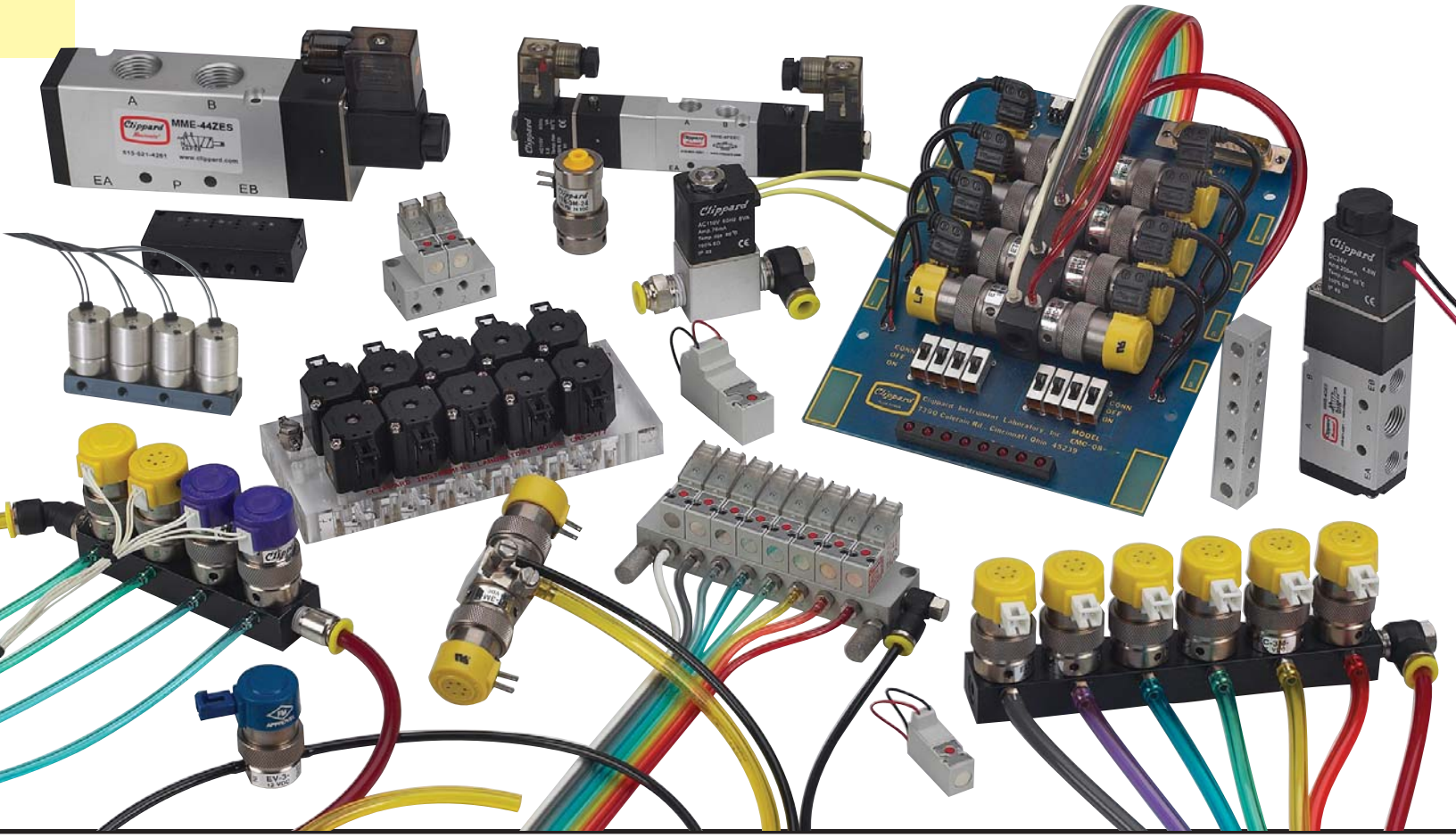
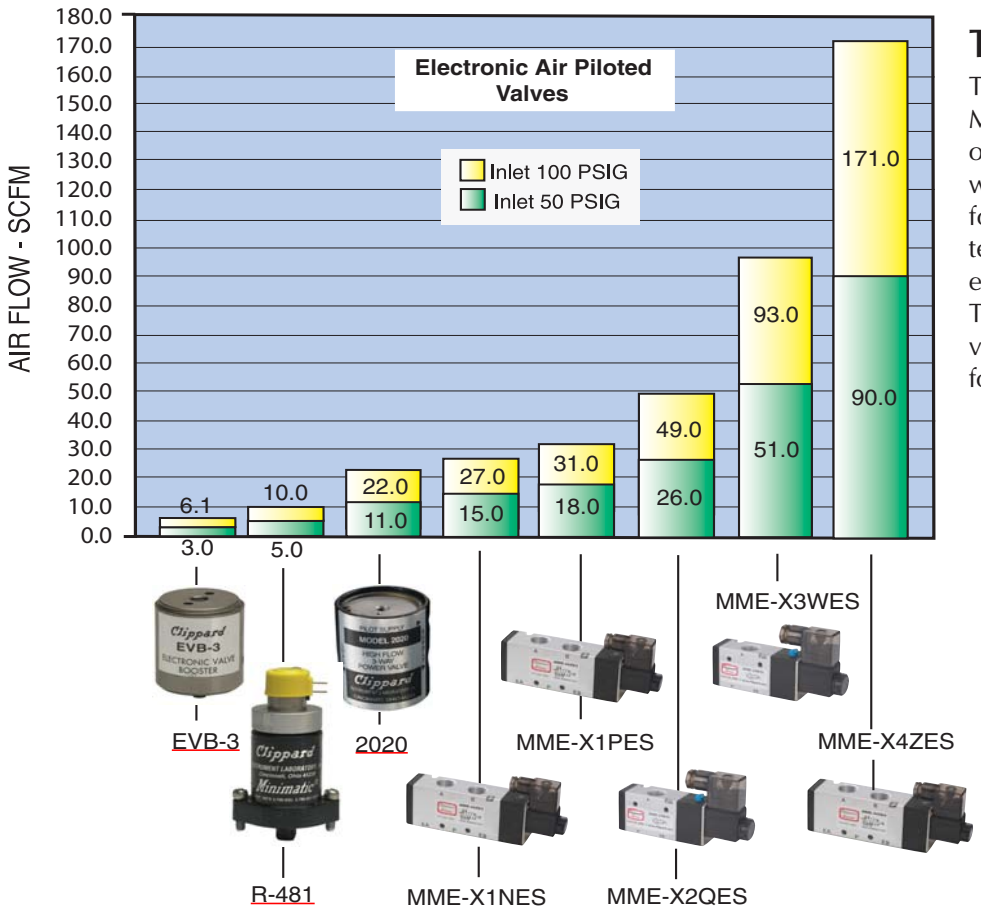
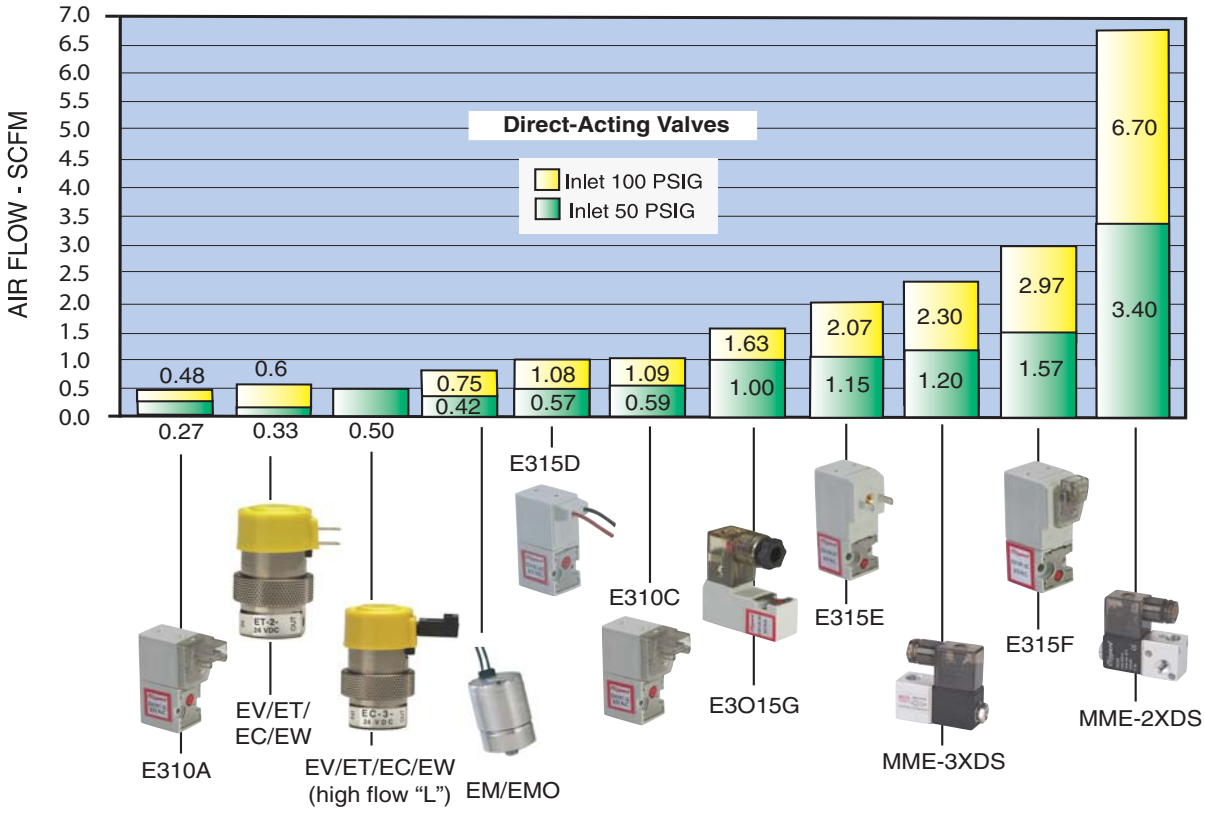
Electronic Valves





Typical Air Flow

The EV, ET, EC, EW, ES, EI, E3, MME, etc. are electronic valves offered by Clippard. Combined with a series of Clippard manifolds, they provide a complete system for efficient interface with electric and electronic circuits. The charts show typical air flow values to help select the right valve for the application.



Clippard Mouse Series Electronic Valves

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

EV Series Mouse Valves
2- and 3-way manifold and in-line mounting. Normally-Closed and fully-ported versions.

See Pages 172 - 176

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

See Pages 184 - 187

"Oxygen Clean" EV Series Mouse Valves
Specially-cleaned valves for analytical or Oxygen use.

See Pages 177 - 172, 174 - 176

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

See Page 177

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

See Pages 171 - 172, 174 - 176

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

See Pages 173, 178

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

See Page 179

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

See Pages 199 - 204

Poppet & Spool Valves

10 mm Valves
High quality and interchangeable 2- and 3-way solenoid valves. Clippard's smallest electronic valve series.

See Pages 205 - 210

15 mm Valves
Higher flow and manifold mount. Variety of electrical connections and AC/DC power.

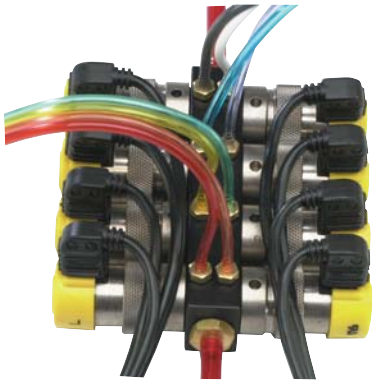
See Pages 211 - 216

Maximatic® Direct-Acting Valves
Single-solenoid, spring-return poppet valves. 2- and 3-way models up to 1/4" NPT.

See Page 192

Maximatic® 3-Way & 4-Way Valves
Available in a variety of sizes and voltages in stock for immediate delivery.

See Pages 193 - 198



Multi-Valve Manifolds

Multi-valve manifolds are available in two lengths with either single or double (top or top and bottom) rows of outputs for versatility in application. Input to all valves mounted on this manifold is through the manifold end. Outputs are individual #10-32 ports for hose barb fittings and vinyl or urethane hose.

See Page 183

2020/2021 High Flow EC, EV & ET Piloted 3-Way Valves

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

See Page 180

Pilot Manifold

Clippard's ET valve is mounted to the 15491-1 Clippard Pilot manifold, making it possible for the ET-3M valve controlled by an electronic signal to actuate a larger air-piloted valve or an air cylinder.

See Page 182

2013 Series Electronic Fluidamp

Low-power DC solenoid solid state output signals can be directly converted to high pressure pneumatic power without amplification.

See Page 180

EVB Booster Series

Electronic Valve Boosters amplify the flow capacity of EC, EV and ET type valves by over eight times. Manifold style electronic valves mount onto booster body, which, in turn, mounts on Clippard manifolds.

See Page 180

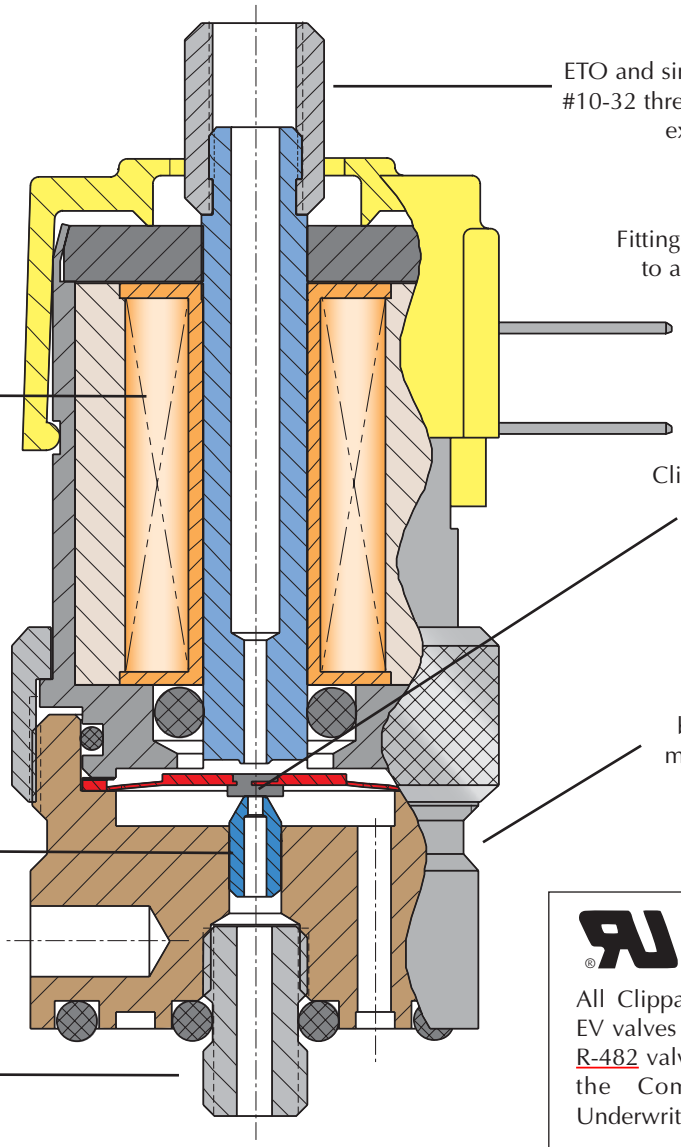
Dual-Supply Manifold

Shown is the 15490-3 Clippard Dual-Supply Manifold with two ET-3M electronic/pneumatic interface valves. 1/8" NPT inlet is seen at the left of the manifold with the dual #10-32 port outlets at the right.

See Page 182

Clippard's Unique Electronic Mouse Valves

Clippard's Electronic Valves are quiet and quick! Valves accept low voltage, low current signals, convert them into high pressure (100 psig) pneumatic outputs. Optional low pressure/medium flow and low pressure/high flow are available. (The air supply should be reasonably clean and dry for optimum performance. Recommended filtration is 40 micron.)



ETO and similar styles have top #10-32 threaded fitting for N.C. exhaust or N.O. inlet.

Fittings should be tightened to a maximum of 9 in-lb.

Low power coil uses only 0.67 watts at the rated voltage. Standard voltages include 12 and 24. Other voltages are available.

Clippard Electronic Valves are unique, with only one internal moving part that travels a mere 0.007".

Adjusting ring may be loosened for positioning to orient connections.

DO NOT REMOVE. Parts orientation will be lost and warranty voided.

Valves are small in size with a variety of mounting options. Ideal for use in biomedical, test equipment, machines, computer-directed industrial systems, and in portable devices.

Standard orifice is 0.025". Also available are:
L - 0.040" orifice
H - 0.060" orifice

Manifold mount base shown permits fast, secure mounting of electronic valves to manifolds for grouping in compact assemblies. Alternate standard model has convenient mounting holes.

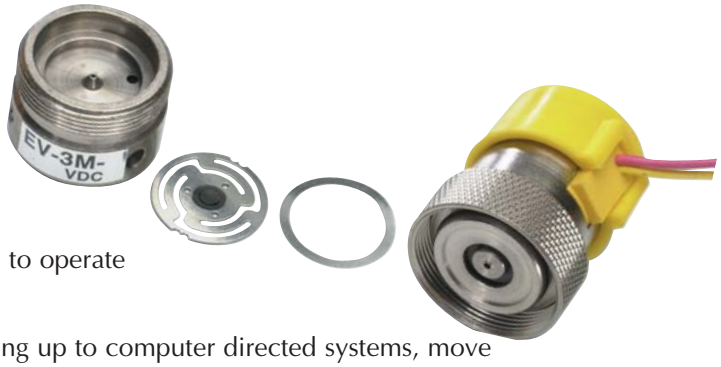
All Clippard standard ET, EC and EV valves and Clippard R-481 and R-482 valves are recognized under the Component Program of Underwriters Laboratories, Inc.

File No. MH 13573

Clippard Minimatic electronic valves are precision-built 2-way or 3-way control valves, utilizing a unique, patented, valving principle. There are no sliding parts. Complete poppet travel is a mere 0.007". As a result, low power consumption and exceptionally long life are major benefits of this design.

The valves are very quiet in operation and also very cool. The valves' small size makes them well suited to a wide range of applications in biomedical, EDP, environmental test equipment, textile machines, packaging machinery, computerized industrial automation, and portable systems.

Clippard Functional Simplicity

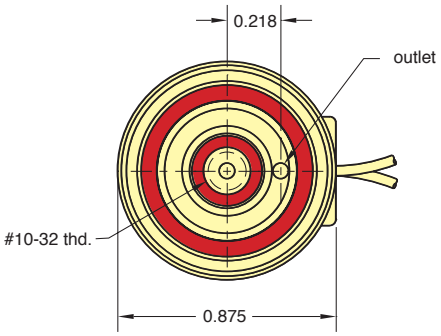


- The design of Clippard electronic valves is a deceptively simple arrangement with a minimum of operating parts, and remarkably straight forward low power operation.
- The Clippard "spider" is the only moving part and its motion to operate the valve is a mere 0.007" travel.
- Low voltage D.C. inputs, signals from simple manual switching up to computer directed systems, move the spider in extremely fast response time . . . 5 to 10 milliseconds.
- The unit uses extremely low power (0.67 watts at the rated voltage) and is cool running. The valves are light in weight, compact in physical size and mount easily in space-saving packages.

Quick Connect

Clippard ET valves feature spade lugs for simple, quick secure low voltage connections. Wire crimp-on spade lug connectors are available separately to adapt electronic wiring where necessary. Clippard original EV type valves are available in popular voltages with 18" wire leads. The EC model utilizes a 0.025" square pin connector.

Easy Mounting

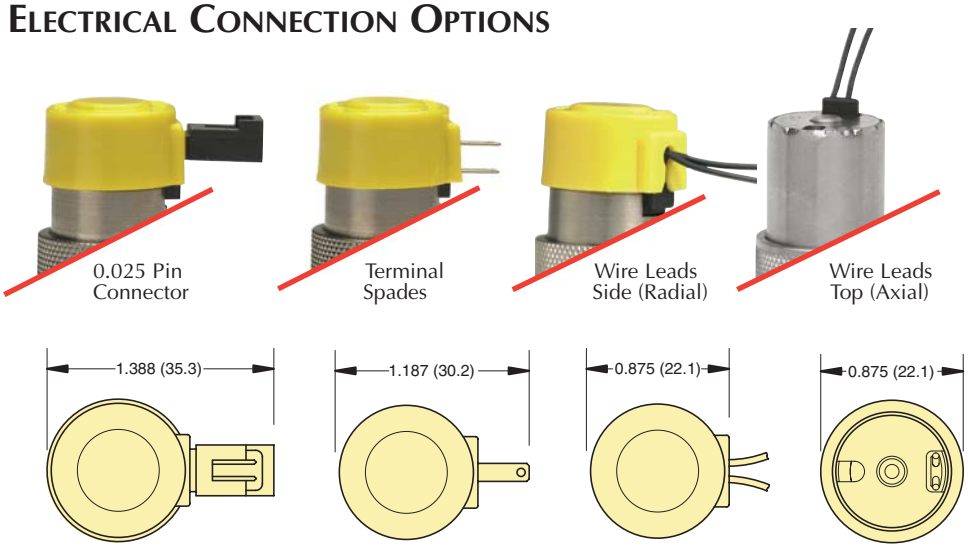


The complete line of EC, EV, ET and EW electronic valves are available with two mounting options. Standard base models have two 6-32 threaded, 7/32" deep mounting holes. Manifold models are equipped with a bottom stud, 5/32" long with #10-32 thread, which fits Clippard standard and special manifolds, accessory valves and subplates. Spanner holes in the valve body permit tightening.

NOMINAL				Power (watts)	Working Range (cont. duty)
Series	Voltage	Current (amps)	Resistance (ohms)		
Standard	6	0.11	54	0.67	90 to 150% of rated voltage
Oxygen Clean	12	0.055	218	0.67	
Scientific	24	0.028	864	0.67	
Corrosion-Resistant	12	0.098	122	1.2	90 to 110% of rated voltage
	24	0.049	486	1.2	

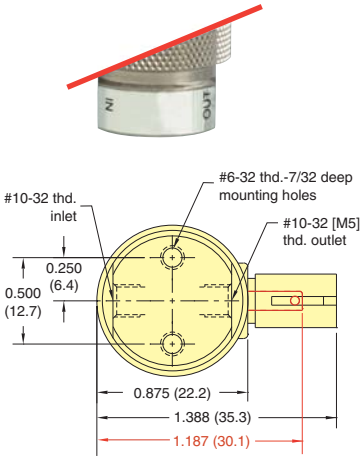
Electrical & Mounting Options

Electrical Connection Options

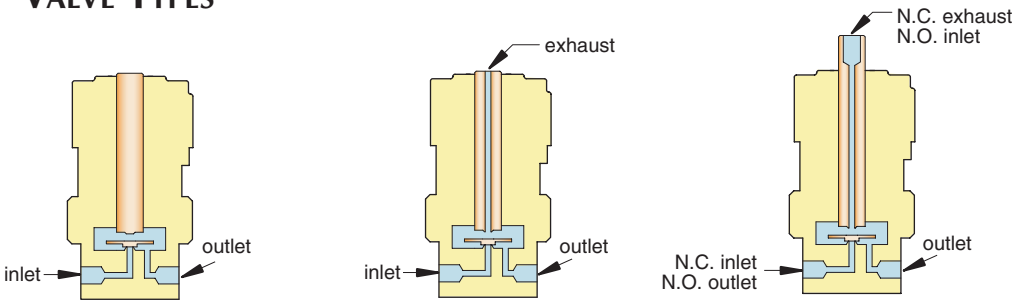


Mounting Options

Inline Mount



Valve Types

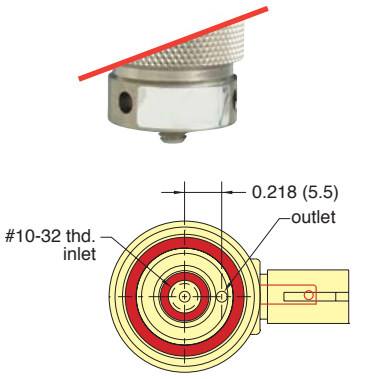


2-Way
Normally-Closed
EC-2, ET-2, EV-2

3-Way
Normally-Closed
EC-3, ET-3, ET-3

3-Way
Fully-Ported
ECO-3, ETO-3, EVO-3

Manifold Mount



Custom Solutions

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

CUSTOMer solutions

Clippard's Electronic Valves are incredibly flexible from a production standpoint. Just let us know what you need.

- Custom Voltage
- Custom Flow Rate
- Custom Max Pressure/ Vacuum

Tight Assemblies
Cartridge design is desirable for integrating valves into compact assemblies. This EVP proportional valve is calibrated to meet the customers flow range and maintain "zero" leak rate, and is incorporated into the OEM's manifold.

Clippard Integrated Solutions offer optimized pneumatic system design to increase performance, reduce cost, and make your job easier.

Oxygen Clean Series

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

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

For more information on the process, visit www.clippard.com/oxygen

Scientific Series

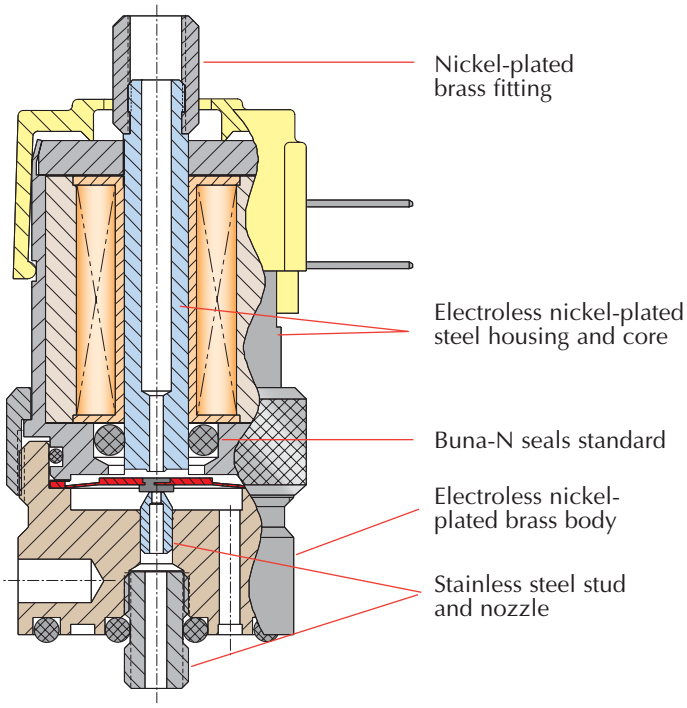
The Clippard Scientific Series (S-) combines the functions of our Mouse Valve with specific seals and lubricant to accommodate applications in Scientific markets. Analytical equipment and other apparatus used for diagnostic purposes often require FKM seals and PFPE lubricants in order to reduce outgasing and other "analytical noise" from the samples being moved through the system. This series accommodates that need. Additional special seal materials and lubricants may be specified by contacting your local Clippard distributor, or the factory.

Corrosion-Resistant Series

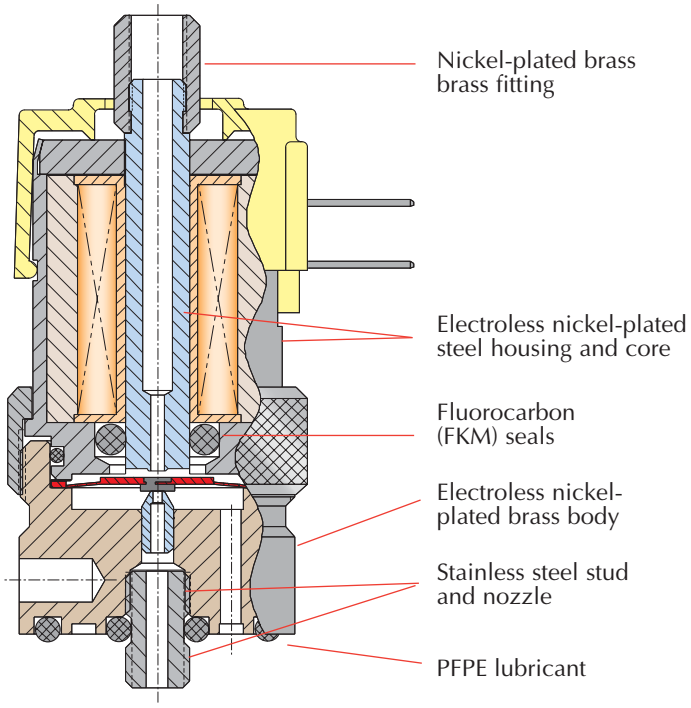
Clippard's Corrosion-Resistant Series (CR-) incorporates materials and construction that provides enhanced protection for valves used with mildly corrosive media. Moisture in air or gases, or other corrosive elements cause less damage to the stainless steel elements of the valve. Where stainless steel is not possible, plating is incorporated to add life to wear components. A nickel-plated brass valve body is standard, but stainless steel may be substituted.

Electronic Valve Features

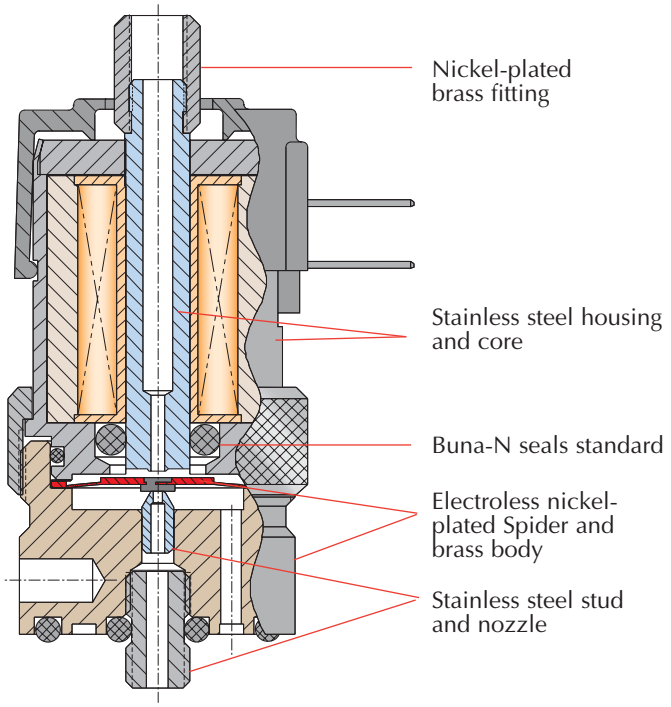
Standard Series



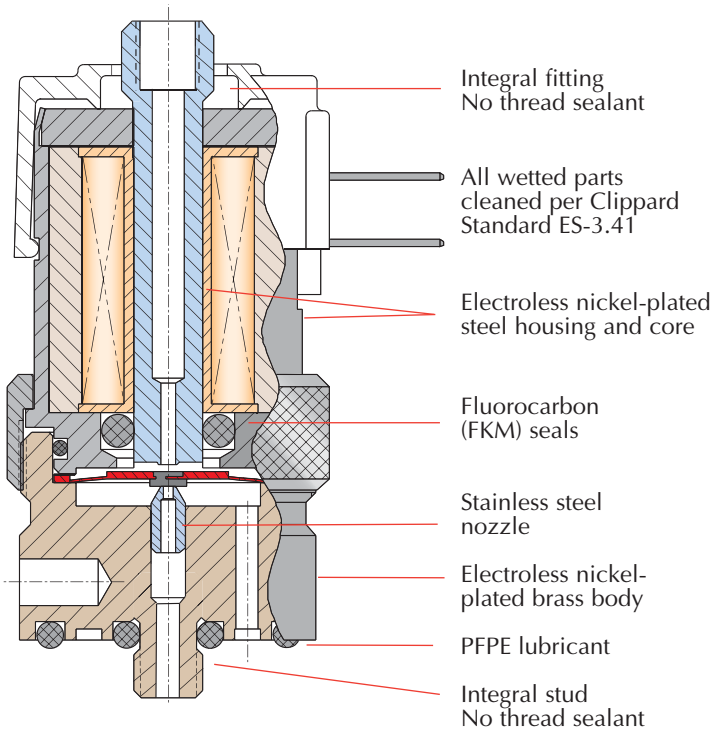
Scientific Series (S-)



Corrosion-Resistant Series (CR-)



Cleaned for Oxygen Service Series (O-)



What is Intrinsic Safety?

An intrinsically safe system is one in which all electrical devices and their associated circuits are designed such that they can neither arc nor spark with sufficient energy to ignite the hazardous substances around which they are being used. Put another way, the energy stored from the inductance of the circuit components must be unable to generate a spark or arc at the circuits open point during current circulation that is capable of igniting the hazardous materials present when they are in a fuel/air mixture that is most favorable for ignition.

What is Entity approval?

According to INTRINSIC SAFETY standards, there is no requirement for authorized laboratory certification of system-wide intrinsic safety if the designer can determine, with certainty, that the physical and electrical parameters of every system component has been met sufficient to ensure that system-wide intrinsic safety has been maintained.

An "Entity Approval" is documentation stating that a device is intrinsically safe in specified hazardous atmospheres if the stated physical and electrical conditions contained in the approval are met. By meeting the requirements of "Entity Approvals" on all components of a system, the designer can more easily document that system-wide intrinsic safety has been maintained.

The Clippard EI-EIO series valves hold the Entity Approvals listed and supporting documentation is available to our customers.

Increase Flow

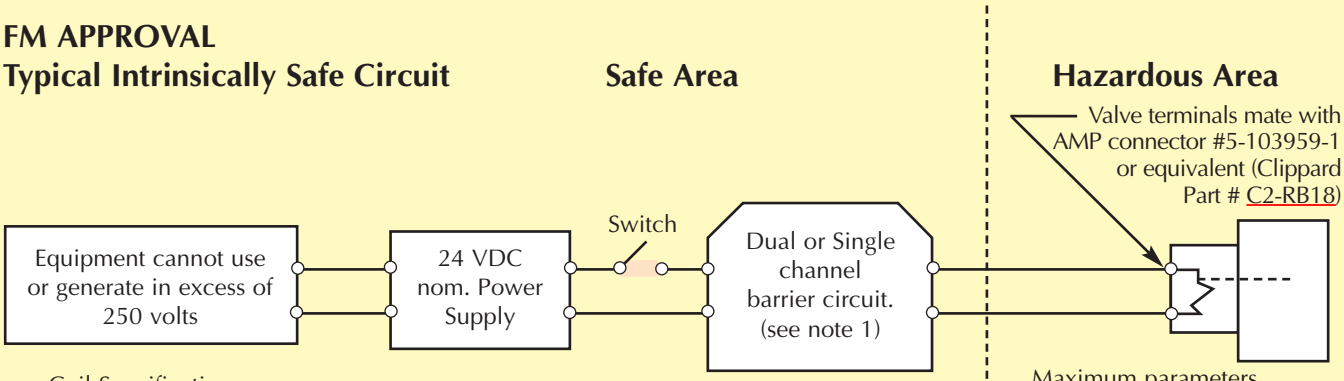
High Flow Valves Models 2020 and 2021 high flow valves are piloted 3-way valves that work with EI/EIO intrinsically safe valves as well as EV/ET 3-way valves. They are designed to be mounted on EI/EIO manifold valves. Outputs from the EI/EIO will actuate the valve and produce outputs up to 22 scfm at 100 psig. Piloted 3-way valves are also available as R-481 and R-482.

EVB Booster Valve Clippard EVB-3 booster valve mates with manifold mounted EI/EIO valves and manifolds to provide increased flow. Direct piloting from Clippard EI/EIO valves provides a flow of up to 6.1 scfm at 100 psig.

Definitions

C_a : Maximum Allowed Capacitance
C_i : Maximum Internal Capacitance
I_{max} : Maximum Input Current
I_{sc} : Maximum Output Current
L_a : Maximum Allowed Inductance
L_i : Maximum Internal Inductance
V_{oc} : Maximum Output Voltage
V_{max} : Maximum Input Voltage
V_t : Voltage Total

FM APPROVAL
Typical Intrinsically Safe Circuit

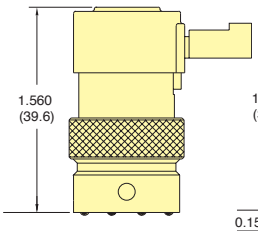


Coil Specifications:
V_{nom} = 15.5 V
I_{nom} = 43 mA
R_{nom} = 360 Ω

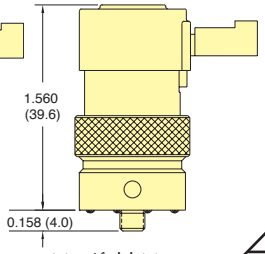
Maximum parameters for I.S. Valve:
V_{max} = 35 V
I_{max} = 300 mA
C_i = 0
L_i = 0

1. For barrier interconnection refer to maximum barrier output parameters as referenced on the specific barrier installation drawing. Connect as follows:
   a. $V_{max} > V_{oc}$ of single channel barrier or V_t of dual channel barrier
   b. $I_{max} > I_{sc}$ of single channel barrier or I_t of dual channel barrier
   c. C_i + field wiring < C_a of single or dual channel barrier
   d. L_i = field wiring < L_a of single or dual channel barrier
2. Installation of intrinsically safe system is to be done in accordance with ANSI / ISA-RP12.6

2-Way Normally-Closed Valves, In-Line & Manifold

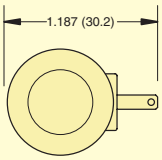
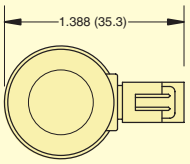
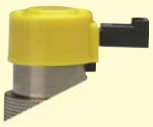
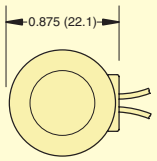
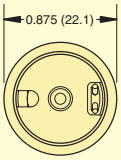


In-Line Mount



Manifold Mount


Part No.

		Pressure Range: Vac. to 105 psig+	Pressure Range: Vac. to 50 psig	Pressure Range: Vac. to 25 psig	Voltage: 12 VDC	Voltage: 24 VDC	In-Line Mount	Manifold Mount
	 0.025 Pin Connector	•			•		*EC-2-12	*EC-2M-12
		•				•	*EC-2-24	*EC-2M-24
			•		•		*EC-2-12-L	*EC-2M-12-L
			•			•	*EC-2-24-L	*EC-2M-24-L
				•	•		*EC-2-12-H	*EC-2M-12-H
				•		•	*EC-2-24-H	*EC-2M-24-H
	 Terminal Spades	•			•		*ET-2-12	*ET-2M-12
		•				•	*ET-2-24	*ET-2M-24
			•		•		*ET-2-12-L	*ET-2M-12-L
			•			•	*ET-2-24-L	*ET-2M-24-L
				•	•		*ET-2-12-H	*ET-2M-12-H
				•		•	*ET-2-24-H	*ET-2M-24-H
	 Wire Leads Side (Radial)	•		•	•		*EV-2-12	*EV-2M-12
		•				•	*EV-2-24	*EV-2M-24
			•		•		*EV-2-12-L	*EV-2M-12-L
			•			•	*EV-2-24-L	*EV-2M-24-L
				•	•		*EV-2-12-H	*EV-2M-12-H
				•		•	*EV-2-24-H	*EV-2M-24-H
	 Wire Leads Top (Axial)	•			•		*EW-2-12	*EW-2M-12
		•				•	*EW-2-12	*EW-2M-12
			•		•		*EW-2-12-L	*EW-2M-12-L
			•			•	*EW-2-12-L	*EW-2M-12-L
				•	•		*EW-2-12-H	*EW-2M-12-H
				•		•	*EW-2-12-H	*EW-2M-12-H

Medium: Clean, dry air (40 micron filter)

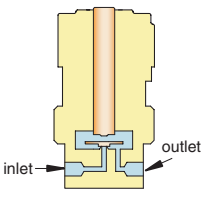
Power Consumption: 0.67 watt (CR Series: 1.2 watt)

Temperature Range: 0 to 180°F (-17 to 82°C).
CR Series: 0 to 150°F (-17 to 64°C)

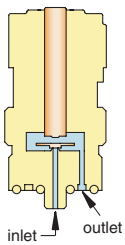
Response: 5 to 10 milliseconds (nominal)

Operating Range: 90 to 150% of rated voltage (CR Series: ±10%)

Ports: #10-32 (M5 optional), in-line only



In-Line Mount



Manifold Mount

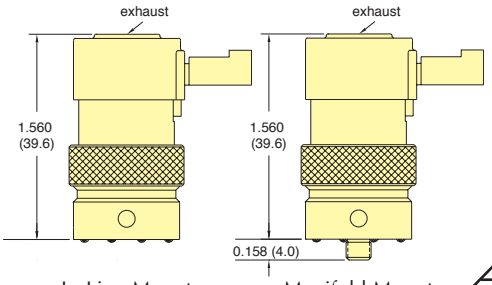
Valve Series (*)	Standard	Non-Standard
Standard	(blank)	See Pages 171 & 172 for further information
Oxygen Clean	O-	
Scientific	S-	
Corrosion-Resistant	CR-	
Options *(add to end of Part No.)*		
FKM Seals	-V	
EPR Seals		-E
Silicone Seals		-S
Diode		-D
Metric Ports (in-line)	-M5	

Example Part No's:
ET-3M-12-V
CR-ET-2-12

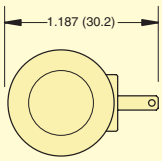
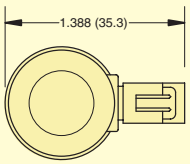
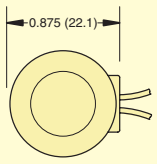
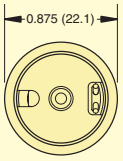
See Pages 182 & 183 for mounting options

Pressure Range	Orifice	Air Flow
28" Hg Vac. to 105 psig	0.025"	0.6 scfm @ 100 psig
+*call for special configurations*		(17 l/min @ 7 bar)
28" Hg Vac. to 50 psig	0.040" (-L)	0.5 scfm @ 50 psig (14 l/min @ 3.5 bar)
28" Hg Vac. to 25 psig	0.060" (-H)	0.45 scfm @ 25 psig (13 l/min @ 1.8 bar)

3-Way Normally-Closed Valves, In-Line & Manifold



In-Line Mount Manifold Mount

Pressure Range: Vac. to 105 psig+	Pressure Range: Vac. to 50 psig	Pressure Range: Vac. to 25 psig	Voltage: 12 VDC	Voltage: 24 VDC	Part No. In-Line Mount	Part No. Manifold Mount
  0.025 Pin Connector						
•			•		*EC-3-12	*EC-3M-12
•				•	*EC-3-24	*EC-3M-24
	•		•		*EC-3-12-L	*EC-3M-12-L
	•			•	*EC-3-24-L	*EC-3M-24-L
		•	•		*EC-3-12-H	*EC-3M-12-H
		•		•	*EC-3-24-H	*EC-3M-24-H
  Terminal Spades						
•			•		*ET-3-12	*ET-3M-12
•				•	*ET-3-24	*ET-3M-24
	•		•		*ET-3-12-L	*ET-3M-12-L
	•			•	*ET-3-24-L	*ET-3M-24-L
		•	•		*ET-3-12-H	*ET-3M-12-H
		•		•	*ET-3-24-H	*ET-3M-24-H
  Wire Leads Side (Radial)						
•		•	•		*EV-3-12	*EV-3M-12
•				•	*EV-3-24	*EV-3M-24
	•		•		*EV-3-12-L	*EV-3M-12-L
	•			•	*EV-3-24-L	*EV-3M-24-L
		•	•		*EV-3-12-H	*EV-3M-12-H
		•		•	*EV-3-24-H	*EV-3M-24-H
  Wire Leads Top (Axial)						
•			•		*EW-3-12	*EW-3M-12
•				•	*EW-3-12	*EW-3M-12
	•		•		*EW-3-12-L	*EW-3M-12-L
	•			•	*EW-3-12-L	*EW-3M-12-L
		•	•		*EW-3-12-H	*EW-3M-12-H
		•		•	*EW-3-12-H	*EW-3M-12-H

Medium: Clean, dry air (40 micron filter)

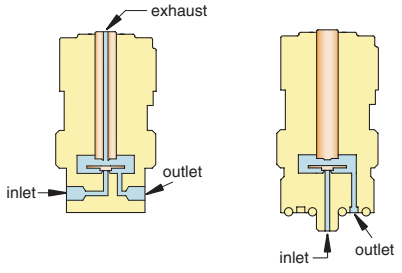
Power Consumption: 0.67 watt (CR Series: 1.2 watt)

Temperature Range: 0 to 180°F (-17 to 82°C), CR Series: 0 to 150°F (-17 to 64°C)

Response: 5 to 10 milliseconds (nominal)

Operating Range: 90 to 150% of rated voltage (CR Series: ±10%)

Ports: #10-32 (M5 optional), in-line only



In-Line Mount Manifold Mount

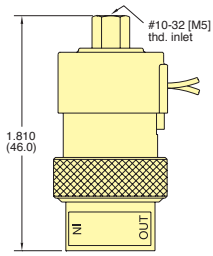
Valve Series (*)	Standard	Non-Standard
Standard	(blank)	*See Pages 171 & 172 for further information*
Oxygen Clean	O-	
Scientific	S-	
Corrosion-Resistant	CR-	
Options *(add to end of Part No.)*		
FKM Seals	-V	
EPR Seals		-E
Silicone Seals		-S
Diode		-D
Metric Ports (in-line)	-M5	

Example Part No's:
ET-3-12-S
O-EW-3-24

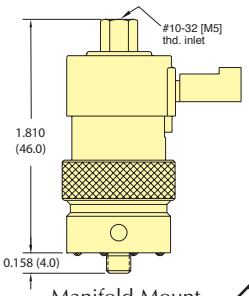
See Pages 182 & 183 for mounting options

Pressure Range	Orifice	Air Flow
28" Hg Vac. to 105 psig +*call for special configurations*	0.025"	0.6 scfm @ 100 psig (17 l/min @ 7 bar)
28" Hg Vac. to 50 psig	0.040" (-L)	0.5 scfm @ 50 psig (14 l/min @ 3.5 bar)
28" Hg Vac. to 25 psig	0.060" (-H)	0.45 scfm @ 25 psig (13 l/min @ 1.8 bar)

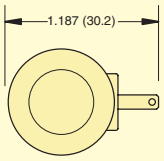
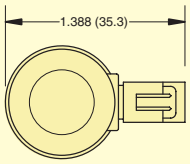
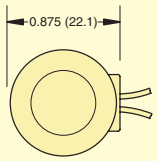
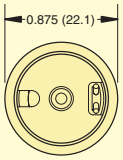
3-Way Fully-Ported Valves, In-Line & Manifold



In-Line Mount



Manifold Mount

		Pressure Range			Voltage		Part No.	
		Vac. to 105 psig +	Vac. to 50 psig	Vac. to 25 psig	12 VDC	24 VDC	In-Line Mount	Manifold Mount
	 0.025 Pin Connector	•			•		*ECO-3-12	*ECO-3M-12
		•				•	*ECO-3-24	*ECO-3M-24
			•		•		*ECO-3-12-L	*ECO-3M-12-L
			•			•	*ECO-3-24-L	*ECO-3M-24-L
				•	•		*ECO-3-12-H	*ECO-3M-12-H
				•		•	*ECO-3-24-H	*ECO-3M-24-H
	 Terminal Spades	•			•		*ETO-3-12	*ETO-3M-12
		•				•	*ETO-3-24	*ETO-3M-24
			•		•		*ETO-3-12-L	*ETO-3M-12-L
			•			•	*ETO-3-24-L	*ETO-3M-24-L
				•	•		*ETO-3-12-H	*ETO-3M-12-H
				•		•	*ETO-3-24-H	*ETO-3M-24-H
	 Wire Leads Side (Radial)	•		•	•		*EVO-3-12	*EVO-3M-12
		•				•	*EVO-3-24	*EVO-3M-24
			•		•		*EVO-3-12-L	*EVO-3M-12-L
			•			•	*EVO-3-24-L	*EVO-3M-24-L
				•	•		*EVO-3-12-H	*EVO-3M-12-H
				•		•	*EVO-3-24-H	*EVO-3M-24-H
	 Wire Leads Top (Axial)	•			•		*EWO-3-12	*EWO-3M-12
		•				•	*EWO-3-12	*EWO-3M-12
			•		•		*EWO-3-12-L	*EWO-3M-12-L
			•			•	*EWO-3-12-L	*EWO-3M-12-L
				•	•		*EWO-3-12-H	*EWO-3M-12-H
				•		•	*EWO-3-12-H	*EWO-3M-12-H

Medium: Clean, dry air (40 micron filter)

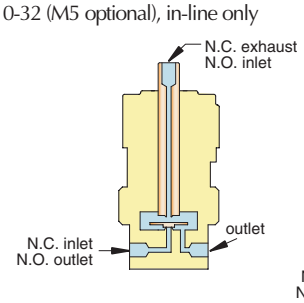
Power Consumption: 0.67 watt (CR Series: 1.2 watt)

Temperature Range: 0 to 180°F (-17 to 82°C)
CR Series: 0 to 150°F (-17 to 64°C)

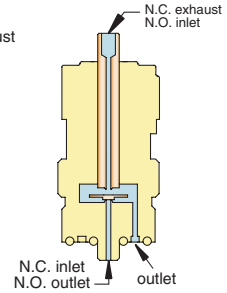
Response: 5 to 10 milliseconds (nominal)

Operating Range: 90 to 150% of rated voltage (CR Series: ±10%)

Ports: #10-32 (M5 optional), in-line only



In-Line Mount



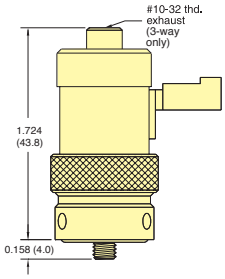
Manifold Mount

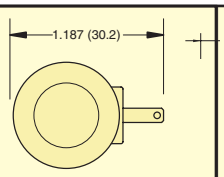
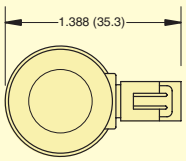
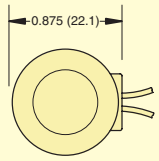
Valve Series (*)	Standard	Non-Standard
Standard	(blank)	
Oxygen Clean	O-	*See Pages 171 & 172 for further information*
Scientific	S-	
Corrosion-Resistant	CR-	
Options *(add to end of Part No.)*		
FKM Seals	-V	
EPR Seals		-E
Silicone Seals		-S
Diode		-D
Metric Ports (in-line)	-M5	

Example Part No's:
ETO-3M-24-D
CR-EVO-3-12

See Pages 182 & 183 for mounting options

Pressure Range	Orifice	Air Flow
28" Hg Vac. to 105 psig	0.025"	0.6 scfm @ 100 psig
+call for special configurations		(17 l/min @ 7 bar)
28" Hg Vac. to 50 psig	0.040" (-L)	0.5 scfm @ 50 psig (14 l/min @ 3.5 bar)
28" Hg Vac. to 25 psig	0.060" (-H)	0.45 scfm @ 25 psig (13 l/min @ 1.8 bar)



		12 VDC	24 VDC	Part No. 2-Way	Part No. 3-Way
		Voltage			
	 0.025 Pin Connector	•		*ECN-2M-12	*ECN-3M-12
			•	*ECN-2M-24	*ECN-3M-24
	 Terminal Spades	•		*ETN-2M-12	*ETN-3M-12
			•	*ETN-2M-24	*ETN-3M-24
	 Wire Leads Side (Radial)	•		*EVN-2M-12-L	*EVN-3M-12-L
			•	*EVN-2M-24-L	*EVN-3M-24-L

Medium: Clean, dry air (40 micron filter)

Power Consumption: 0.67 watt

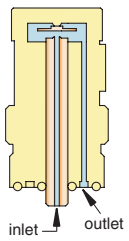
Temperature Range: 0 to 180°F (-17 to 82°C)

Response: 5 to 10 milliseconds (nominal)

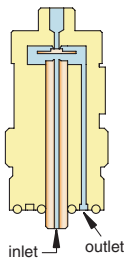
Operating Range: 90 to 150% of rated voltage

Voltage: 12 VDC or 24 VDC. Other voltages available upon request.

Ports: #10-32 (M5 optional)



2-Way Valve



3-Way Valve

Valve Series (*)	Standard	Non-Standard
Standard	(blank)	*See Pages 171 & 172 for further information*
Scientific	S-	
Options *(add to end of Part No.)*		
FKM Seals	-V	
EPR Seals		-E
Silicone Seals		-S
Diode		-D
Metric Ports	-M5	

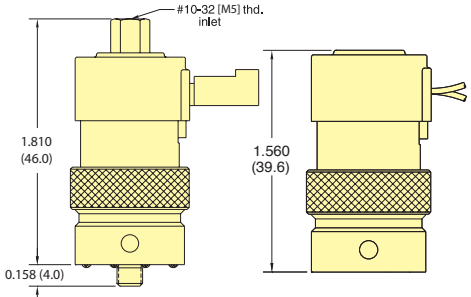
Pressure Range	Air Flow
28" Hg Vac. to 105 psig	0.9 scfm @ 100 psig
+*call for special configurations*	(25 l/min @ 7 bar)

Example Part No's:
EVN-2M-12-L-V
S-ETN-3M-24-M5

See Pages 182 & 183 for mounting options

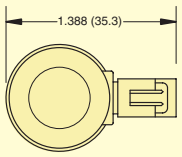
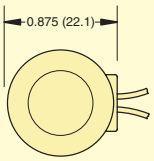
2- & 3-Way Intrinsically Safe Normally-Closed Valves

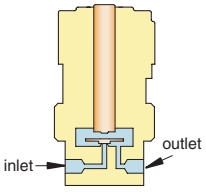
2-Way Intrinsically Safe Normally-Closed Valves, In-Line & Manifold Mount



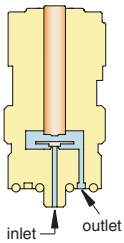
3-Way Fully-Ported Manifold Mount

2-Way N.C. In-Line Mount

		Vac. to 105 psig +	Vac. to 50 psig	Vac. to 25 psig	Part No. In-Line Mount	Part No. Manifold Mount
		Pressure Range				
	 Amp Connector	•			EI-2-15.5	EI-2M-15.5
			•		EI-2-15.5-L	EI-2M-15.5-L
				•	EI-2-15.5-H	EI-2M-15.5-H
	 18 Gauge Leads	•			EI-2-15.5-C	EI-2M-15.5-C
			•		EI-2-15.5-L-C	EI-2M-15.5-L-C
				•	EI-2-15.5-H-C	EI-2M-15.5-H-C

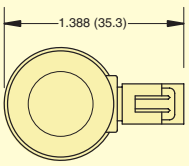
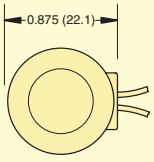


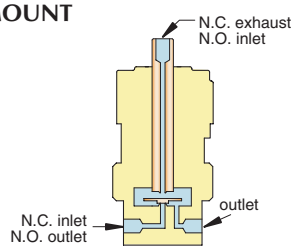
2-Way In-Line Mount



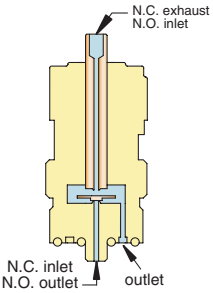
2-Way Manifold Mount

3-Way Intrinsically Safe Fully-Ported Valves, In-Line & Manifold Mount

		Pressure Range			In-Line Mount	Manifold Mount
	 Amp Connector	•			EIO-3-15.5	EIO-3M-15.5
			•		EIO-3-15.5-L	EIO-3M-15.5-L
				•	EIO-3-15.5-H	EIO-3M-15.5-H
	 18 Gauge Leads	•			EIO-3-15.5-C	EIO-3M-15.5-C
			•		EIO-3-15.5-L-C	EIO-3M-15.5-L-C
				•	EIO-3-15.5-H-C	EIO-3M-15.5-H-C



3-Way In-Line Mount



3-Way Manifold Mount

Medium: Clean, dry air (40 micron filter)

Power Consumption: 0.67 watt (CR Series: 1.2 watt)

Temperature Range: 0 to 180°F (-17 to 82°C)

Response: 5 to 10 milliseconds (nominal)

Operating Range: 90 to 150% of rated voltage

Voltage: 15.5 VDC. Other voltages available upon request.

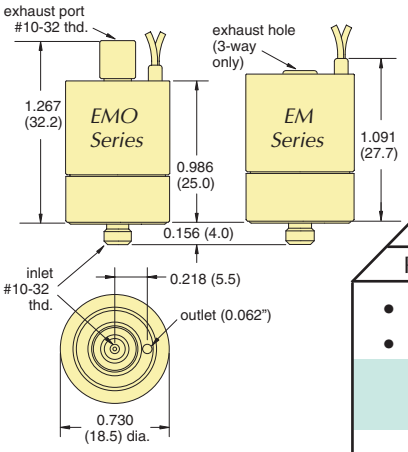
Ports: #10-32 (M5 optional), in-line only

Options *(add to end of Part No.)*	
Metric Ports (in-line only)	-M5

Pressure Range	Orifice	Air Flow
28" Hg Vac. to 105 psig +*call for special configurations*	0.025"	0.6 scfm @ 100 psig (17 l/min @ 7 bar)
28" Hg Vac. to 50 psig	0.040" (-L)	0.5 scfm @ 50 psig (14 l/min @ 3.5 bar)
28" Hg Vac. to 25 psig	0.060" (-H)	0.45 scfm @ 25 psig (13 l/min @ 1.8 bar)

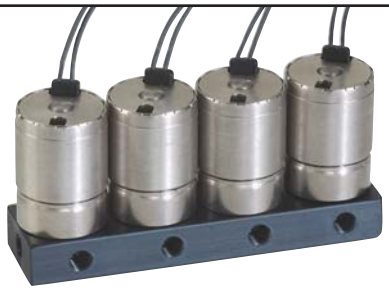
See Pages 182 & 183 for mounting options

2- & 3-Way Normally-Closed & 3-Way N.O./N.C. Valves, Manifold Mount



Pressure Range: Vac. to 105 psig +	Pressure Range: Vac. to 50 psig	Pressure Range: Vac. to 25 psig	Voltage: 12 VDC	Voltage: 24 VDC	Part No. 2-Way N.C.	Part No. 3-Way N.C.	Part No. 3-Way N.O./N.C.
•			•		EM-2-12	EM-3-12	EMO-3-12
•				•	EM-2-24	EM-3-24	EMO-3-24
	•		•		EM-2-12-L	EM-3-12-L	EMO-3-12-L
	•			•	EM-2-24-L	EM-3-24-L	EMO-3-24-L
		•	•		EM-2-12-H	EM-3-12-H	EMO-3-12-H
		•		•	EM-2-24-H	EM-3-24-H	EMO-3-24-H

An even smaller Mouse valve! When space is critical, the EM Series Valve provides the best solution.



Four valves shown on single-sided manifold

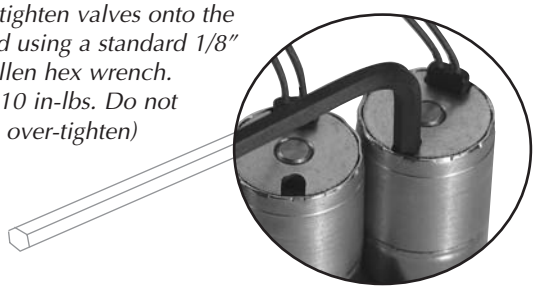
At just over an inch tall, and less than 3/4" in diameter, the EM Valve uses Clippard's special "spider" design. This reliable and proven design for long life is housed in a miniature body, and incorporates wire leads out the top, allowing body rotation for close-center mounting. In addition, the valve features higher flow; combining fast shifting speed, extremely high cycle life with the design flexibility to make this valve a "small wonder" for demanding applications.

This valve is perfect for air and/or gas control, pilot control, and any application where space is limited, but desired performance is not.

Options *(add to end of Part No.)*	Standard	Non-Standard
FKM Seals	-V	
EPDM Seals		-E
Silicone Seals		-S
Diode		-D
Metric Ports	-M5	

Pressure Range	Orifice	Air Flow
28" Hg Vac. to 105 psig	0.025"	0.6 scfm @ 100 psig
+call for special configurations		(17 l/min @ 7 bar)
28" Hg Vac. to 50 psig	0.040" (-L)	0.5 scfm @ 50 psig (14 l/min @ 3.5 bar)
28" Hg Vac. to 25 psig	0.060" (-H)	0.45 scfm @ 25 psig (13 l/min @ 1.8 bar)

Simply tighten valves onto the manifold using a standard 1/8" Allen hex wrench. (4-10 in-lbs. Do not over-tighten)



Medium: Clean, dry air (40 micron filter)

Power Consumption: 1 watt

Temperature Range: 0 to 180°F (-17 to 82°C)

Response: 10 milliseconds at nominal voltage (15 milliseconds N.O.)

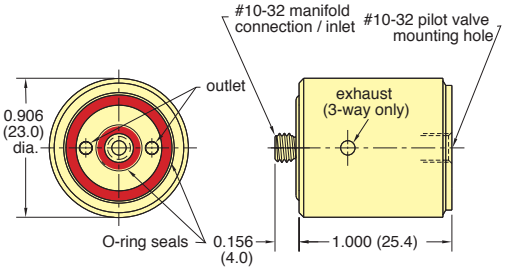
Operating Range: 90 to 150% of rated voltage

Voltage: 12 VDC or 24 VDC. Other voltages available upon request.

Ports: #10-32 Exhaust (M5 optional)

See Page 183 for mounting options

EC, EV, ET & EW Piloted 2-Way & 3-Way Normally-Closed, Pressure Piloted Valves, Manifold Mount



Part No.

EVB-2	2-Way Valve Booster
EVB-3	3-Way Valve Booster

Input Pressure	Air Flow
20 to 150 psig	6.1 scfm @ 100 psig (176 l/min @ 7 bar)

Medium: Air

Materials: Nickel-plated brass, acetyl, stainless steel and Buna-N

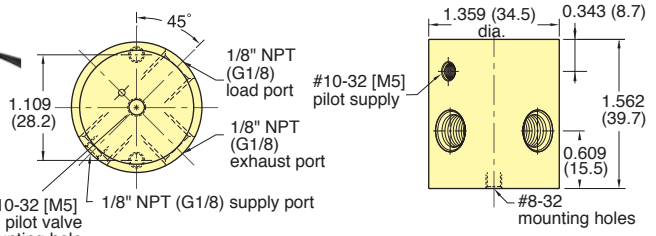
Response: 20 milliseconds @ 20 psig; 13 milliseconds @ 100 psig

Ports: Inlet and outlet through manifold

Material: Nickel-plated brass, acetyl, stainless steel and Buna-N

Note: Use only Normally-Closed 3-Way Pilot valves in conjunction with EVB-2/EVB-3

Electronic Interface 3-Way Normally-Closed Valve



Part No.

2013-6	Interface Valve, 6 VDC
2013-12	Interface Valve, 12 VDC
2013-24	Interface Valve, 24 VDC

Electrical Data

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

Power Consumption: Less than 0.50 watts @ rated voltage (80 ma. @ 6 VDC, 40 ma. @ 12 VDC 20 ma. @ 24VDC)

Leads: 28 gauge stranded PVC insulated

Medium: Air

Filtration: 10 micron

Ports: 1/8" NPT female

Switching Speed: 10 milliseconds

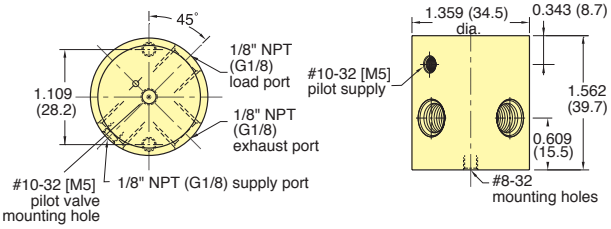
Bleed Flow: 0.10 scfm @ 100 psig

Frequency Response: 50 Hz @ 100 psig; 70 Hz @ 30 psig

Note: Use only Normally-Closed 3-Way Pilot valves in conjunction with EVB-2/EVB-3

Input Pressure	Air Flow
30 to 100 psig *call for special configurations*	22 scfm @ 100 psig (634 l/min @ 7 bar)

3-Way Normally-Closed, Pressure Piloted Valves



Designed to be piloted by a Clippard EC, EV and ET manifold mount electronic valve. Output from the EC, EV and ET actuates the valve to produce outputs up to 22 scfm at 100 psig. Combines low wattage, long life and cool running of the EC, EV and ET valves with quick response and high flow of Clippard "Fluidamp" type valves. The 2020 and 2021 are identical in all respects except one. The 2020 has an external #10-32 port for the pressure supply to the EC, EV, and ET electronic pilot valve.

Part No.

2020	External Piloted Valve
2021	Internal Piloted Valve with #10-32 Port

Input Pressure	Air Flow
30 to 100 psig *call for special configurations*	30 scfm @ 100 psig (2.1 l/min @ 7 bar)

Medium: Air

Pilot Pressure: (2020) 60% of supply pressure, minimum

Response: Approximately 20 milliseconds

Mounting: Mounting holes provided

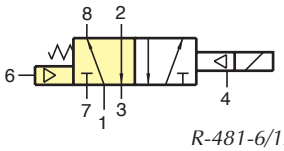
Ports: Inlet and outlet, exhaust 1/8" NPT Pilot supply on 2020 is #10-32 female

Materials: Anodized Aluminum, Stainless Steel and Buna-N

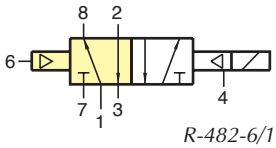
Additional Note: Use only Normally-Closed 3-way pilot valves in conjunction with 2020/2021

Option: Add -MG to the end of the Part No. for metric version

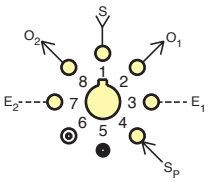
ET 4-Way Piloted Valves

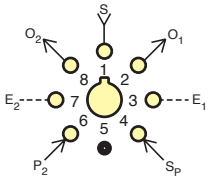


R-481-6/12/24



R-482-6/12/24





Type: 4-way combination electronic and modular spool type interface valve. Fully-ported ET-3 & R-401 (R-481)/R-402 (R-482) hybrid

Medium: Air, water, or oil; pilot - air only

Mounting: Uses Octoport base and two captivated screws

Ports: Valve has patented Octoport system

Note: Supply pressure must be applied to both ports 1 and 4. Minimum pressure on port 4 should be 40 psig.

Part No.	
R-481-12	ET-3/R-401, 12 VDC
R-481-24	ET-3/R-401, 24 VDC
R-482-12	ET-3/R-402, 12 VDC
R-482-24	ET-3/R-402, 24 VDC

Input Pressure	Air Flow
Pilot: 40 psig min. Working: 0 to 150 psig	9 scfm @ 100 psig (255 l/min @ 7 bar)

For more information please see Page 265 in the Modular Valve section of this catalog.

ET Valve Connectors

Black molded lug connectors are available for easy push-on connection ET-C48 is 48″ in length, ET-C120 is 120″ in length.

Part No.	
ET-C48	48″ Connector
ET-C120	120″ Connector

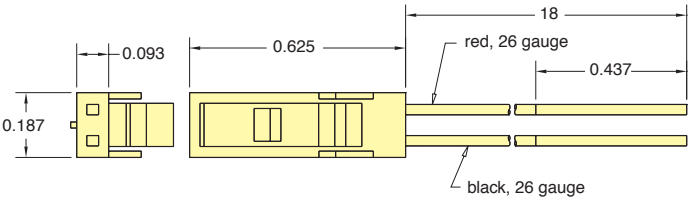
Insulated crimp-on spade lug connectors are available for wiring up leads to connect an electronic circuit to ET style valves. Accepts #22, #24, or #26 wire.

Part No.	
3831	Spade Lug Connector

EC & EI Valve Connectors

AMP connector #5-103959-1 with 18″ or 120″ wire leads for EC/ECO and EI/EIO valves.

Part No.	
C2-RB18	18″ Connector
C2-RB120	120″ Connector



Custom Ports & Connectors

If you need a product that fits your application perfectly, Clippard has the capability to design or modify one of its products to suit your exact needs.

CUSTOMer solutions

This application requires a special connection to a MAPP gas canister. The valve is tested for response time and flow rate, which delivers a consistent amount of gas each cycle.

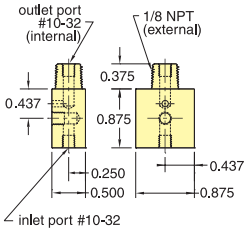
Specialized Manifolds

Material: ENP brass

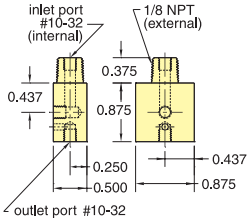
Use: Mount EC, EV and ET valves to any 1/8″ NPT supply port

Option: Add -MR for metric version

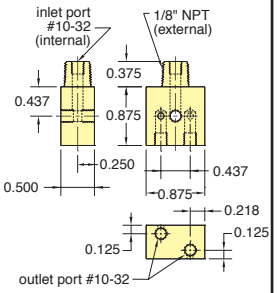
15490-1 and O-15490-1 (Oxygen Clean).
#10-32 [M5] Inlet
1/8″ NPT (R1/8) Outlet



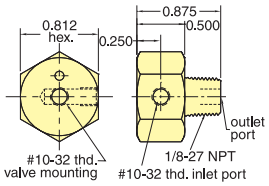
15490-2 and O-15490-2 (Oxygen Clean).
1/8″ NPT (R1/8) Inlet
#10-32 [M5] Outlet



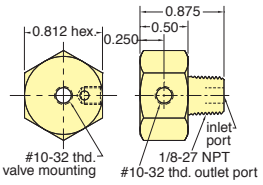
15490-3 and O-15490-3 (Oxygen Clean) Dual Outlet.
1/8″ NPT (R1/8) Inlet
#10-32 [M5] Outlet



15491-1 and O-15491-1 (Oxygen Clean).
#10-32 [M5] Inlet
1/8″ NPT (R1/8) Outlet



15491-2 and O-15491-2 (Oxygen Clean).
1/8″ NPT (R1/8) Inlet
#10-32 [M5] Outlet



Oxygen Clean Manifolds

Multi-station manifolds are available for use with Clippard's Oxygen Clean series electronic valves. These manifolds offer either single-sided or double-side mounting in Oxygen-compatible ENP brass material.

The Oxygen series products are manufactured and assembled for applications in Oxygen-enriched environments which are extremely sensitive to contamination. Each manifold is cleaned according to Clippard Specification #ES-3.41, and double bagged in heat-sealed polyethylene bags.

Medium: Air or Liquid

Input Ports: In-line 1/8″ NPT (G1/8 optional)

Outlet Ports: #10-32 (M5 optional)

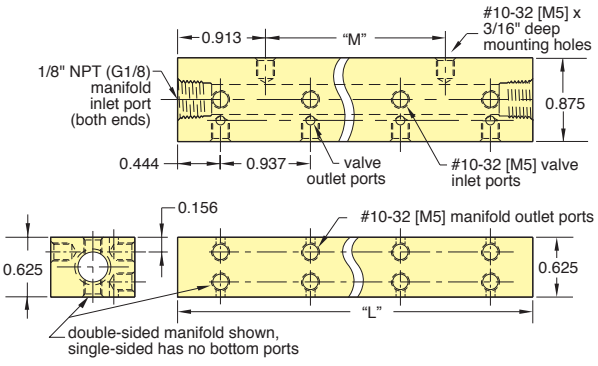
Mounting: #10-32 tapped holes (M5 optional)

Materials: ENP Brass

Option: Add -M5 for Metric version

Single-Sided		Double-Sided		Length	Mtg.
Part No.	Stations	Part No.	Stations	"L"	"M"
O-15581-2*	2			1.826	0.937
O-15581-4*	4	O-15582-8*	8	3.702	1.875
O-15581-6*	6	O-15582-12*	12	5.577	3.750

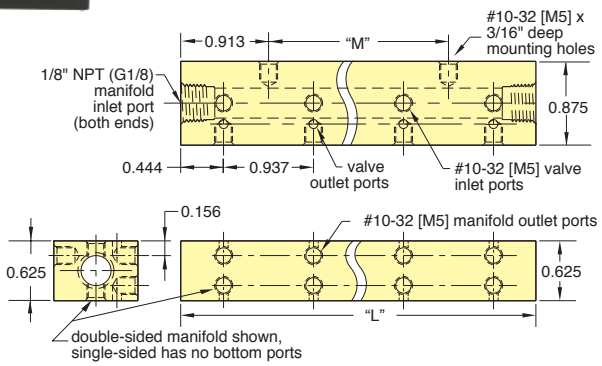
** Add -M5 for metric version (G1/8 inlet)*



Multi-Valve Manifolds

Construction: Black anodized aluminum

Option: Add -M5 for Metric version

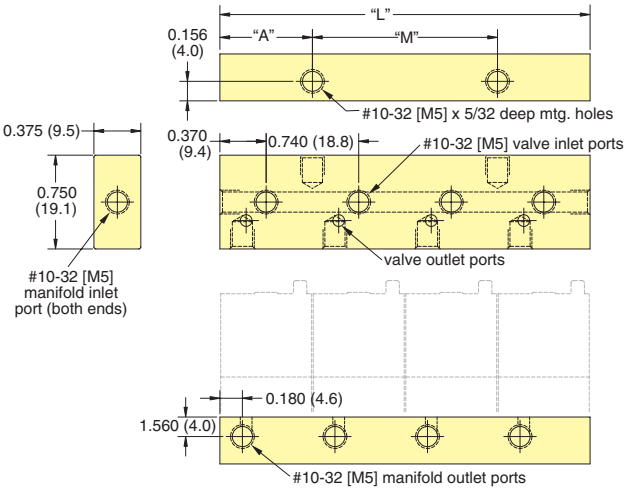


Single-Sided		Double-Sided		Length	Mtg.
Part No.	Stations	Part No.	Stations	"L"	"M"
15481-2	2			1.826	0.937
15481-4	4	15482-8	8	3.702	1.875
15481-6	6	15482-12	12	5.577	3.750

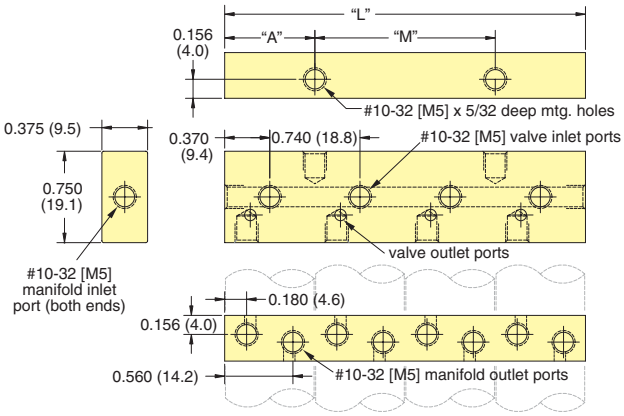
EM Series Manifolds

Construction: Black anodized aluminum

Option: Add -M5 for Metric version



Single-Sided



Double-Sided

Part No.	Stations	Part No.	Stations	Length "L"	Mtg. "M"	"A"
Single-Sided		*Double-Sided*				
15681-2	2	15682-4	4	1.480″	0.740″	0.370″
15681-4	4	15682-8	8	2.960″	1.480″	0.740″
15681-6	6	15682-12	12	4.440″	2.960″	0.740″
15681-8	8	15682-16	16	5.920″	4.440″	0.740″

EVP Series Proportional Control Valves

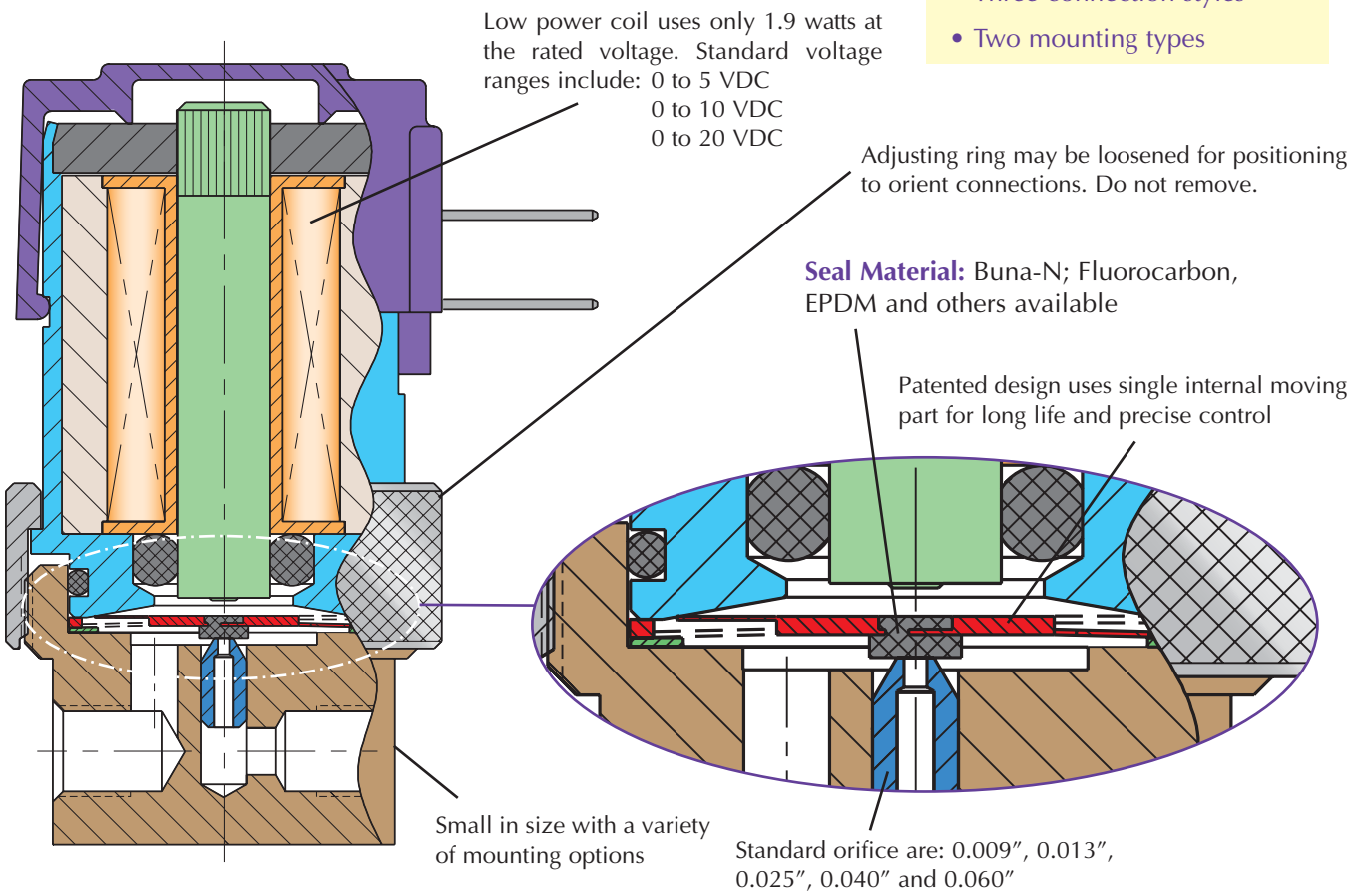
The EVP series Proportional Control Valves combine the features of the existing EV series valve - long life, low power, and Clippard's reputation for high quality components - with the additional capability for proportional control.

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

Controllability and overall value are the main features of the EVP Proportional Valve series. The valve may be controlled using DC current, open or closed-loop control, and even PWM (pulse width modulation) to cover a broad range of applications.

Features

- Flow proportional to input current
- Fast response
- Long life
- Small package
- Single moving part - low friction and wear
- Five orifice sizes
- Three connection styles
- Two mounting types



Designed For:

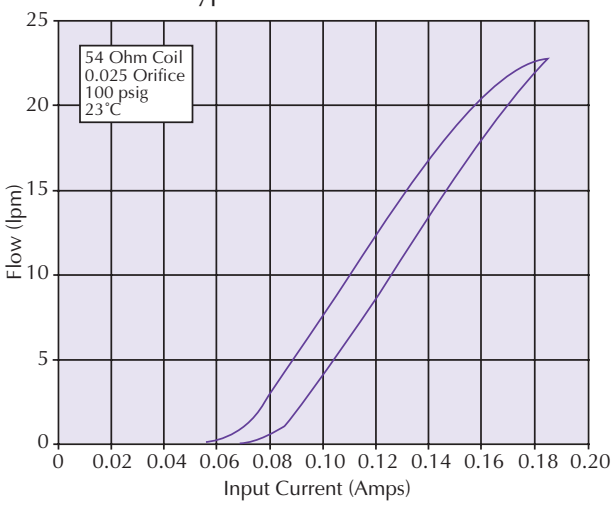
- Analytical Instruments
- Blood pressure monitoring
- Precise pressure control
- Patient Simulators
- Automotive
- Gas Controllers
- Mass Flow Control
- Gas Chromatography
- Respirators / Ventilators

and many more...

EVP Series Proportional Control Valves

Based on Clippard's original spider design from 1973, the EVP's armature is the heart of the valve which provides precise flow control.

Typical Performance



Type: 2-Way, Proportional

Medium: Air, Inert Gases

Temperature Range: 32 to 120°F (0 to 50°C)

Power Consumption: 1.9 watts at 23˚C, 2.3 watts max

Mounting: In-line or Manifold

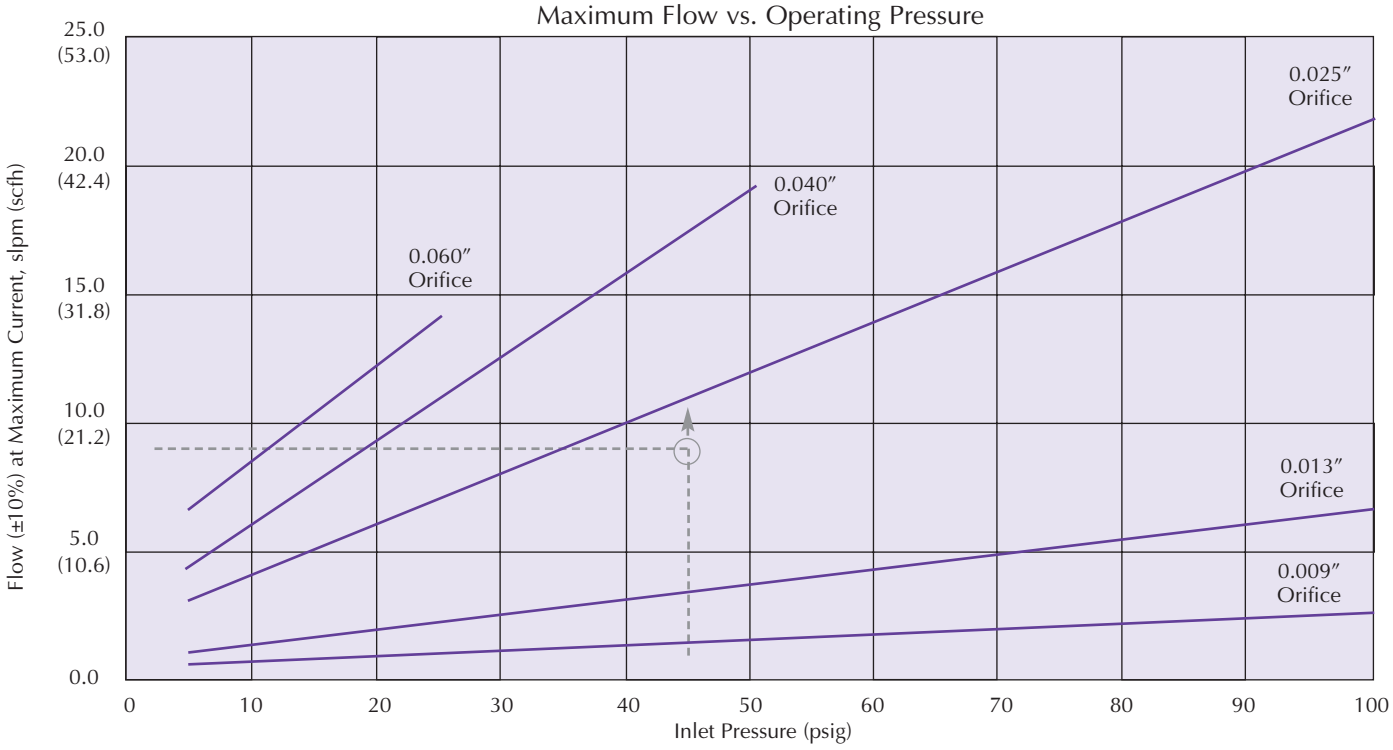
Ports: #10-32 Female (In-line)
#10-32 Male Stud (Manifold)

Seal Material: Buna-N; Fluorocarbon and EPDM
Others available.

Maximum Hysteresis: 10% of full current

For control accessories, consult factory.

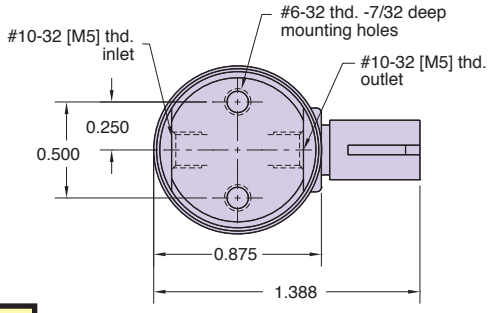
Maximum Flow vs. Operating Pressure



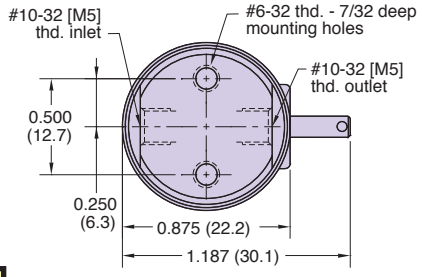
To determine the correct orifice required, locate the colored line immediately above the flow/pressure intersection
Example: 9 slpm required at 45 psig inlet. This example leads to a "-2545" valve (0.025" nozzle, 45 psig).

EVP Series Proportional Control Valves
In-line Mount

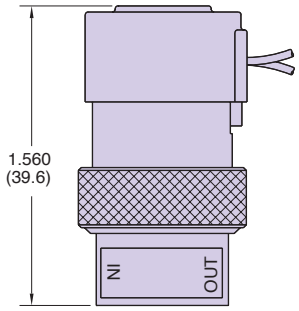
EC - P - ❑ - ❑ ❑ - ❑



ET - P - ❑ - ❑ ❑ - ❑



EV - P - ❑ - ❑ ❑ - ❑



Type: 2-Way, Proportional

Medium: Air or Inert Gases

Temperature Range: 32 to 120°F

Power Consumption: 1.9 watts at 23°C, 2.3 watts max.

Mounting: In-line

Ports: #10-32 [M5] Female

Nominal Voltage Range at 23°C (vdc)	Input Current Range (amps)	Coil Resistance at 23°C (ohms)	Max. Voltage Required (vdc)
0 - 5	0 - 0.370	13.5	6.2
0 - 10	0 - 0.185	54	12.4
0 - 20	0 - 0.092	218	24.8

Do not exceed input current range.

The EVP Proportional Valve can be calibrated for pressures less than the maximum shown here. Lower pressures may be substituted, and will be used for calibration. The pressures shown above are standard options. For pressures less than 5 psig, please consult factory.

NUMBERING SYSTEM

E ❑ - P - ❑ - ❑ ❑ - ❑ - ❑ — **Ports:** **Blank** - #10-32, **M5** - Metric

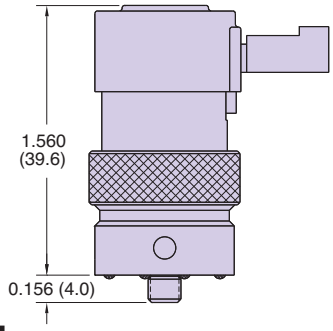
- **C** - Connector, **T** - Terminal Spades, **V** - Wire Leads
- **Voltages:** * — **05** - 0-5 VDC, **10** - 0-10 VDC, **20** - 0-20 VDC
- **Orifice Options:** — **Maximum Pressure (specify Operating Pressure):**
  - **09** - 0.009″ dia., **13** - 0.013″ dia., **25** - 0.025″ dia. → ❑ - 0-100 psig
  - **40** - 0.040″ dia. → ❑ - 0-50 psig
  - **60** - 0.060″ dia. → ❑ - 0-25 psig
- **Options:** **Blank** - none, **E** - EPDM, **V** - FKM seals

* Consult factory for availability of non-standard voltages and other options

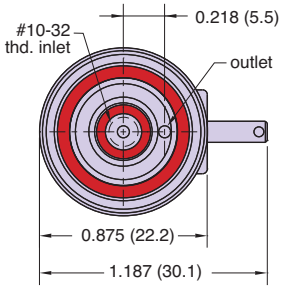
Sample part number: EC-P-10-2585

For Cable and Connectors, see Page 181.

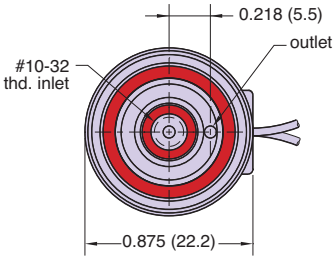
EC - PM - ❑ - ❑ ❑ - ❑



ET - PM - ❑ - ❑ ❑ - ❑



EV - PM - ❑ - ❑ ❑ - ❑



Type: 2-Way, Proportional

Medium: Air or Inert Gases

Temperature Range: 32 to 120°F

Power Consumption: 1.9 watts at 23˚C, 2.3 watts max.

Mounting: Manifold

Ports: #10-32 male stud

Nominal Voltage Range at 23˚C (vdc)	Input Current Range (amps)	Coil Resistance at 23˚C (ohms)	Max. Voltage Required (vdc)
0 - 5	0 - 0.370	13.5	6.2
0 - 10	0 - 0.185	54	12.4
0 - 20	0 - 0.092	218	24.8

Do not exceed input current range.

The EVP Proportional Valve can be calibrated for pressures less than the maximum shown here. Lower pressures may be substituted, and will be used for calibration. The pressures shown above are standard options. For pressures less than 5 psig, please consult factory.

NUMBERING SYSTEM

E ❑ - P M - ❑ - ❑ ❑ - ❑

- **C** - Connector
- **T** - Spade Terminals
- **V** - Wire Leads

Voltages: *
- **05** - 0-5 VDC
- **10** - 0-10 VDC
- **20** - 0-20 VDC

Orifice Options:
- **09** - 0.009″ dia.
- **13** - 0.013″ dia.
- **25** - 0.025″ dia.
- **40** - 0.040″ dia.
- **60** - 0.060″ dia.

Maximum Pressure (specify Operating Pressure):
- ❑ - 0-100 psig
- ❑ - 0-50 psig
- ❑ - 0-25 psig

Options:
- **Blank** - none
- **E** - EPDM
- **V** - FKM seals

* Consult factory for availability of non-standard voltages and other options

Sample part number: EC-PM-10-4025

For Cable and Connectors, see Page 181.

Maximatic®

MAXIMATIC SOLENOID VALVES

Clippard's Maximatic Solenoid valves are available in 2-way, 3-way and 4-way configurations in port sizes from #10-32 to 1/2" NPT. Select either a direct-acting poppet or solenoid-controlled pilot operated balanced spool design. Spool valves are body ported but can be bolted to a parallel circuit manifold.

These electronic valves offer high flow in a small package, and are constructed of aluminum, stainless steel and thermoplastic materials. The 4-way valves are also available in 3 position versions with either pressure center, closed center or exhaust center spool options.

Materials: Aluminum, Stainless Steel, Thermoplastic
Maximum Pressure: 0 to 115 psig (direct-acting only) (see Page 192); 30 to 125 on MME-41 Series, 20 to 125 psig on all others (spool valves)
Response Time: Less than 20 milliseconds
Mounting: Manifold standard. Actuator (1/4" only) or NAMUR (3/8" NPT only) available on Page 195.
Manual Override: Locking or non-locking
Electrical Connection: DIN terminal with LED indicator, or 18" Wire Leads
DIN Connector: Plug-in electrical connector with LED. MME-31/41 models are DIN Industrial Form "C" (9.4 mm centers) 3 mm screw. All others are DIN 43650 Form "B" 3 mm screw. LED will not "light" if polarity is reversed.
Wire Leads: Not polarity sensitive
Temperature Range: 32 to 150°F (0 to 65°C)
Seals: Buna-N

Conforms to ISO 19973-2 test standards.

3- & 4-Way Valves

Port	Cv	Flow Rate @ 50 psig	Flow Rate @ 100 psig
#10-32	0.58	16 scfm	27 scfm
1/8" NPT	0.67	18 scfm	31 scfm
1/4" NPT	0.89	26 scfm	49 scfm
3/8" NPT	1.68	51 scfm	93 scfm
1/2" NPT	2.79	91 scfm	171 scfm

Maximum Value. Maximum Performance.

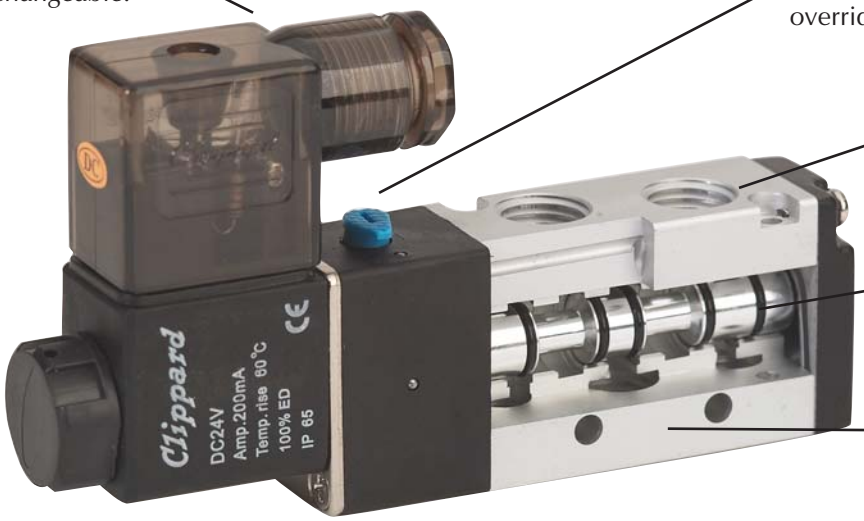
For side ported manifold mount, the Maximatic line of valves offers both 1/4″ actuator mount and 3/8″ NAMUR mount

2-, 3- & 4-Way Designs

Choose either DIN connector with LED indicator or 18″ Wire Lead connection. Both are rotatable and interchangeable.

Easily accessible locking or non-locking manual override switch

Port sizes from #10-32 to 1/2″ NPT



Small size makes valves ideal for use in compact applications

Buna-N Seals

Sturdy aluminum body withstands rough environments

Operating ranges to 125 psig

Closed Center, Pressure Center and Exhaust Center Models Available

Maximatic® Valves are available as body ported, manifold mount, NAMUR (3/8″ NPT only), and Actuator (1/4″ NPT only) mounting. Standard models include a base that permits fast, secure mounting of electronic valves to a manifold for grouping in compact assemblies.

A wide variety of voltage options are available including 12 VDC, 24 VDC, 24 VAC, 110 VAC and 220 VAC. Consult factory for other voltages.

All Maximatic® Solenoid Valves are IP 65 CE Rating

MAXIMATIC® SOLENOID VALVES

Valve Series	Enter
Electronic	E
Air Pilot	A

Valve Type	Enter
2-Way (Direct-Acting only)	2
3-Way	3
4-Way	4

Body/Port Size	Enter
Direct-Acting	
1/8″ NPT	P
1/8″ NPT Stacking	S
1/4″ NPT	Q
Spool Type	
#10-32	1N
1/8″ NPT	1P
1/4″ NPT (0.89 Cv)	2Q
1/4″ NPT (1.68 Cv)	3Q
3/8″ NPT	3W
1/2″ NPT	4Z

Primary/Secondary Actuator	Enter
Air/Air	AA
Air/Spring	AS
Electronic Pilot/Elec. Pilot	EE
Electronic Pilot/Spring	ES
Direct Acting/Spring	DS (2- or 3-Way, #10-32, 1/8″, 1/4″ only)

Mounting	Enter
Standard Manifold	(blank)
Actuator/NAMUR*	B

* Only available on 3- or 4-Way Electronic Valves. 1/4″ NPT Actuator or 3/8″ NPT NAMUR Mount.

Spool Type	Enter
2-Position, Spool	(blank)
3-Position, Closed Center	C
3-Position, Exhaust Center	E
3-Position, Pressure Center	P

Only available on 4-Way Valves with "AA" or "EE" Actuator. Standard Manifold Mount only.

Electrical Connector	Enter
DIN Connector	D
Wire Leads (18″)	W

Only required on Electronic Valves.

Voltage	Enter
12-Volt DC	012
24-Volt DC	024
24-Volt AC	24A
110-Volt AC	110
220-Volt AC	220

Only required on Electronic Valves.

MM □ - □ □ □ □ □ - □ □

Example: MM E - 4 2Q ES - D 110

Single Solenoid Electronic Valves Mounted on 8-Station Manifold

Note: This numbering schematic is shown for illustration purposes only. All possible configurations are not available. For standard models, see the products illustrated in this catalog.

2-Way Valves

Series No.	Style	Ports Inlet	Ports Outlet	Exhaust	Function	Cv	Flow @ 100 psig
MME-2PDS	Poppet	1/8″ NPT	1/8″ NPT	1/8″ NPT	2/2	0.12	6.7 scfm
MME-2QDS	Poppet	1/4″ NPT	1/4″ NPT	1/4″ NPT	2/2	0.12	6.7 scfm
MME-2SDS	Poppet	1/8″ NPT	1/8″ NPT	1/8″ NPT	2/2	0.05	2.3 scfm

3-Way Valves

Series No.	Style	Ports Inlet	Ports Outlet	Exhaust	Function	Cv	Flow @ 100 psig
MME-3PDS	Poppet	1/8″ NPT	1/8″ NPT	1/8″ NPT	3/2	0.12	6.7 scfm
MME-3QDS	Poppet	1/4″ NPT	1/4″ NPT	1/4″ NPT	3/2	0.12	6.7 scfm
MME-3SDS	Poppet	1/8″ NPT	1/8″ NPT	1/8″ NPT	3/2	0.05	2.3 scfm
MME-31NES	Spool	#10-32	#10-32	#10-32	3/2 NC	0.58	27 scfm
MME-31PES	Spool	1/8″ NPT	1/8″ NPT	1/8″ NPT	3/2 NC	0.67	31 scfm
MME-32QES	Spool	1/4″ NPT	1/4″ NPT	1/8″ NPT	3/2 NC	0.89	49 scfm
MME-33WES	Spool	3/8″ NPT	3/8″ NPT	1/4″ NPT	3/2 NC	1.68	93 scfm
MME-34ZES	Spool	1/2″ NPT	1/2″ NPT	1/2″ NPT	3/2 NC	2.79	171 scfm
MME-31NEE	Spool	#10-32	#10-32	#10-32	3/2	0.58	27 scfm
MME-31PEE	Spool	1/8″ NPT	1/8″ NPT	1/8″ NPT	3/2	0.67	31 scfm
MME-32QEE	Spool	1/4″ NPT	1/4″ NPT	1/8″ NPT	3/2	0.89	49 scfm
MME-33WEE	Spool	3/8″ NPT	3/8″ NPT	1/4″ NPT	3/2	1.68	93 scfm
MME-34ZEE	Spool	1/2″ NPT	1/2″ NPT	1/2″ NPT	3/2	2.79	171 scfm

4-Way Valves

Series No.	Style	Ports Inlet	Ports Outlet	Exhaust	Function	Cv	Flow @ 100 psig	Spool Configuration Closed Center	Exhaust Center	Pressure Center
MME-41NES	Spool	#10-32	#10-32	#10-32	5/2	0.58	27 scfm			
MME-41PES	Spool	1/8″ NPT	1/8″ NPT	1/8″ NPT	5/2	0.67	31 scfm			
MME-42QES	Spool	1/4″ NPT	1/4″ NPT	1/8″ NPT	5/2	0.89	49 scfm			
MME-43WES	Spool	3/8″ NPT	3/8″ NPT	1/4″ NPT	5/2	1.68	93 scfm			
MME-44ZES	Spool	1/2″ NPT	1/2″ NPT	1/2″ NPT	5/2	2.79	171 scfm			
MME-41NEE	Spool	#10-32	#10-32	#10-32	5/2	0.58	27 scfm			
MME-41PEE	Spool	1/8″ NPT	1/8″ NPT	1/8″ NPT	5/2	0.67	31 scfm			
MME-42QEE	Spool	1/4″ NPT	1/4″ NPT	1/8″ NPT	5/2	0.89	49 scfm			
MME-43WEE	Spool	3/8″ NPT	3/8″ NPT	1/4″ NPT	5/2	1.68	93 scfm			
MME-44ZEE	Spool	1/2″ NPT	1/2″ NPT	1/2″ NPT	5/2	2.79	171 scfm			
MME-41NEEC	Spool	#10-32	#10-32	#10-32	5/3	0.50	23 scfm	•		
MME-41PEEC	Spool	1/8″ NPT	1/8″ NPT	1/8″ NPT	5/3	0.50	23 scfm	•		
MME-42QEEC	Spool	1/4″ NPT	1/4″ NPT	1/8″ NPT	5/3	0.67	49 scfm	•		
MME-43WEEC	Spool	3/8″ NPT	3/8″ NPT	1/4″ NPT	5/3	1.00	72 scfm	•		
MME-44ZEEC	Spool	1/2″ NPT	1/2″ NPT	1/2″ NPT	5/3	1.68	93 scfm	•		
MME-41NEEP	Spool	#10-32	#10-32	#10-32	5/3	0.50	23 scfm			•
MME-41PEEP	Spool	1/8″ NPT	1/8″ NPT	1/8″ NPT	5/3	0.50	23 scfm			•
MME-42QEEP	Spool	1/4″ NPT	1/4″ NPT	1/8″ NPT	5/3	0.89	49 scfm			•
MME-43WEEP	Spool	3/8″ NPT	3/8″ NPT	1/4″ NPT	5/3	1.00	72 scfm			•
MME-44ZEEP	Spool	1/2″ NPT	1/2″ NPT	1/2″ NPT	5/3	1.68	93 scfm			•
MME-41NEEE	Spool	#10-32	#10-32	#10-32	5/3	0.50	23 scfm		•	
MME-41PEEE	Spool	1/8″ NPT	1/8″ NPT	1/8″ NPT	5/3	0.50	23 scfm		•	
MME-42QEEE	Spool	1/4″ NPT	1/4″ NPT	1/8″ NPT	5/3	0.89	49 scfm		•	
MME-43WEEE	Spool	3/8″ NPT	3/8″ NPT	1/4″ NPT	5/3	1.00	72 scfm		•	
MME-44ZEEE	Spool	1/2″ NPT	1/2″ NPT	1/2″ NPT	5/3	1.68	93 scfm		•	

Direct-Acting 2-Position Solenoid Valves

MME-2SDS-D024

MME-3PDS-D110

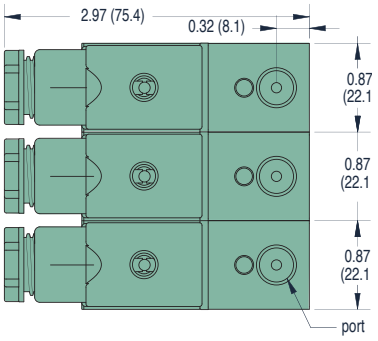
Maximatic® Direct-Acting Valves are single solenoid spring return poppet type valves available as either 2-way or 3-way configurations in ports sizes 1/8" NPT and 1/4" NPT. Hardware to stack multiple valves included with each stacking valve (MME-3SDS and MME-2SDS). Includes one long screw, one short screw, one gasket, and one nut.

Medium: Air (40 micron filtration), Inert Gas or Liquid
Operating Range: 0 to 115 psig

Flow: 2.3 scfm @ 100 psig
Electrical Connection: DIN connector with LED indicator ("-D"), or 18" Wire Lead ("-W")
Voltage: 12-volt DC ("-012"), 24-volt DC ("-024"), 24-volt AC ("-24A"), 110-volt AC ("-110"), or 220-volt AC ("-220")
Power Consumption: 6.5 Watt
Number of Ports: 2 or 3
Mounting: Body Ported or Stacking

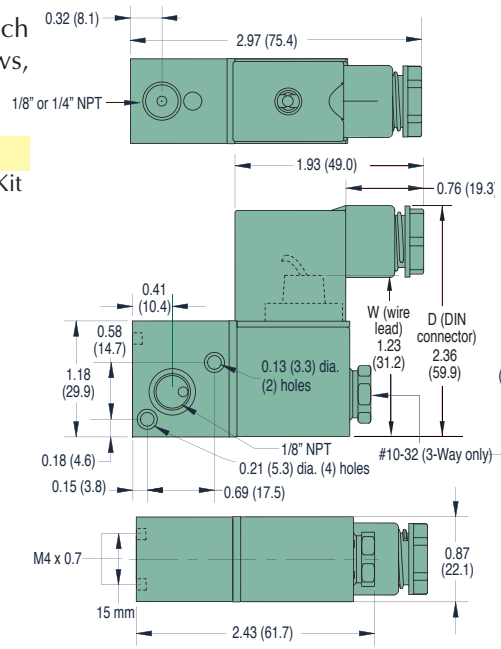
Replacement Stacking Kit
Replacement Stacking Kits are available which include two long screws, two short screws, one gasket and two nuts.

Part No.	
27048	Replacement Stacking Kit

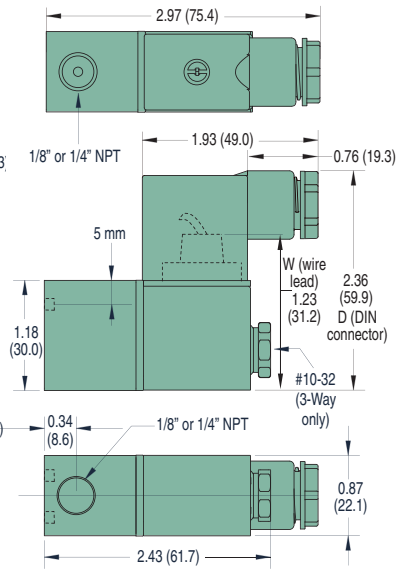


3-Station Configuration

2-Way & 3-Way Valves (Stacking)



2-Way & 3-Way Valves (non-Stacking)



2-Way Valves		Cv/scfm*	3-Way Valves		Inlet	Outlet	Exhaust	Cv/scfm*
MME-2PDS-	A P	0.12/6.7	MME-3PDS-	A P E	1/8" NPT	1/8" NPT	#10-32	0.10/2.3
MME-2SDS-**		0.05/2.3	MME-3SDS-**		1/8" NPT	1/8" NPT	#10-32	0.10/2.3
MME-2QDS-		0.12/6.7	MME-3QDS-		1/4" NPT	1/4" NPT	#10-32	0.10/2.3

*** Stacking Valve*
** scfm based on flow @ 100 psig*

*Add Electrical Connection and Voltage Choices to the end of each Base Part Number - Example: **MME-2QDS-W220***

2-Position Single & Double Solenoid Valves

MME-33WES-D110

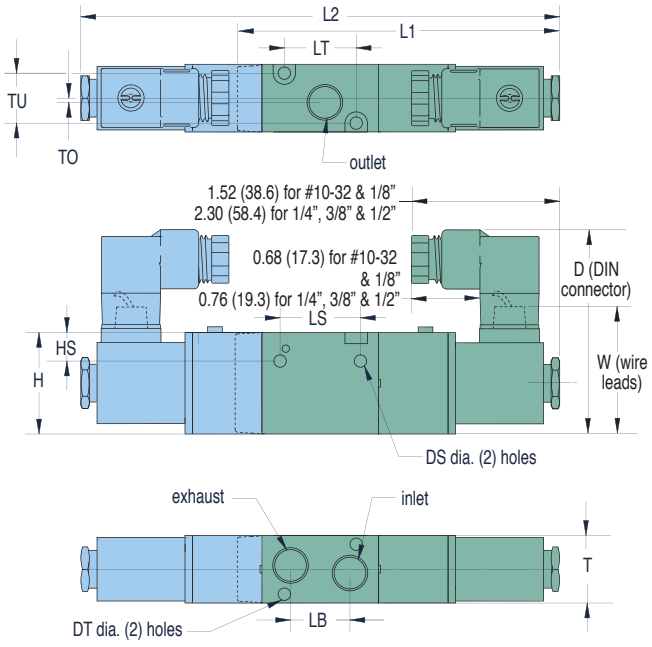
MME-32QEE-D110

Maximatic® 3-way electronic valves are either N.C. single solenoid spring return or double solenoid spool valves in #10-32 to 1/2" NPT port sizes.

Medium: Air (40 micron filtration) or Inert Gas
Operating Range: 20 to 125 psig
Electrical Connection: DIN connector with LED indicator ("-D"), or 18" Wire Lead ("-W")
Voltage: 12-volt DC ("-012"), 24-volt DC ("-024"), 24-volt AC ("-24A"), 110-volt AC ("-110"), or 220-volt AC ("-220")
Number of Ports: 3
Mounting: Body Ported, Manifold Mount, Actuator (1/4" NPT only) or NAMUR (3/8" NPT only) available. See Page 195.
Manual Override: Non-locking on MME-31 series. Locking on all other models.
Power Consumption: 2.5 Watts on MME-31 series; 3 Watts for all others.

MAXIMUM Value. Performance.

Dim.	MME-31	MME-32	MME-33	MME-34
D	2.14 (54.4)	2.65 (67.3)	2.71 (68.8)	2.94 (74.7)
DS	0.13 (3.3)	0.17 (4.3)	0.17 (4.3)	0.22 (5.6)
DT	0.13 (3.3)	0.13 (3.3)	0.17 (4.3)	0.17 (4.3)
H	1.07 (27.2)	1.38 (35.1)	1.58 (40.1)	1.97 (50.0)
HS	0.30 (7.6)	0.31 (7.9)	0.41 (10.4)	0.53 (13.5)
L1	3.38 (85.9)	4.39 (111.5)	4.70 (119.4)	5.39 (136.9)
L2	5.02 (127.5)	6.49 (164.8)	6.76 (171.7)	7.55 (191.8)
LB	0.63 (16.0)	0.71 (18.0)	0.94 (23.9)	1.42 (36.1)
LS	0.83 (21.1)	0.98 (24.9)	1.18 (30.0)	2.01 (51.1)
LT	0.75 (19.1)	1.30 (33.0)	1.37 (34.8)	1.61 (40.9)
T	0.71 (18.0)	0.87 (22.1)	0.78 (19.8)	1.34 (34.0)
TO	0.06 (1.5)	0.06 (1.5)	0.16 (4.1)	0.16 (4.1)
TU	0.50 (12.7)	0.65 (16.5)	0.80 (20.3)	1.07 (27.2)
W	1.32 (33.5)	1.51 (38.4)	1.54 (39.1)	1.73 (43.9)



Single Solenoid Valves	Double Solenoid Valves	Inlet	Outlet	Exhaust	Cv/scfm*
MME-31NES-	MME-31NEE-	#10-32	#10-32	#10-32	0.58/27
MME-31PES-	MME-31PEE-	1/8" NPT	1/8" NPT	1/8" NPT	0.67/31
MME-32QES-	MME-32QEE-	1/4" NPT	1/4" NPT	1/4" NPT	0.89/49
MME-33WES-	MME-33WEE-	3/8" NPT	3/8" NPT	3/8" NPT	1.68/93
MME-34ZES-	MME-34ZEE-	1/2" NPT	1/2" NPT	1/2" NPT	2.79/171

** scfm based on flow @ 100 psig*

Add Electrical Connection and Voltage Choices to the end of each Base Part Number - Example: ***MME-34ZEE-W024***

2-Position Single & Double Solenoid Valves

MME-44ZEE-D110

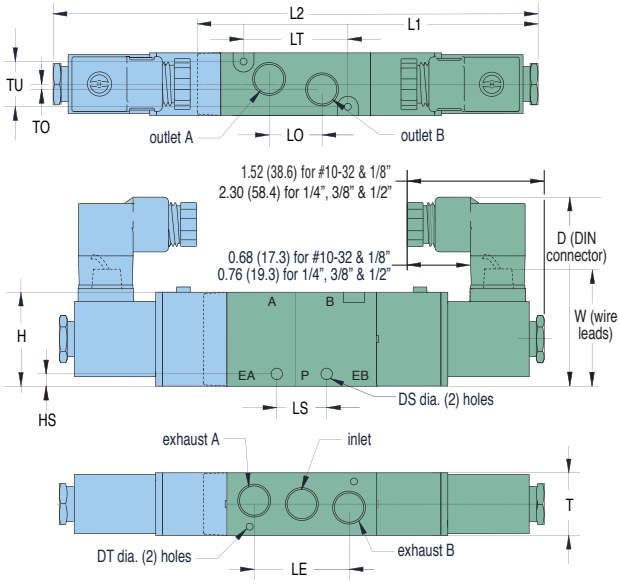
MME-44ZES-D012

Maximatic® 4-way solenoid controlled pilot operated valves are either single solenoid spring return or double solenoid spool valves in #10-32 thread to 1/2" NPT port sizes.

Medium: Air (40 micron filtration) or Inert Gas
Operating Range: 20 to 125 psig
Electrical Connection: DIN connector with LED indicator ("-D"), or 18" Wire Lead ("-W")

Voltage: 12-volt DC ("-012"), 24-volt DC ("-024"), 24-volt AC ("-24A"), 110-volt AC ("-110"), or 220-volt AC ("-220")
Number of Ports: 5
Mounting: Body Ported, Manifold Mount
Manual Override: Non-locking on MME-41 models. Locking on all other models.
Power Consumption: 2.5 Watts on MME-41 models; 3 Watts for all others.

Dim.	MME-41	MME-42	MME-43	MME-44
D	2.14 (54.4)	2.65 (67.3)	2.71 (68.8)	2.94 (74.7)
DS	0.13 (3.3)	0.17 (4.3)	0.17 (4.3)	0.21 (5.3)
DT	0.13 (3.3)	0.13 (3.3)	0.17 (4.3)	0.17 (4.3)
H	1.07 (27.2)	1.38 (35.1)	1.58 (40.1)	1.97 (50.0)
HS	0.16 (4.1)	0.28 (7.1)	0.26 (6.6)	0.29 (7.4)
L1	3.81 (96.8)	4.49 (114.0)	5.19 (131.8)	6.39 (162.3)
L2	5.54 (140.7)	6.49 (164.8)	7.24 (183.9)	8.48 (215.4)
LE	1.09 (27.7)	1.42 (36.1)	1.77 (45.0)	2.48 (63.0)
LO	0.63 (16.0)	0.74 (13.9)	0.96 (24.4)	1.42 (36.1)
LS	0.56 (14.2)	0.98 (24.9)	0.95 (24.1)	1.11 (28.2)
LT	1.18 (30.0)	1.40 (35.6)	1.97 (50.0)	2.82 (71.6)
T	0.71 (18.0)	0.86 (21.8)	1.06 (26.1)	1.34 (34.0)
TO	0.11 (2.8)	0.13 (3.3)	0.16 (4.1)	0.19 (4.8)
TU	0.50 (12.7)	0.65 (16.5)	0.80 (20.3)	1.07 (27.2)
W	1.32 (33.5)	1.51 (38.4)	1.54 (39.1)	1.73 (43.9)



Single Solenoid Valves	Double Solenoid Valves	Inlet	Outlet	Exhaust	Cv/scfm*
MME-41NES-	MME-41NEE-	#10-32	#10-32	#10-32	0.58/27
MME-41PES-	MME-41PEE-	1/8" NPT	1/8" NPT	1/8" NPT	0.67/31
MME-42QES-	MME-42QEE-	1/4" NPT	1/4" NPT	1/8" NPT	0.89/49
MME-43WES-	MME-43WEE-	3/8" NPT	3/8" NPT	1/4" NPT	1.68/93
MME-44ZES-	MME-44ZEE-	1/2" NPT	1/2" NPT	1/2" NPT	2.79/171

* scfm based on flow @ 100 psig

*Add Electrical Connection and Voltage Choices to the end of each Base Part Number - Example: **MME-43WEE-D110***

2-Position Single Solenoid Valves

1/4″ & 3/8″ NAMUR Style

MME-33WESB-D012

MME-32QESB-D220

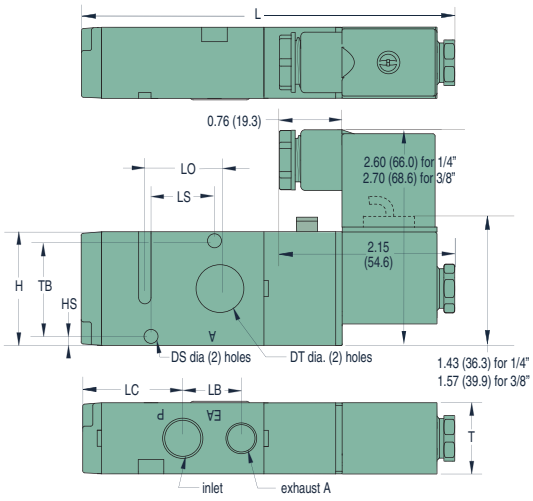
Maximatic® 3-way and 4-way single solenoid spring return spool valves are also available in 1/4″ NPT actuator mount or 3/8″ NAMUR mount.

Medium: Air (40 micron filtration) or Inert Gas
Operating Range: 20 to 125 psig
Electrical Connection: DIN terminal with LED indicator (“-D”), or Grommet with 18″ Wire Lead (“-W”)
Voltage: 12-volt DC (“-012”), 24-volt DC (“-024”), 24-volt AC (“-24A”), 110-volt AC (“-110”), or 220-volt AC (“-220”)

Number of Ports: 3 or 5
Mounting: Actuator (1/4″ NPT only) or NAMUR (3/8″ NPT only).
Manual Override: Locking
Power Consumption: 3 Watts

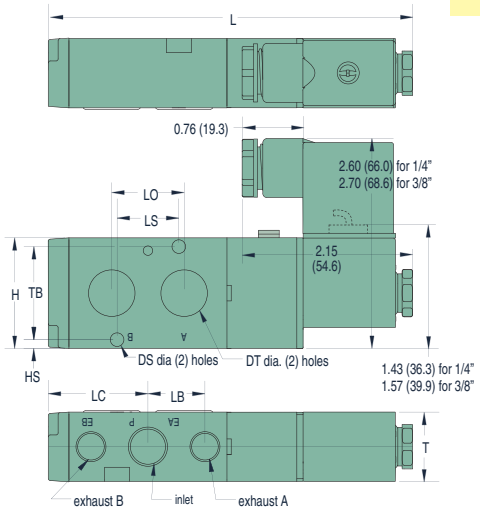
NAMUR/Actuator mount available on other 3- and 4-way Electronic and Air Pilot valves—Call for specifications.

3-Way Solenoid Valves



Dim.	1/4″ NPT	3/8″ NPT
DS	0.17 (4.3)	0.22 (5.6)
DT	0.72 (18.3)	0.78 (19.8)
H	1.38 (35.1)	1.58 (40.1)
HS	0.09 (2.3)	0.15 (3.8)
L	4.49 (114.0)	5.19 (131.8)
LC	1.21 (30.7)	1.57 (39.9)
LB	0.71 (18.0)	0.94 (23.9)
LO	0.91 (23.1)	0.94 (23.9)
LS	0.79 (20.1)	0.94 (23.9)
T	0.86 (21.8)	1.06 (26.9)
TB	1.14 (29.0)	1.26 (32.0)

4-Way Solenoid Valves



3-Way Single Solenoid Valves		Supply Port	Outlet	Exhaust	Cv/scfm*
MME-32QESB-		1/4″ NPT	0.72″	1/4″ NPT	0.89/49
MME-33WESB-		3/8″ NPT	0.78″	1/4″ NPT	1.68/93

4-Way Single Solenoid Valves		Supply Port	Outlet	Exhaust	Cv/scfm*
MME-42QESB-		1/4″ NPT	0.72″	1/4″ NPT	0.89/49
MME-43WESB-		3/8″ NPT	0.78″	1/4″ NPT	1.68/93

** scfm based on flow @ 100 psig*

Add Electrical Connection and Voltage Choices to the end of each Base Part Number - Example: ***MME-42QESB-D110***

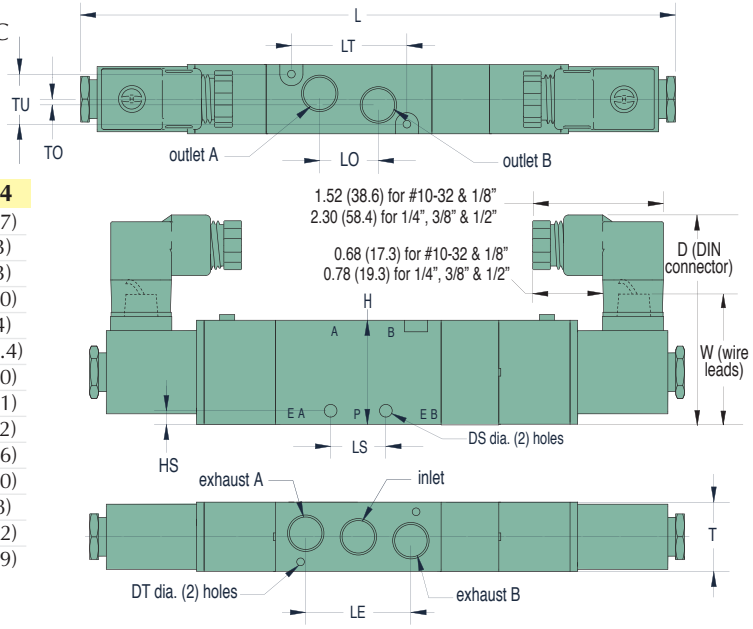
3-Position Spring Centered Double Solenoid Valves

MME-44ZEEC-D024

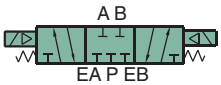
Maximatic® 4-way double solenoid spring centered valves with closed center, pressure center or exhaust center spools are available from #10-32 thread to 1/2" NPT port sizes.

Medium: Air (40 micron filtration) or Inert Gas
Operating Range: 30 to 125 psig on MME-41 series, 20 to 125 psig on all others
Electrical Connection: DIN terminal with LED indicator ("-D"), or 18" Wire Lead ("-W")
Voltage: 12-volt DC ("-012"), 24-volt DC ("-024"), 24-volt AC ("-24A"), 110-volt AC ("-110"), or 220-volt AC ("-220")

Number of Ports: 5
Mounting: Body Ported, Manifold Mount
Manual Override: Non-locking on MME-41 Series. Locking on all other models.
Power Consumption: 2.5 Watts on MME-41 models; 3 Watts for all others.



Dim.	MME-41	MME-42	MME-43	MME-44
D	2.14 (54.4)	2.65 (67.3)	2.71 (68.8)	2.94 (74.7)
DS	0.13 (3.3)	0.17 (4.3)	0.17 (4.3)	0.21 (5.3)
DT	0.13 (3.3)	0.13 (3.3)	0.17 (4.3)	0.17 (4.3)
H	1.07 (27.2)	1.38 (35.1)	1.58 (40.1)	1.97 (50.0)
HS	0.16 (4.1)	0.28 (7.1)	0.26 (6.6)	0.29 (7.4)
L	6.13 (155.7)	7.24 (183.9)	7.98 (202.7)	8.48 (215.4)
LE	1.09 (27.7)	1.42 (36.1)	1.77 (45.0)	2.48 (63.0)
LO	0.63 (16.0)	0.74 (18.8)	0.96 (24.4)	1.42 (36.1)
LS	0.56 (14.2)	0.98 (24.9)	0.95 (24.1)	1.11 (28.2)
LT	1.18 (30.0)	1.40 (35.6)	1.97 (50.0)	2.82 (71.6)
T	0.71 (18.0)	0.86 (21.8)	1.06 (26.9)	1.34 (34.0)
TO	0.11 (2.8)	0.13 (3.3)	0.16 (4.1)	0.19 (4.8)
TU	0.50 (12.7)	0.65 (16.5)	0.80 (20.3)	1.07 (27.2)
W	1.32 (33.5)	1.51 (38.4)	1.54 (39.1)	1.73 (43.9)



Closed Center	Pressure Center	Exhaust Center	Inlet	Outlet	Exhaust	Cv/scfm*
MME-41NEEC-	MME-41NEEP-	MME-41NEEE-	#10-32	#10-32	#10-32	0.50/23
MME-41PEEC-	MME-41PEEP-	MME-41PEEE-	1/8" NPT	1/8" NPT	1/8" NPT	0.50/23
MME-42QEEC-	MME-42QEEP-	MME-42QEEE-	1/4" NPT	1/4" NPT	1/8" NPT	0.89/49
MME-43WEEC-	MME-43WEEP-	MME-43WEEE-	3/8" NPT	3/8" NPT	1/4" NPT	1.00/72
MME-44ZEEC-	MME-44ZEEP-	MME-44ZEEE-	1/2" NPT	1/2" NPT	1/2" NPT	1.68/93

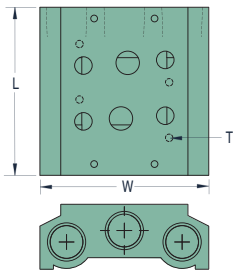
** scfm based on flow @ 100 psig*

*Add Electrical Connection and Voltage Choices to the end of each Base Part Number - Example: **MME-41PEEP-W024***

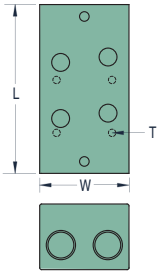
Rebuild Kits. Convenient rebuild kits are available which contain common maintenance items that may be needed during the life of the valve. Each contains a spool, diamond seal, two pilot seals, two pistons with seals, and spring. Consult factory for 3-position kits.

Part No.	Description
27040-31	3-Way Kit, MME-31
27040-32	3-Way Kit, MME-32
27040-33	3-Way Kit, MME-33
27040-34	3-Way Kit, MME-34
27040-41	4-Way 2 Pos. Kit, MME-41
27040-42	4-Way 2 Pos. Kit, MME-42
27040-43	4-Way 2 Pos. Kit, MME-43
27040-44	4-Way 2 Pos. Kit, MME-44

Parallel Bar Manifolds



4-Way Manifold



3-Way Manifold

	"L" Dimension					"T" Mtg.
Valve Series	2-Station	4-Station	6-Station	8-Station	16-Station	Thd.
MME-31/41	2.24 (56.9)	3.73 (94.7)	5.25 (133.4)	6.75 (171.5)	12.69 (322.3)	M4
MME-32/42	2.71 (68.8)	4.50 (114.3)	6.33 (160.8)	8.13 (206.5)	15.38 (390.7)	M4
MME-33/43	3.22 (81.8)	5.42 (137.7)	7.62 (193.5)	9.82 (249.4)	18.63 (473.2)	M5
MME-34/44	3.85 (97.8)	6.56 (166.6)	9.38 (238.3)	12.10 (307.3)	23.11 (587.0)	M5

Parallel circuit manifold bars are available for all sizes of MME 3- and 4-way valves. Manifolds are made in increments of two stations from 2 to 16, and are supplied with mounting screws and gaskets. Spare kits are also available which include two screws and a gasket. Blank plate supplied with one gasket, two screws and metal plate.

Valve Series	Manifold Inlet/ Exhaust	Blank Plate	2-Station	4-Station	6-Station	8-Station	16-Station
3-Way Valve Manifolds							
MME-31	1/8″	MMM-31-B	MMM-31-02	MMM-31-04	MMM-31-06	MMM-31-08	MMM-31-16
MME-32	1/4″	MMM-32-B	MMM-32-02	MMM-32-04	MMM-32-06	MMM-32-08	MMM-32-16
MME-33	3/8″	MMM-33-B	MMM-33-02	MMM-33-04	MMM-33-06	MMM-33-08	MMM-33-16
MME-34	1/2″	MMM-34-B	MMM-34-02	MMM-34-04	MMM-34-06	MMM-34-08	MMM-34-16

3-Way Spare Mounting Kit Hardware

27041-31 . . . . . Hardware Kit for MME-31 Series Valves
27041-32 . . . . . Hardware Kit for MME-32 Series Valves
27041-33 . . . . . .Hardware Kit for MME-33 Series Valves
27041-34 . . . . . .Hardware Kit for MME-34 Series Valves

Valve Series	Manifold Inlet/ Exhaust	Blank Plate	2-Station	4-Station	6-Station	8-Station	16-Station
4-Way Valve Manifolds							
MME-41	1/4″	MMM-41-B	MMM-41-02	MMM-41-04	MMM-41-06	MMM-41-08	MMM-41-16
MME-42	1/4″	MMM-42-B	MMM-42-02	MMM-42-04	MMM-42-06	MMM-42-08	MMM-42-16
MME-43	3/8″	MMM-43-B	MMM-43-02	MMM-43-04	MMM-43-06	MMM-43-08	MMM-43-16
MME-44	1/2″	MMM-44-B	MMM-44-02	MMM-44-04	MMM-44-06	MMM-44-08	MMM-44-16

4-Way Spare Mounting Kit Hardware

27041-41 Hardware Kit for MME-41 Series Valves
27041-42 Hardware Kit for MME-42 Series Valves
27041-43 Hardware Kit for MME-43 Series Valves
27041-44 Hardware Kit for MME-44 Series Valves

Replacement Coils

Industrial Form 2.5 Watt #10-32 & 1/8″

Form B 3.0 Watt 1/4″, 3/8″ & 1/2″

Form B 6.5 Watt Direct-Acting

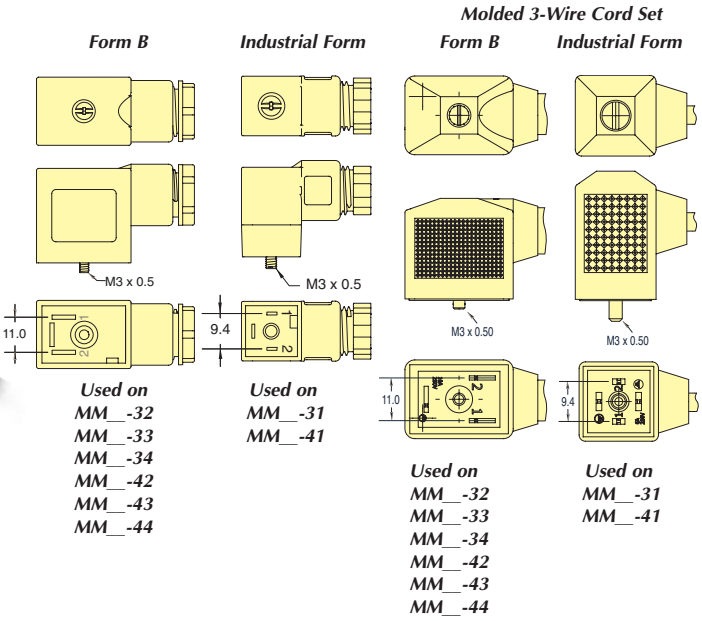
Replacement coils for solenoid valves are available in voltages from 12 VDC to 220 VAC with either DIN connector or 18″ wire leads. Refer to DIN Connectors below.

Description	2.5 Watt #10-32 & 1/8″	3.0 Watt 1/4″, 3/8″ & 1/2″	6.5 Watt Direct-Acting
DIN Connectors			
12-Volt DC	27001-D012	27065-D012	27002-D012
24-Volt DC	27001-D024	27065-D024	27002-D024
110-Volt AC	27001-D110	27065-D110	27002-D110
220-Volt AC	27001-D220	27065-D220	27002-D220
24-Volt AC	27001-D24A	27065-D24A	27002-D24A
Wire Leads			
12-Volt DC	27001-W012	27065-W012	27002-W012
24-Volt DC	27001-W024	27065-W024	27002-W024
110-Volt AC	27001-W110	27065-W110	27002-W110
220-Volt AC	27001-W220	27065-W220	27002-W220
24-Volt AC	27001-W24A	27065-W24A	27002-W24A

DIN Connectors

DIN 43650 Form B Connectors with 11 mm spade center spacing. DIN type size 2, 3 and 4 Maximatic valves. Industrial Form Connectors with 9.4 mm spade center spacing are designed to connect to 15 mm terminal coils. Both are available with or without surge suppression, and 152 or 381 mm PVC molded three-wire cord set.

Form B Part No.	Industrial Form Part No.	Volts	LED	Cord
CC-B	CC-I			-
CC-B-P6	CC-I-P6	6-240	no	6′
CC-B-P15	CC-I-P15			15′
CC-BLL	CC-ILL			-
CC-BLL-P6	CC-ILL-P6	6-24	yes	6′
CC-BLL-P15	CC-ILL-P15			15′
CC-BLM	CC-ILM			-
CC-BLM-P6	CC-ILM-P6	48-110	yes	6′
CC-BLM-P15	CC-ILM-P15			15′
CC-BLH				-
CC-BLH-P6		208-240	yes	6′
CC-BLH-P15				15′



Used on MM__-32 MM__-33 MM__-34 MM__-42 MM__-43 MM__-44

Used on MM__-31 MM__-41

Used on MM__-32 MM__-33 MM__-34 MM__-42 MM__-43 MM__-44

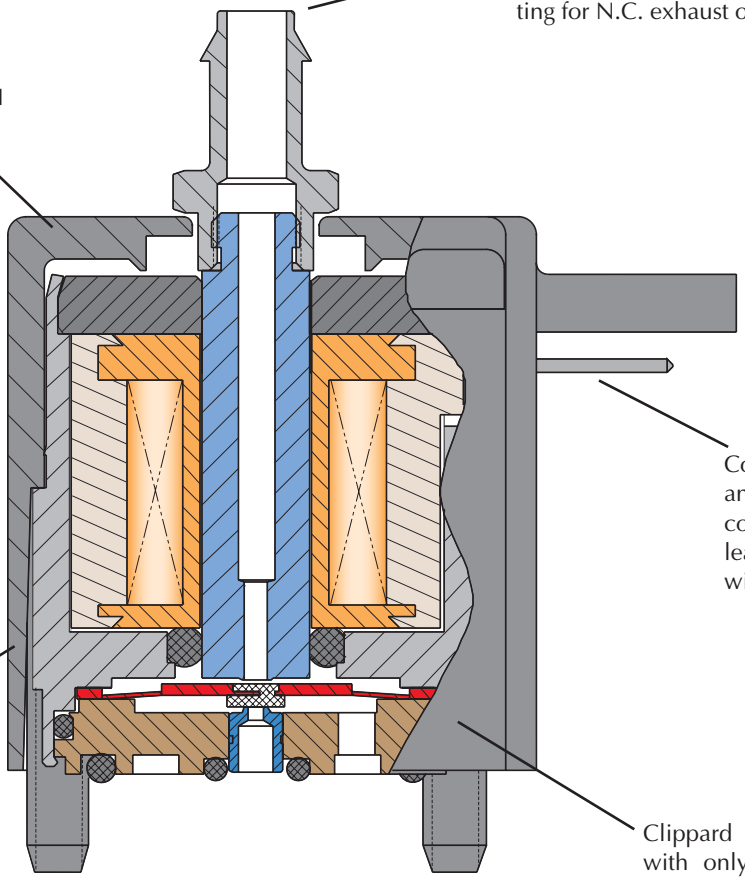
Used on MM__-31 MM__-41

ES, ESO Series Compact Valves

Valves are small in size with a variety of coil voltages and flow options. Mounting is as close as 7/8″ on center.

ESO and similar styles have top hose barb or #10-32 threaded fitting for N.C. exhaust or N.O. inlet.

Housing is molded Zytel® ST 801 for toughness and rigidity.



Coils are available with an AMP# 103959-2 pin connection or 18″ wire leads which utilize #26 wire.

Valves feature low power, cool running, quiet operation and fast response time. They convert low voltage, low current signals into high pressure pneumatic outputs.

Clippard ES valves are unique, with only one internal moving part that travels a mere 0.007 inches.

Zytel® is a registered trademark of E.I. DuPont

ES, ESO Series Valves

NUMBERING SYSTEMS

E S ❑ - ❑ ❑ - ❑ - ❑ ❑

- Valve Type: **2** - 2-Way; **3** - 3-Way
- Options (ESO only): **Blank** - #10-32 Female; **1** - 1/16″ I.D. Hose Barb; **2** - 1/8″ I.D. Hose Barb; **M5** - Metric
- Porting: **Blank** - Normally-Closed; **O** - Normally-Open or Captivated Exhaust
- Coil Connections: **S** - Side Pin; **T** - Top Pin; **W** - Wires; **B** - Board Mount
- Voltage: **6** - VDC; **12** - VDC; **24** - VDC
- Orifice Options: **Blank** - 0.025″ Dia. Orifice (105 psig); **L** - 0.040″ Dia. Orifice (50 psig); **H** - 0.060″ Dia. Orifice (25 psig)

Quality Design

The compact ES valve, like Clippard EV and ET valves, converts low voltage, low current signals into high pressure (0 to 105 psig) pneumatic outputs, utilizing a unique, patented, valving principle. Since there are no sliding parts, and complete poppet travel is only 0.007″, low power consumption and exceptionally long life are assured with this design. No flow is required for cooling because the compact ES is cool, as well as quiet, in operation.

The compact nature of design makes this valve well suited to a wide range of applications in biomedical, environmental test equipment, textile machines, packaging machinery, computerized industrial automation, and portable systems.

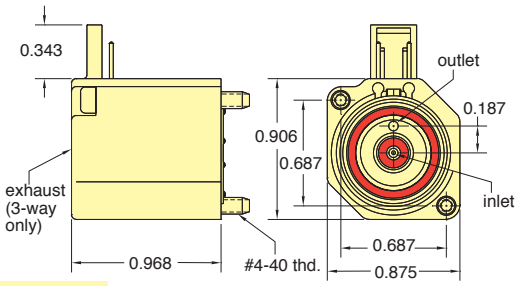
Features

- Temperature Range: 30 to 180˚F
- Medium: Air (40 micron filtration)
- Low power consumption - 1 watt at rated voltage
- Close mounting - 7/8″ on center
- Voltage Options: 6, 12 or 24 VDC
- Overall height less than 1″
- Easy to mount on manifold with two #4-40 screws
- Response: 5 to 10 milliseconds at max rated pressure
- Geometric design
- Polymer housing - Zytel ST 801® super tough
- Pin connectors - AMP # 103959-2 or 18″ wire leads: #26 wire
- Flow up to 0.6 scfm/17 l/min

Zytel ST 801® super tough is a registered trademark of DuPont

NOMINAL				
Voltage	Current (amps)	Resistance (ohms)	Power (watts)	Working Range (cont. duty)
6	0.17	36	1.0	90% to 150% of rated voltage
12	0.083	144	1.0	
24	0.042	576	1.0	

Normally-Closed 2 & 3-Way Electronic Poppet Valves with Side Pin Connector



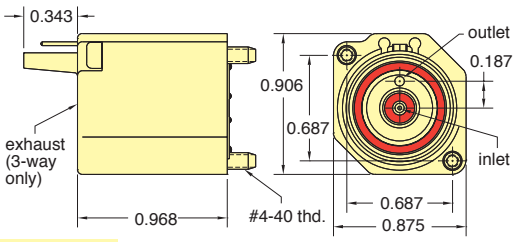
Part No.	Description
ES-2S-❑	2-Way Electronic Poppet Valve
ES-3S-❑	3-Way Electronic Poppet Valve

Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
28″ Hg Vac. to 25 psig (H)

Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)

Ports: Inlet and outlet through manifold; 3-way exhaust through top of valve (3-way only)

Normally-Closed 2- & 3-Way Electronic Poppet Valves with Top Pin Connector



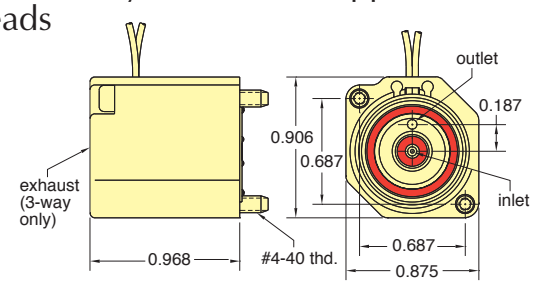
Part No.	Description
ES-2T-❑	2-Way Electronic Poppet Valve
ES-3T-❑	3-Way Electronic Poppet Valve

Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
28″ Hg Vac. to 25 psig (H)

Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)

Ports: Inlet and outlet through manifold; 3-way exhaust through top of valve (3-way only)

Normally-Closed 2- & 3-Way Electronic Poppet Valves with Wire Leads



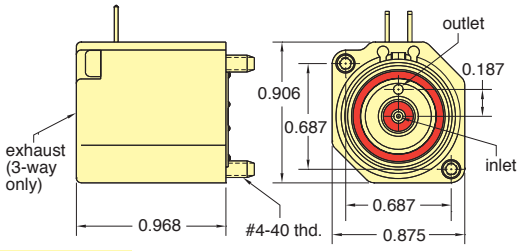
Part No.	Description
ES-2W-❑	2-Way Electronic Poppet Valve
ES-3W-❑	3-Way Electronic Poppet Valve

Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
28″ Hg Vac. to 25 psig (H)

Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)

Ports: Inlet and outlet through manifold; 3-way exhaust through top of valve (3-way only)

Normally-Closed 2- & 3-Way Electronic Poppet Valves with Board Mount



Part No.	Description
ES-2B-❑	2-Way Electronic Poppet Valve
ES-3B-❑	3-Way Electronic Poppet Valve

Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
28″ Hg Vac. to 25 psig (H)

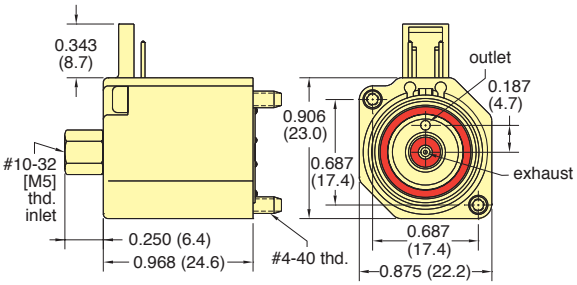
Air Flow: 0.6 scfm @ 100 psig
0.5 scfm @ 50 psig (L)
0.45 scfm @ 25 psig (H)

Ports: Inlet and outlet through manifold; 3-way exhaust through top of valve (3-way only)

For Cable and Connectors, see Page 204.

ESO Series 3-Way Valves

Fully-Ported 3-Way Electronic Poppet Valve with Side Pin Connector



Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
28″ Hg Vac. to 25 psig (H)

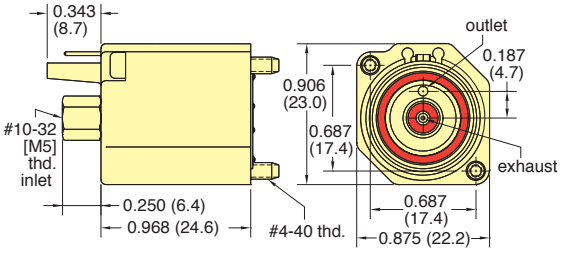
Air Flow: 0.6 scfm @ 100 psig;
15 l/min @ 7 bar
0.5 scfm @ 50 psig (L);
15 l/min @ 3.5 bar
0.45 scfm @ 25 psig (H);
14 l/min @ 1.8 bar

Ports: Exhaust and outlet through manifold;
3-way supply (#10-32/M5) through top of valve

Metric: Add -M5 to Part Number

Part No.	Description
ESO-3S-❑	3-Way Electronic Poppet Valve

Fully-Ported 3-Way Electronic Poppet Valve with Top Pin Connector



Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
28″ Hg Vac. to 25 psig (H)

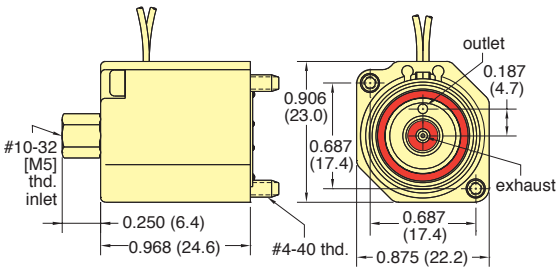
Air Flow: 0.6 scfm @ 100 psig;
15 l/min @ 7 bar
0.5 scfm @ 50 psig (L);
15 l/min @ 3.5 bar
0.45 scfm @ 25 psig (H);
14 l/min @ 1.8 bar

Ports: Exhaust and outlet through manifold;
3-way supply (#10-32/M5) through top of valve

Metric: Add -M5 to Part Number

Part No.	Description
ESO-3T-❑	3-Way Electronic Poppet Valve

Fully-Ported 3-Way Electronic Poppet Valve with Wire Leads



Input Pressure: 28″ Hg Vac. to 105 psig
28″ Hg Vac. to 50 psig (L)
28″ Hg Vac. to 25 psig (H)

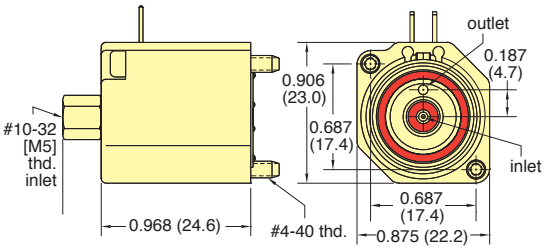
Air Flow: 0.6 scfm @ 100 psig;
15 l/min @ 7 bar
0.5 scfm @ 50 psig (L);
15 l/min @ 3.5 bar
0.45 scfm @ 25 psig (H);
14 l/min @ 1.8 bar

Ports: Exhaust and outlet through manifold;
3-way supply (#10-32/M5) through top of valve

Metric: Add -M5 to Part Number

Part No.	Description
ESO-3W-❑	3-Way Electronic Poppet Valve

Fully-Ported 3-Way Electronic Poppet Valve with Board Mount



Input Pressure: 28″ Hg Vac. to 105 psig;
28″ Hg Vac. to 50 psig (L)
28″ Hg Vac. to 25 psig (H)

Air Flow: 0.6 scfm @ 100 psig;
15 l/min @ 7 bar
0.5 scfm @ 50 psig (L);
15 l/min @ 3.5 bar
0.45 scfm @ 25 psig (H);
14 l/min @ 1.8 bar

Ports: Exhaust and outlet through manifold;
3-way supply (#10-32/M5) through top of valve

Metric: Add -M5 to Part Number

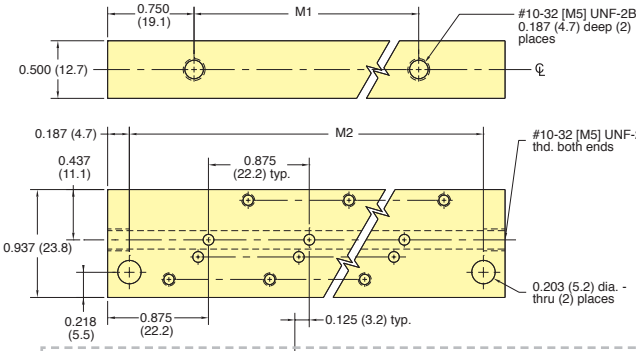
Part No.	Description
ESO-3B-❑	3-Way Electronic Poppet Valve

For Cable and Connectors, see Page 204.

Single-Sided Dual Mount Manifold

Part No.	Description
26081-❑	Single-Sided Manifold

Suffix	Valves	L	M1	M2
-4	4	4.375″	2.875″	4.000″
-4-M5	4	111.1 mm	73.0 mm	101.6 mm
-6	6	6.125″	4.625″	5.750″
-6-M5	6	155.6 mm	117.5 mm	146.1 mm
-8	8	7.875″	6.375″	7.500″
-8-M5	8	200.0 mm	161.9 mm	190.5 mm

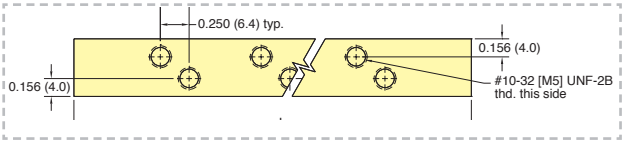


Single-Sided Dual Mount

Double-Sided Dual Mount Manifold

Part No.	Description
26082-❑	Double-Sided Manifold

Suffix	Valves	L	M1	M2
-8	8	4.375″	2.875″	4.000″
-8-M5	8	111.1 mm	73.0 mm	101.6 mm
-12	12	6.125″	4.625″	5.750″
-12-M5	12	155.6 mm	117.5 mm	146.1 mm
-16	16	7.875″	6.375″	7.500″
-16-M5	16	200.0 mm	161.9 mm	190.5 mm



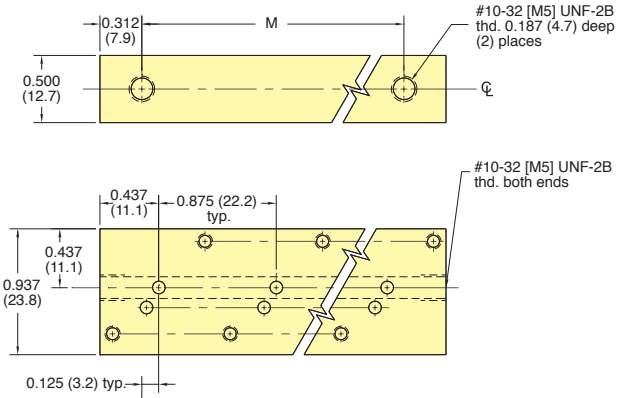
Double-Sided Dual Mount

* ESM-CP plate is to cover individual unused manifold station.

Single-Sided Rear Mount Manifold

Part No.	Description
26083-❑	Single-Sided Manifold

Suffix	Valves	L	M
-4	4	3.500″	2.875″
		88.9 mm	73.0 mm
-6	6	5.250″	4.625″
		133.4 mm	117.5 mm
-8	8	7.000″	6.375″
		177.8 mm	161.9 mm



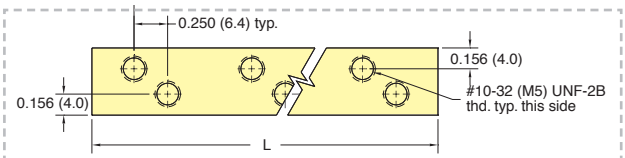
Single-Sided Rear Mount

Double-Sided Rear Mount Manifold

Part No.	Description
26084-❑	Double-Sided Manifold

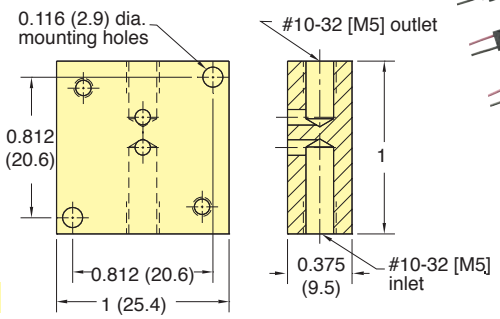
Suffix	Valves	L	M
-8	8	3.500″	2.875″
-8-M5	8	88.9 mm	73.0 mm
-12	12	5.250″	4.625″
-12-M5	12	133.4 mm	117.5 mm
-16	16	7.000″	6.375″
-16-M5	16	177.8 mm	161.9 mm

* ESM-CP cover plate is available for one manifold station.



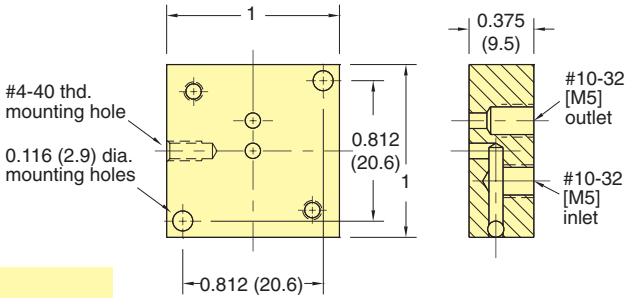
Double-Sided Rear Mount

Single-Station Side Port Manifold



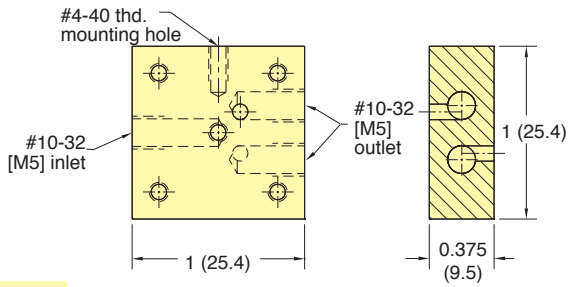
Part No.	Description
26090-1	Side Port Manifold

Single-Station Bottom Port Manifold

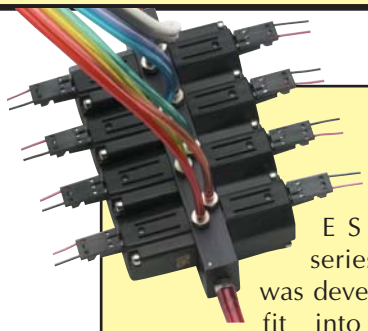


Part No.	Description
26090-2	Bottom Port Manifold

Dual-Station Manifold



Part No.	Description
26090-3	Dual Station Manifold

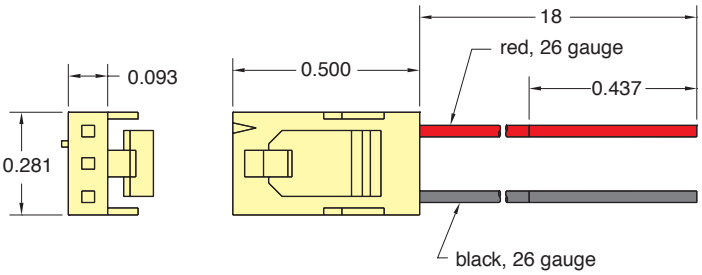


The ES/ESO series valve was developed to fit into tighter physical envelopes. By reducing the size of the base as well as the size of the coil, a considerable volume savings was achieved.

As in the case of the EV/EVO product, the ES/ESO uses the single moving part design proven many times in the EV/ET/EC series valves. Of course, given the reduced size of the coil the power to operate increases to 1 watt.

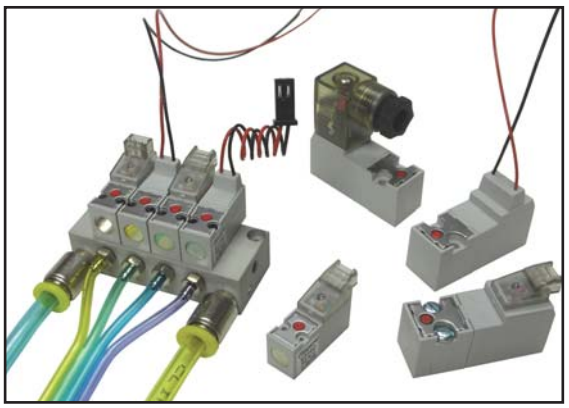
Because of its reliability, the ES/ESO series valve is found in many of the same applications and industries as its predecessor, the EV/ET/EC. However, the smaller size finds it used more commonly in portable or mobile equipment. This makes the valve particularly applicable in home healthcare applications.

AMP Connector #5-103960-2 with 18″ Wire Leads for ES/ESO Valves



Lead Set Chart For ES Valve						
Part No.	Used On	Wire Colors			Lead Length	Wire Gage
		Pin 1	Pin 2	Pin 3		
C3-RXB18	ES	red	~	black	18″	#26

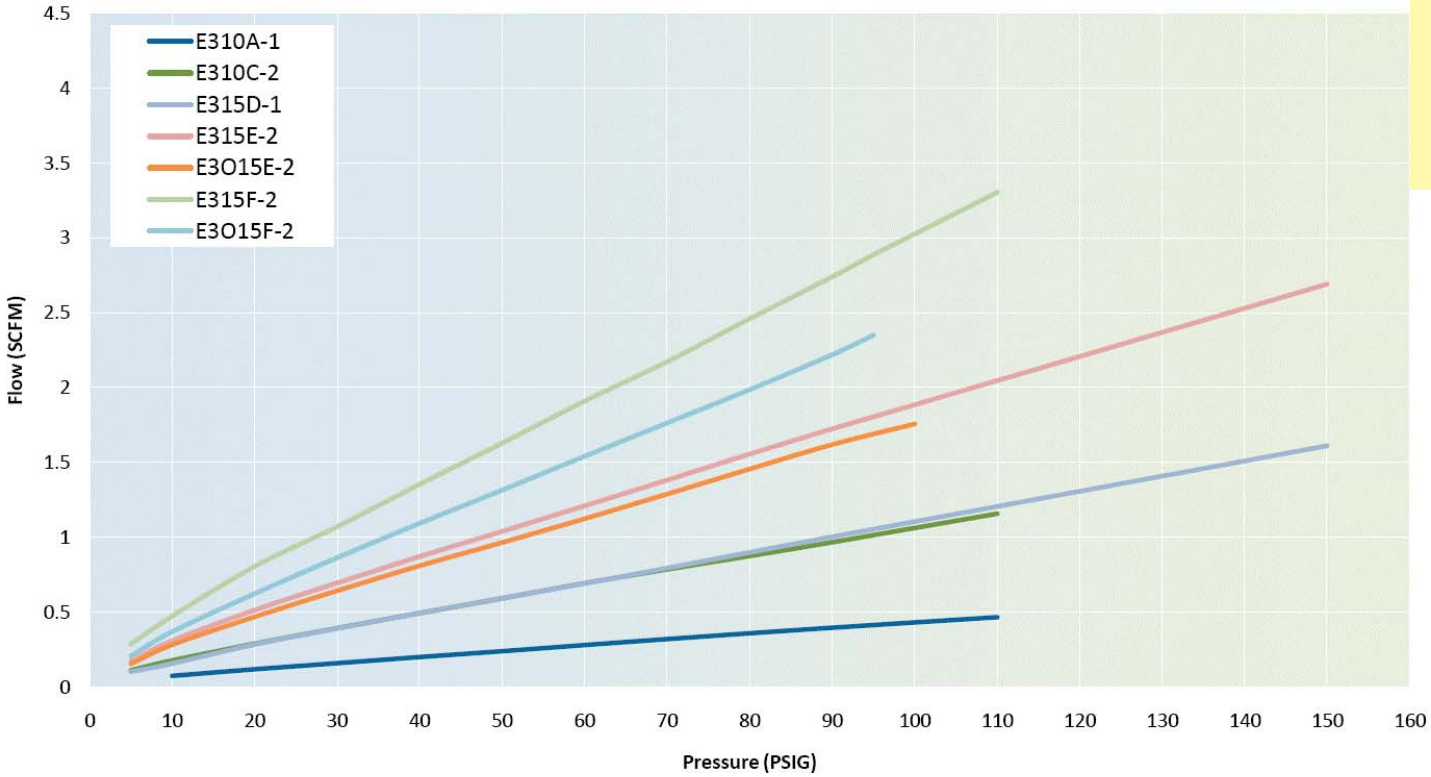
All of the benefits of Clippard quality and reliability are now available in these 10 mm and 15 mm valves. Offered in both Normally-Open or Normally-Closed models, these 2-way and 3-way valves are perfect for small areas where compact electronically-controlled pneumatics are needed.



This series has a high strength, engineered lightweight glass filled nylon body, along with stainless steel, copper and Buna-N, making it suitable for a broad range of applications. With exceptional life and reliability this is the perfect sub-miniature valve for tomorrow's needs in a wide variety of industries.

All 10 mm and 15 mm valves are RoHS compliant.

Typical Air Flow



Valve Material: Glass filled Nylon, Stainless Steel, Buna-N or Fluorocarbon Elastomer

Electrical: The coil is constructed of copper wire and is insulated according to the class "F" standard. All circuitry and connections are protected from corrosion.

Weight: Weighing in at a mere 0.4 ounces is the 10 mm valve, and in the other corner the 15 mm checks in at 1.3 ounces!

Part Numbering System

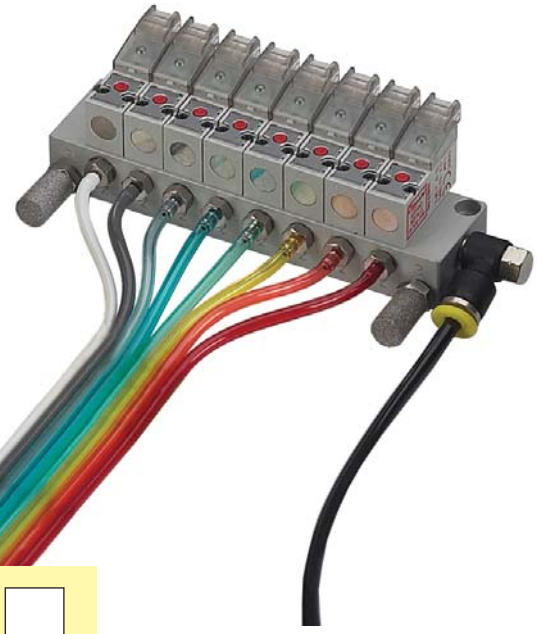
Valve Type	Choose
2-Way Normally-Closed	E210
3-Way Normally-Closed	E310
3-Way Normally-Open	E3O10

Orifice Size	Choose
0.020″ (0.5 mm)	A
0.030″ (0.75 mm)	C

Power	Choose
0.6 Watts	1
1.3 Watts	2

Electrical Connector	Choose
In-Line Connector	F
In-Line Connector with LED	C
90° Connector	E
90° Connector with LED	L
Wire Leads, 11.8″ (300 mm)	W

Voltage	Choose
12-Volt DC	012
24-Volt DC	024



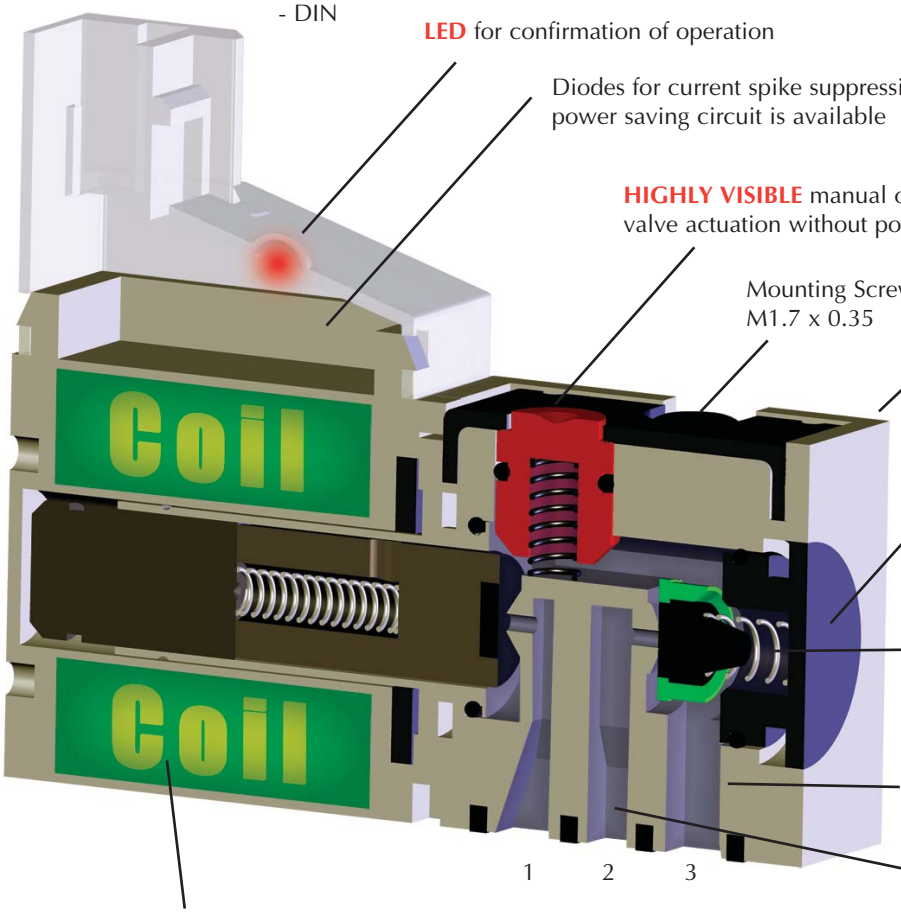
This numbering schematic is shown for illustration purposes only. All possible configurations are not available. For standard models, see the products illustrated in this catalog.

Example: E210A - 1C012

Another feature of the Clippard 10 mm valve is the ability to detach the coil and connector from the valve body. This can be useful for the purpose of orientating the coil by 180°, or exchanging connector types or voltages.

Normally-Closed	**Silver**
Normally-Open	**Black**

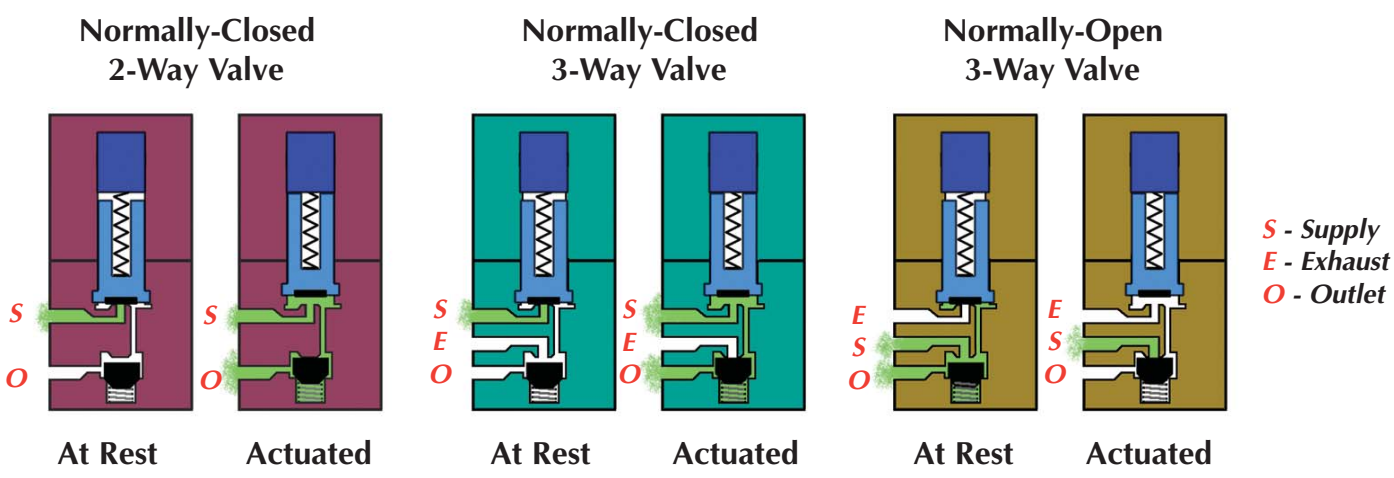
Clippard also helps you identify the valve you have by color coding the top plate. If it is silver, the valve is a Normally-Closed version—if it is black, the valve is Normally-Open.

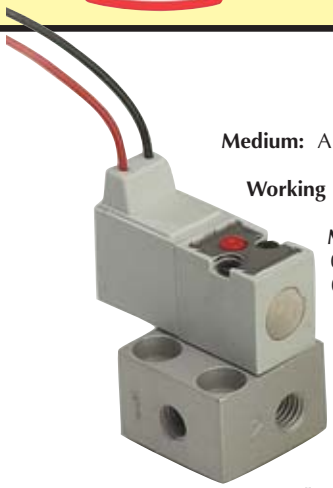


Encapsulated low wattage coils. Available in 12 VDC or 24 VDC. Special voltages available for OEMs.

Config.	1	2	3
N.C.	supply	exhaust	outlet
N.O.	exhaust	supply	outlet

Functional Schematics





Specifications

Medium: Air, Gas or other Compatible Fluids

Working Pressure: See Chart below

Max. Flow Rate:
0.020″ Orifice: 0.5 scfm (14 lpm)
0.030″ Orifice: 1.1 scfm (31.2 l//min

Exhaust Flow:
0.020″ Orifice: 0.8 scfm (22.7 l/min)
0.030″ Orifice: 1.2 scfm (34 l/min)

Response Time: 8 ms when energized; 10 ms when de-energized

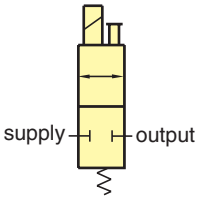
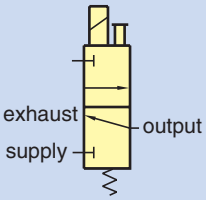
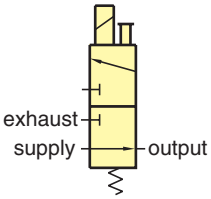
Electrical: 12 VDC or 24 VDC

Power Consumption: 0.6 or 1.3 watts dependent on orifice size and pressure

Material: Stainless steel core and springs, nylon body, FKM dynamic seals, and Buna-N gasket and static seals. FKM gasket and static seals available, consult factory.

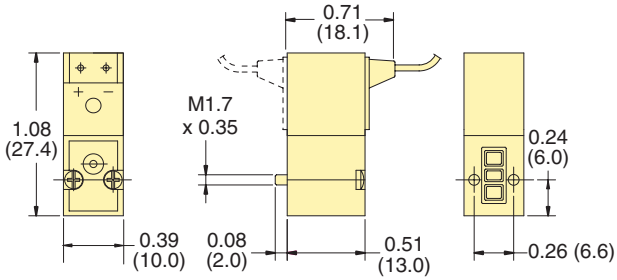
Temperature Range: 23 to 122°F (-5 to 50°C). When below 32°F (0°C), must use clean, dry air

Order Information

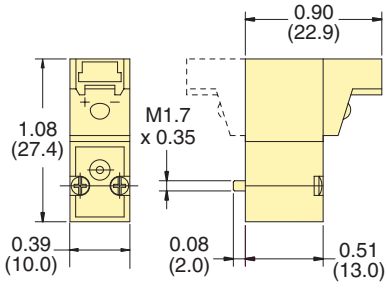
Type	Base No.	Connector	Orifice	Wattage	Working Pressure
2/2 Normally-Closed 	E210A-1E*	90° Connector	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E210C-2E*		0.030″	1.3	0 to 110 psig/7.6 bar
	E210A-1L*	90° Connector with LED	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E210C-2L*		0.030″	1.3	0 to 110 psig/7.6 bar
	E210A-1F*	In-Line Connector	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E210C-2F*		0.030″	1.3	0 to 110 psig/7.6 bar
	E210A-1C*	In-Line Connector with LED	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E210C-2C*		0.030″	1.3	0 to 110 psig/7.6 bar
	E210A-1W*	Wire Leads, 11.8″ (300 mm)	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E210C-2W*		0.030″	1.3	0 to 110 psig/7.6 bar
3/2 Normally-Closed 	E310A-1E*	90° Connector	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E310C-2E*		0.030″	1.3	0 to 110 psig/7.6 bar
	E310A-1L*	90° Connector with LED	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E310C-2L*		0.030″	1.3	0 to 110 psig/7.6 bar
	E310A-1F*	In-Line Connector	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E310C-2F*		0.030″	1.3	0 to 110 psig/7.6 bar
	E310A-1C*	In-Line Connector with LED	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E310C-2C*		0.030″	1.3	0 to 110 psig/7.6 bar
	E310A-1W*	Wire Leads, 11.8″ (300 mm)	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E310C-2W*		0.030″	1.3	0 to 110 psig/7.6 bar
3/2 Normally-Open 	E3O10A-1E*	90° Connector	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E3O10C-2E*		0.030″	1.3	0 to 110 psig/7.6 bar
	E3O10A-1L*	90° Connector with LED	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E3O10C-2L*		0.030″	1.3	0 to 110 psig/7.6 bar
	E3O10A-1F*	In-Line Connector	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E3O10C-2F*		0.030″	1.3	0 to 110 psig/7.6 bar
	E3O10A-1C*	In-Line Connector with LED	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E3O10C-2C*		0.030″	1.3	0 to 110 psig/7.6 bar
	E3O10A-1W*	Wire Leads, 11.8″ (300 mm)	0.020″	0.6	14.7 to 110 psig/7.6 bar
	E3O10C-2W*		0.030″	1.3	0 to 110 psig/7.6 bar

Add Voltage Choice to the end of each Base Part Number. Example:* ***E210A-1C012*

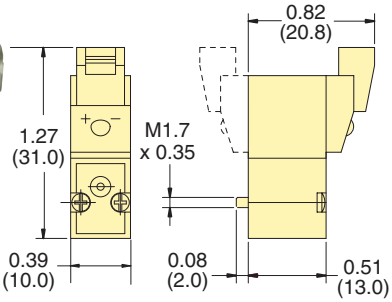
Wire Leads



90° Connector



In-Line Connector



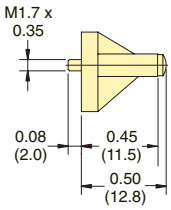
Electrical Specifications

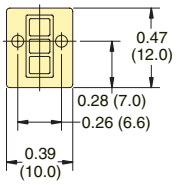
Power (Wattage)	Voltage	Voltage Tolerance	Response Time (Energized)	Response Time (De-Energized)	Coil Isolation Class
0.6 & 1.3	12 VDC / 24 VDC	-10% to 10%	8 ms	10 ms	F 311°F (155°C)

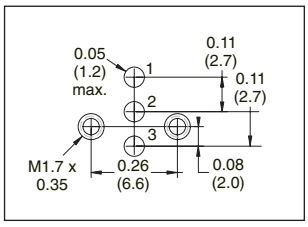
Cover Plate

Manifold Cover Plate includes plate, gasket and two screws.

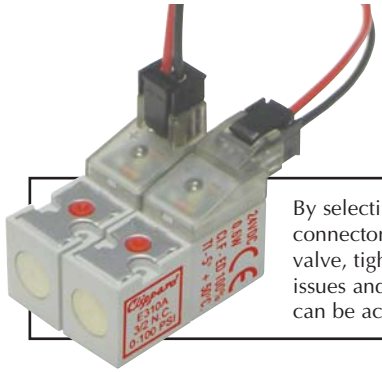
Part No.	
E10M-CP	10 mm Cover Plate







Mounting Interface



By selecting the appropriate connector type for your 10 mm valve, tight spaces, orientation issues and electrical requirements can be accomodated easily.

Connectors

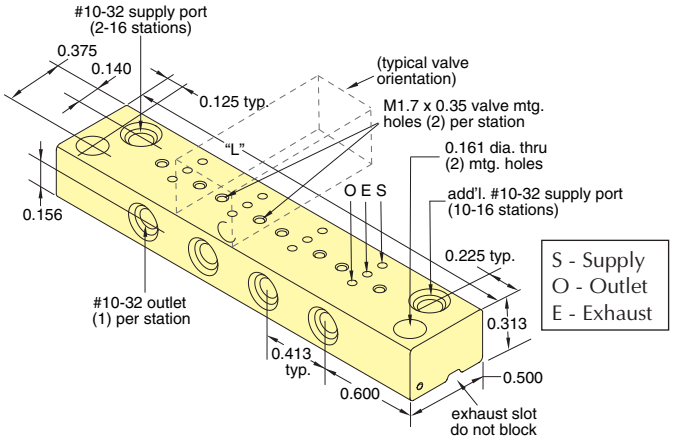
Wire Connector must be ordered separately. 24 AWG. Stranding 7/32.

Part No.	
C2A-RB300	Connector with Cable, 11.8" (300 mm)
C2A-RB500	Connector with Cable, 19.69" (500 mm)
C2A-RB1000	Connector with Cable, 39.37" (1,000 mm)

Molex terminal insert #050013-8000, #28139 plug and 24 AWG wire.

NEW! Sub-Miniature Manifolds

Small, compact manifolds offer the efficient grouping of 10 mm valves along with fast installation. Each manifold features a common inlet, individually-ported outlets, and exhaust to atmosphere.

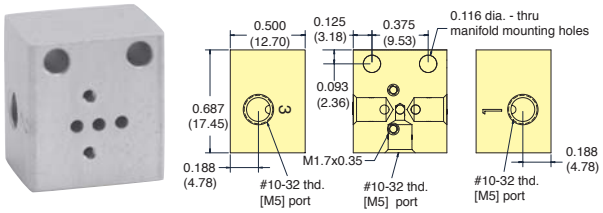


Stations	Supply Ports	Part No.	Length "L"
2	1	E10SM-02	1.61" (40.9)
4	1	E10SM-04	2.44" (62.0)
6	1	E10SM-06	3.27" (82.8)
8	1	E10SM-08	4.09" (103.8)
10	2	E10SM-10	4.92" (125.0)
12	2	E10SM-12	5.74" (145.8)
14	2	E10SM-14	6.57" (166.9)
16	2	E10SM-16	7.40" (187.7)

Manifolds

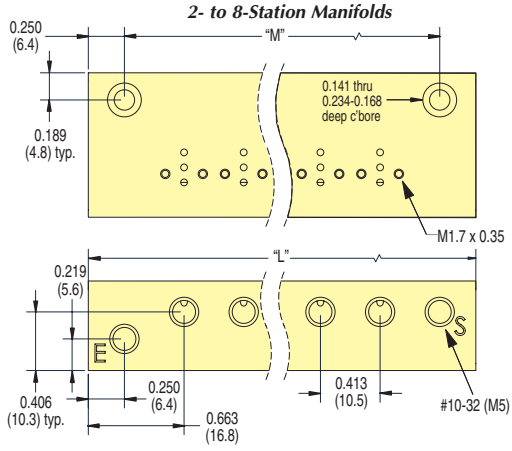
Manifolds are available for one to 12 valves. Spare hardware and closing plates also available. Add -M5 for Metric ports.

Part No.	
E10M-01	Single-Station Manifold

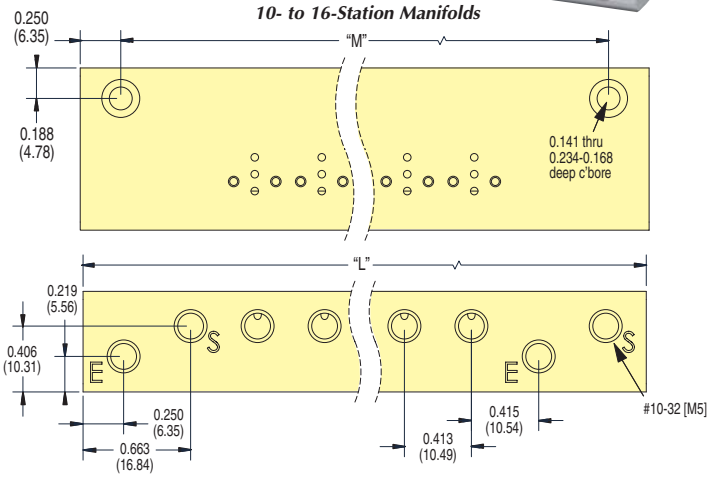


Multi-Station Manifolds

2- to 8-Station Manifolds



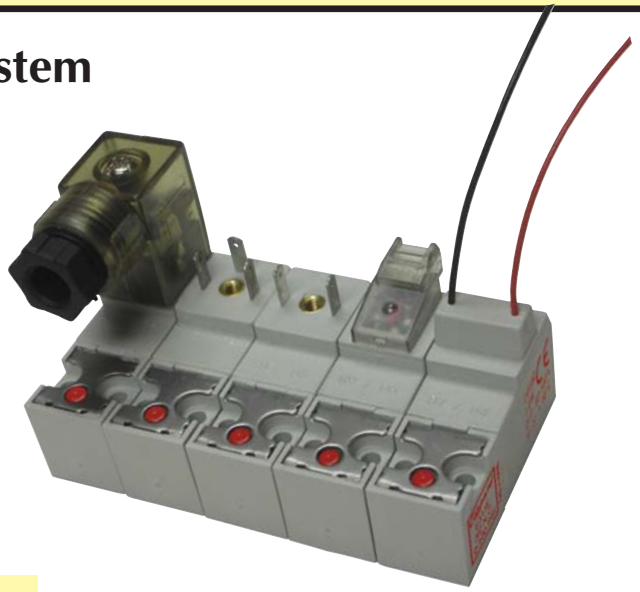
10- to 16-Station Manifolds



Part No.	Stations	"L"	"M"	Part No.	Stations	"L"	"M"	Part No.	Stations	"L"	"M"
E10M-01	1			E10M-06	6	3.39 (86.1)	2.89 (73.4)	E10M-12	12	6.70 (170.2)	6.20 (157.5)
E10M-02	2	1.74 (44.2)	1.24 (31.5)	E10M-08	8	4.22 (107.2)	3.72 (94.5)	E10M-14	14	7.52 (191.0)	7.02 (178.3)
E10M-04	4	2.57 (65.2)	2.07 (52.5)	E10M-10	10	5.87 (149.1)	5.37 (136.4)	E10M-16	16	8.35 (212.1)	7.85 (199.4)

Add "-M5" for metric threads. Consult factory for custom manifolds.

Part Numbering System



Valve Type	Choose
2-Way N.C.	E215
3-Way N.C	E315
3-Way N.O.	E3O15

Orifice Size	Choose
0.8 mm (0.032″), N.C. Only	D
1.1 mm (0.043″)	E
1.6 mm (0.063″)	F

Power	Choose
1.0 Watts	1
2.5 Watts	2

Electrical Connector	Choose
Terminal Connector	T
DIN Connector	D
90° Connector with LED	L
In-Line Connector with LED	C
Wire Leads, 11.8″ (300 mm)	W

Voltage	Choose
12-Volt DC	012
24-Volt DC	024
24-Volt AC	24A
110-Volt AC	110
220-Volt AC	220

See chart on Page 213 for available voltage options.

This numbering schematic is shown for illustration purposes only. All possible configurations are not available. For standard models, see the products illustrated in this catalog.

Example: E315F - 2L024

Custom plugs, wire lengths, connectors and flavors are available for your specific requirements. Call for details.

Electrical Specifications

Power (Wattage)	Voltage	Voltage Tolerance	Response Time (Energized)	Response Time (De-Energized)	Coil Insulation Class
1.0	24 VDC	-10% to 10%	10 milliseconds	12 milliseconds	F 311°F (155°C)
2.5	12 VDC 24 VDC 24 VAC 110 VAC 220 VAC	-10% to 10%	10 milliseconds	12 milliseconds	F 311°F (155°C)

Multiple Connectors
- Snap-in Plugs
- Wire Leads
- DIN Connector
- Terminal Spades
- Custom Plugs

LED for confirmation of operation

Internal diodes for current spike suppression and a power saving circuit is available

Mounting Screws: M3 x 0.5

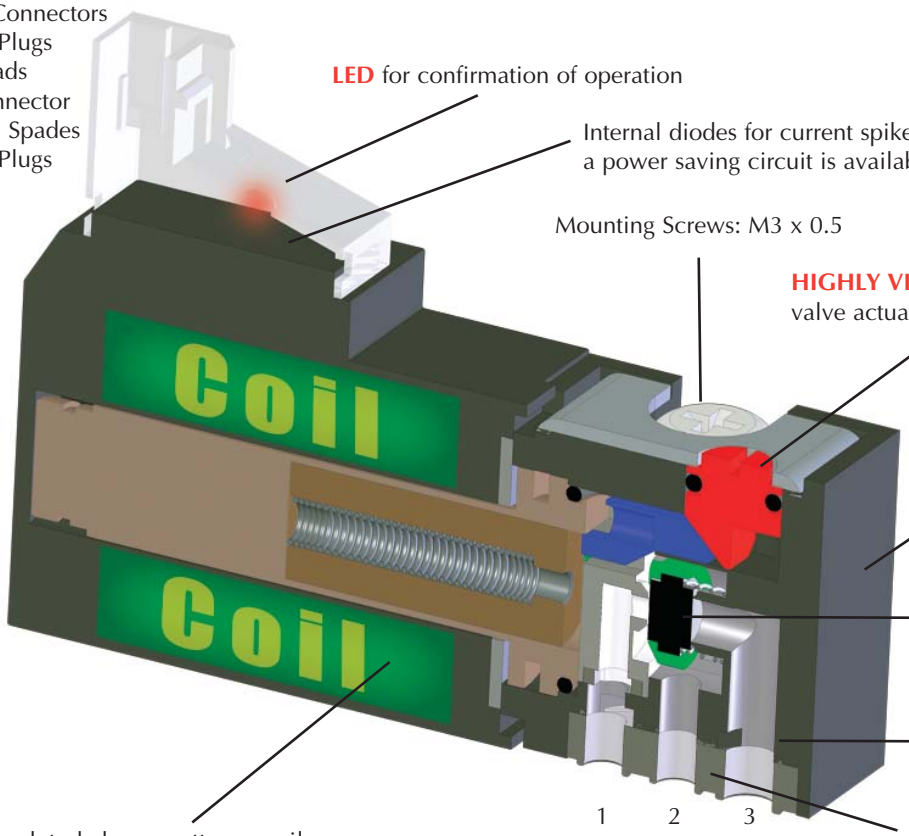
HIGHLY VISIBLE manual override provides valve actuation without power

Front left corner of valve!

High durability and corrosion-resistant glass filled nylon housing

FKM seals and Buna-N gasket (FKM available)

2- or 3-ported valves in Normally-Closed and Normally-Open



Encapsulated low wattage coils. Available in: 12 VDC, 24 VDC, 24 VAC, 110 VAC or 220 VAC. Special voltages available for OEMs.

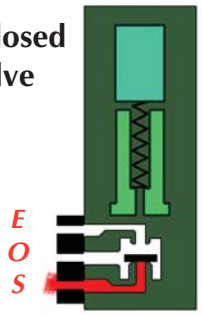
Configuration	1	2	3
N.C. & N.O.	exhaust	outlet	supply

One-piece gasket for manifold mount and supply/exhaust port reversed for same manifold mounting of N.O. or N.C. valve

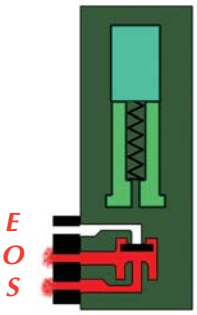
Functional Schematics

Normally-Closed 3-Way Valve

S - Supply
E - Exhaust
O - Outlet

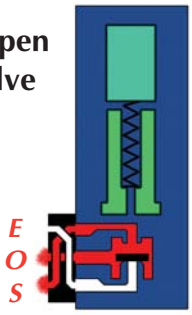


At Rest

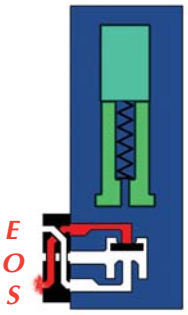


Actuated

Normally-Open 3-Way Valve

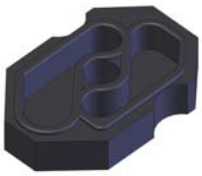


At Rest



Actuated

Porting Gasket
The Normally-Open and Normally-Closed configurations allow both models to be mounted on the same manifold.



Specifications

Medium: Air, Gas, or other Compatible Fluids

Working Pressure: See Chart below.

Maximum Flow Rate:

0.032″ Orifice	1.6 scfm (45 l/min)
0.043″ Orifice	2.6 scfm (70 l/min)
0.063″ Orifice	3.2 scfm (91 l/min)

Response Time: 10 ms when energized; 12 ms when de-energized

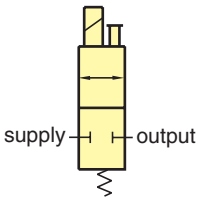
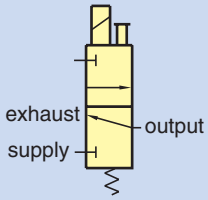
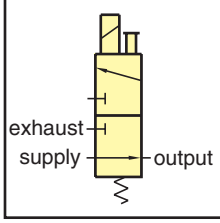
Material: Stainless steel core and springs, springs, nylon body, FKM seals, and Buna-N gasket. FKM gasket available, consult factory

Voltage: 12-volt DC, 24-volt DC or 24-volt AC. 110-volt AC and 220-volt AC only available with DIN Connectors.

Power Consumption: 1.0 or 2.5 watts dependent on orifice size and pressure

Temperature Range: 23 to 122°F (-5 to 50°C)

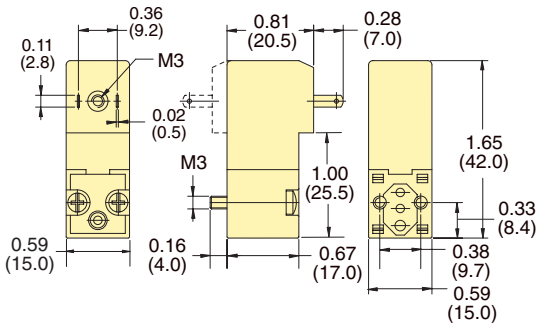
Order Information

Type	Base No.	Connector	12 VDC	24 VDC	24 VAC	110 VAC	220 VAC	Orifice	Wattage	Working Pressure
2/2 Normally-Closed 	E215D-1T*	Terminal		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E215E-2T*		•	•	•			0.043″	2.5	0 to 150 psig/10.3 bar
	E215F-2T*		•	•	•			0.063″	2.5	0 to 110 psig/7.6 bar
	E215D-1D*	DIN Connector		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E215E-2D*		•	•	•	•	•	0.043″	2.5	0 to 150 psig/10.3 bar
	E215F-2D*		•	•	•	•	•	0.063″	2.5	0 to 110 psig/7.6 bar
	E215D-1W*	Wire Leads, 11.8″ (300 mm)		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E215E-2W*		•	•	•			0.043″	2.5	0 to 150 psig/10.3 bar
	E215F-2W*		•	•	•			0.063″	2.5	0 to 110 psig/7.6 bar
	E215D-1L*	90° Connector with LED		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E215E-2L*		•	•				0.043″	2.5	0 to 150 psig/10.3 bar
	E215F-2L*		•	•				0.063″	2.5	0 to 110 psig/7.6 bar
	E215D-1C*	In-Line Connector with LED		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E215E-2C*		•	•				0.043″	2.5	0 to 150 psig/10.3 bar
	E215F-2C*		•	•				0.063″	2.5	0 to 110 psig/7.6 bar
3/2 Normally-Closed 	E315D-1T*	Terminal		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E315E-2T*		•	•	•			0.043″	2.5	0 to 150 psig/10.3 bar
	E315F-2T*		•	•	•			0.063″	2.5	0 to 110 psig/7.6 bar
	E315D-1D*	DIN Connector		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E315E-2D*		•	•	•	•	•	0.043″	2.5	0 to 150 psig/10.3 bar
	E315F-2D*		•	•	•	•	•	0.063″	2.5	0 to 110 psig/7.6 bar
	E315D-1W*	Wire Leads, 11.8″ (300 mm)		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E315E-2W*		•	•	•			0.043″	2.5	0 to 150 psig/10.3 bar
	E315F-2W*		•	•	•			0.063″	2.5	0 to 110 psig/7.6 bar
	E315D-1L*	90° Connector with LED		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E315E-2L*		•	•				0.043″	2.5	0 to 150 psig/10.3 bar
	E315F-2L*		•	•				0.063″	2.5	0 to 110 psig/7.6 bar
	E315D-1C*	In-Line Connector with LED		•				0.032″	1.0	0 to 150 psig/10.3 bar
	E315E-2C*		•	•				0.063″	2.5	0 to 150 psig/10.3 bar
	E315F-2C*		•	•				0.063″	2.5	0 to 110 psig/7.6 bar
3/2 Normally-Open (110 psig max.) 	E3O15E-2T*	Terminal	•	•	•			0.043″	2.5	0 to 110 psig/7.6 bar
	E3O15F-2T*		•	•	•			0.063″	2.5	0 to 75 psig/5.2 bar
	E3O15E-2D*	DIN Connector	•	•	•	•	•	0.043″	2.5	0 to 110 psig/7.6 bar
	E3O15F-2D*		•	•	•	•	•	0.063″	2.5	0 to 75 psig/5.2 bar
	E3O15E-2W*	Wire Leads, 11.8″ (300 mm)	•	•	•			0.043″	2.5	0 to 110 psig/7.6 bar
	E3O15F-2W*		•	•	•			0.063″	2.5	0 to 75 psig/5.2 bar
	E3O15E-2L*	90° Connector with LED	•	•				0.043″	2.5	0 to 110 psig/7.6 bar
	E3O15F-2L*		•	•				0.063″	2.5	0 to 75 psig/5.2 bar
	E3O15E-2C*	I-Line Connector with LED	•	•				0.063″	2.5	0 to 110 psig/7.6 bar
	E3O15F-2C*		•	•				0.063″	2.5	0 to 75 psig/5.2 bar

• Indicates standard items

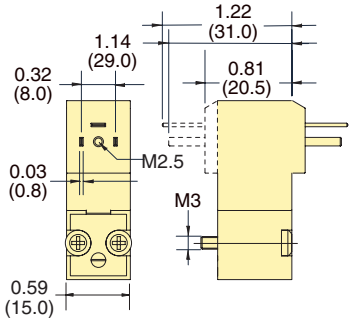
* Add Voltage Choice to the end of each Base Part Number. Example: E315D-1C012

Terminal Connector



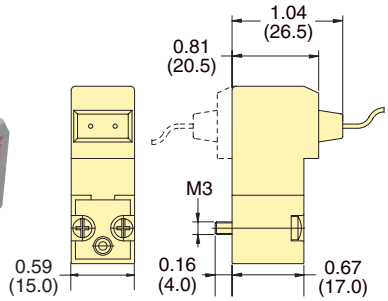
Industrial Form C Connector ordered separately below.

DIN Connector

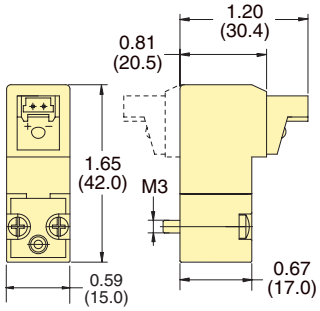


DIN Connector ordered separately below.

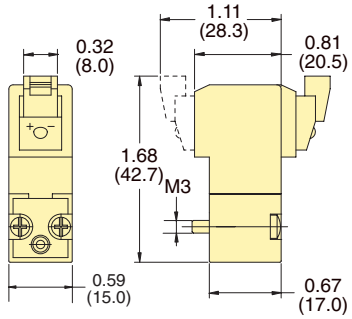
Wire Leads

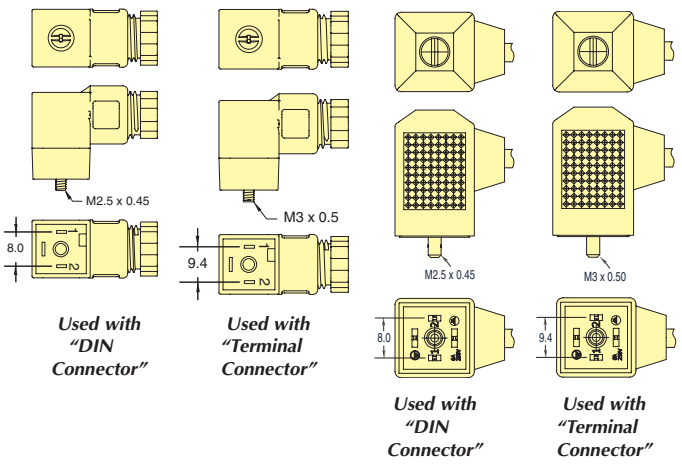


90° Connector with LED



In-Line Connector with LED

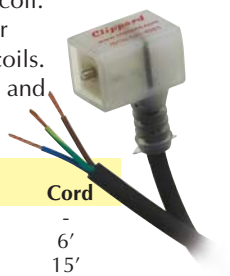




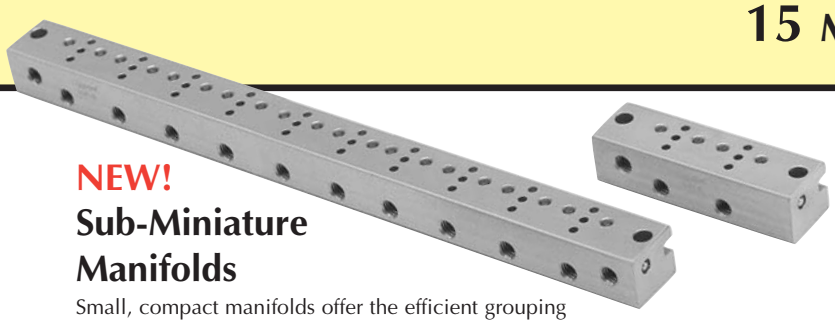
DIN Connectors

For Use with 15 mm Valves Only

DIN 43650 Form C Connectors with 8 mm spade center spacing mate with the 15 mm DIN connector coil. Industrial Form Connectors with 9.4 mm spade center spacing are designed to connect to 15 mm terminal coils. Both are available with or without surge suppression, and 152 or 381 mm PVC molded three-wire cord set.

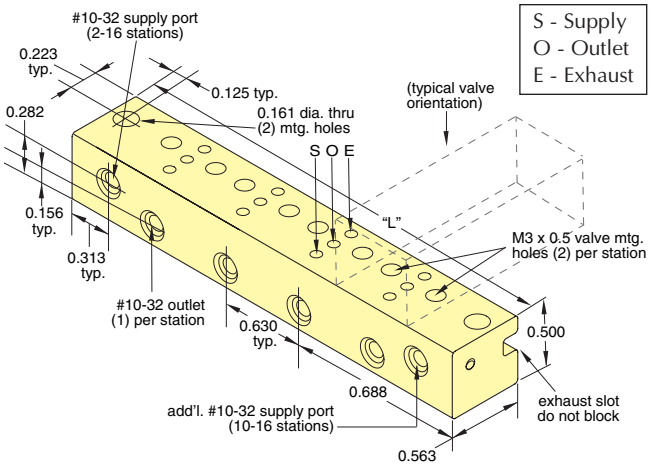


Form C Part No.	Industrial Form Part No.	Volts	LED	Cord
CC-C	CC-I	6-240	no	-
CC-C-P6	CC-I-P6	6-240	no	6′
CC-C-P15	CC-I-P15	6-240	no	15′
CC-CLL	CC-ILL	6-24	yes	-
CC-CLL-P6	CC-ILL-P6	6-24	yes	6′
CC-CLL-P15	CC-ILL-P15	6-24	yes	15′
CC-CLM	CC-ILM	48-110	yes	-
CC-CLM-P6	CC-ILM-P6	48-110	yes	6′
CC-CLM-P15	CC-ILM-P15	48-110	yes	15′



NEW!
Sub-Miniature Manifolds

Small, compact manifolds offer the efficient grouping of 15 mm valves along with fast installation. Each manifold features a common inlet, individually-ported outlets, and exhaust to atmosphere.



Stations	Supply Ports	Part No.	Length "L"
2	1	E15SM-02	2.01" (51.1)
4	1	E15SM-04	3.27" (83.1)
6	1	E15SM-06	4.53" (115.1)
8	1	E15SM-08	5.79" (147.1)
10	2	E15SM-10	7.05" (179.1)
12	2	E15SM-12	8.31" (211.1)
14	2	E15SM-14	9.57" (243.1)
16	2	E15SM-16	10.82" (274.8)

Connectors

Wire Connector must be ordered separately. 24 AWG. Stranding 7/32.

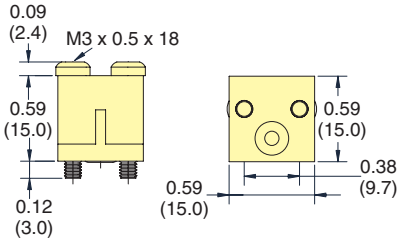
Part No.	
C2A-RB300	Connector with Cable, 11.8" (300 mm)
C2A-RB500	Connector with Cable, 19.69" (500 mm)
C2A-RB1000	Connector with Cable, 39.37" (1,000 mm)

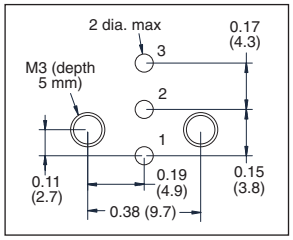
Molex terminal insert #050013-8000, #28139 plug and 24 AWG wire.

Cover Plate

Manifold Cover Plate includes plate, gasket and two screws.

Part No.	
E15M-CP	15 mm Cover Plate

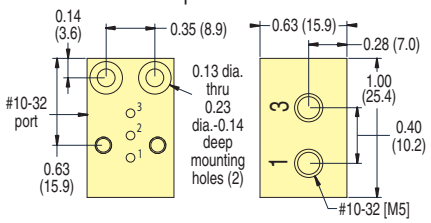




Mounting Interface

Manifolds

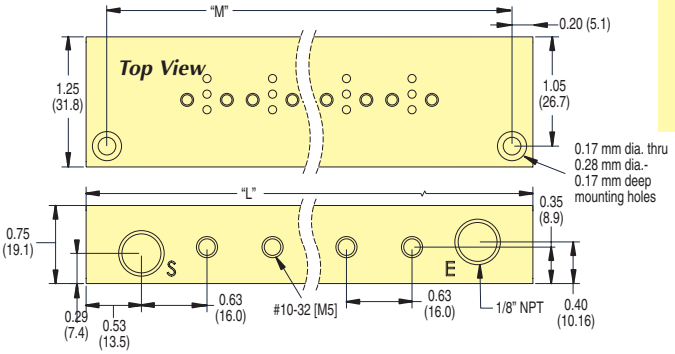
Manifolds are available for one to 16 valves, and are supplied with mounting screws and gaskets. Spare hardware and closing plates also available. Add -M5 for Metric ports.



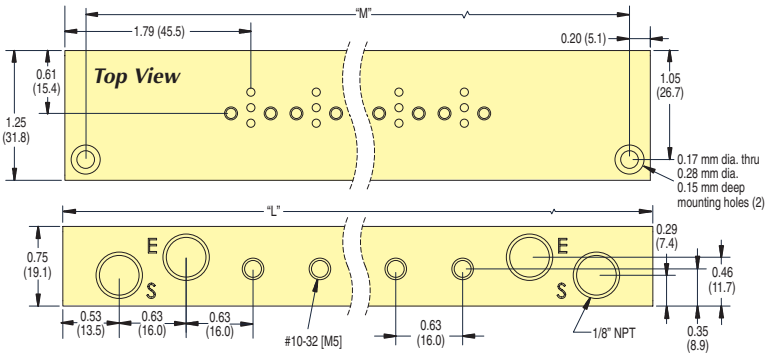
Part No.	
E15M-01	Single-Station Manifold

Multi-Station Manifolds

2- through 8-Station

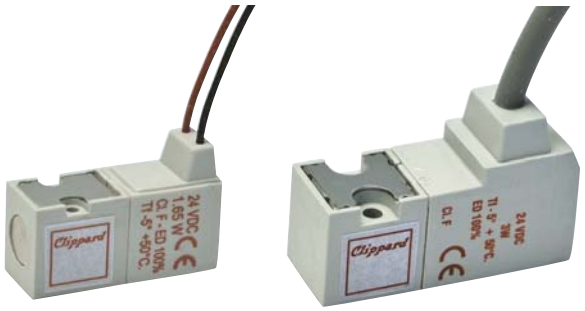


10- through 16-Station



Stations	Part No.	Length "L"	Length "M"
2	E15M-02	2.95" (74.2)	2.55 (64.8)
4	E15M-04	4.21" (106.9)	3.81 (96.8)
6	E15M-06	5.47" (138.9)	5.07 (128.8)
8	E15M-08	6.73" (170.9)	6.33 (160.8)
10	E15M-10	9.25" (235.0)	8.85 (224.8)
12	E15M-12	10.51" (277.0)	10.1 (256.8)
14	E15M-14	11.77" (299.0)	11.4 (288.8)
16	E15M-16	13.03" (331.0)	12.6 (320.0)

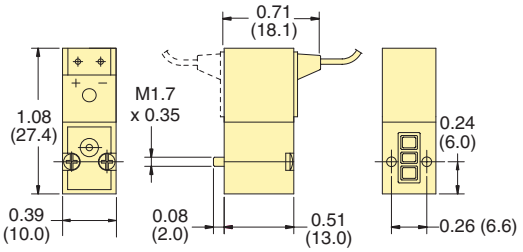
NEW! Latching 10 mm & 15 mm Miniature Valves



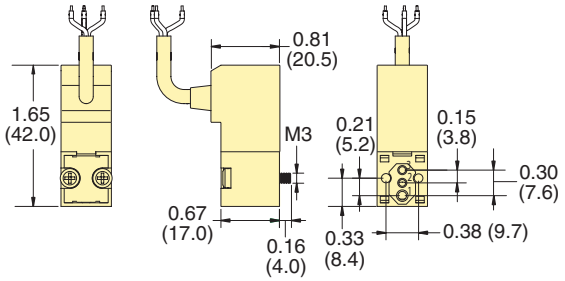
10 mm *15 mm*

- 2-Way & 3-Way Normally-Closed configurations
- Pulse-actuated (on or off)
- 3-wire coil (15 mm). No polarity reverse required
- Stable latch

10 mm Valves



15 mm Valves



Clippard's Latching Valves have many of the same features as the popular 10 mm and 15 mm valve line including small, compact design, exceptional life and reliability, lightweight design and more. A careful balance of forces—through the precise placement of a permanent magnet in the valve core—produces a bi-stable valve. A short pulse of current opens the valve, which "latches" open indefinitely after the current stops. A subsequent pulse of current in the opposite direction closes the valve. The valve consumes less energy and produces less heat than a standard solenoid valve when used in extended duty cycle applications, since the coil is energized for only a small fraction of the total duty cycle.

Medium: Air, Gas or other Compatible Fluids

Max. Flow Rate:
0.020" Orifice: 0.8 scfm (23 lpm)
0.043" Orifice: 2.1 scfm (59 l//min
0.060" Orifice: 3.0 scfm (84 l/min)

Exhaust Flow:
0.020" Orifice: 0.8 scfm (22.7 l/min)
0.030" Orifice: 1.2 scfm (34 l/min)

Electrical Connection: 10 mm: 2-Wire Reverse Polarity, 300 mm, 24 AWG
15 mm: 3-Wire Molded Cord, 300 mm, 24 AWG (4.5 mm external jacket; tinned copper wires; silicone jacket and conductor insulation)

Electrical: 12 VDC ("-012") or 24 VDC ("-024"). 6 VDC also available. Call for further information.

Electrical Tolerance: -10 to 10%

Response Time: 8 ms when energized; 10 ms when de-energized

Copper Wire Isolation Class: F 311°F (115°C)

Material: Stainless steel core and springs, nylon body, FKM dynamic seals, and Buna-N gasket and static seals. FKM gasket available, consult factory.

Temperature Range: 23 to 122°F (-5 to 50°C). When below 32°F (0°C), must use clean, dry air

Type	Part No.	Connector	Orifice	Voltage	Wattage	Pressure Range
10 mm 2-Way	E2L10C-7W012	Wire Leads	0.020" (0.75 mm)	12 VDC	2.0	0 to 110 psig/7.6 bar
	E2L10C-6W024			24 VDC	1.7	
10 mm 3-Way	E3L10C-7W012	Wire Leads	0.020" (0.75 mm)	12 VDC	2.0	0 to 110 psig/7.6 bar
	E3L10C-6W024			24 VDC	1.7	
15 mm 2-Way	E2L15E-4W012	3-Wire Molded Cord, 300 mm	0.043" (1.1 mm)	12 VDC	4.0	0 to 150 psig/10.3 bar
	E2L15E-4W024		0.043" (1.1 mm)	24 VDC		0 to 150 psig/10.3 bar
	E2L15F-4W012		0.063" (1.6 mm)	12 VDC		0 to 110 psig/7.6 bar
	E2L15F-4W024		0.063" (1.6 mm)	24 VDC		0 to 110 psig/7.6 bar
15 mm 3-Way	E3L15E-4W012	3-Wire Molded Cord, 300 mm	0.043" (1.1 mm)	12 VDC	4.0	0 to 150 psig/10.3 bar
	E3L15E-4W024		0.043" (1.1 mm)	24 VDC		0 to 150 psig/10.3 bar
	E3L15F-4W012		0.063" (1.6 mm)	12 VDC		0 to 110 psig/7.6 bar
	E3L15F-4W024		0.063" (1.6 mm)	24 VDC		0 to 110 psig/7.6 bar

See pages 209 & 210, and 214 & 215 for connectors and manifolds

MANIFOLD NUMBERING SYSTEM

E M C - ❑ ❑ - ❑ ❑ - ❑ ❑

Electronic Manifold Card with ET or ETO valves

Number of Valves on Card
08 - 8 Valves
12 - 12 Valves

Voltage of Valves
00 - without valves
06 - 6 VDC
12 - 12 VDC
24 - 24 VDC

Type of Valve
01 - without valves
20 - ET-2M-XX
22 - ET-2M-XX-H
25 - ET-2M-XX-L
30 - ET-3M-XX
32 - ET-3M-XX-H
35 - ET-3M-XX-L
40 - ETO-3M-XX
42 - ETO-3M-XX-H
45 - ETO-3M-XX-L

EMC-08-00-01 and EMC-12-00-01 are part numbers for cards without any valves, and without manifold. Manifold mounting hardware is included. Manifolds may be ordered separately, if desired.

Part numbers are: 15482-8 and 15482-12

Convenience in interfacing electronics and pneumatics... fast mounting, completely assembled, manifolded valve cards.

Clippard Electronic Manifold Cards

Now you can direct low-voltage DC signals from controllers, systems, computers or other sources to operate powerful pneumatic valves with a minimum of piping and hook-up.

Self-contained card includes:

- 8 or 12 Clippard ET interface valves
- Manifold mount for single air supply
- Circuit board fully wired
- Instant plug-in with 25-pin connector
- Resistor, diode, LED and switch for each valve
- Auxiliary power supply connection

Ready to operate quickly. Just mount the card and make external connection.

And each valve may be individually removed and replaced without any need for desoldering!

Features

- Fast, easy to mount
- Pre-assembled; all valves mounted
- 8 or 12 valve sizes
- 6, 12 or 24 volts DC
- Low power requirements (0.67 watt per valve)
- Choice of valve types
- Each valve switchable
- Shut-off spike protection
- 25-pin connector
- No expensive card rack required

Send me a FREE full-line catalog!

Electronic Manifold Cards

Auxiliary Power Input
Power to operate the valves may be provided through two sources: ONE, through the 25-pin connector if your signal source also has sufficient power to operate the bank of valves, or TWO, through a separate auxiliary power input connection built into the board. To isolate power from the 25-pin connector, use the power source selector switch.

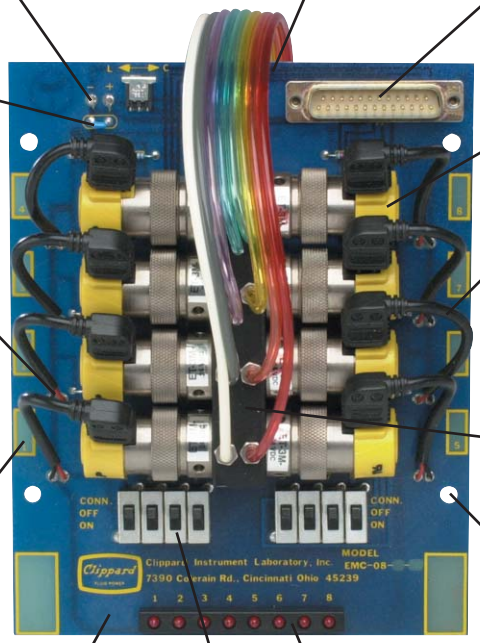
NOTE: In applying power on a temporary basis, use care to observe proper circuit polarity.

Power Selector Switch
Two-position selector switch enables choice of power input source (25-pin connector or auxiliary).

25-Pin Connector

Clippard Electronic Valves

Reverse Polarity Protection
Circuit using diodes and capacitor provides input voltage protection against reverse polarity.



Valve Connection Cords
Cord and plug leads are terminated with solder connections on the board, and connect by molded plug to the valves. All connections are completed at the factory.

Resistor-Diode-LED Circuit
Individual circuit to each valve provides protection against shut-off spikes. LED is illuminated when valve is actuated.

Clippard Valve Manifold
Compact, efficient mounting of the valves is by Clippard multi-valve manifolds.

Valve Identification
Valve numbers are silk-screened on each panel.

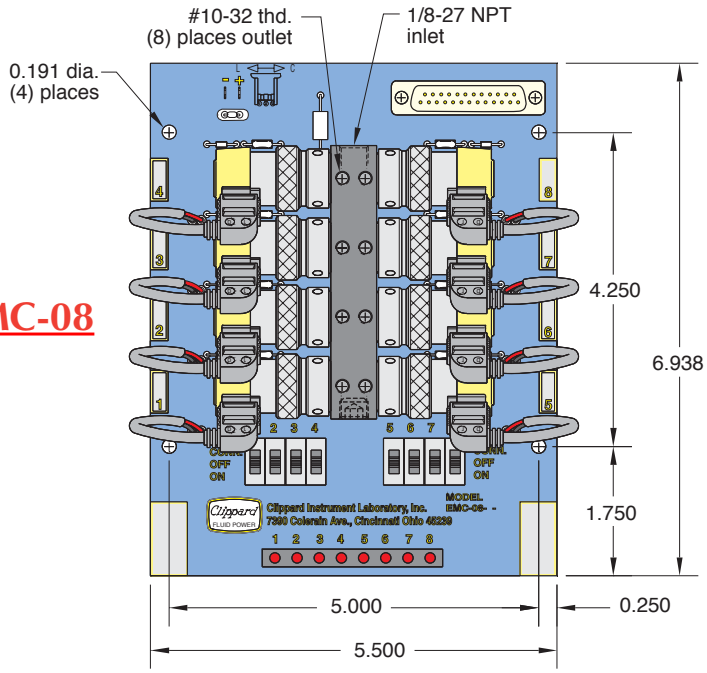
Mounting Holes
Four (EMC-08) and six (EMC-12) mounting holes 0.191" dia. are built into each board.

LED Bank
Illuminated LED signals that the valve is actuated.

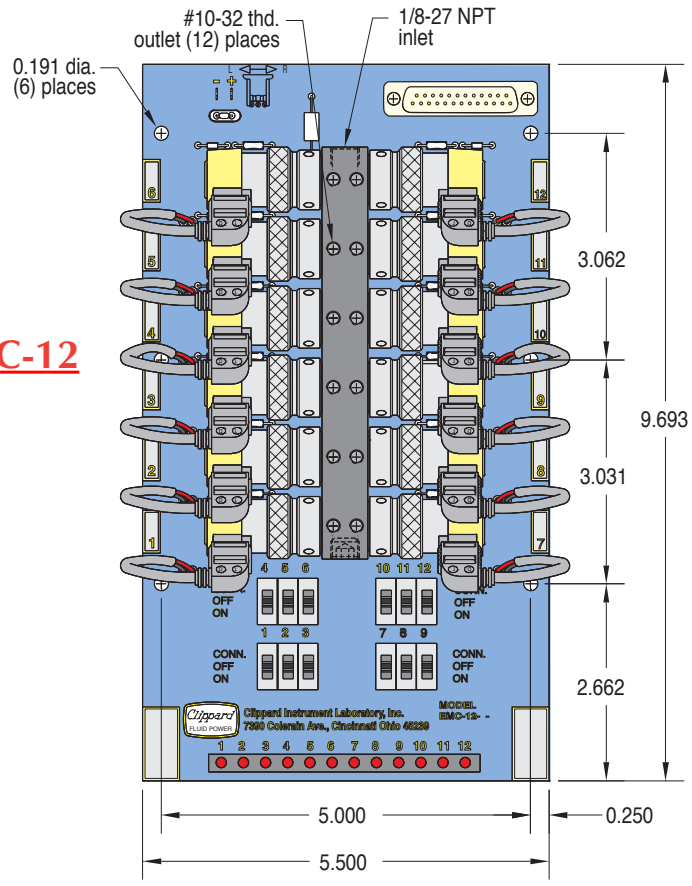
Printed Circuit Board
Durable laminated fiberglass

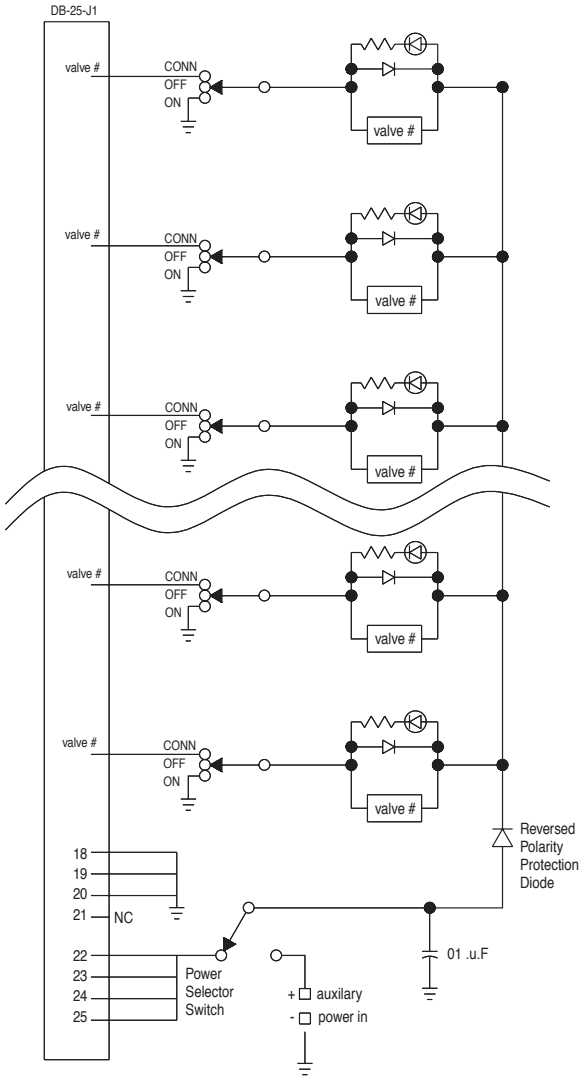
3-Position Detented Switches
Three position slide switch provides for:
ON - Power "ON"; valve is activated
OFF - Power "OFF"; valve not connected
CONN - Valve connected to 25-pin connector, and will be controlled through it.

EMC-08



EMC-12





Wiring Diagram

Note: Manifold mounted valves are Normally-Closed. Use ETO models if exhaust must be ported. ETO models cannot be used "Normally-Open" without special piping.