "In". Turn clockwise to unlatch. Spring return.

Part No.	Description
PS-L3M-R . . .	Red
PS-L3M-G . . .	Green
PS-L3M-B . . .	Black



Push Key Push Button. Manual push "In". Spring return. Turn key counter-clockwise to lock "Out"; clockwise to unlock. Key withdrawable locked or unlocked. Black only.

Part No.	Description
PS-P4K-B . . .	Black



Push Key Mushroom. Manual push "In". Automatic latches "In". Turn key clockwise to release. Spring return. Key withdrawable "Out" position only. Red only.

Part No.	Description
PS-L4M-R . . .	Red



Spring Return Twist 45°. Turn clockwise and hold for "In". Release for spring return. Black only.

Part No.	Description
PS-T2T-B . . .	Black



Maintained Twist 90°. Turn clockwise to latch "In". Turn counterclockwise to release. Black only.

Part No.	Description
PS-T3T-B . . .	Black



Key Twist 90° Maintained. (PS-T3K-B) Turn key clockwise to latch "In". Turn key counterclockwise to release. Key withdrawable in both positions. Black only.

(PS-K3K-B) Same as PS-T3K-B except key is withdrawable in "Out" position only.

Part No.	Description
PS-T3K-B . . .	Black
PS-K3K-B . . .	Black

Size 30



Flush Push Button.
Manual push "In".
Spring return.

Part No.	Description
PL-P2F-R . . .	Red
PL-P2F-G . . .	Green
PL-P2F-B . . .	Black
PL-P2F-Y . . .	Yellow



Extended Push Button.
Manual push "In". Spring
return.

Part No.	Description
PL-P2E-R . . .	Red
PL-P2E-G . . .	Green
PL-P2E-B . . .	Black
PL-P2E-Y . . .	Yellow



**Key Twist 90°
Maintained.** (PL-
T3K-B) Turn key
clockwise to latch
"In". Turn key
counterclockwise
to release. Key
only.

with-drawable in both positions. Black
only.

(PL-K3K-B) Same as PL-T3K-B except key is
withdrawable in "Out" position only.

Part No.	Description
PL-T3K-B . . .	Black
PL-K3K-B . . .	Black



**Automatic Push/Turn
Mushroom.** Manual push
"In". Latches "In". Turn
clockwise to unlatch.
Spring return.

Part No.	Description
PL-L3M-R . . .	Red
PL-L3M-G . . .	Green
PL-L3M-B . . .	Black



**Push Key Push
Button.**
Manual push
"In". Spring
return. Turn
key counter-
clockwise to

lock "Out"; clockwise to unlock. Key
withdrawable locked or unlocked.
Black only.

Part No.	Description
PL-P4K-B . . .	Black



**Push Key
Mushroom.**
Manual push
"In". Automatic
latches "In".
Turn key clock-

wise to release. Spring return. Key with-
drawable "Out" position only. Red only.

Part No.	Description
PL-L4M-R . . .	Red



**Spring Return Twist
45°.** Turn clockwise
and hold for "In".
Release for spring
return. Black only.

Part No.	Description
PL-T2T-B . . .	Black



Maintained Twist 90°.
Turn clockwise to latch
"In". Turn counterclock-
wise to release. Black
only.

Part No.	Description
PL-T3T-B . . .	Black



**Manual Push
Mushroom.** Manual
push "In". Spring
return.

Part No.	Description
PL-P2M-R . . .	Red
PL-P2M-G . . .	Green
PL-P2M-B . . .	Black