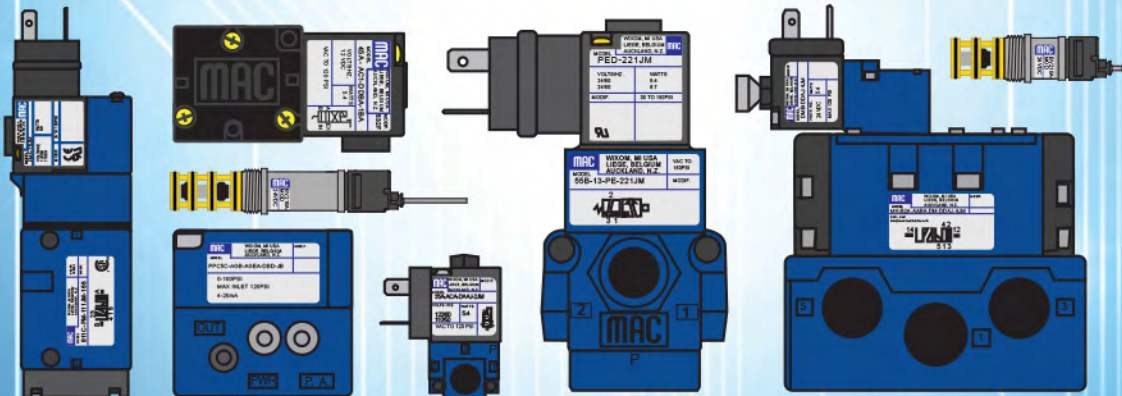


MAC VALVES PACIFIC VALVE CATALOGUE





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This product catalogue is indicative of the Mac Valve range.
For further options, ie: Voltages, Solenoid Levers, Manual Over-rides etc., these are available on request.

www.macvalves.co.nz



SMALL 3-WAY

All MAC small 3-way valves are direct operated poppet valves. The four series of solenoid valves that fall in this section (34, 35, 100, 200) all operate on the same design principal: a push type solenoid acting on a blanced poppet. The fifth series (1100) is a range of mechanically operated valves using the 100 series body assemblies.

Patents and Patents Pending

SMALL 3-WAY SOLENOID, AIR AND MECHANICALLY OPERATED VALVES

The 34 series is a direct operated 10mm valve that is available as an inline or manifold type valve. Each valve may be mounted to a circuit bar. It has an all molded encapsulated coil for which multiple electrical connector options are available.



- SMALL 3-WAY
- LARGE 3-WAY
- SMALL 4-WAY
- LARGE 4-WAY



The 35 series is the most versatile solenoid valve in this group. It has an all molded encapsulated coil and can be supplied as an individual inline, stacking or manifold base mounted valve. It is also available mounted on an extruded circuit bar which can be machined to customers specs. Other options include pressure regulators and exhaust flow controls. This valve is also used as the pilot valve for the 4-way 82 series.

The 100 series has the same flow as the 35 series. It is also available as an individual inline, stacking or manifold base mounted valve. The solenoid for the 100 series is the solenoid for the majority of the 4-way, and the 55 and 56 series 3-way solenoid pilot operated valves.

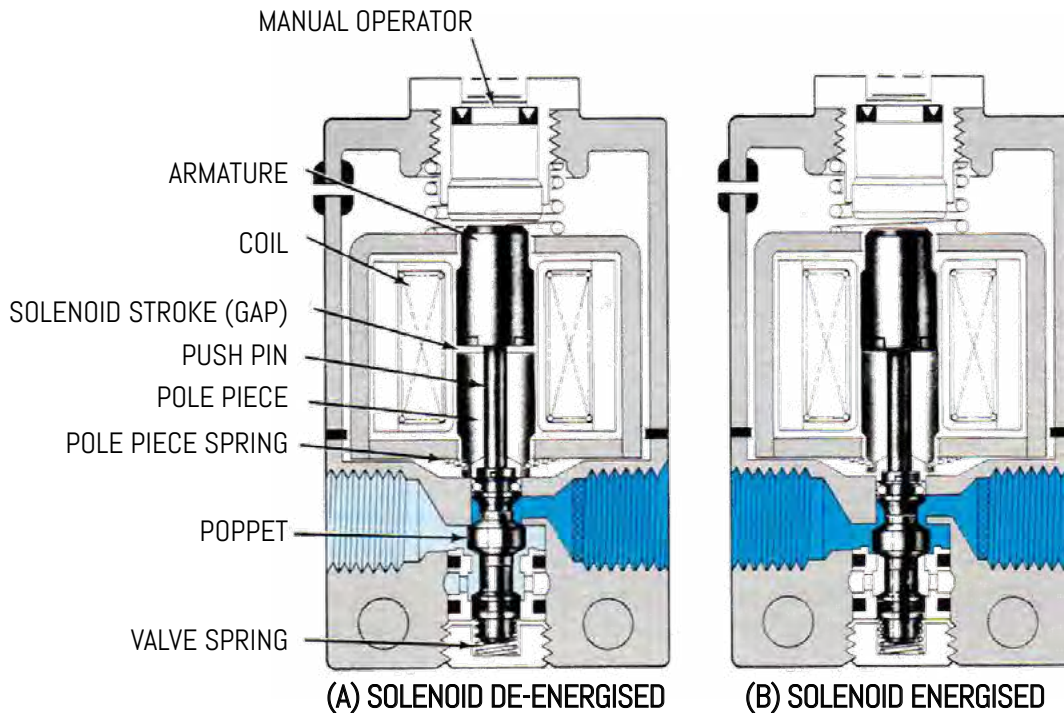


- ISO VALVES
- PPC VALVES
- PULSE VALVES
- BULLET VALVES



The 200 series is the largest of these four series of valves. It has the greatest flow and is available as an individual inline or manifold base mounted valve. The manifold base can be supplied with intergral pressure regulators.

OPERATIONAL BENEFITS

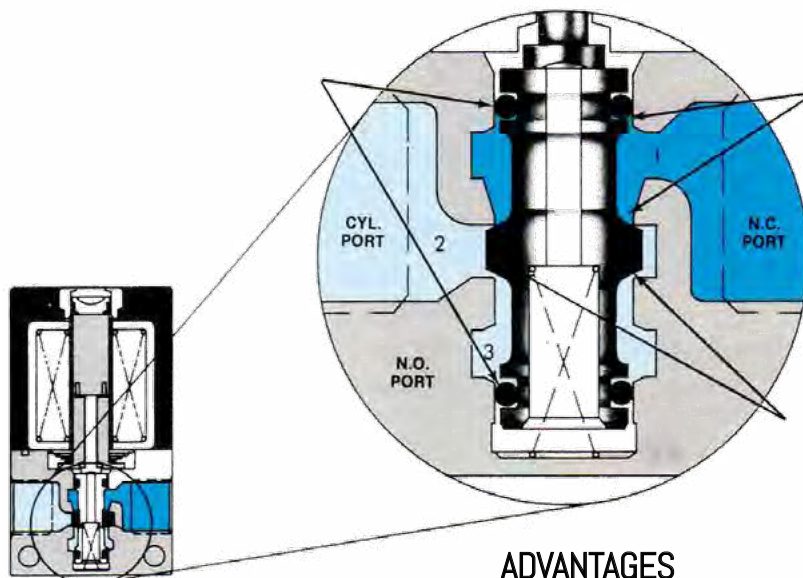


SEQUENCE OF EVENTS

- (A) - Solenoid is de-energised.
- (B) - Solenoid is energised.
- Armature is attracted magnetically downwards, extending push pin which shifts poppet from upper to lower seat.
- Moving pole piece is attracted magnetically upwards to meet the armature which compensates for difference between longer solenoid stroke and shorter valve stroke. Armature and pole piece therefore close regardless of valve position.

ADVANTAGES

- Short stroke solenoid produces high energisation shifting force.
- High force return spring due to high force solenoid maximises both energisation and de-energisation shifting forces.
- Built-in wear compensation valve stroke is shorter than solenoid stroke.
- Solenoid closes regardless of position of valve virtually eliminating coil burnout on AC service.



BALANCED POPPET = CONSISTANT HIGH SHIFTING FORCES
EXHAUST CONTAMINANTS ISOLATED FROM SOLENOID PARTS
= CLEAN SOLENOID

- Sealing areas are equal.
- End seals balance poppet seals.
- Forces created by air pressure are equal in both directions.
- Changing pressure therefore has no effect on shifting forces.

ADVANTAGES

- Short stroke solenoid produces high energisation shifting force.
- Valve shifting forces are consistant and independant of pressure fluctuations.
- High solenoid and return springs forces ensure high speed and precise repeatability.
- Exhaust contaminants are isolated from the solenoid.
- Manual override - standard.
- Constant high flow maintained throughout the pressure range, including pilot valves.
- Full flow exhaust
- Universal porting - 6 functions in one valve.



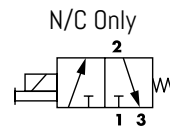
The MAC 33 Series is a direct solenoid operated 3-way - 8mm - poppet valve. A direct operated 3-way of this size with such high flow is unique to MAC due to patented design innovations. It features an oval armature in the solenoid, a balanced poppet and powerful return spring. These features translate into high shifting forces, fast consistent response times, high flow in a small package and long life. For more info regarding voltage, plug options, & certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 33A-AAB-RDAA-1BD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 N/C	M3	0.082 Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS:

- 8mm valve, direct solenoid operated.
- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- Patented solenoid develops high shifting forces.
- Powerful return spring.
- Low wattage solenoids.
- Extremely fast response times.



33 SERIES

33 SERIES

33A - X X X - R XX X - X XX
 1 2 3 4 5 6 7

1 - Body Type

A Inline L Base Mount Body

2 - Port Size & Thread Type

0 Base Mount Body A M3 (Metric)

3 - Body Function

A 1.8 Watt & Above

4 - Voltage

DC 24VDC (1.8w) DJ 12VDC (1.8w)
 DF 24VDC (4.0w) DM 12VDC (4.0w)

* Other voltages available

5 - Lead Wire Length

0 No Lead Wire P Base Plug-In
 A 18" Coil Leads

6 - Manual Operator

0 No Manual Operator
 1 Recessed Non-Locking Operator
 3 Extended Non-Locking Operator

7 - Electrical Connectors

BA Flying Leads BD Flying Leads w/ LED and MOV

33 SERIES - CIRCUIT BAR NON PLUG-IN

EBM33A - XX X X X - XX - 9
 1 2 3 4 5 Valves and cover plates assembled to bar

1 - Spacing

00 8.5mm Spacing

2 - Configuration

1 Side Cylinder Port 2 Bottom Cylinder Port

3 - Style

A Standard Bar

4 - Port Size (Cylinder Ports)

E #10-32 (1/8" BSPPL Common Thru Ports)

5 - Stations

Number of Stations (02, 03, 04, etc.)

Accessories

M-33001 Blank Station Cover Plate

33 SERIES - CIRCUIT BAR PLUG-IN

ECD33A - XX X X X - XX XX - 9
 1 2 3 4 5 6 Valves and cover plates assembled to bar

1 - Spacing

00 8.5mm Spacing

2 - Configuration

1 Side Cylinder Port 2 Bottom Cylinder Port

3 - Style

A Standard Bar

4 - Port Size (Cylinder Ports)

F #10-32 (1/8" BSPT Common Thru Ports)
 J M5 (1/8" BSPT Common Thru Ports)

5 - Base Electrical

A0 Standard (No Light)

6 - Stations

Number of Stations (02, 03, 04, etc.)

Accessories

M-33001 Blank Station Kit
 N-33001 Body to Base Fastening Kit

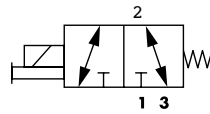
The MAC 34 Series is a direct solenoid operated 3-way - 10mm - poppet valve. A direct operated 3-way of this size with such high flow is unique to MAC due to patented design innovations. It features an oval armature in the solenoid, a balanced poppet and powerful return spring. These features translate into high shifting forces, fast consistent response times, high flow in a small package and long life. For more info regarding voltage, plug options, & certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 34B-L00-GDJA-1BA, 34C-ABA-GDEA-1KA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	M5	0.12 Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- 10mm valve, direct solenoid operated.
- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- Patented solenoid develops high shifting forces.
- Powerful return spring.
- Manual operator standard on all valves.



34 SERIES

34 SERIES VALVE & BASE OPTIONS

34C - X X X - G XX X - X XX
 1 2 3 4 5 6 7

1 - Body Type

- A Individual Inline
- L Base Mount Body

2 - Port Size & Thread Type

- 0 Base Mount Body
- B M5 (Metric, Inline)

3 - Body Function

- 0 No base (body only)
- A Universal 3-Way (inline)
- B 3-Way N.C. only (inline)

4 - Voltage

- AB 240 VAC (4.0w) - Use with "HA" or "HD" connector
- AC 24 VAC (4.0W)
- DC 24 VDC (1.8W)
- DF 24 VDC (4.0W)
- DJ 12 VDC (1.8W)
- DN 12 VDC (4.0W)

5 - Lead Wire Length

- 0 No Lead Wire
- A 18" Coil Leads

6 - Manual Operator

- 1 Recessed Non-Locking Operator
- 2 Recessed Locking Operator
- 3 Extended Non-Locking Operator
- 4 Extended Locking Operator

7 - Electrical Connectors

- BA Flying leads
- BE Flying leads with suppression diode
- BA Flying leads
- BE Flying leads, suppression diode
- BS Flying leads, suppression diode, blocking diode & LED Light parallel to leads & ground wire
- BT Flying leads, LED light on top
- BU Flying leads, LED light on top & ground wire
- BV Flying leads, suppression diode, LED light on top
- BW Flying leads, suppression diode, LED light on top & ground wire
- BX Flying leads, suppression diode, blocking diode & LED on top
- BY Flying leads, suppression diode, blocking diode, LED on top & ground wire

7 - Electrical Connectors

- DC* Base/Manifold Plug-In w/ Rectifier & LED
- DD* Base/Manifold Plug-In w/ Rectifier & LED w/ Ground
- DE* Plug-in with suppression diode
- DF* Plug-in with suppression diode with ground pin
- DJ* Plug-in
- DM* Plug-in with ground pin
- DT* Plug-in with LED light
- DU* Plug-in with LED light with ground pin
- DV* Plug-in with suppression diode with LED light
- DW* Plug-in with suppression diode with LED light with ground pin
- HA Circuit board plug-in with full wave rectifier & LED (w/ground wire)
- KA Plug-in wire assembly
- KB Plug-in wire assembly with ground wire
- KC Solenoid Plug-In Wire assembly. w/Rectifier and LED
- KD Solenoid Plug-In Wire assembly. w/Rectifier and LED w/ground
- KE Plug-in wire assembly w/ suppression diode
- KF Plug-in wire assembly w/ suppression diode & ground wire
- KN Plug-in wire assembly w/ suppression diode + blocking diode
- KP Plug-in wire assembly with suppression diode + blocking diode & ground wire
- KT Plug-in wire assembly with LED light on top (no ground wire)
- KU Plug-in wire assembly with LED light on top & ground wire
- KV Plug-in wire assembly with suppression diode plus LED light on top
- KW Plug-in wire assembly with suppression diode plus LED light on top & ground wire
- KX Plug-in wire assembly with suppression diode plus blocking diode & LED light on top
- KY Plug-in wire assembly with suppression diode plus blocking diode & LED light on top & ground wire
- PA Pico



34 SERIES - CIRCUIT BAR NON PLUG-IN

EBM 34A - \overline{XX} \overline{X} \overline{X} - \overline{XX} - 9
 1 2 3 4 Valves and cover plates assembled to bar

1 - Spacing

00 10.5mm Spacing

2 - Profile

1 12mm Low Profile
 2 16mm High Profile

3 - Port Size & Thread Type

C 1/8" BSPPL
 D M5 Metric

4 - Stations

Number of Stations (02, 03, 04, etc.)

Accessories

30456-A Blank station cover plate



EBP 34B - \overline{XX} \overline{X} \overline{X} - \overline{XX} - 9
 1 2 3 4 Valves and cover plates assembled to bar

1 - Spacing

00 10.5mm Spacing

2 - Configuration

1 Side cylinder

3 - Port Size & Thread Type (Cyl. Prt)

D M5 Metric

4 - Stations

Number of stations (02, 03, 04, etc.)

Accessories

M34005 Blank station cover plate



34 SERIES - CIRCUIT BAR PLUG-IN COMMON CONDUIT

ECD034B - \overline{XX} \overline{X} \overline{X} \overline{X} - \overline{XX} \overline{XX} - 9
 1 2 3 4 5 6 Valves and cover plates assembled to bar

1 - Spacing

00 Standard Spacing (10.5 mm)

2 - Configuration

1 Side Cylinder Port
 2 Bottom Cylinder Port
 3 Side Cylinder Port w/ Regulator
 4 Bottom Cylinder Port w/Regulator
 5 Side Cylinder Port w/Flow Control
 6 Bottom Cylinder Port w/ Flow Control
 7 Bottom Cylinder Port w/Regulator and Flow Control
 8 Side Cylinder Port w/ Regulator and Flow Control

3 - Style

A Standard Bar
 B Add-On Style Bar (Includes End Plate)
 C Add-A-Unit Station

4 - Port Size

B #10-32
 D M5 Metric

5 - Lights

A0 Standard (No Light)

6 - Stations

Number of Stations (02, 03, 04, etc.)

Accessories

E-34041-018G	Base Lead Wire Assembly w/Ground
M-34004-01P	Right Hand End Plate Kit
N-44002	Flow Control Needle Assembly
N-44003	Regulator Blank Plate Kit
28415	Isolator Disc, Inlet and Exhaust
16573	End Station Base Wire Way Plug
17012-01-1	"O" Ring Port Seal
19412-01	Tie Rod (10.5mm)
19413-01	Tie Rod (15mm)
24180	Base Wire Plug-In Protector
M-34005	Valve Blank Station Cover Plate
35048	End Plate Mounting Screw

*Note: Regulator must be ordered separately



35 SERIES

The MAC 35 Series is a direct solenoid operated 3-way poppet valve. It features a short stroke solenoid, a balanced poppet and powerful return spring. These features translate into high shifting forces, fast consistent response times, and long life. Our unique balanced design means versatility in piping - the valve can be configured as a 3-way or 2-way - normally closed or normally open or can be used for vacuum, diverter or selector applications.

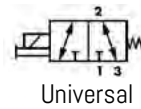
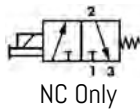
For more info regarding voltage, plug options, & certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 35A-ACA-DAAJ-2KD, 35A-ACA-DAFA-1BA, 35A-ACA-DAFJ-1JD
 35A-ACA-DAJJ-2JD, 35A-ACADAJJ-2KD, 35A-ACA-DDAA-1BA Mod532F, 35A-ACA-DDAJ-1JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	1/8"	0.17 Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- Burn-out proof solenoid on AC service.
- Balanced poppet.
- Short stroke with high flow.
- Patented solenoid develops high shifting forces.
- Powerful return spring.
- Manual operator standard on all valves.



35 SERIES VALVE & BASE OPTIONS

35A - X X X - D XX X - X XX
 1 2 3 4 5 6 7 8

1 - Body Type

- | | |
|---------------|----------------------|
| Inline | Stacking Body |
| A Inline Body | S Stacking Body |

Base Mount Body

- O No Valve Body or Regulator
- B Manifold Valve (Universal Poppet)

2 - Port Size And Thread Type

- O Manifold Body Only or Regulator Only
- C 1/8" BSPPL

3 - Valve Function/Manifold Type

Inline or Stacking Body

- | | |
|--------------------------|-----------------------------------|
| A Universal 3-Way Inline | B 3-Way N.C. Only Inline/Stacking |
|--------------------------|-----------------------------------|

Manifold/Base & Regulators

- | | |
|--|-------------------------------------|
| O No Manifold Base | E N.C. Manifold Base |
| F N.O. Manifold Base | G N.C. Manifold Base with regulator |
| H N.O. Manifold Base w/ regulator | |
| J N.C. Manifold Base w/ regulator with adjust knob | |
| K N.O. Manifold Base w/ regulator with adjust knob | |
| N N.C. Manifold Base Cascade Type | |
| P N.C. Manifold Base w/ regulator Cascade Type | |
| R N.C. Manifold Base w/ regulator - adjust knob (Cascade Type) | |
| S N.C. Manifold Base w/ regulator - locking stem | |
| T N.O. Manifold Base w/ regulator - locking stem | |

Regulators Only

- L Regulator only (standard)
- M Regulator only with adjust knob
- U Regulator only with locking stem

4 - Operator

- | | |
|------------|-----------------|
| D Solenoid | RA14 Remote Air |
|------------|-----------------|

5 - Voltage - *Further voltage options contact MVP

- | | |
|-------------------|---------------------------------|
| AA 120/60, 110/50 | DE 12VDC (12.7W)(MOD CLSF only) |
| AC 24/60, 24/50 | DF 24VDC (12.7W)(MOD CLSF only) |
| AF 240/50 | DA 24VDC (54W) |
| FB 24VDC (1.8W) | DB 12VDC (54W) |
| FE 12VDC (24W) | DC 12VDC (7.5W) |
| FF 24VDC (24W) | |

6 - Lead Wire Length

- A 18" Coil Leads
- J External Plug-in Lead

7 - Manual Operator

- | | |
|-----------------------------|-------------------------------|
| 0 No Operator | 1 Non-Locking Manual Operator |
| 2 Locking Manual Operator | 3 Non-Locking Ext. Operator |
| 4 Locking Extended Operator | |

8 - Electrical Connector

- | | |
|---------------------------------|------------------------------------|
| BA Grommet | KC Mini Plug-in with M.O.V. |
| CA Conduit 1/2" | KD Mini Plug-in with Light |
| JB Rectangular Plug-in | KE Mini Plug-in with Light & Diode |
| JD Rectangular Plug-in w/ Light | KJ Mini Plug-in Male Only |
| JM Rectangular Male Only | TA Dual Tabs (.110) w/ Receptacles |
| KA Mini Plug-in | |
| KB Mini Plug-in with Diode | |

Accessories

- | | |
|-------------|---|
| M-35001-01P | End Plate Kit with out Conduit Stacking |
| M-35002-01P | End Plate Kit — Common Conduit Stacking |
| M-35003-01P | End Plate Kit — Manifold |
| M-35004 | Blank Station Cover Plate (Manifold) |
| M-35004-01 | Blank Station Cover Plate w/Pressure Outlet(Manifold) |
| M-35005 | Manifold Base End Cover Plate Plain |
| M-35006-01P | End Plate Kit — Manifold (Cascade) |
| M-45004 | Spacer Plate Conduit Kit |
| N-35001 | Inlet and Exhaust Isolator — Stacking |
| N-35002 | Inlet Isolator — Stacking |
| N-35003 | Exhaust Isolator — Stacking |
| N-35005 | #10-32 to 1/8" Adaptor |
| N-35006 | Inlet & Exhaust Isolator Manifold |
| N-35007 | Inlet Isolator Manifold |
| N-35008 | Exhaust Isolator Manifold |

Modifications

- O446 High Temp Body
- RPT E Energised Repeatability
- CLSF High Temp Coil
- 532F Washdown (Not suitable for DM pilots)
- T65C Temp up to 65C

***Note: Low wattage sold as complete valves only**



35 SERIES - CIRCUIT BAR NON PLUG-IN

EBM35A - $\frac{XX}{1}$ $\frac{X}{2}$ $\frac{X}{3}$ $\frac{XX}{4}$ - 9
Valves and cover plates assembled to bar

1 - Spacing

00 21mm Spacing

2 - Configuration

1 Side Cylinder Port

3 - Regulator with Side Cylinder Port

3 Port Size & Thread Type

C 1/8" BSPPL

4 - Stations

Number of Stations (02, 03, 04, etc.)

Accessories

M-35004 Valve Blanking Plate

M-35005 Regulator Blanking Plate

Manifold accessories

35A-00L Slotted Stem

35A-00M Adjusting Knob

35A-00U Locking Stem



Note: Regulator must be ordered separately.



The MAC 36 Series is a high flow, direct solenoid operated 3-way poppet valve. It features a short stroke solenoid with oval armature and a powerful return spring and balanced poppet. These features translate into high shifting forces, fast consistent response times, high flow in a small package and long life.

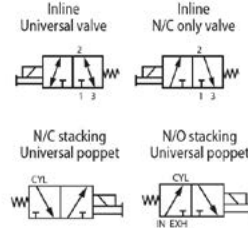
For more info regarding voltage, plug options, & certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 36A-ACA-JDBA-OBL Mod 532S, 36A-B00-JDAA-1GA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2	1/8"	0.3 Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- Balanced poppet, immune to variations of pressure.
- Patented solenoid develops high shifting forces.
- Short stroke with high flow.
- Higher forces result in lower wattages for given flow.
- Powerful return spring.



36 SERIES

36 SERIES + SOLENOID OPTIONS

36A - X X X - J XX X - X XX (G)
 1 2 3 4 5 6 7 8

1 - Body Type

Inline

A Inline Body

Base Mount

- B Base Mount Body (Universal) - For use with Circuit Bars
- E Base Mount Body (N.C. Only) - For use with Circuit Bars
- J Base Mount Body - Universal Normally Closed

Stacking Body

- S Stacking Body
- T Stacking Body with Bottom Inlet

2 - Port Size And Thread Type

- 0 Base Mount Body Only
- C 1/8" BSPPL
- D M5 (Metric) (Stacking Body Only)
- 1 Base Mount Body ("J" Only) - For use with plastic cover
- 2 Base Mount Body w/ Light ("J" Only) - For use with plastic cover

3 - Configuration

- 0 Base Mount Body Only
- A Inline Universal
- B Inline/Stacking N.C. Only
- C Stacking (Universal Poppet - N.C.)
- D Stacking (Universal Poppet - N.O.)

4 - Operator

J SOLENOID

5 - Voltage

- | | |
|------------------|--------------------------------|
| AA 120 VAC (54W) | DE 24 VDC (1.8W) |
| AC 24 VAC (54W) | DF 12 VDC (1.8W) |
| DA 24 VDC (54W) | LA 120 VAC (54w) - Max Cv 0.23 |
| DB 12 VDC (54W) | LB 24 VAC (54w) - Max Cv 0.23 |
| DC 24 VDC (24W) | MA 24 VDC (54w) - Max Cv 0.23 |
| DD 12 VDC (24W) | MB 12 VDC (54w) - Max Cv 0.23 |

6 - Lead Wire Length

- 0 No Lead Wires (Use only with J, K, & L type connectors)
- A 18" Leads
- B 24" Leads
- C 36" Leads
- D 48" Leads
- E 72" Leads
- F 96" Leads

7 - Manual Operator

- | | |
|--------------------|------------------------|
| 0 No Operator | 1 Non-Locking Recessed |
| 2 Locking Recessed | 3 Non-Locking Extended |
| 4 Locking Extended | |

8 - Electrical Cover Connection

- BA Flying Leads
- GA MAC JAC Solenoid Plug-In
- GB MAC JAC Solenoid Plug-In w/ Diode
- GC MAC JAC Solenoid Plug-In w/ MOV
- GD MAC JAC Solenoid Plug-In w/ Light
- GE MAC JAC Solenoid Plug-In w/ Diode and Light
- GF MAC JAC Solenoid Plug-In w/ MOV and light
- GG MAC JAC Solenoid Plug-In w/ Rectifier
- GH MAC JAC Solenoid Plug-In w/ Rectifier and Light
- GJ MAC JAC Solenoid Plug-In (Male Only)
- GK MAC JAC Solenoid Plug-In w/ Diode (Male Only)
- GL MAC JAC Solenoid Plug-In w/ MOV (Male Only)
- GM MAC JAC Solenoid Plug-In w/ LED (Male Only)
- GN MAC JAC Solenoid Plug-In w/ Diode and LED (Male Only)
- GP MAC JAC Solenoid Plug-In w/ MOV and LED (Male Only)
- GR MAC JAC Solenoid Plug-In w/ Rectifier (Male Only)
- GS MAC JAC Solenoid Plug-In w/ Rectifier and LED (Male Only)
- JA Square Connector
- JC Square Connector w/ Light
- JE Square Connector w/ Diode
- JF Square Connector w/ Mov
- JG Square Connector w/ Diode & Light
- JH Square Connector w/ Mov & Light
- JK Square Connector w/ Rectifier
- JL Square Connector w/ Rectifier w/ Light
- JJ Square Connector Male Only
- JB Rectangular Connector
- JD Rectangular Connector w/ Light
- JN Rectangular Connector w/ Diode
- JP Rectangular Connector w/ Mov
- JR Rectangular Connector w/ Diode & Light
- JS Rectangular Connector w/ Mov & Light
- JT Rectangular Connector w/ Rectifier
- JU Rectangular Connector w/ Rectifier w/Light
- JM Rectangular Connector Male Only



Continued next page

9 - Ground

G Ground Pin/Wire

Accessories

M-36001-01P	Stacking End Plate Kit
N-36001	Inlet and Exhaust Isolator - Stacking
N-36002	Inlet Isolator - Stacking
N-36003	Exhaust Isolator - Stacking

94mm Pin Spacing

KA	Mini Plug-In
KB	Mini Plug-In w/ Diode
KC	Mini Plug-In w/ Mov
KD	Mini Plug-In w/ Light
KE	Mini Plug-In w/ Diode & Light

KF	Mini Plug-In w/ Mov & Light
KG	Mini Plug-In w/ Rectifier
KH	Mini Plug-In w/ Rectifier & Light
KJ	Mini Plug-In - Male Only
KK	Mini Plug-In w/ Diode - Male Only
KL	Mini Plug-In w/ MOV - Male Only
KM	Mini Plug-In w/ Light - Male Only
KN	Mini Plug-In w/ Diode & Light - Male Only
KP	Mini Plug-In w/ MOV & Light - Male Only
KR	Mini Plug-In w/ Rectifier - Male Only
KS	Mini Plug-In w/ Rectifier & Light - Male Only

36 SERIES - PLUG-IN MANIFOLD

36A - $\begin{matrix} X & X & X & - & X & X & - & J & XX & P & - & X & XX & (G) \\ \downarrow & \downarrow & \downarrow & & \downarrow & \downarrow & & \downarrow & \downarrow & \downarrow & & \downarrow & \downarrow & \downarrow \\ 1 & 2 & 3 & & 4 & 5 & & 6 & 7 & 8 & & 9 & 10 & 11 \end{matrix}$ When ground is required

1 - Body Type

0	Base only
J	Base Mount Body Universal Valve N.C.
K	Base Mount Body Universal Valve N.O.
L	Base Mount Body N.C. Only Valve

2 - Manifold Style

0	Valve only
S	Plug-in (12" base leads)

3 - Port Size & Thread Type

0	Valve only
A	1/8" NPT
C	1/8" BSPPL
E	1/8" BSPTR
F	5/32 Pressed-in tube receptacle

4 - Manifold Wiring

0	Valve only
A	Plug-in

5 - Manifold Configuration

0	Valve only
E	N.C. Manifold Side Cyl. Port
F	N.O. Manifold Side Cyl. Port
G	N.C. Manifold Bottom Cyl. Port & Reg w/ Slotted Stem
H	N.O. Manifold Bottom Cyl. Port & Reg w/ Slotted Stem
J	N.C. Manifold Bottom Cyl. Port & Reg w/ Adjusting Knob
K	N.O. Manifold Bottom Cyl. Port & Reg w/ Adjusting Knob
S	N.C. Manifold Bottom Cyl. Port & Reg w/ Locking Stem
T	N.O. Manifold Bottom Cyl. Port & Reg w/ Locking Stem

6 - Solenoid

J Solenoid

7 - Voltage - * MaxCv = 0.3, **MaxCv=0.23

AA	120 VAC (54w)*	DE	24 VDC (1.8w)
AC	24 VAC (54w)*	DF	12 VDC (1.8w)
DA	24 VDC (54w)*	LA	120 VAC (54w)**
DB	12 VDC (54w)*	LB	24 VAC (54w)**
DC	24 VDC (24w)	MA	24 VDC (54w)**
DD	12 VDC (24w)	MB	12 VDC (54w)**

8 - Lead Wire

P Plug-in

9 - Manual Operator

0	No operator
1	Recessed non-locking operator
2	Recessed locking operator
3	Extended non-locking operator
4	Extended locking operator

10 - Electrical Connection

FA	Base Plug-In
FB	Base Plug-In with Diode
FC	Base Plug-In with MOV
FD	Base Plug-In with LED
FE	Base Plug-In with Diode and LED
FF	Base Plug-In with MOV and LED
FG	Base Plug-In with Rectifier
FH	Base Plug-In with Rectifier and LED

11 - Ground

G Ground Pin/Wire

Parts

M-46003-01P	End plate kit
M-36003	Valve and Electrical Blanking Plate
M-46002	Valve blanking plate
28502	Exhaust isolator
285012	Inlet isolator
632996	Electrical Plug-In Protector



36 SERIES - MACONNECT

36A - $\overset{\text{1}}{\text{X}} \overset{\text{2}}{\text{X}} \overset{\text{3}}{\text{X}} - \overset{\text{4}}{\text{X}} \overset{\text{5}}{\text{X}} - \overset{\text{6}}{\text{J}} \overset{\text{7}}{\text{XX}} \overset{\text{8}}{\text{P}} - \overset{\text{9}}{\text{X}} \overset{\text{10}}{\text{XX}} \overset{\text{11}}{\text{(G)}}$
When ground is required

1 - Body Type

- 0 Base only
- J Base Mount Body Universal Valve N.C.
- K Base Mount Body Universal Valve N.O.
- L Base Mount Body N.C. Only Valve

2 - Style

- 0 Valve only
- M MACConnect

3 - Port Size & Thread Type

- 0 Valve only
- C 1/8" BSPPL
- F 5/32 Pressed-in tube receptacle

4 - Base Electrical

- 0 Valve only
- A Plug-In To Left
- B Plug-In To Right

5 - Manifold Configuration

- 0 Valve only
- E N.C. Manifold Side Cyl. Port
- F N.O. Manifold Side Cyl. Port
- G N.C. Manifold Bottom Cyl. Port & Reg w/Slotted Stem
- H N.O. Manifold Bottom Cyl. Port & Reg w/Slotted Stem
- J N.C. Manifold Bottom Cyl. Port & Reg w/Adjusting Knob
- K N.O. Manifold Bottom Cyl. Port & Reg w/Adjusting Knob
- S N.C. Manifold Bottom Cyl. Port & Reg w/Locking Stem
- T N.O. Manifold Bottom Cyl. Port & Reg w/Locking Stem

6 - Solenoid

- J Solenoid

7 - Voltage

- AA 120 VAC (54w) Cv to 0.3
- AC 24 VAC (54w) Cv to 0.3
- DA 24 VDC (54w) Cv to 0.3
- DB 12 VDC (54w) Cv to 0.3
- DC 24 VDC (24w)
- DD 12 VDC (24w)

8 - Lead Wire

- P Plug-in

9 - Manual Operator

- 0 No operator
- 1 Recessed non-locking operator
- 2 Recessed locking operator
- 3 Extended non-locking operator
- 4 Extended locking operator

10 - Electrical Connection

- FA Base Plug-In
- FB Base Plug-In with Diode (Positive Common)
- FC Base Plug-In with MOV
- FD Base Plug-In with LED
- FE Base Plug-In with Diode and LED (Positive Common)
- FF Base Plug-In with MOV and LED
- FG Base Plug-In with Rectifier
- FH Base Plug-In with Rectifier and LED
- FJ Base Plug-In with Diode (Negative Common)
- FK Base Plug-In with Diode and LED (Negative Common)

11 - Ground

- G Ground Pin/Wire

Parts

M-46002	Valve blanking plate
M-36003	Valve and Electrical Blanking Plate
28502	Exhaust isolator
28501	Inlet isolator
63299	Electrical Plug-In Protector
M-46006-01-01P	Fastening End Plate Kit (Left End)
M-46006-02-01P	Fastening End Plate Kit (Right End)

36 SERIES - MACONNECT ADAPTER ASSEMBLY

M - 46005 - $\overset{\text{1}}{\text{XX}} \overset{\text{2}}{\text{X}} \overset{\text{3}}{\text{X}}$

1 - Type of Connector

- 09 9 Pin Sub D
- 10 10 Pin
- 15 15 Pin Sub D
- 16 16 Pin
- 20 20 Pin
- 24 24 Pin Amp CPC
- 25 25 Pin Sub D
- 26 26 Pin

2 - Location of Adapter

- 1 Left End
- 2 Right End

3 - Thread Type

- Blank (NPTF Threads)
- P BSPPL Threads
- T BSPTR Threads

Modifications

- MOD 1974 Negative commons

Note: For washdown approved Sub D connectors use MOD 532M



36 SERIES - CIRCUIT BAR NON PLUG-IN

EBM36A - $\frac{XX}{1} \frac{X}{2} \frac{X}{3} \frac{X}{4} - \frac{XX}{5} - \frac{9}{6}$
Valves and cover plates assembled to bar

1 - Spacing

00 16.5mm Spacing

2 - Configuration

- A Side Cylinder Port
- B Bottom Cylinder Port
- C Bottom Cylinder Port with Regulator
- D Side Cylinder Port with Regulator

3 - Style

- A Standard

4 - Port Size & Thread Type

- B 1/8" BSPPL
- E 5/32 Pressed-In Tube Receptacle w/ BSPPL Through Ports

5 - Stations

Number of Stations (01, 02, 03, etc.)

Accessories

- M-36002 Valve Blanking Plate
- N-46004 Regulator Blanking Plate

Note: Regulator must be ordered separately.

36 SERIES - ECD PLUG-IN CIRCUIT BAR

ECD36A - $\frac{XX}{1} \frac{X}{2} \frac{X}{3} \frac{X}{4} - \frac{XX}{5} - \frac{XX}{6} - \frac{9}{7}$
Valves and cover plates assembled to bar

1 - Spacing

00 16.5mm Spacing

2 - Configuration

- A Side Cylinder Port
- B Bottom Cylinder Port
- C Bottom Cylinder Port with Regulator

3 - Style

- A Standard

4 - Port Size & Thread Type

- B 1/8" BSPPL
- E 5/32 Pressed-In Tube Receptacle with BSPPL Through Ports

5 - Lights

- A0 Standard (No Light)

6 - Stations

Number of Stations (01, 02, 03, etc.)

Accessories

- M-36002 Valve Blanking Plate
- 63299 Electrical Plug-In Protector

Note: Regulator must be ordered separately.

36 SERIES - REGULATOR

PR46A - $\frac{X}{1} \frac{X}{2} \frac{X}{3} \frac{X}{4} - \frac{9}{5}$
Valves and cover plates assembled to bar

1 - Style

- 0 Regulator Only

2 - Adjustment

- A Slotted Stem
- B Adjusting Knob
- C Slotted Stem with Locknut

3 - Gage

- A Gage Port Plugged

4 - Pressure Range

- A 0-120 psi
- B 0-80 psi
- C 0-30 psi

The MAC 37 Series valve is a high flow direct solenoid operated 3-way poppet valve. It features a short stroke solenoid with oval armature, balanced poppet and powerful return spring. These features translate into high shifting forces, fast consistent response times, high flow in a small package and long life.

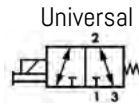
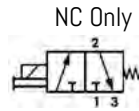
For more info regarding voltage, plug options, & certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 37A-AF0-HDAA-1BC

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2	1/8"	0.50 Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- Balanced poppet equals consistent high shifting forces.
- Valve shifting forces are consistent and independent of pressure fluctuations.
- High solenoid and return spring forces ensure high speed and precise repeatability.
- Built-in wear compensation – valve stroke is shorter than solenoid stroke.
- Constant high flow maintained throughout the pressure range.
- Exhaust contaminants are isolated from the solenoid.
- Full flow exhaust.
- Universal porting – 6 functions in one valve.



37 SERIES

37 SERIES

37A - $\begin{matrix} X & X & X \\ \hline 1 & 2 & 3 \end{matrix}$ - H $\begin{matrix} XX & X & X \\ \hline 4 & 5 & 6 \end{matrix}$ $\begin{matrix} XX \\ \hline 7 \end{matrix}$

1 - Body Configuration

- 0 Base Only
- A 3 Port Universal Inline

2 - Port Size & Thread Type

- D 1/4 BSPPL

3 - Style

- 0 Inline / Valve Only
- A Individual Base Non Plug-In

37 SERIES SOLENOID OPTIONS

H $\begin{matrix} XX & X & X \\ \hline 4 & 5 & 6 \end{matrix}$ $\begin{matrix} XX \\ \hline 7 \end{matrix}$

4 - Voltage

- AA 110 VAC (6.7w) (Req. full wave Rectifier in Cover)
- AB 220 VAC (5.6w) (Req. full Wave Rectifier in Cover)
- AC 240 VAC (5.8w) (Req. full Wave Rectifier in Cover)
- AD 24 VAC (7.8w) (Req. full Wave Rectifier in Cover)
- DA 24 VDC (5.2w)
- DB 24 VDC (24w)
- DF 12 VDC (5.2w)
- DG 12 VDC (24w)

5 - Lead Wire Length

- 0 No Lead Wire
- A 18" Coil Leads

6 - Manual Operator

- 0 No Operator
- 1 Recessed Non Locking Operator
- 2 Recessed Locking Operator
- 3 Extended Non Locking Operator
- 4 Extended Locking Operator

7 - Electrical Connector

- BA Flying Leads
- KA Mini Plug-In
- KB Mini Plug-In w/ Diode
- KC Mini Plug-In w/ Mov
- KD Mini Plug-In w/ Light

Note: USE "0" WITH MJ & MM OPTIONS and "K" Type Connectors



37 SERIES - REGULATOR

PR37A - $\begin{matrix} X & X & X & X & X \\ T & T & T & T & T \\ 1 & 2 & 3 & 4 & 5 \end{matrix}$

1 - Adjustment Method

Manual Adjust w/ Screwdriver Slot

- A Plug-In
- B Non Plug-In
- C Regulator Only
- D Regulator Only Non Plug-In w/ Gage Port Extension

Manual Adjust w/ Knob

- E Plug-In
- F Non Plug-In
- G Regulator Only
- H Regulator Only Non Plug-In w/ Gage Port Extension

Manual Adjust w/ Screwdriver Slot and Locknut

- J Plug-In
- K Non Plug-In
- L Regulator Only
- M Regulator Only Non Plug-In w/ Gage Port Extension

2 - Configuration

- O Regulator Only
- A Sandwich Regulator Block

3 - Gauge Port Option

- A No Gage Port
- B Gage Port (plugged)
- C Gage (order separately)

4 - Pressure Range

- A 0 to 120 psi
- B 0 to 80 psi
- C 0 to 30 psi

5 - Assembly

- 9 Assembled to Valve/Bar

Gauges

24165-150	15mm 0 to 150 psi
24177-160	23mm 0 to 160 psi
24177-100	23mm 0 to 100 psi
24177-060	23mm 0 to 60 psi

37 SERIES - EBM CIRCUIT BAR

EBM37A - $\begin{matrix} XX & X & X & X & X & X \\ T & T & T & T & T & T \\ 1 & 2 & 3 & 4 & 5 & 9 \end{matrix}$ Valves and cover plates assembled to bar

1 - Spacing

- 00 18mm spacing
- 01 20mm spacing

2 - Configuration

- A Side cylinder port
- B Bottom cylinder port
- C No cylinder port
- D Side cylinder port
- E Bottom cylinder port
- F Side cylinder port with regulator
- G Bottom cylinder port with regulator
- H No cylinder port
- J No cylinder port with regulator

Note: Regulator priced separately

3 - Style

- A Standard bar
- B Add-On-Style (includes end plate)
- C Add-A-Unit (single station)

4 - Cylinder Port Size and Thread Type

- M BSPTR Commons

5 - Stations

Number of Stations (01, 02, 03, etc.)

Accessories

M-37001	Blank station cover plate (17.5mm)
M-37002	Blank station cover plate (19.5mm)
M-37005-01P	Right hand end plate kit
28438	Inlet/Exhaust Isolator



37 SERIES - ECD CIRCUIT BAR

ECD37A - $\begin{matrix} XX & X & X & X & X & X & X \\ T & T & T & T & T & T & T \\ 1 & 2 & 3 & 4 & 5 & 6 & 9 \end{matrix}$ Valves and cover plates assembled to bar

1 - Spacing

- 00 18mm spacing
- 01 30mm spacing

2 - Configuration

- A Side cylinder port
- B Bottom cylinder port
- C Bottom cylinder port with regulator

Note: Regulator priced separately

3 - Style

- A Standard Bar
- D Standard Bar
- E Add-On Style (Includes End Plate)
- F Add-A-Unit (single station)

4 - Cylinder Port Size and Thread Type

- D 1/4" BSPPL AB Light (240v)
- AD No light AD Light (24v)
- AA Light (120v)

6 - Stations

Number of Stations (01, 02, 03, etc.)

Accessories

M-37001	Blank station cover plate (17.5mm)
M-37003-01P	End plate kit (32.5mm)
M-37004-01P	End plate kit (44mm)
16520	Wire connector protector for blank station
28438	Inlet/Exhaust Isolator



100 SERIES

The MAC 100 Series is a direct solenoid operated 3-way poppet valve. It features a short stroke solenoid, a balanced poppet and a powerful return spring. These features translate into high shifting forces, fast consistent response times and long life. Our unique balanced design means versatility in piping - the valve can be configured as a 3-way or 2-way - normally closed or normally open, or can be used for vacuum, diverter or selector applications. For more info regarding voltage, plug options, & certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 117B-50-1BA

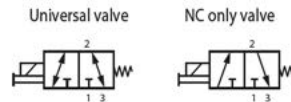
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	1/8"-1/4"	0.18 Cv	Vac. to 150PSI	Inline



100 SERIES

OPERATIONAL BENEFITS

- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- The patented solenoid develops high shifting forces.
- Powerful return spring.
- Manual operator standard on all valves.
- Burn-out proof solenoid on AC service.



100 SERIES

1 X X B - XX X XX
 1 2 3 4 5

1 - Valve Function

- 1 Universal Ind. Inline
- 2 3 Way Universal Manifold
- 8 Stacking Models

2 - Port Size/Body Size

- 0 Manifold Valve Less Base
- 6 1/8" BSPP Inline or Universal Stacking or Manifold
- 7 1/4" BSPP Inline or Universal Stacking
- 8 1/8" BSPP Stacking, 3 Way N.C. Only
- 9 1/4" BSPP Stacking, 3 Way N.C. Only

3 - Voltage

AC Voltage	DC Voltage
11 120/60, 110/50	50 24VDC (6W)
22 24/50-60	55 12VDC (6W)
26 400/50	57 12VDC (2.5W)
39 240/50	59 24VDC (2.5W)
*Further Options Available	60 12VDC (8.5W)
	61 24VDC (8.5W)

4 - Manual Operator Indicator Lights

- 0 No Operator
- 1 Non-Locking Recessed (Std.)
- 2 Locking Recessed
- 3 Non-Locking Extended
- 4 Locking Extended

5 - Enclosure

- BA Grommet, Flying 18" Lead
- CA Conduit 1/2" NPS
- JA Square - No Light
- JB Rectangle - No Light
- JC Square w/Light
- JD Rectangle w/Light

Mod. No.	Description	Model Availability
CLS F	Class F Coil	All Voltages
T65 C	For Ambient Temperatures up to 65 degrees C	All Models
044 9	For long extended energisation applications	Solenoid Models

100B Accessories

106	1/8" Add-A-Unit Base	M-01002-01P	Conduit Box End Plate Kit
A2-5004-01P	Manifold End Plate Kit	N-01003	Stacking Inlet Isolator Plate
A2-8002	Mounting Bracket	N-01004	Stacking Exhaust Isolator Plate
M-01001-01P	Stacking End Plate Kit		

Modifications 100B

0004	For all Bottom and Side Ports (Manifold Base)	0389	Rotate Cover 180°
0009	For all Bottom and Side Cylinder Ports (Manifold Base)	416F	Pre-Wire Option 10 Ft. Cord
0210	Additional Bottom Inlet (Manifold and Stacking)	416Y	Pre-Wire Option 6 Ft. Cord
0300	5-Pin Plug-In Connector	0449	Extended Solenoid Energization
300B	3-Pin Plug-In Connector	CLS F	High Temperature Coil Option
313P	Inlet Isolation (Manifold Base)	RPT E	Energize Repeatability
313E	Exhaust Isolation (Manifold Base)	T65 C	Ambient Temperatures Up to 65°C (150°F)



The MAC 200 Series is a direct solenoid operated 3-way poppet valve. It features a short stroke solenoid, a balanced poppet and powerful return spring. These features translate into high shifting forces, fast consistent response times and long life. For more info regarding voltage, plug options, & certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

This unique series is available for hazardous location applications (Class I/Div B, C & D - Class II/Div E, F & G).

Stock Part Number: 225B-112JC

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.5 Cv	Vac. to 150PSI	Inline

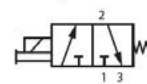
OPERATIONAL BENEFITS

- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- The patented solenoid develops high shifting forces.
- Powerful return spring.
- Manual operator standard on all valves.
- Burn-out proof solenoid on AC service.

Universal valve



NC only valve



200 SERIES

200 SERIES

2 X X B - XX X XX
T T T T T
 1 2 3 4 5

1 - Valve Function

- 2 Universal 2 or 3 Way Individual Line
- 5 Universal 3 Way Manifold Base Mounted

2 - Port Size/Body Size

- 0 Universal Manifold Less Base
- 1 N.C Only Manifold with 1/4" NPTF Manifold Base, Integral Pressure Regulator, Common Outlet (Cascade)
- 2 Universal or N.C. Only Manifold, with 1/4" NPFT Manifold Base, Integral Pressure Regulator, Indv. Outlet
- 4 Individual Inline, 1/8" BSPP - MOD 0005
- 5 Individual Inline, 1/4" BSPP - MOD 0005

3 - Voltage

AC Voltage	DC Voltage
11 120/60, 110/50	50 24VDC (6W)
22 24/50-60	55 12VDC (6W)
25 240/50	61 24VDC (8.5W)
*Further Options Available	69 220-250VDC (11.3W)

4 - Manual Operator

- 0 No Operator
- 1 Non-Locking Recessed (Std.)
- 2 Locking Recessed
- 3 Non-Locking Extended
- 4 Locking Extended

5 - Enclosure

- BA Grommet - Flying 18" Lead
- CA Conduit 1/2" NPS
- CC Conduit 1/2" NPT (CSA Threads)
- EA Hazardous Location
- JA Din Square Plug - No Light
- JC Din with Light

Mod. No.	Description	Model Availability
CLSF	Class F Coil	All Voltages
T65C	For Ambient Temperatures up to 65 degrees C	All Models
0449	For long extended energisation applications	All Models
0005	BSP Threads	All Models

1100 SERIES

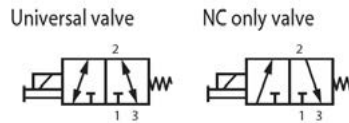
The MAC 1100 Series is a versatile 3-way mechanically operated valve. This series features a wide variety of manual operator options, from levers and push buttons, to cams and remote air operated versions. Our unique balanced design means versatility in piping - the valve can be configured as a 3-way or 2-way - normally closed or normally open or can be used for vacuum, diverter or selector applications. For more info regarding voltage, plug options, & certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 1116A-037

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.18 Cv	Vac. to 150PSI	Inline

OPERATIONAL BENEFITS

- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- Powerful return spring.



1100 SERIES

1100 SERIES

11 XXA - XXX
 1 2

1 - Body Type

Individual Body Models

- 16A 1/8" BSP Universal 2 or 3 Way (N.C or N.O.)
- 17A 1/4" BSP Universal 2 or 3 Way (N.C or N.O.)

Stacking Body Models

- 86A 1/8" BSP Universal 3 Way (N.C or N.O.)
- 87A 1/4" BSP Universal 3 Way (N.C or N.O.)

Manifold Base Models - Universal 3-Way(N.C. & N.O.)

- 30A Valve No-Base
- 36A Valve with Base

2 - Description

- 011 Straight Cam Roller - Parallel to Ports 1 & 2
- 012 Straight Cam Roller - Perpendicular to Port 1 & 2
- 013 Lever Cam Perpendicular to Ports 1 & 2
- 014 Lever Cam Parallel to Ports 1 & 2
- 015 Lever Cam Parallel to Ports 1 & 2 (Override right)
- 016 Lever Cam Parallel to Ports 1 & 2 (Override Left)
- 017 Lever Cam Perpendicular to Ports 1 & 2 (Override Forward)
- 018 Lever Cam Perpendicular to Ports 1 & 2 (Override Backward)
- 021 Lever Locking Push - Perpendicular to Ports 1 & 2
- 022 Lever Non-Locking Push - Perpendicular to Ports 1 & 2
- 023 Lever Locking Pull - Perpendicular to Ports 1 & 2
- 024 Lever Non-Locking Pull - Perpendicular to Ports 1 & 2
- 025 Lever Locking Push - Parallel to Ports 1 & 2
- 026 Lever Non-Locking Push - Parallel to Ports 1 & 2
- 027 Lever Locking Pull - Parallel to Ports 1 & 2
- 028 Lever Non Locking Pull - Parallel to Ports 1 & 2
- 031 Push Button*
- 032 Push Button, Panel Mount*
- 033 Push Button with Guard*
- 036 Palm Button*
- 037 Palm Button, Panel Mount*
- 038 Palm Button with Guard*

*Palm & Push Buttons are White (Standard). Available are Black, Blue, Green, Red, or Yellow. Specify Colour.
 114 Air Pilot (1/8" BSPP Pilot Port)

Stacking Body Accessories

End Plate Kit - For each gang one kit is required.
 TO ORDER - #M-01001-01P (1/4" BSPP)

Manifold Base Accessories

Manifold End Plate Kit - For each gang one kit is required.
 TO ORDER - #A2-5004-01P (1/4" BSPP)

Modifications

- 0004 All Bottom and Side Ports - Manifold Models
- 0009 bottom and Side Cylinder Ports - Manifold Models
- 0210 Additional Bottem Inlet - Manifold and Stacking Models
- 313P Inlet Isolation - Manifold Models
- 313E Exhaust Isolation - Manifold Models

Accessories

- A2-5004-01P Manifold End Plate Kit
- M-01001-01P Stacking End Plate Kit
- N-01003 Inlet Isolator Plate - Stacking
- N-01004 Exhaust Isolator Plate - Stacking



LARGE 3-WAY

All MAC large solenoid 3 way valves are solenoid pilot operated. The pilot of these valves is a balanced poppet, the main valve a balanced spool. Additionally, the pilot for the 52 series is a 4 way pilot design that maximises the shifting forces in both directions.

The valves can be divided into two groups: 52, 55, 56 series, & 57, 58 & 59 series.

Patents and Patents Pending

LARGE 3-WAY SOLENOID

52, 55 and 56 SERIES (Cv 1.1 to 6.2)

These valves can be supplied with remote air, remote air pilot, or mechanical operators. The electrical options and enclosures for the 52 series are the same as the 35 and 45 series. The solenoids, electrical options and enclosures for the 55 and 56 series are identical to the 100 series. The solenoids, electrical options and enclosures for the 55 and 56 series are identical to the 100 series.



52 SERIES

The 52 Series pilot is identical to the 400 Series pilot.



55 SERIES

The 55 Series pilot is identical to the 700 Series pilot.



56 SERIES

The 56 Series pilot is identical to the 100 Series manifold base mounted valve.

57, 58 and 59 SERIES (Cv 9.0 to 65.0)

The same pilot operates all 3 series and is identical to the 200 series manifold base mounted valve less the base.

The solenoids, electrical options and enclosures are identical to the 200 series. These valves can also be supplied with a remote air pilot block.



57 SERIES



58 SERIES



59 SERIES

INTERNAL/EXTERNAL PILOT

Internal pilot is used for main valve pressure of 20 to 120 PSI for the 52 series, 25 to 150 PSI for the 56, 57, 58, & 59 series and 30 to 150 PSI for the 55 series. External pilot is used when pressures are lower than the above, or when valves are used in vacuum applications.

CHANGING FROM INTERNAL TO EXTERNAL PILOT

52 SERIES: Cannot be field converted. Different bodies are required for internal pilot & external pilot.

55 SERIES: Rotate pilot adaptor 180 degrees and connect external pilot line to designated #10-32 or M5 connection provided.

The internal pilot passages are blocked from the pilot adaptor.

56, 57, 58, & 59 SERIES: Remove plug from external pilot connection. Remove check valve. Insert pipe plug in, internal pilot supply orifice. 1/8" tapped orifice is provided as standard on all valves except 56 series (1/16"). Connect external pilot to designated 1/4" external supply port (1/8" in case of the 56 & 59 series).

VACUUM APPLICATIONS

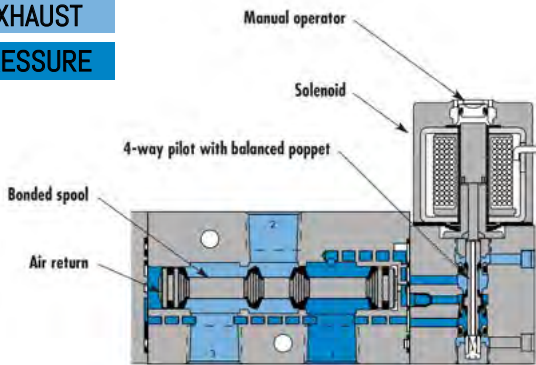
Use external pilot and connect vacuum source to exhaust port. Inlet may be left open to atmosphere or connected to pressure to provide a selector application (vacuum/pressure).

OPERATIONAL BENEFITS

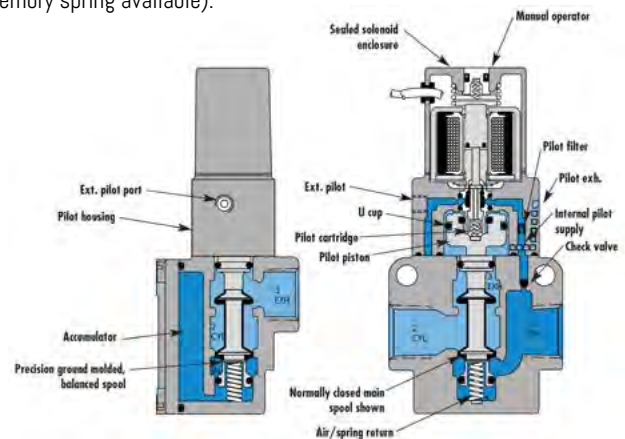
- Unique patented MACSOLENOID for fastest possible response times with its non-burnout feature on AC service.
- Balanced poppet pilot of valve for high flow, precise repeatability and constant operation.
- Balanced spool main valve unaffected by back pressure in the exhaust or by inlet restriction. May be plugged for 2 way operation.
- Large spool or piston for maximum shifting forces even at minimum operating pressure.
- One piece bonded seal spool for extended life and ease of maintenance.
- MAC spool and bore combination for wiping away contamination, eliminating sticking and for use on lubricated or non-lubricated service.
- Air/spring return for reliable constant shifting.
- A large checked accumulator which supplies the pilot and air/spring return for reliable, constant shifting even in the event of inlet pressure fluctuations.
- Seven valve functions in one valve.
- A triple rated coil for 120/60, 110/50 & 24VDC 6 watt (57, 58 & 59 series).
- Non-locking manual operators standard on all solenoid valves; other types of manual operators available.
- NEMA 4 solenoid enclosures except for grommet type. Other types of electrical enclosures, including external plug-in connectors can also be supplied.
- Optional low wattage DC solenoids down to 1watt. (52 series is 1.8w)
- Optional solenoid pilot valves for hazardous locations designed to meet UL & CSA standards for division 1, class I, Groups B, C, D and Class II, Groups E, F and G. (NEMA equivalent for Class 1 is NEMA 7; Class II is NEMA 9) (57, 58 & 59 series)
- Internal or external pilot available in all series.
- Optional surge suppression available.
- Indicator lights available on certain types of electrical enclosures.
- Filter for internal pilot.
- Air only return. 4 way pilot design to maximise shifting forces in both directions (memory spring available).

EXHAUST

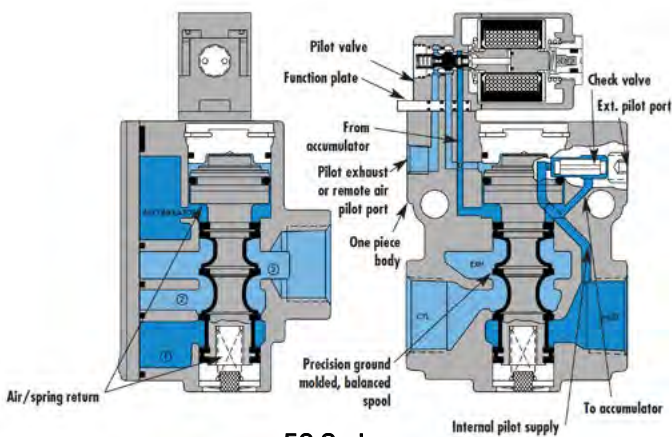
PRESSURE



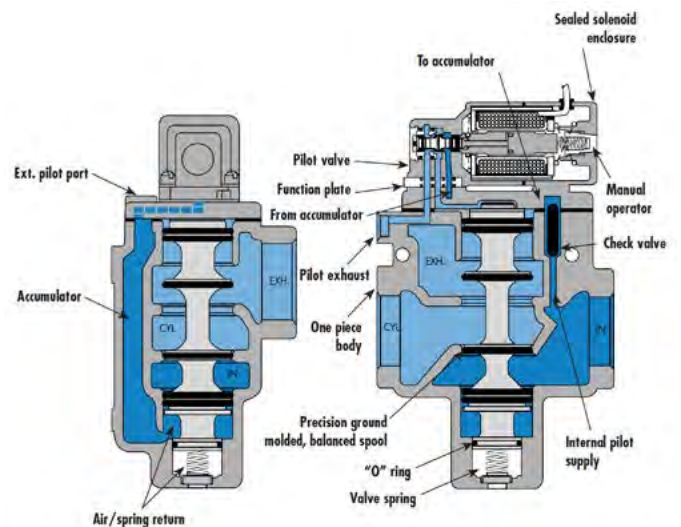
52 Series



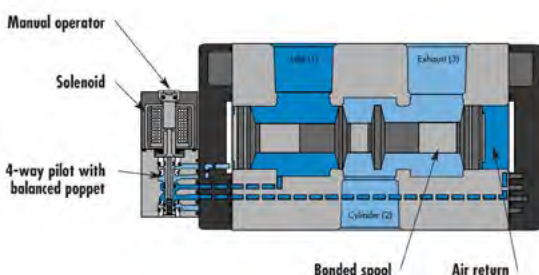
55 Series (N.C. Spool Shown)



56 Series



57/58/59 Series (N.C. Spool Shown)



67 Series

The MAC 52 series is a 3-way balanced spool valve pilot operated by a small direct operated 4-way solenoid valve - a one-off in air valve manufacturing. The 4-way pilot results in a low minimum operating pressure - no pistons - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. For more information please ask our team at Mac Valves Pacific.

Stock Part Number: 52A-14-D0A-DM-DDBJ-1JD

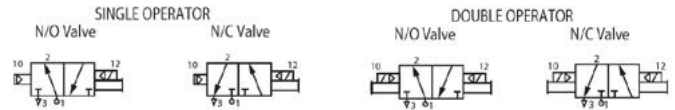
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 NO-NC	1/8" - 1/4"	1.5 Cv	Int. 20 to 120PSI, Vac 120 Ext. Pilot 120PSI	Inline

OPERATIONAL BENEFITS

- The 4-way pilot develops maximum shifting force both ways.
- Memory spring available.
- Balanced spool, immune to variations of pressure, also provides high flow.
- Short stroke with high flow.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Pilot with balanced poppet, high flow, short and consistent response times.
- Wiping effect eliminates sticking.
- Long service life.



52 SERIES



52 SERIES

52A - $\begin{matrix} X & X & - & X & X & X & - & XX \\ \hline 1 & 2 & 3 & 4 & 5 & 6 \end{matrix}$ - $\begin{matrix} D & XX & X & - & X & XX \\ \hline 7 & 8 & 9 & 10 \end{matrix}$

1 - Spool Type - Valve Function

- 1 Single operator, N.C. main
- 2 Double operator, N.C. main
- 3 Single operator, N.O. main
- 4 Double operator, N.O. main

2 - Body Type

- 1 Inline 3-port
- 3 Manifold Body
- 4 Inline 3-port with memory spring
- 6 Manifold body with memory spring

3 - Port Size And Thread Type

- C 1/8" BSPPL
- D 1/4" BSPPL

4 - Body Configurations

- 0 Inline

5 - Internal/External Pilot

- A Internal pilot
- B External pilot

6 - Pilot Body

- DM Muffled Exhaust DP Piped Exhaust

52 SERIES - DM PILOT OPTIONS

DM - $\begin{matrix} D & XX & X & - & X & XX \\ \hline 7 & 8 & 9 & 10 \end{matrix}$

7 - Voltage

JA 120/60, 110/50	JC 24/60, 24/50
JF 240/50	DA 24 VDC (54W)
DB 12 VDC (54W)	DE 12 VDC (12.7W) (MOD CLSF ONLY)
FA 12 VDC (1.8W)	DF 24 VDC (12.7W) (MOD CLSF ONLY)
FF 24 VDC (2.4W)	JF 240/50 (2.8w)

*Further Options Available

8 - Lead Wire Length

- A 18" Coil Leads J External Plug-In Connector
- * Longer leads available on request

9 - Manual Operator

- 0 No operator
- 1 Non-locking manual operator
- 2 Locking manual operator
- 3 Non-locking extended operator
- 4 Locking extended operator

10 - Electrical Connector

BA Grommet	JB Rectangular plug-in
JD Rectangular plug-in with light	JM Rectangular male only
JA Square Plug-In	JC Square Pug-In with light
JJ Square Male Only	KA Mini plug-in
KB Mini plug-in with diode	KC Mini plug-in w/M.O.V.
KD Mini plug-in with light	KE Mini plug-in w/light & diode
KF Mini plug-in w/light & M.O.V.	KJ Mini plug-in male
KG Mini plug-in w/LED light & diode	KL Mini plug-in male w/M.O.V.
KK Mini plug-in male only w/diode	

Complete Pilot Valve

DMB-DXXX-XXX-1 Pilot Valve (4-Way)

52 SERIES REMOTE AIR

52A - $\begin{matrix} \text{X} & \text{X} & \text{X} & \text{X} & \text{X} & \text{RA} \\ \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} \\ 1 & 2 & 3 & 4 & 5 & 6 \end{matrix}$

1 - Spool Type

- 1 Single Operator Normally Closed
- 2 Double Operator Normally Closed
- 3 Single Operator Normally Open
- 4 Double Operator Normally Open

2 - Body Type

- 1 Inline 3-port
- 3 Manifold Body
- 4 Inline 3-port with memory spring
- 6 Manifold body with memory spring

3 - Port Size And Thread Type

- C 1/8" BSPPL
- D 1/4" BSPPL

4 - Configuration

- 0 Inline or Manifold Body

5 - Pilot Port

- J Pilot Port Size M5 (Metric)

6 - Style

- RA Remote Air

*Note: For Single RA Operator Valves, Use MOD 1493

52 SERIES CIRCUIT BAR (CBM)

CBM052A - $\begin{matrix} \text{XX} & \text{X} & \text{X} & \text{X} & \text{X} & \text{XX} & 9 \\ \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} \\ 1 & 2 & 3 & 4 & 5 & & \end{matrix}$ Valves and cover plates assembled to bar

1 - Spacing

- 00 19.5mm Spacing
- 01* 21mm Spacing

2 - Configuration

- A Inline Body
- B Inline Body with Flow Control

3 - Style

- A Standard Bar
- B Add-On Version (Includes End Plate)
- E* Add-On Base

4 - Port Size & Thread Type

- B 3/8" BSPPL
- C 3/8" BSPTR

5 - Stations

- Number of Stations (02, 03, 04, etc.)

Accessories

- M-52001-01P Right Hand End Plate Kit

*NOTE: "E" Option is considered a Middle Station

52 SERIES CIRCUIT BAR (CBP)

CBP052A - $\begin{matrix} \text{XX} & \text{X} & \text{X} & \text{X} & \text{X} & \text{XX} & 9 \\ \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} \\ 1 & 2 & 3 & 4 & 5 & & \end{matrix}$ Valves and cover plates assembled to bar

1 - Spacing

- 00 19.5mm Spacing
- 01* 21mm Spacing

2 - Configuration

- A Side Port
- B Bottom Port
- C Side Port with Flow Control

3 - Style

- A Standard Bar
- B Add-On Version (Includes End Plate)
- E* Add-On Base

4 - Port Size & Thread Type

- B 1/8" BSPPL
- E 1/4" BSPPL

5 - Stations

- Number of Stations (02, 03, 04, etc.)

Accessories

- M-52001-01P Right Hand End Plate Kit
- M-52003 Blank Station Kit for Manifold Body

*NOTE: "E" Option is considered a Middle Station



53 SERIES

The MAC 53 series is a 3-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot. The 4-way pilot means a low minimum operating pressure - no pistons or return springs - results in minimal resistance to shifting. The balanced design in the pilot means shifting forces are constantly high and response times are repeatable regardless of inlet pressure fluctuations. For more information please ask our team at Mac Valves Pacific.

Stock Part Number: 53A-1AD-DM-DDAJ-1JD

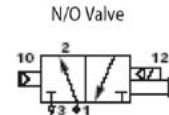
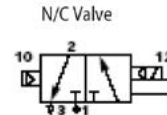
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC	1/4" - 3/8"	2.0 Cv	Int. 20-120PSI (Mem. spring op.: 35-120 PSI) Ext. pilot: Vac to 120PSI	Inline



53 SERIES

OPERATIONAL BENEFITS

- The 4-way pilot develops maximum shifting force both ways.
- Memory spring available.
- Balanced spool, immune to variations of pressure, also provides high flow.
- Short stroke with high flow.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Pilot with balanced poppet, high flow, short and consistent response times.
- Wiping effect eliminates sticking
- Long service life.



53 SERIES VALVE & BODY OPTIONS

53A - X X X - XX - D XX X - X XX
 1 2 3 4 G 5 6 7 8

1 - Spool Type

- 0 Base Only
- 1 Single Operator Normally Closed
- 2 Single Operator Normally Open
- 5 Single Operator Normally Closed with Memory Spring
- 6 Single Operator Normally Open with Memory Spring

2 - Internal/External Pilot

Base Only Valve Only / Valve & Base

- A Internal Pilot
- B External Pilot from "10" End
- C External Pilot from "12" End

3 - Port Size And Thread Type

- Ext. Pilot/Int. Pilot
- 0 Valve Only
 - C 1/4" BSPPL
 - D 3/8" BSPPL

4 - Pilot Body

- DM Muffled Pilot Exhaust
- GM Muffled Pilot Exhaust

53 SERIES - DM SOLENOID PILOT OPTIONS

D XX X - X XX
 5 6 7 8

5 - Voltage

- | | |
|-------------------|-----------------------------------|
| JA 120/60, 110/50 | JC 24/60, 24/50 |
| JF 240/50 | DA 24 VDC (54W) |
| DB 12 VDC (54W) | DE 12 VDC (12.7W) (MOD CLSF ONLY) |
| FA 12 VDC (1.8W) | DF 24 VDC (12.7W) (MOD CLSF ONLY) |
| FF 24 VDC (24W) | JF 240/50 (2.8w) |

*Further Options Available

6 - Lead Wire Length

- A 18" Coil leads
- J External plug-in lead

*Longer leads available on request

7 - Manual Operator

- | | |
|-----------------------------|-------------------------------|
| 0 No operator | 1 Non-locking manual operator |
| 2 Locking manual operator | 3 Non-locking ext. operator |
| 4 Locking extended operator | |

8 - Electrical Connector

- | | |
|-------------------------------------|---------------------------------|
| BA Grommet | JB Rectangular plug-in |
| JD Rectangular plug-in with light | JM Rectangular male only |
| JA Square Plug-In | JC Square Plug-In with light |
| JJ Square Male Only | KA Mini plug-in |
| KB Mini plug-in with diode | KC Mini plug-in w/M.O.V. |
| KD Mini plug-in with light | KE Mini plug-in w/light & diode |
| KF Mini plug-in w/light & M.O.V. | KJ Mini plug-in male |
| KG Mini plug-in w/LED light & diode | KL Mini plug-in male w/M.O.V. |
| KK Mini plug-in male only w/diode | |

*Further Options Available

Complete Pilot Valve

- DMB-DXXX-XXX-1 Pilot Valve

53 SERIES - SINGLE REMOTE AIR

53A - $\begin{matrix} X & X & X \\ | & | & | \\ 1 & 2 & 3 \end{matrix}$ - $\begin{matrix} DM \\ | \\ 4 \end{matrix}$ - $\begin{matrix} RA1 \\ | \\ 5 \end{matrix}$ $\begin{matrix} X \\ | \\ 6 \end{matrix}$

1 - Spool Type

- 0 Base Only
- 1 Single Operator Normally Closed
- 2 Single Operator Normally Open
- 5 Single Operator Normally Closed with Memory Spring
- 6 Single Operator Normally Open with Memory Spring

2 - Internal/External Pilot

- A Internal Pilot
- B External Pilot from "10" End
- C External Pilot from "12" End

3 - Cylinder Port Size And Thread Type

- 0 Valve Only
- C 1/4" BSPPL
- D 3/8" BSPPL

4 - Pilot Body

- DM Muffled Exhaust

5 - Remote Pilot Operator

- RA1 Pilot Operator

6 - Pilot Port Size and Thread Type

- 4 1/8" BSPPL

53 SERIES - DOUBLE REMOTE AIR

53A - $\begin{matrix} X & X & X \\ | & | & | \\ 1 & 2 & 3 \end{matrix}$ - RA

1 - Spool Type

- 0 Base Only
- 3 Double Operator Normally Closed
- 4 Double Operator Normally Open

2 - External Pilot

- D Remote Air

3 - Cylinder Port Size And Thread Type

- 0 Valve Only
- C 1/4" BSPPL
- D 3/8" BSPPL

Note: For Single Operator Valves, Use MOD 1493

53 SERIES - CIRCUIT BAR (EBM)

EBM053A - $\begin{matrix} XX & X & X & X \\ | & | & | & | \\ 1 & 2 & 3 & 4 \end{matrix}$ - $\begin{matrix} XX \\ | \\ 5 \end{matrix}$ - 9

1 - Spacing

- 00 254mm Spacing

2 - Configuration

- A Side Port
- B Bottom Port

3 - Style

- A Standard Bar Internal Pilot
- B Standard Bar External Pilot

4 - Port Size & Thread Type

- D 1/4" BSPPL
- E 3/8" BSPPL

5 - Stations

- Number of Stations (02, 03, 04, etc.)

Plate Kit

- M-52001-01P Right Hand End
- M-52003 Blank Station Kit for Manifold Body

*NOTE: "E" Option is considered a Middle Station



54 SERIES

The MAC 54 series is a 3-way balanced spool valve piloted by a small direct operated balanced poppet valve. This is an extremely versatile valve: **1:** It can be converted for use in vacuum. **2:** It can be changed from a normally closed function to a normally open function. Huge flow in a compact package size is the best way to describe this valve. **3:** It can also be converted to a remote air operated valve by removing the solenoid pilot assembly - just to name a few. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 54A-AA-000-DM-DDAJ-1JM

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC	3/8"-3/4"	4.1 Cv	Ext. Vac to 120PSI Int. 20 to 120PSI	Inline



54 SERIES

54A - X X - X X X - XX - DXX X - X XX
 1 2 3 4 5 4 Way pilot Valve (below)

1 - Function

- O Base Only
- B Single op. N/O Non Plug In
- D Single op. N/O Plug In
- A Single op. N/C Non Plug In
- C Single op. N/C Plug In

2 - Body Type

- O Base Only
- A Base mount Body Internal Pilot
- B Base mount Body - Ext. Pilot (12 End)
- C Base mount Body - Ext. Pilot (10 End)
- E* Base mount Body - Int. Pilot (Pilot Exh. out main exh.)
- F* Base mount Body - Ext. Pilot (12 End (Pilot Exh. out main exh.))
- G* Base mount Body - Ext. Pilot (10 End (Pilot Exh. out main exh.))

*Note: Must use "DU" Pilot Body - Main exhaust cannot be restricted

4-WAY PILOT VALVE

XX - DXX X - X XX
 6 7 8 9 10

6 - Pilot Style

- DM Muffled Exhaust
- DU Universal Pilot, Pilot exhaust out main exhaust
- DP Piped Exhaust

7 - Voltage

- JA 120/160, 110/50 (2.9w)
- JF 240/50 (2.8w)
- DB 12VDC (54w)
- DF* 12VDC (12.7w)
- FB 24VDC (1.8w)
- FF 24VDC (24w)
- JC 24/60, 24/50 (3.7w)
- DA 24VDC (54w)
- DE* 12VDC (12.7w)
- FA 12VDC (1.8w)
- FE 12VDC (24w)

8 - Lead Wire Length plug-in Valve Base

- J Plug-In, Non Plug-In valve/Base
- A 18" Flying Lead

3 - Port Size And Thread Type

- O Base Mount
- D 3/8" BSPPL
- E 1/2" BSPPL
- F 3/4" BSPPL

4 - Base Type & Configuration

- O Base Mount
- 1 Individual Base side ports - Non Plug-In
- 2 Individual Base Bottom cyl. port (No side cyl. port)

5 - Base Type

- O Valve Only
- B Plug In Base
- A Non Plug In Base

9 - Manual Operator

- 0 No manual operator
- 1 Recessed non locking operator
- 2 Recessed locking operator
- 3 Ext. non locking operator
- 4 Extended locking operator

10 - Electrical Connection Non Plug-In Valve/Base

- BA Grommet
- CA Conduit 1/2"NPS
- External Plug-In Valve
- FM Plug-In
- JD Rect. Plug-In w/ Light
- JA Square Plug-In No Light
- JJ Square Male Only
- KD* Mini Plug-In w/ Light
- JB Rect. Plug-In - No Light
- JM Rect. Male On
- JC Square Plug-In w/ Light
- KA Mini Plug-In no Light
- KJ Mini Plug-In Male Only

*M.O.V., Diode & Light are in female connector in these options.

*Further Options Available

54 SERIES DOUBLE REMOTE AIR

54A - X X - X X X - RA
 1 2 3 4 5

1 - Function

- O Base Only
- E Dbl. Oper. N/C
- F Dbl. Oper. N/O

2 - Body Type

- O Base Only
- D Remote Air

3 - Port Size And Thread Type

- O Valve Only
- D 3/8" BSPPL
- E 1/2" BSPPL
- F 3/4" BSPPL

4 - Base Type & Configuration

- O Valve Only
- 1 Indiv. Base Side Ports
- 2 Indiv. Base Bottom Cyl. Port Only (No side Cyl. Port)

5 - Base Type

- O Valve Only
- C Remote Air

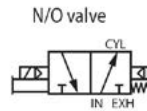
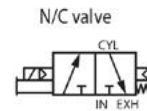
The MAC 55 series is a 3-way balanced spool valve piloted by a small direct operated balanced poppet valve. This is an extremely versatile valve: **1:** It can be converted for use in vacuum. **2:** It can be changed from an internal pilot to external by simply rotating the adapter between the pilot and main valve bodies. **3:** It can also be converted to a remote air operated valve by removing the solenoid pilot assembly - just to name a few. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 55B-14-PI-501JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 N/O-N/C	1/4"-3/8"	2.2 Cv	Ext. Vac. to 150PSI Int. 30 to 150PSI	Inline

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- The piston (booster) provides maximum shifting forces.
- Checked accumulator guarantees maximum pilot pressure.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



55 SERIES

55 SERIES

55B - X X - XX - XX X XX
 T T T T T T T
 1 2 3 4 5 6

1 - Valve Function

- 1 Normally Closed
- 2 Normally Open

2 - Port Size

- 3 1/4" BSPP
- 4 3/8" BSPP

3 - Port Size

- PI Internal Pilot
PE External Pilot

4 - Voltage

- AC Voltage
- 11 120/60, 110/50
 - 22 24/50-60
 - 39 240/50
- DC Voltage
- 50 24VDC (6W)
 - 55 12VDC (6W)
 - 59 24VDC (2.5W)
 - 60 12VDC (8.5)
 - 61 24VDC (8.5)

*Further Options Available

5 - Manual Operator Indicator Lights

- 0 No Operator
- 1 Non-Locking Recessed (Std.)
- 2 Locking Recessed
- 3 Non-Locking Extended
- 4 Locking Extended

6 - Enclosure

- BA Grommet
CA Conduit 1/2" NPS
JA Square - No Light
JB Rectangle - No Light
JC Square w/Light
JD Rectangle w/Light

* - Lights are available for 120/60, 110/50 or 24VDC with JIC enclosure only (AA).

Modifications

- Diverter models
- | | |
|----------|-------------------------|
| MOD 0575 | Diverter Internal pilot |
| | Diverter External pilot |
| MOD 0158 | Heavy Duty Spring |

Remote Air Pilot Operated Models

- Normally closed
- | | |
|-----------|------|
| 55B-13-RA | 1/4" |
| 55B-14-RA | 3/8" |
- Normally open
- | | |
|-----------|------|
| 55B-23-RA | 1/4" |
| 55B-24-RA | 1/4" |



The MAC 56 series is a 3-way balanced spool valve piloted by our 100 series.

This is an extremely versatile valve: **1:** It can be converted for use in vacuum. **2:** It can be changed from a normally closed function to a normally open function by simply rotating a function plate between the pilot and main valve bodies. **3:** It can also be converted to a remote air operated valve by removing the solenoid pilot assembly - just to name a few. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 56C-16-392JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 N/O-N/C	3/8"-1/2"-3/4"	5.7 Cv	Ext. Vac. to 150PSI Int. 25 to 150PSI	Inline

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- Large spool area provides maximum shifting forces.
- Checked accumulator guarantees maximum pilot pressure.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.

N/C pilot - NC spool



N/O pilot - N/C spool



56 SERIES

56 SERIES

56 C - $\begin{matrix} X & X & - & XX & X & XX \\ T & T & & T & T & T \\ 1 & 2 & & 3 & 4 & 5 \end{matrix}$

1 - Valve Function

- 1 Internal Pilot, N.C. Pilot, N.C. Main Spool
- 2 Internal Pilot, N.O. Pilot, N.C. Main Spool
- 3 External Pilot, N.C. Pilot, N.C. Main Spool
- 4 External Pilot, N.O. Pilot, N.C. Main Spool
- 5 Remote Air Pilot Operated, N.C. Main Spool
- 6 Internal Pilot, N.C. Pilot, N.O. Main Spool
- 7 External Pilot, N.C. Pilot, N.O. Main Spool
- 8 Remote Air Pilot, N.O. Main Spool

2 - Port Size

- | | |
|-------------|-------------|
| 5 3/8" BSPP | 6 1/2" BSPP |
| 8 3/4" BSPP | |

3 - Voltage

AC Voltage	DC Voltage
11 120/60, 110/50	50 24VDC (6W)
12 240/60, 220/50	55 12VDC (6W)
22 24/50-60	59 24VDC (2.5W)
39 240/50	60 12VDC (8.5)
*Further Options Available	61 24VDC (8.5)

4 - Manual Indicator Lights

- | | |
|--------------------|-------------------------------|
| 0 No Operator | 1 Non-Locking Recessed (Std.) |
| 2 Locking Recessed | 3 Non-Locking Extended |
| 4 Locking Extended | |

5 - Enclosure

- | | |
|----------------------|-------------------------|
| BA Grommet | CA Conduit 1/2" NPS |
| JA Square - No Light | JB Rectangle - No Light |
| JC Square w/Light | JD Rectangle w/Light |

*Lights are available for 120/60, 110/50 or 240/60, 220/50 or 24VDC with JIC enclosure only (AA).

56 SERIES - Remote Air Pilot Operated Models

56 C - $\begin{matrix} X & X & - & RA \\ T & T & & \\ 1 & 2 & & \end{matrix}$

1 - Function

- 5 Normally Closed
- 8 Normally Open

2 - Port Size

- 5 3/8" BSPP
- 6 1/2" BSPP
- 8 3/4" BSPP

Accessories

- | | |
|---------|-------------------------------|
| R-59003 | Remote Air Pilot Block |
| M-00012 | Explosion Proof Adapter Plate |

Pilot Valve

- 130B - XX X XX

Modifications

- | | |
|----------|-------------------|
| MOD 0158 | Heavy Duty Spring |
|----------|-------------------|

For "External Pilot", substitute "RA" for "RE" in part number

The MAC 57 series is a 3-way balanced spool valve piloted by our 200 series (which means this large 3-way valve can also be ordered with the 200 series hazardous location version as a pilot - giving it the same standard). This is an extremely versatile valve: **1:** It can be converted for use in vacuum. **2:** It can be changed from a normally closed function to a normally open function by simply rotating a function plate between the pilot and main valve bodies. **3:** It can also be converted to a remote air operated valve by removing the solenoid pilot assembly - just to name a few. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

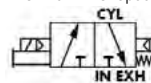
Stock Part Number: 57D-16-252JC

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 NO-NC	1/2"-3/4"-1"	174 Cv	Ext. Vac. to 150PSI Int. 25 to 150PSI	Inline

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- Large spool area provides maximum shifting forces.
- Checked accumulator guarantees maximum pilot pressure.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.

N.C.Pilot - N.C. Spool



N.O.Pilot - N.C. Spool



N.C.Pilot - N.O. Spool



57 SERIES

57 SERIES

57 D - $\begin{matrix} X & X & - & XX & X & XX \\ T & T & & T & T & T \\ 1 & 2 & & 3 & 4 & 5 \end{matrix}$

1 - Valve Function

- 1 Internal Pilot, N.C. Pilot, N.C. Main Spool
- 2 Internal Pilot, N.O. Pilot, N.C. Main Spool
- 3 External Pilot, N.C. Pilot, N.C. Main Spool
- 4 External Pilot, N.O. Pilot, N.C. Main Spool
- 5 Remote Air Pilot Operated, N.C. Main Spool
- 6 Internal Pilot, N.C. Pilot, N.O. Main Spool
- 7 External Pilot, N.C. Pilot, N.O. Main Spool
- 8 Remote Air Pilot, N.O. Main Spool

2 - Port Size

- 4 1/2" BSPP
- 5 3/4" BSPP
- 6 1" BSPP

3 - Voltage

AC Voltage	DC Voltage
11 120/60, 110/50	50 24VDC (6W)
22 24/50-60	55 12VDC (6W)
25 240/50	60 12VDC (8.5)
	61 24VDC (8.5)

4 - Manual Operator Indicator Lights

- | | |
|--------------------|-------------------------------|
| 0 No Operator | 1 Non-Locking Recessed (Std.) |
| 2 Locking Recessed | 3 Non-Locking Extended |
| 4 Locking Extended | |

5 - Enclosure

- | | |
|--------------------------|-----------------------------------|
| BA Grommet | CC Conduit 1/2" NPT |
| EA Hazardous Location** | BA Grommet |
| CA Conduit 1/2" NPS | CC Conduit 1/2" NPT (CSA Threads) |
| JA Square Din - No Light | JC Square Din with Light |
| JJ No Plug | |

** - Hazardous Location enclosure supplied with no operator only ("0").
DC not available below 6 watts.

57 SERIES - Remote Air Pilot Operated Models

57 D - $\begin{matrix} X & X & - & RA \\ T & T & & \\ 1 & 2 & & \end{matrix}$

1 - Function

- 5 Normally Closed
- 8 Normally Open

2 - Port Size

- 4 1/2" BSPP
- 5 3/4" BSPP
- 6 1" BSPP

For "External Pilot", substitute "RA" for "RE" in part number

Accessories

- | | |
|---------|------------------------|
| R-59003 | Remote Air Pilot Block |
|---------|------------------------|

Pilot Valve

- | | |
|----------------|-----------------------|
| 250B - XX X XX | (200 Series) Standard |
| 130B - XX X XX | (100 Series) Optional |

The MAC 58 series is a 3-way balanced spool valve piloted by our 200 series (which means this large 3-way valve can also be ordered with the 200 series hazardous location version as a pilot - giving it the same standard). This is an extremely versatile valve:

1: It can be converted for use in vacuum. **2:** It can be changed from a normally closed function to a normally open function by simply rotating a function plate between the pilot and main valve bodies. **3:** It can also be converted to a remote air operated valve by removing the solenoid pilot assembly - just to name a few. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 58D-16-501JC

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 NO-NC	1"-1 1/4"-1 1/2"	26.0 Cv	Ext. Vac. to 150PSI Int. 25 to 150PSI	Inline

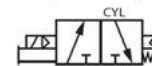
OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- Large spool area provides maximum high flow.
- Checked accumulator provides pilot & spring with consistent air.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



58 SERIES

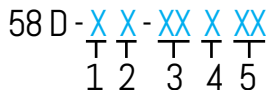
N/C pilot - NC spool



N/O pilot - N/C spool



58 SERIES



1 - Valve Function

- 1 Internal Pilot, N.C. Pilot, N.C. Main Spool
- 2 Internal Pilot, N.O. Pilot, N.C. Main Spool
- 3 External Pilot, N.C. Pilot, N.C. Main Spool
- 4 External Pilot, N.O. Pilot, N.C. Main Spool
- 5 Remote Air Pilot Operated, N.C. Main Spool
- 6 Internal Pilot, N.C. Pilot, N.O. Main Spool
- 7 External Pilot, N.C. Pilot, N.O. Main Spool
- 8 Remote Air Pilot, N.O. Main Spool

2 - Port Size

- 4 1" BSPP
- 5 1 1/4" BSPP
- 6 1 1/2" BSPP

3 - Voltage

AC Voltage	DC Voltage
11 120/60, 110/50	50 24VDC (6W)
22 24/50-60	55 12VDC (6W)
25 240/50	60 12VDC (8.5)
*Further Options Available	61 24VDC (8.5)

4 - Manual Indicator Lights

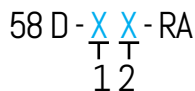
- 0 No Operator
- 1 Non-Locking Recessed (Std.)
- 2 Locking Recessed
- 3 Non-Locking Extended
- 4 Locking Extended

5 - Enclosure

- BA Grommet
- CA Conduit 1/2" NPS
- CC Conduit 1/2" NPT
- EA Hazardous Location**
- JA Square Din - No Light
- JC Din with Light

** - Hazardous Location enclosure supplied with no operator only ("0"). DC not available below 6 watts.

58 SERIES - Remote Air Pilot Operated Models



1 - Function

- 5 Normally Closed
- 8 Normally Open

2 - Port Size

- 4 1" BSPP
- 5 1 1/4" BSPP
- 6 1 1/2" BSPP

For "External Pilot", substitute "RA" for "RE" in part number

Accessories

- R-59003 Remote Air Pilot Block
- M-00012 Explosion Proof Adapter Plate

Pilot Valve

- 250B - XX X XX

Modifications

- 0309 58C Spool Position Indicator
- 0523 Contaminated Atmosphere
- 0575 58C Diverter
- 0158 Heavy Duty Spring

The MAC 59 series is a 3-way balanced spool valve piloted by our 200 series (which means this large 3-way valve can also be ordered with the 200 series hazardous location version as a pilot - giving it the same standard). This is an extremely versatile valve: **1:** It can be converted for use in vacuum. **2:** It can be changed from a normally closed function to a normally open function by simply rotating a function plate between the pilot and main valve bodies. **3:** It can also be converted to a remote air operated valve by removing the solenoid pilot assembly - just to name a few. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 59B-16-112JC

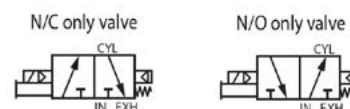
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 NO-NC	2"-2 1/2"	60.0 Cv	Ext. Vac. to 150PSI Int. 25 to 150PSI	Inline



59 SERIES

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- Large spool area provides maximum shifting forces.
- Checked accumulator guarantees maximum pilot pressure.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



59 SERIES

59B - X X - XX X XX
 1 2 3 4 5

1 - Valve Function

- 1 Internal Pilot, N.C. Pilot, N.C. Main Spool
- 2 Internal Pilot, N.O. Pilot, N.C. Main Spool
- 3 External Pilot, N.C. Pilot, N.C. Main Spool
- 4 External Pilot, N.O. Pilot, N.C. Main Spool
- 5 Remote Air Pilot Operated, N.C. Main Spool
- 6 Internal Pilot, N.C. Pilot, N.O. Main Spool
- 7 External Pilot, N.C. Pilot, N.O. Main Spool
- 8 Remote Air Pilot, N.O. Main Spool

2 - Port Size

- 5 2" BSPP
- 6 2 1/2" BSPP

3 - Voltage

AC Voltage	DC Voltage
11 110/50	50 24VDC (6W)
22 24/50-60	55 12VDC (6W)
25 240/50	60 12VDC (8.5)
*Further Options Available	61 24VDC (8.5)

4 - Manual Operator Indicator Lights

- 0 No Operator
- 1 Non-Locking Recessed (Std.)
- 2 Locking Recessed
- 3 Non-Locking Extended
- 4 Locking Extended

5 - Enclosure

AA JIC w/1/2" NPS Conduit	BA Grommet
CC Conduit 1/2" NPT	EA Hazardous Location**
JA Square Din - No Light	JC Square Din with Light

* - Lights are available for 120/60, 110/50 or 240/60, 220/50 or 24VDC with JIC enclosure only (AA).

** - Hazardous Location enclosure supplied with no operator only ("0"). DC not available below 6 watts.

59 SERIES - Remote Air Pilot Operated Models

59D - X X - RA
 1 2

1 - Function

- 5 Normally Closed

2 - Port Size

- 4 1" BSPP
- 5 1 1/4" BSPP
- 6 1 1/2" BSPP

For "External Pilot", substitute "RA" for "RE" in part number

Accessories

R-59003	Remote Air Pilot Block
M-00012	Explosion Proof Adapter Plate

Pilot Valve

250B - XX X XX

Modifications

0523	Contaminated Atmosphere
0575	58C Diverter
0158	Heavy Duty Spring

67 SERIES

The MAC 67 series is a 3-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons or springs - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. For more information please ask our team at Mac Valves Pacific.

Stock Part Number: 67A-A1-DAA-DM-DDAJ-1JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 NO-NC	3/4 - 1"	20.0 Cv	Ext. Vac. to 150PSI Int. 20 to 150PSI	Inline

OPERATIONAL BENEFITS

- The 4-way pilot develops maximum shifting force both ways.
- Memory spring available.
- Balanced spool, immune to variations of pressure, also provides high flow.
- Short stroke with high flow.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Pilot with balanced poppet, high flow, short and consistent response times.
- Wiping effect eliminates sticking.



67 SERIES

67A - X X - X X X - XX - D XX X - X XX
1 2 3 4 5 6 7 8 9 10

1 - Spool Type

- A Single Operator - Normally Closed
- B Double Operator - Normally Closed
- C Single Operator - Normally Open
- D Double Operator - Normally Open
- G Single Operator - Universal Spool
- H Double Operator Universal Spool

2 - Spool Return

- 1 Standard Return
- 2 Standard Return w/ Memory Spring
- 3 Single Remote Air (w/ air spring return)
- 4 Double Remote Air

3 - Port Size & Thread Type

- C 3/4" BSPPL
- D 1" BSPPL
- G O-Ring Mount - Bottom Port

4 - Pilot Exhaust / Remote Air

- A Standard Pilot Exhaust
- R Remote Air

5 - Internal / External Pilot

- A Internal Pilot
- B External Pilot

67 SERIES - PILOT VALVE OPTIONS (If RA or RE - 7, 8, 9, & 10 don't apply)

XX - D XX X - X XX
6 7 8 9 10

6 - Pilot Style / Remote Air

- DM Pilot Valve w/muffled exhaust
- RA Remote Air
- RE Remote External

7 - Voltage

- JA 120/60, 110/50
- JF 240/50
- DB 12 VDC (54W)
- DF 24 VDC (12.7W)(CLSF)
- FF 24 VDC (24W)
- JC 24/60, 24/50
- DA 24 VDC (54W)
- DE 12 VDC (12.7W)(CLSF)
- FE 12 VDC (24W)

8 - Lead Wire Length

- 0 No Wires - Plug Option
- A 18" Coil Leads

9 - Manual Operator

- 0 No Operator
- 1 Non-Locking Manual Operator
- 2 Locking Manual Operator
- 3 Non-Locking Extended Manual Operator
- 4 Locking Extended Manual Operator

10 - Electrical Connector

- BA Grommet
- JB Rectangular Plug - No Light
- JD Rectangular Plug - w/Light

Solenoid and Cover Assembly

- DXXX - XXX1

Complete Pilot Valve

- DMB-DXXX-XXX1

Note: Low Wattage Available As Complete Valves Only

68 SERIES

The MAC 68 series is a 3-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons or springs - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

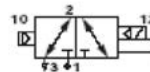
Stock Part Number: 68A-A1-EAA-JDAA-1BA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 NO-NC	1"-1 1/4"-1 1/2"	31.0 Cv	Ext. Vac. to 150PSI Int. 20 to 150PSI	Inline

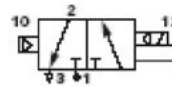
OPERATIONAL BENEFITS

- The 4-way pilot develops maximum shifting forces both ways.
- Balanced spool, immune to variations of pressure, highflow.
- Bonded spool with minimum friction, shifting in a glass like finished bore.
- Pilot with balanced poppet, high flow, and short response times.

Single Operator Universal Valve

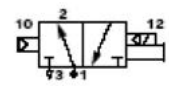


Single Operator N/C Valve



68 SERIES

Single Operator N/O Valve



68 SERIES

68A - X X - X X X - J XX X - X XX (-G)
 1 2 3 4 5 6 7 8 9 10 11

1 - Spool Type

- A Single Operator - N/C C Single Operator - N/O
- G Single Operator - Universal Spool

2 - Spool Return

- 1 Standard Return

3 - Port Size & Thread Type

- D 1" BSPP E 1 1/4" BSPP
- F 1 1/2" BSPPL M O-Ring Mount - Bottom Port

4 - Pilot Exhaust

- A Standard Pilot Exhaust
- B Pilot Exhaust Out Main Exhaust

5 - Internal / External Pilot

- A Internal Pilot
- B External Pilot

68 SERIES - SOLENOID OPTIONS

J XX X - X XX (-G)
 6 7 8 9 10 11 - When ground is required

6 - Operator

- J Solenoid

7 - Voltage

- AA 240/50 AC 24 VAC (54W)
- DA 24 VDC (54W) DB 12 VDC (54W)
- DE 24 VDC (1.8W) DF 12 VDC (1.8W)

*Requires Electrical Cover w/ Rectifier

8 - Lead Wire Length

- O No Lead Wires A 18" Leads

9 - Manual Operator

- 0 No Operator 1 Non-Locking Recessed
- 2 Locking Recessed 3 Non-Locking Extended
- 4 Locking Extended

10 - Electrical Cover Connection

- BA Flying Leads JB Rectangular Connect (No Light)
- JD Rectangular Connector (w/ Light)
- KD DIN Plug (w/ Light) KA Mini DIN Plug - (No Light)

Pilot Valve (For Standard Pilot Exhaust)

- 46A-111-JXXX-XXX(G)

68 SERIES - (REMOTE AIR)

68A - X X - X X X - XX
 1 2 3 4 5 6 - When ground is required

1 - Spool Type

- A Single Operator - N/C B Double Operator - N/C
- C Single Operator - N/O D Double Operator - N/O

2 - Spool Return

- 3 Sgl. Remote Air (w/ Air Spring Return)
- 4 Dbl. Remote Air

3 - Port Size & Thread Type

- D 1" BSPP E 1 1/4" BSPP
- F 1 1/2" BSPP M O-Ring Mount - Bottom Port

4 - Configuration

- R Remote Air

5 - Internal / External Pilot

- A Internal Pilot B External Air Spring or Double Remote Air

6 - Internal / External Air Spring

- RA Single Remote Air w/Internal Air Spring Return or Double Remote Air
- RE Single Remote Air w/External Air Spring Return

69 SERIES

The MAC 69 series is a 3-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons or springs - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are constantly high and response times are repeatable regardless of inlet pressure fluctuations. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 69A-A1A-EAB-JDA0-2JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 & 2/2 NO-NC	1 1/2"-2"-2 1/2"	60.0 Cv	Ext. Vac. to 120PSI Int. 20 to 120PSI	Inline

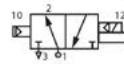
OPERATIONAL BENEFITS

- The 4-way pilot develops maximum shifting force both ways.
- Balanced spool, immune to variations of pressure, also provides high flow.
- Short stroke with high flow.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Pilot with balanced poppet, high flow, short and consistent response times.
- Wiping effect eliminates sticking and contamination.

Single Operator N/C Valve



Single Operator N/O Valve



69 SERIES

69 SERIES

69A - $\overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{J}}{\underset{\text{T}}{\text{X}}} \overset{\text{XX}}{\underset{\text{T}}{\text{X}}} \overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{XX}}{\underset{\text{T}}{\text{X}}} (-\text{G})$
 1 2 3 4 5 6 7 8 9 10 11

1 - Spool Type

- A Single Operator - Normally Closed
- C Single Operator - Normally Open

2 - Spool Return

- 1 Standard Return

3 - Port Size & Thread Type

- D 1 1/2" BSPPL E 2" BSPPL
- F 2 1/2" BSPPL M O-Ring Mount

4 - Pilot Exhaust / Remote Air

- A Standard Pilot Exhaust
- B Pilot Exhaust Out Main Exhaust

5 - Internal / External Pilot

- A Internal Pilot
- B External Pilot

69 SERIES - SOLENOID OPTIONS

$\overset{\text{J}}{\underset{\text{T}}{\text{X}}} \overset{\text{XX}}{\underset{\text{T}}{\text{X}}} \overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{X}}{\underset{\text{T}}{\text{X}}} \overset{\text{XX}}{\underset{\text{T}}{\text{X}}} (-\text{G})$
 6 7 8 9 10 11

6 - Operator

- J Solenoid

7 - Voltage

- AA 240/50
- AC 24 VAC (54W) (Req: Electrical Cover w/ Rectifier)
- DA 24 VDC (54W) DB 12 VDC (54W)
- DC 24 VDC (24W) DD 12 VDC (24W)
- DE 24 VDC (1.8W) DF 12 VDC (1.8W)

8 - Lead Wire Length

- 0 No Leads Wires A 18" Leads

9 - Manual Operator

- 0 No Operator 1 Non-Locking Recessed
- 2 Locking Recessed 3 Non-Locking Extended
- 4 Locking Extended

10 - Electrical Cover Connection

- BA Flying Leads
- JB Rectangular Connector - No Light
- JD Rectangular Connector w/ Light
- KD Mini Plug-In w/ Light

11 - Ground

- G Ground Pin/Wire

Pilot Valve

- 46A-111-JXXX-XXX(G)

69 SERIES - (REMOTE AIR)

69A - $\begin{matrix} X & X & - & X & X & X & - & XX \\ \hline 1 & 2 & 3 & 4 & 5 & 6 \end{matrix}$

1 - Spool Type

- A Single Operator - Normally Closed
- B Double Operator - Normally Closed
- C Single Operator - Normally Open
- D Double Operator - Normally Open

2 - Spool Return

- 3 Single Remote Air (w/ Air Spring Return)
- 4 Double Remote Air

3 - Port Size & Thread Type

- F 2 1/2" BSPPL
- M O-Ring Mount - Bottom Mount

4 - Configuration

- R Remote Air

5 - Internal / External Pilot

- A Internal Pilot
- B External Air Spring or Double Remote Air

6 - Internal / External Air Spring

- RA Single Remote Air w/Internal Air Spring Return or Dble. Remote Air
- RE Single Remote Air w/External Air Spring Return



SMALL
3-WAY



LARGE
3-WAY



SMALL
4-WAY



LARGE
4-WAY



ISO
VALVES



PPC
VALVES



PULSE
VALVES



BULLET
VALVES

SMALL 4-WAY

Mac Valves with 4 or 5 ports; inlet, a common exhaust (4 way) or two exhausts (5 way) and two cylinder ports, one normally open and the other normally closed. Their common application is to operate double acting cylinders.

Patents and Patents Pending

SMALL 4-WAY SOLENOID

44, 45, 700, 400, 800, and 900 SERIES (Cv 0.1 to 14)



24 SERIES



44 SERIES



45 SERIES



400 SERIES



700 SERIES



900 SERIES

OPERATIONAL BENEFITS

SERIES	44	45	700	400	800	900
Single Solenoid	Y	Y	Y	Y	Y	Y
Double Solenoid	X	Y	Y	Y	Y	Y
Inline	Y	Y	Y	Y	Y	Y
Base Mounted	Y	Y	X	Y	X	X
Stacking	X	Y	Y	X	Y	Y
Add-a-Unit Manifold	X	Y	X	X	X	X
Circuit Bar	Y	Y	X	Y	Y	X
Internal Pilot Operated	N/A	N/A	Y	Y	Y	Y
External Pilot Operated	N/A	N/A	Y	Y	Y	X
3-Position	X	X	X	Y	Y	Y
Remote Air Operated	X	Y	Y	X	Y	Y
Remote Air, Pilot Operated	N/A	N/A	Y	Y**	Y	Y
Folw Controls	N/A	Y	Y	X	Y	X
Pressure Regulator	X	Y	X	X	X	X
Flow(Cv)	0.10	0.15*	0.8	1.0	14	14

LEGEND: Y - Available | X - Not Available | * - Higher flows available with higher wattages | ** - Consult Factory | N/A - Not Applicable

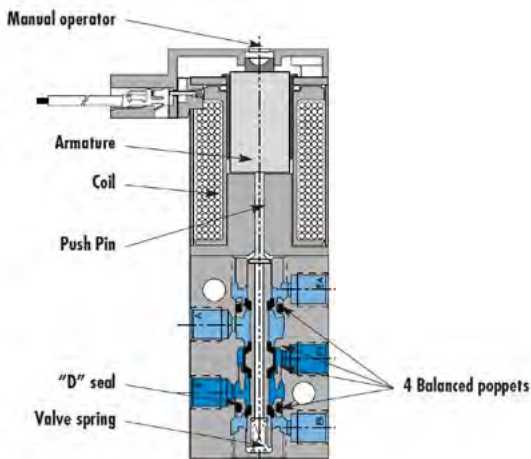
- SMALL 3-WAY
- LARGE 3-WAY
- SMALL 4-WAY
- LARGE 4-WAY
- ISO VALVES
- PPC VALVES
- PULSE VALVES
- BULLET VALVES

OPERATIONAL BENEFITS

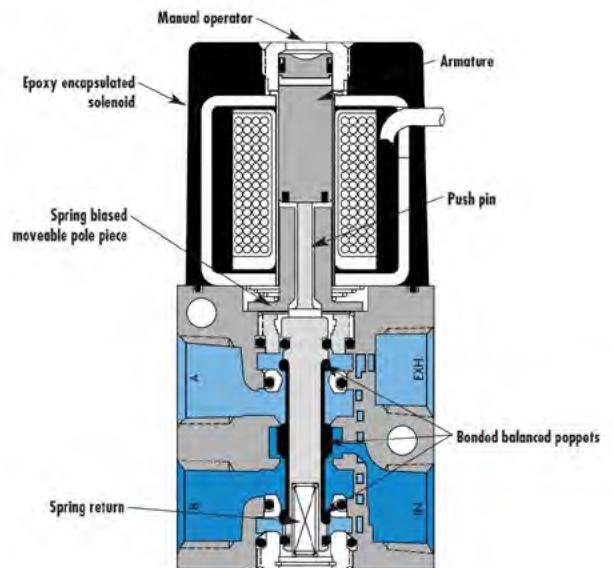
- Unique patented MACSOLENOID for fastest possible response time with its non burnout feature on AC service.
- Balanced poppet pilot valve for high flow, precise repeatability and consistent operation. (700, 400, & 900)
- Large spool or piston for maximum shifting forces even at minimum operating pressure (700, & 900)
- One piece bonded seal spool for extended life and ease of maintenance (700, 400, & 900)
- MAC spool / bore combination for wiping away contamination, eliminating sticking, & for use on lubricated/non lubricated service. (700, 400, & 900)
- Bonded balanced poppets for high flow, repeatability and consistent operation. Extremely long service life due to unique poppet cushions (44 & 45 series)
- Extremely high cycle rates (up to 250 cycles per second with certain DC solenoids)
- Extremely long service life.
- Versatility in piping. Valves can be piped as 4 way, 3 way or 2 way, N/C, N/O or can be used for vacuum, diverter or selector applications.
- Air/spring return for consistent shifting on single solenoid internal pilot, solenoid pilot operated valves. (700, 900 series)
- Optional integral individual exhaust flow controls with a single common exhaust port (45, 700 series).
- Optional individual exhaust flow controls with dual exhaust. (400, 800 & 1800 series)
- Non-locking manual operators standard on all solenoid valves; other types of manual operators available.
- NEMA 4 solenoid enclosures except for grommet type (700, 800, 900 series only). Other types of electrical enclosures, including external plug-in connectors, can also be supplied.
- Optional wattage DC coils down to 1.8watt (44, 45, 400 series) or 1.0watt (700, 900 series).
- Optional surge suppression available.
- Optional common conduit stacking valves with integral wiring space and indicator lights. (45, 700, 800, 900 series)
- Optional remote air pilot, pilot operated models. This pilot replaces the standard solenoid and is provided with a manual operator and position indicator. A minimum pilot pressure can operate the main valve regardless of the main valve pressure.
- Air only return. 4 way pilot design to maximise shifting forces in both directions. Optional memory spring is also available. (400 series)
- Circuit bar available with integral flow controls (45, 400 series).
- Circuit bar available with individual regulators (45 series).

EXHAUST

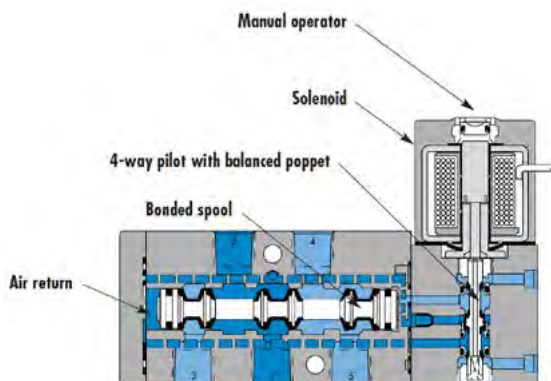
PRESSURE



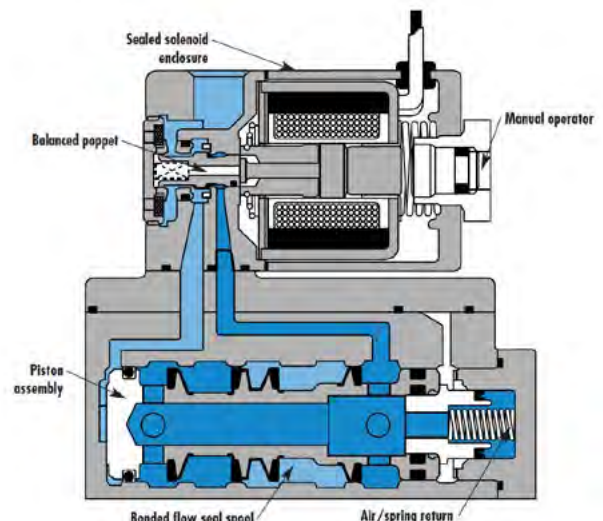
44 Series



45 Series



400 Series



900 Series

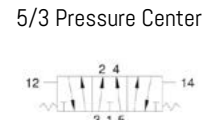
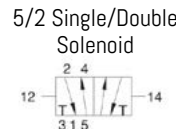
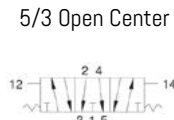
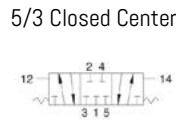
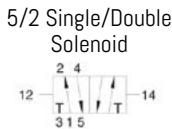
The MAC 24 series is a compact - high flow - 10mm - solenoid pilot operated 4-way spool valve. The valve offers high flow not common for a valve of its size. The valve utilises our new 8mm E-pilot with oval armature for maximised shifting forces in a small package size. The balanced design in the pilot means shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 24A-A1-B00-EM2-RDCA-1BA

Function	Port size	Flow (Max) / (Cv/Nl/min)	Pressure Range	Individual Mounting
5/2, 5/3	M5	04 / 400 Cv	2pos. int. pilot: sgle. sol.: 30 to 120 dble sol.: 20 to 120	Inline

OPERATIONAL BENEFITS

- 10mm valve – solenoid pilot operated.
- Balanced spool, immune to variations of pressure.
- Bonded spool with minimal friction.
- Wiping effect, eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



24 SERIES INLINE

24A - X X - B00 - EXX - R XX X - X XX
 1 2 3 4 5 6 7

1 - Solenoid	
Single Pressure	Dual Pressure (internal pilot only)
A 5/2 Single Solenoid	C 5/2 Single Solenoid
B 5/2 Double Solenoid	D 5/2 Double Solenoid
E 5/3 Closed Centre	G 5/3 Pressure Centre
F 5/3 Open Centre	

2 - Pilot Air	
Single Pressure	Dual Pressure (internal pilot only)
1 Internal	2 Internal from port #3
4 External	3 Internal from port #5

SOLENOID OPERATOR

EXX - R XX X - X XX
 3 4 5 6 7

3 - Pilot Type	M2 Muffled exhaust
4 - Voltage	DC 24VDC (1.8W) DF 24VDC (4.0W) DJ 12VDC (1.8W) DM 12VDC (4.0W)
5 - Lead Wire Length	0* No lead wire A 18" / 45 cm * Not available for flying lead connectors

6 - Manual Operator	0 No manual operator 1 Recessed non locking 3 Extended non locking
7 - Electrical Connector	BA Flying leads BB Flying leads w/ LED

Options
24A-XX-B X 0-EXX-RXX X-X XX
1 Individual base – Side ports
2 Individual base – Bottom ports (no side ports)
Note: For pilot exhaust out main exhaust mod. 0353 is required

Note: Circuit Bar options available, contact MVP for details

24 SERIES - REGULATOR

PR24A - $\begin{matrix} X & XX & X \\ T & T & T \\ 1 & 2 & 3 \end{matrix}$

1 - Sandwich Regulator (With Gauge Port)

- A Plug-In
- B Non Plug-In

2 - Pilot Air

Single Pressure (12" End)	Dual Pressure (Both Ends)
AA Internal	CA Internal
BA External	DA External

3 - Pressure Range

- A 0 to 120 PSI / 8 bar
- B 0 to 80 PSI / 5,3 bar
- C 0 to 40 PSI / 2,7 bar

Spare parts

Gauge Kit No coupling: N-42004-01

With short coupling: N-42004-02 (required with double solenoid valve)

With long coupling: N-42004-03 (required with double solenoid valve)

Sandwich flow control Plug-in with flow control on same end: FC24A-AB

Non plug-in with flow control on same end: FC24A-BB

Non plug-in with flow control on each end: FC24A-CA

Notes:

- External pilot regulator required only when supply pressure (primary) to the valve is below the minimum operating pressure of the 24 series valve.
- When an internal pilot regulator is used with the 24 series valve, the valve should be ordered as external pilot. This ensures that the pilot supply is not regulated. If an internal pilot valve is used with an internal pilot regulator, the pilot supply is regulated.



44 SERIES

The MAC 44 series is a direct solenoid operated 4-way, 10mm poppet valve. A direct operated 4-way of this small package size is unique to MAC due to patented design innovations. It features an oval armature in the solenoid, a balanced poppet and conical seats. These features translate into high shifting forces, fast consistent response times, high flow in a small package and long life. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 44C-ABA-GDCA-1KT

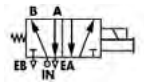
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2	M5	0.1 Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- 10 mm valve, direct solenoid operated.
- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- The patented solenoid develops high shifting forces.
- Powerful return spring.
- Flow is specifically adjusted on each valve.
- Manual operator standard on all valves.



44 SERIES



44 SERIES - INLINE & BASE MOUNT VALVES

44B/C - $\frac{X}{1} \frac{XX}{2}$ - G XX X - X XX
L XX X - X XX

1 - Body Type

- A Individual inline
- L Base mount body

2 - Port Size And Thread Type

- 00 Base Mount Body Only
- BA Individual Body (M5)

44 SERIES - STANDARD SOLENOID OPTIONS

G $\frac{XX}{3} \frac{X}{4} - \frac{X}{5} \frac{XX}{6}$

3 - Voltage

- | | |
|---|------------------|
| AB 240 VAC (4.0W)
(Use with "HA" or
"HD" Connector) | DC 24 VDC (1.8W) |
| AC 24 VAC (4.0W) | DF 24 VDC (4.0W) |
| DA 24 VDC (1.0W) | DJ 12 VDC (1.8W) |
| | DN 12 VDC (4.0W) |
| | DS 6 VDC (3.0W) |

4 - Lead Wire Length

- 0 No Lead Wire
- A 18" Coil Leads
- P Plug-IN

5 - Manual Operator

- 1 Recessed non-locking operator
- 2 Recessed Locking Operator
- 3 Extended Non Locking Operator
- 4 Extended Locking Operator

6 - Electrical Connector

- BA Flying leads - STANDARD STOCK
Non Plug-In Valves
- GA MAC JAC Solenoid Plug-In

SMALL
3-WAY

LARGE
3-WAY

SMALL
4-WAY

LARGE
4-WAY

ISO
VALVES

PPC
VALVES

PULSE
VALVES

BULLET
VALVES

44 SERIES - PLUG-IN MANIFOLD

44B/C - $\overset{\text{X}}{\text{T}} \overset{\text{X}}{\text{T}} \overset{\text{X}}{\text{T}} \overset{\text{X}}{\text{T}} - \overset{\text{X}}{\text{T}} \overset{\text{X}}{\text{T}} - \text{G} \text{XX} \text{X} - \text{X} \text{XX}$
 $\text{L} \text{XX} \text{X} - \text{X} \text{XX}$
 1 2 3 4 5

1 - Body Type

- 0 Base only
- L Base mount body

2 - Manifold Style

- 0 Valve only
- S Plug-in (12" base leads)

3 - Port Size & Thread Type

- 0 Valve only
- B M5 Metric

4 - Manifold Wiring

- 0 Valve only
- A Plug-in 2 wire (latching or single solenoid)
- B Plug-in 3 wire (latching or double solenoid)
- C Plug-in 4 wire (latching)
- F M7 Manifold Port Size

5 - Manifold Configuration

- 0 Valve only
- C Side Ports
- D Bottom Ports
- E Side Ports w/flow controls
- F Bottom Ports w/flow controls
- G Bottom cylinder's w/reg. (adjusting knob)
- H Bottom cylinder's w/reg. (adjusting knob) & flow controls

Base Only Examples

44B-0SA-AC (Use with "G" Solenoid)

44 SERIES - REGULATOR

PR44A - $\overset{\text{X}}{\text{T}} \overset{\text{X}}{\text{T}} \overset{\text{X}}{\text{T}} \overset{\text{X}}{\text{T}} - \overset{\text{X}}{\text{T}}$
 1 2 3 4 5

1 - Type of Adjustment

- A Manual adjust knob

2 - Configuration

- 0 Regulator (Standard)

3 - Gauge Port Option

- A Standard (No gauge port)
- B Gage port (plugged)

4 - Pressure Range

- A 0-100 PSI
- B 0-60 PSI
- C 0-40 PSI
- D 0-15 PSI

5 - Assembly

- 9 Regulator Block Assembled to Bar

44 SERIES - CIRCUIT BAR NON PLUG-IN

EBM44A - $\overset{\text{XX}}{\text{T}} \overset{\text{X}}{\text{T}} \overset{\text{X}}{\text{T}} - \overset{\text{XX}}{\text{T}} - \overset{\text{9}}{\text{T}}$
 1 2 3 4 Valves & cover plates assembled to Valve

1 - Spacing

- 00 10.5mm Spacing

2 - Profile

- 1 12mm low profile
- 2 16mm high profile

3 - Port Size & Thread Type

- C 1/8" BSPPL
- D M5 Metric

4 - Stations

Number of Stations (02, 03, 04 etc.)



SMALL
3-WAY

LARGE
3-WAY

SMALL
4-WAY

LARGE
4-WAY

ISO
VALVES

PPC
VALVES

PULSE
VALVES

BULLET
VALVES

The MAC 45 series is a direct solenoid operated 4-way poppet valve. These feature a short stroke solenoid, a balanced poppet and conical seats. These features translate into high shifting forces, fast consistent response times, and long life.

For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 45A-AC1-DDAJ-1KD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2	1/8"	0.15 Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- The patented solenoid develops high shifting forces.
- Powerful return spring.
- Manual operator standard on all valves.
- Burn-out proof solenoid on AC service.

Single Operator



Double Operator

(Minimum DC wattage 54W)



45 SERIES

45 SERIES VALVE & BASE OPTIONS

45A - X X X - D X X X - X X X
1 2 3 4 5 6 7 8

1 - Body Type

Inline

- 0 Manifold base only
- A 4 port body
- B 5 port body(N/A with flow controls)
- D 4 port body o-ring mount — all bottom ports
- E 5 port body o-ring mount— 3 bottom ports
- F 4 port body o-ring mount — bottom cylinders only
- G 4 port body (double)
- H 4 port body o-ring mount — all bottom ports (double)
- J 4 port body o-ring mount — bottom cylinders only (double)

Stacking Body

- S Stacking body
- T Stacking body (double)

Base Mount Body

- 0 Base only — no valve
- L Base mount body
- M Base mount body with pressure sensing port
- N Base mount body (double)
- P Base mount body with pressure sensing port(double)

2 - Port Size And Thread Type

- 0 Base mount body only or regulator only
- C 1/8" BSPPL Side Ports
- H O-ring mount ports (inline only)

3 - Flows Controls/Regulators - Base/Manifold Types

Inline or Stacking Body

- 1 No flow control
- 2 With flow control

Manifold Base — Flow Controls & Regulators

- 0 Valve only — no base or manifold
- A Individual base
- B Individual base with flow controls
- C Manifold base
- D Manifold with flow controls
- E Manifold and regulator with slotted stem
- F Manifold With flow control and regulator with slotted stem
- G Manifold with regulator with locking slotted stem
- H Manifold with flow control and regulator with locking slotted stem

- J Manifold with regulator with locking knob
- K Manifold with regulator with locking knob with flow controls
Regulators Only
- L Regulator only with slotted stem
- M Regulator only with locking slotted stem
- N Regulator only with slotted stem with flow controls
- P Regulator only with locking slotted stem w/flow controls
- R Regulator only with locking knob
- S Regulator only with locking knob with flow controls

4 - Operator

- D Solenoid
- RAIX Remote air

5 - Voltage

AA 120/60, 110/50	AC 24/60, 24/50
AF 240/50	DA 24 VDC (54w)
DB 12 VDC (54W)	DE 12 VDC (12.7W) (MOD CLSF only)
FE 12 VDC (24w)	DF 24 VDC (12.7W) (MOD CLSF only)
FF 24 VDC (24w)	

6 - Lead Wire Length

- A 18" coil leads
- J External plug-in lead

7 - Manual Operator

- 0 No operator
- 1 Non-locking manual op.
- 2 Locking manual op.
- 3 Non-locking extended op.
- 4 Locking extended operator

8 - Electrical Connector

- BA Grommet
- JB Rectangular plug-in - No Light
- JD Rectangular plug-on w/light
- JM Rectangular male only
- KA Mini plug-in - No Light
- KD Mini plug-in with light
- KJ Mini plug-in male only

*Accessories continued on next page

Accessories

M-45001-01P	End plate kit (stacking)	N-45005	Inlet and exhaust isolator (stacking)
M-45004	Spacer plate conduit kit	N-45006	Inlet isolator (stacking)
M-45005-01P	End plate kit — common conduit (stacking)	N-45007	Exhaust isolator (stacking)
M-45008-01P	End plate kit (manifold)	N-45008	Inlet & exhaust isolator (manifold)
M-45010	Blank station cover plate (manifold)	N-45009	Inlet isolator (manifold)
M-45010-01	Blank station cover plate w/pressure outlet	N-45010	Exhaust isolator (manifold)
N-45001	Top plate (individual)	N-45015	Manifold base end cover plate plain
N-45002	Flow control plate (individual)	N-45016	Manifold base end cover plate w/flow controls
N-45003	Top plate (stacking)	N-45018	Flow control needle assembly (Individual Base)
N-45004	Flow control plate (stacking)		

45 SERIES - MACONNECT ADAPTER ASSEMBLY

M - 45026 - $\begin{matrix} \text{XX} & \text{X} & \text{X} \\ \text{---} & \text{---} & \text{---} \\ \text{1} & \text{2} & \text{3} \end{matrix}$

1 - Type of Connector

09	9 Pin Sub D	20	20 Pin
10	10 Pin	24	24 Pin Amp CPC
15	15 Pin Sub D	25	25 Pin Sub D
16	16 Pin	26	26 Pin

2 - Location of Adapter

- 1 Left End
- 2 Right End

3 - Thread Type

P BSPPL Threads

Modifications

MOD 1705 Negative Commons

45 SERIES - SANDWICH REGULATOR

PR45A - $\begin{matrix} \text{X} & \text{X} & \text{X} & \text{X} \\ \text{---} & \text{---} & \text{---} & \text{---} \\ \text{1} & \text{2} & \text{3} & \text{4} \end{matrix}$ - $\frac{9}{\text{---}}$
Valves & cover plates assembled to Bar

1 - Style

- 0 Regulator Only
- A Plug-In Solenoid Block (Single Solenoid)
- B Non Plug-In Block (Double Solenoid)

2 - Adjustment

- | | |
|------------------------|------------------|
| 0 Regulator Block Only | A Adjusting Knob |
| B Slotted Stem | C Locking Stem |

3 - Gauge

- 0 No Gauge Port

4 - Pressure Range

- 0 Regulator Block Only
- A 0-120 psi

Accessories

M-45010-03	Valve Blanking Plate
M-45010-04	Valve Blanking Plate w/By-pass to "B" Port
16520	Wire Protector Connector for Plug-In Bar (Blank Station)

45 SERIES - CIRCUIT BAR NON PLUG-IN

EBM45A - $\begin{matrix} \text{XX} & \text{X} & \text{X} & \text{---} \\ \text{---} & \text{---} & \text{---} & \text{---} \\ \text{1} & \text{2} & \text{3} & \text{4} \end{matrix}$ - $\frac{9}{\text{---}}$
Valves & cover plates assembled to Bar

1 - Spacing

- | | |
|-----------------|-----------------|
| 00 21mm Spacing | 01 26mm Spacing |
|-----------------|-----------------|

2 - Configuration

- 1 Side Cylinder Ports (21mm)
- 3 Regulator with Side Cylinder Ports (21mm)
- 5 Flow Controls with Side Cylinder Ports (26mm)
- 7 Regulator and Flow Controls with Side Cylinder Ports (21mm)

3 - Port Size & Thread Type

- C 1/8" BSPPL

4 - Stations

Number of Stations (01, 02, 03, etc.)

Accessories

- M-45010 Valve Blanking Plate
- M-35005 Regulator Blanking Plate

Regulators (For Option 3)

- 35A-00L Slotted Stem
- 35A-00M Adjusting Knob
- 35A-00U Locking Stem

Regulators With Flow Controls (For option 7)

- 45A-001 Slotted Stem
- 45A-002 Adjusting Knob
- 45A-003 Locking Stem



46 SERIES

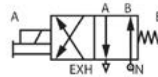
The MAC 46 series is a direct solenoid operated 4-way poppet valve. High flow in a small package, Oval armature. These feature a short stroke solenoid, a balanced poppet and conical seats. These features translate into high shifting forces, fast consistent response times, and long life. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 46A-L00-JDAP-0FG MOD:532F

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2	1/8"	0.30 Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- The patented solenoid develops high shifting forces.
- Powerful return spring.
- Manual operator standard on all valves.
- Burn-out proof solenoid on AC service.



46 SERIES

46 SERIES

46A - $\begin{matrix} X & X & X \\ \text{T} & \text{T} & \text{T} \end{matrix}$ - $\begin{matrix} J & X & X \\ \text{T} & \text{T} & \text{T} \end{matrix}$ $\begin{matrix} X & - & X & X \\ \text{T} & & \text{T} & \text{T} \end{matrix}$ (G)

1 2 3 4 5 6 7 8

1 - Body Type

- Inline*
- A 4 Port Body with Side Ports
 - C 4 Port Body with Bottom Ports (No Side Ports)
 - D Bottom O-Ring Mount-All Ports (No Side Ports)
 - F Bottom O-Ring Mount-Cylinder Ports Only (Side Inlet & Exhaust)
 - G 4 Port Body - Double
 - H 4 Port Body - Double Bottom O'Ring Mount
- Stacking Body*
- S Stacking Body

Base Mount

- L Single Solenoid Base Mount Body
- N Double Solenoid Base Mount Body

2 - Port Size & Thread Type

- O Base Mount Body
- C 1/8" BSPPL
- G Use with O-Ring Mount Body Option "D"

3 - Configuration

- Base Mount
- O Base Mount Body
- Inline or Stacking Body*
- 1 No Flow Controls
 - 2 With Flow Controls

46 SERIES SOLENOID

$\begin{matrix} J & X & X & X & - & X & X \\ \text{T} & \text{T} & \text{T} & \text{T} & & \text{T} & \text{T} \end{matrix}$ (G)

4 5 6 7 8 9

4 - Operator

- J SOLENOID

5 - Voltage

- | | |
|------------------------------|------------------------------|
| AC 24VAC (54W) - MAX. Cv=0.3 | DA 24VDC (54W) - MAX. Cv=0.3 |
| DB 12VDC (54W) - MAX. Cv=0.3 | DC 24VDC (24W) |
| DD 12VDC (24W) | |

6 - Lead Wire Length

- O No Lead Wires
- A 18" Leads

7 - Manual Operator

- | | |
|--------------------|------------------------|
| 0 No Operator | 1 Non-Locking Recessed |
| 2 Locking Recessed | 3 Non-Locking Extended |
| 4 Locking Extended | |

8 - Electrical Cover Connection

- BA Flying Leads
- GA MAC Jac Solenoid Plug-In
- GB MAC Jac Solenoid Plug-In With Diode
- GC MAC Jac Solenoid Plug-In With MOV
- GD MAC Jac Solenoid Plug-In With LED
- GE MAC Jac Solenoid Plug-In With Diode & LED
- GF MAC JJac Solenoid Plug-In With MOV & LED

94 mm Pin Spacing

- | | |
|--|---------------------------------|
| KA Mini Plug-In | KB Mini Plug-In With Diode |
| KC Mini Plug-In w/MOV | KD Mini Plug-In With Light |
| KE Mini Plug-In w/Diode & Light | KF Mini Plug-In w/MOV & Light |
| KG Mini Plug-In w/Rectifier | KH Mini Plug-In w/Rect. & Light |
| KJ Mini Plug-In - Male Only | KK Mini Plug-In w/Diode M. Only |
| KL Mini Plug-In w/MOV - Male Only | KM Mini Plug-In w/Light M. Only |
| JA Square Connector | JC Square Connector w/Light |
| JJ Square Connector - Male Only | JB Rectangular Connector |
| JD Rectangular Connector With Light | JP Rectnglr. Connector w/MOV |
| JM Rectangular Connector - M. Only | |
| KN Mini Plug-In w/Diode & Light - Male Only | |
| KP Mini Plug-In w/MOV & Light - Male Only | |
| KR Mini Plug-In With Rectifier - Male Only | |
| KS Mini Plug-In With Rectifier & Light - Male Only | |

9 - Ground

- G Ground Pin/Wire

Accessories

- | | |
|-------------|-------------------------------|
| M-46001-01P | End Plate Kit (Stacking) |
| M-46002 | Blank Station Cover Plate |
| N-46001 | Body Top Cover Plate (Inline) |
| N-46002 | Body Top Cover Plate w/Flow |

Controls (Inline)

- 28493 Exhaust Isolater (Stacking)
- 28494 Inlet Isolater (Stacking)



46 SERIES REGULATOR

PR46A - $\begin{matrix} X & X & X & X \\ \hline 1 & 2 & 3 & 4 \end{matrix}$ - $\begin{matrix} 9 \\ \hline \end{matrix}$
Assembled to Valve

1 - Style

- 0 Regulator Only
- B Non Plug-In Block
- A Plug-In Block (Single Solenoid Only)

2 - Adjustment

- 0 Regulator Block Only
- B Adjusting Knob
- A Slotted Stem
- C Slotted Stem with Locknut

3 - Gauge

- 0 Regulator Block Only
- A Gauge Port Plugged

4 - Pressure Range

- 0 Regulator Block Only
- B 0-80 psi
- A 0-120 psi
- C 0-30 psi

46 SERIES - PLUG-IN MANIFOLD

46A - $\begin{matrix} X & X & X \\ \hline 1 & 2 & 3 \end{matrix}$ - $\begin{matrix} X & X \\ \hline 4 & 5 \end{matrix}$ - $\begin{matrix} J \\ \hline 6 \end{matrix}$ $\begin{matrix} XX \\ \hline 7 \end{matrix}$ $\begin{matrix} P \\ \hline 8 \end{matrix}$ - $\begin{matrix} X & XX \\ \hline 9 & 10 \end{matrix}$ - $\begin{matrix} (G) \\ \hline 11 \end{matrix}$ Valves and cover plates assembled to bar

1 - Body Type

- 0 Base only
- L Single solenoid base mount body
- M Single solenoid base mount body w/ gauge port
- N Double solenoid base mount body
- P Double solenoid base mount body w/ gauge port

2 - Manifold Style

- 0 Valve only
- S Plug-in (12" base leads)

3 - Port Size & Thread Type

- 0 Valve only
- B 1/8" BSPPL

4 - Manifold Wiring

- 0 Valve only
- B Wired for double solenoid
- A Wired for single solenoid

5 - Manifold Configuration

- 0 Valve only
- D Side cylinder ports w/flow controls
- E Bottom cylinder ports w/reg. (slotted stem)
- F Bottom cylinder ports w/reg. (slotted stem) & flow controls
- L Bottom cylinder ports
- M Bottom cylinder ports w/flow controls
- C Side cylinder ports

6 - Solenoid

- J Solenoid

7 - Voltage

- AC 24 VAC (54w) - Max Cv=0.3
- DA 24 VDC (54w) - Max Cv = 0.3
- DB 12 VDC (54w) - Max Cv = 0.3
- DC 24 VDC (24w)
- DD 12 VDC (24w)

8 - Lead Wire

- P Plug-in

9 - Manual Operator

- 0 No operator
- 2 Recessed locking operator
- 4 Extended locking operator
- 1 Recessed non-locking operator
- 3 Extended non-locking operator

10 - Electrical Connection

- FA Base Plug-In
- FC Base Plug-In w/MOV
- FE Base Plug-In w/Diode and LED
- FG Base Plug-In w/Rectifier
- FB Base Plug-In with Diode
- FD Base Plug-In w/LED
- FF Base Plug-In w/MOV & LED
- FH Base Plug-In w/Rectifier & LED

11 - Ground

- G Ground wire pin

Parts/Flow Control (Sandwich)

- M-46003-01P End plate kit
- M-46002 Valve blanking plate
- 63299 Electrical Plug-In Protector
- M-46007 Valve and Electrical Blanking Plate
- 28502 Exhaust isolator
- 28501 Inlet isolator
- FC46A-AA Sandwich flow control (Plug-in)
- FC46A-BA Sandwich flow control (Non Plug-in)



46 SERIES - CIRCUIT BAR NON PLUG-IN

EBM46A - $\overset{\text{T}}{\underset{1}{\text{XX}}} \overset{\text{T}}{\underset{2}{\text{X}}} \overset{\text{T}}{\underset{3}{\text{X}}} \overset{\text{T}}{\underset{4}{\text{X}}} - \overset{\text{T}}{\underset{5}{\text{XX}}} - 9$
Valves and cover plates assembled to bar

1 - Spacing

- 00 16.5mm Spacing
- 01 26.0mm Spacing

2 - Configuration

- A Side Cylinder Ports
- B Bottom Cylinder Ports
- C Side Cylinder Ports with Flow Controls
- D Bottom Cylinder Ports with Flow Controls
- E Side Cylinder Ports with Regulator
- F Bottom Cylinder Ports with Regulator
- G Side Cylinder Ports, Flow Controls, & Regulator
- H Bottom Cylinder Ports, Flow Controls & Regulator

3 - Style

- A Standard

4 - Port Size & Thread Type

- B 1/8" BSPPL

5 - Stations

- Number of Stations (01, 02, 03, etc.)
- M - 46002 Blank Station Cover Plate

Note: Regulator must be ordered separately.

46 SERIES - ECD PLUG-IN CIRCUIT BAR

ECD46A - $\overset{\text{T}}{\underset{1}{\text{XX}}} \overset{\text{T}}{\underset{2}{\text{X}}} \overset{\text{T}}{\underset{3}{\text{X}}} \overset{\text{T}}{\underset{4}{\text{X}}} - \overset{\text{T}}{\underset{5}{\text{XX}}} - \overset{\text{T}}{\underset{6}{\text{XX}}} - 9$
Valves and cover plates assembled to bar

1 - Spacing

- 00 16.5mm Spacing

2 - Configuration

- A Side Cylinder Ports
- B Bottom Cylinder Ports
- C Bottom Cylinder Ports with Regulator
- D Side Cylinder Ports with Flow Controls
- E Bottom Cylinder Ports with Flow Controls
- F Bottom Cylinder Ports with Regulator & Flow Controls

3 - Style

- A Standard

4 - Port Size & Thread Type

- B 1/8" BSPPL

5 - Lights

- A0 Standard (No Light)

6 - Stations

- Number of Stations (01, 02, 03, etc.)

Note: Regulator must be ordered separately

Accessories

- | | |
|---------|-------------------------------------|
| 63299 | Wire Connector Protector |
| M-46002 | Valve Blanking Plate |
| M-46007 | Valve and Electrical Blanking Plate |



The MAC 47 series is a direct solenoid operated 4-way poppet valve. High flow in a small package, oval armature. These feature a short stroke solenoid, a balanced poppet and conical seats. These features translate into high shifting forces, fast consistent response times, and long life. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 47A-L10-HDA0-1KD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2	1/8"-1/4"	0.5Cv	Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- The patented solenoid develops high shifting forces.
- Powerful return spring.
- Manual operator standard on all valves.
- Burn-out proof solenoid on AC service.



47 SERIES

47 SERIES

47A - $\begin{matrix} X & X & X \\ \hline 1 & 2 & 3 \end{matrix}$ - H $\begin{matrix} XX \\ \hline 4 \end{matrix}$ $\begin{matrix} X \\ \hline 5 \end{matrix}$ - $\begin{matrix} X \\ \hline 6 \end{matrix}$ $\begin{matrix} XX \\ \hline 7 \end{matrix}$

1 - Body Type

- 0 Base Only
- A Inline 5 Port
- B Inline Body 5 Port with Flow Controls
- C Inline Body Namur Mount

2 - Port Size & Thread Type

- C 1/8 BSPPL
- D 1/4 BSPPL
- L Other - See MVP

3 - Base Type

- 0 Inline / Stacking/ Valve Only
- A Individual Base Non Plug-In
- B Individual Base Non Plug-In w/ Flow Controls
- J Manifold Base Side Ports (Middle Station)
- K Manifold Base Bottom Ports (Middle Station)
- L Right End Manifold Base, Side Ports
- M Right End Manifold Base, Bottom Ports
- N Left End Manifold Base, Side Ports
- P Left End Manifold Base, Bottom Ports

Accessories

- N-47005-01 Fastening Kit (Manifold)
- 28447 Isolator Plate - Inlet and Exhaust (Manifold)
- M-47001 Blank Station Cover Plate
- N-47004 Cover Plate Assembly with Flow Controls (Inline)
- M-47013-01P End Plate Kit (Stacking)
- N-47009 Exhaust Isolator Plate Assembly (Stacking)
- 28451 Inlet Isolator Plate (Stacking)

47 SERIES STANDARD SOLENOID OPTIONS

H $\begin{matrix} XX \\ \hline 4 \end{matrix}$ $\begin{matrix} X \\ \hline 5 \end{matrix}$ - $\begin{matrix} X \\ \hline 6 \end{matrix}$ $\begin{matrix} XX \\ \hline 7 \end{matrix}$

4 - Voltage (*Requires full wave rectifier in cover)

- | | |
|---------------------|-------------------|
| AC 240 VAC (5.8w) * | DF 12 VDC (5.2w) |
| AD 24 VAC (7.8w) * | DG 12 VDC (24w) |
| DA 24 VDC (5.2w) | DH 12 VDC (1.8w) |
| DB 24 VDC (24w) | DJ 12 VDC (1.0w) |
| DD 24 VDC (1.0w) | DL 120 VDC (6.3w) |

5 - Lead Wire Length

- | | |
|------------------|-------------------|
| 0 NO LEAD WIRE | E 72" Coil Leads |
| A 18" Coil Leads | F 96" Coil Leads |
| B 24" Coil Leads | G 120" Coil Leads |
| C 36" Coil Leads | H 144" Coil Leads |
| D 48" Coil Leads | P Plug-In |

Note: Use "0" With MJ, MM & K Type Connectors

6 - Manual Operator

- | | |
|-----------------------------|---------------------------------|
| 0 NO OPERATOR | 1 Recessed Non Locking Operator |
| 2 Recessed Locking Operator | 3 Extended Non Locking Operator |
| 4 Extended Locking Operator | |

7 - Electrical Connector

- BA Flying Leads
- BB Flying Leads w/ground
- BC Flying Leads w/LED Light
- BD Flying Leads w/LED Light & Ground
- BE Flying Leads w/Suppression Diode
- BF Flying Leads w/Suppression Diode & Ground
- BG Flying Leads w/Suppression Diode Plus LED Light
- BH Flying Leads w/Suppression Diode Plus LED Light & Ground
- KD Mini plug-in with light
- KJ Mini plug-in male only



The MAC 48 Series is a high flow 16mm 4-way spool valve with a unique integral four way pilot. The short stroke solenoid utilizes an oval armature for maximized shifting forces in a small area. The 4-way pilot means a low minimum operating pressure – no pistons – and minimal resistance to shifting. The balanced design in the pilot means shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 47A-ADO-HDAA-1BA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	1/8"	1.1Cv	Vac. to 120PSI	Sub-base Non Plug-In

OPERATIONAL BENEFITS

- 4-way valve with 4-way integral pilot.
- 16 mm valve (stacks on 16.5 mm centers).
- High flow (up to 1.1 Cv).
- Fast repeatable response times.
- Maximum shifting forces in both directions.
- Long life.



48 SERIES - SINGLE PRESSURE MODELS

48B - X M X - XXX - G XX X - X XX
 1 2 3 4 5 6 7

1 - Body Type

- A 5/2 Single Solenoid
- B 5/2 Double Solenoid
- E 5/3 Closed Center
- F 5/3 Open Center
- C 5/2 Single Solenoid (Duel Pressure Model)
- D 5/2 Double Solenoid (Duel Pressure Model)
- H 5/3 Pressure Centre (Duel Pressure Model)

2 - Pilot Air

- A Internal
- B Internal - Supply #3 Port (Duel Pressure Model)
- C Internal - Supply #5 Port (Duel Pressure Model)
- D External

3 - Base Type

- 000 Internal (Valve Less Base)
- AAL Internal 1/8" NPTF
- AAM External 1/8" NPTF

4 - Voltage

- | | |
|-------------------|------------------|
| AA 120 VAC (2.5W) | DC 24 VDC (1.8W) |
| DD 24 VDC (2.5W) | DF 24 VDC (4.0W) |

5 - Wire Length

- A 18"
- B 24"
- C 36"

6 - Manual Operator

- 1 Non-locking recessed
- 2 Locking recessed

7 - Electrical Connection

- BA Flying leads
- BT Flying leads with light
- GA MAC JAC solenoid plug-in
- KA Plug-in wire assembly
- KT Plug-in wire assembly w/light
- KD Plug-in wire assembly w/rectifier & light & ground

Note : AC voltage requires connector with rectifier.



The MAC 400 series is a 4-way spool valve pilot operated by a small direct operated 4-way solenoid valve - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are constantly high and response times are repeatable regardless of inlet pressure fluctuations. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

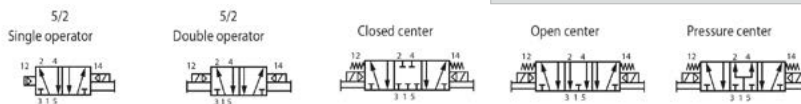
Stock Part Number: 411A-D0A-DM-DDAJ-1JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	1/8"-1/4"	1.0 Cv	Int. 2 pos.: 20-120PSI (w/mem. spring: 30-120PSI) 3 pos.: 35-120PSI, Ext.: vac. to 120PSI	Inline



OPERATIONAL BENEFITS

- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- The patented solenoid develops high shifting forces.
- Powerful return spring.
- Manual operator standard on all valves.
- Burn-out proof solenoid on AC service.



400 SERIES

4 X X A - X X X - XX - D XX X - X XX
1 2 3 4 5 6 7 8 9 10

1 - Spool Type - Valve Function

- | | |
|---|-----------------------------|
| 0 Base only | 1 Single op., sgl. pressure |
| 2 Double op., sgl. pressure | 3 Single op., dual pressure |
| 4 Double operator, dual pressure | 5 3-Position closed center |
| 6 3-Position open center | |
| 7 3-Position single pressure, pressure center | |
| 8 3-Position dual pressure, pressure center | |

2 - Body Type

- | | |
|-------------------------------|------------------------------|
| 0 Base only | 1 Inline 5-port |
| 3 Manifold body | 4 Inline 5-port w/mem.spring |
| 6 Manifold body w/mem. spring | |

3 - Port Size And Thread Type

- | | |
|-----------------|--------------|
| 0 Manifold body | C 1/8" BSPPL |
| D 1/4" BSPPL | |

4 - Body/Base Type

- | | |
|--|-----------------------|
| 0 Inline or manifold body | A Base standard ports |
| B Base standard ports with flow controls | |

5 - Internal/External Pilot

- | | |
|---------------------------------------|-----------------------------------|
| A Internal pilot | B External pilot (inline body) |
| C Internal pilot (dual pressure only) | D Common ext. pilot (circuit bar) |

6 - Pilot Type

- | | |
|--------------------|------------------|
| DM Muffled Exhaust | DP Piped Exhaust |
|--------------------|------------------|

400 SERIES: DM PILOT OPTIONS

DM - D XX X - X XX
7 8 9 10

7 - Voltage (Other Options Available)

- | | |
|---------------------------------|----------------------------------|
| JA 120/60, 110/50 | JF 240/50 |
| JC 24/60, 24/50 | DA 24 VDC (54W) |
| DB 12 VDC (54W) | DC 12VDC (7.5W) |
| DD 24VDC (7.3W) | DE 12VDC (12.7W) (MOD CLSF ONLY) |
| DF 24VDC (12.7W)(MOD CLSF ONLY) | |
| FE 12VDC (24W) | FF 24VDC (24W) |

8 - Lead Wire Length

- | | |
|------------------|------------------------------|
| A 18" Coil leads | J External plug-in connector |
|------------------|------------------------------|

9 - Manual Operator

- | | |
|-----------------------------|-------------------------------|
| 0 No operator | 1 Non-locking manual operator |
| 2 Locking manual operator | 3 Non-locking ext. operator |
| 4 Locking extended operator | |

10 - Electrical Connector

- | | |
|-------------------------------|-------------------------|
| BA Grommet | JB Rectangular plug |
| JD Rectangular plug w/ light | JM Rectangular male |
| KA Mini plug-in | KD Mini plug with light |
| KK Mini plug-in male w/diode | |
| KL Mini plug-in male w/M.O.V. | |

Pilot Valves - Bodies and Assemblies

- | | |
|----------------|--|
| DMB-A1 | 4 Way Pilot Body (Muffled Exhaust) |
| DPB-A1 | 4 Way Pilot Body (Piped Exhaust) |
| DUB-A1 | 4 Way Pilot Body (Pilot Exhaust to Main Exhaust) |
| DMB-DXXX-XXX-1 | Complete Pilot Valve |
| DPB-DXXX-XXX-1 | Complete Pilot Valve |
| DUB-DXXX-XXX-1 | Complete Pilot Valve |
| DXXX-XXX 1 | Solenoid and Cover Assembly |
| DMB-RA11 | Complete Remote Air Pilot Valve (4 Way) |

400 SERIES REMOTE AIR

4 X X A - X X X - RA
T T T T T
1 2 3 4 5

1 - Spool Type

- 1* Single Operator, Single Pressure
- 2 Double Operator, Single Pressure
- 4 Double Operator, Dual Pressure
- 5 3 Position Closed Center
- 6 3 Position Open Center
- 7 3 Position Single Pressure, Pressure Center
- 8 3 Position Dual Pressure, Pressure Center

2 - Body Type

- 1 Inline 5 Port
- 3 Manifold Body

3 - Port Size And Thread Type

- 0 Manifold Body
- C 1/8" BSPPL
- D 1/4" BSPPL

4 - Configuration

- 0 Inline or Manifold Body
- A Base Standard Ports
- B Base Standard Ports w/ Flow Controls

5 - Pilot Port

- J Pilot Port Size M5 (Metric)

6 - Style

- RA Remote Air

* - Note: For Single Operator Valves, Use MOD 1493



700 SERIES

The MAC 700 series is a versatile 4-way solenoid piloted spool valve. This series features our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Versatility in Piping means the valve can be piped as a 4-way, 3-way, or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 711C-14-PI-391JD

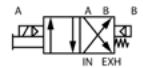
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 5/3	1/8"-1/4"	0.8 Cv	Int.: sgle. op.: 20-150PSI, dble. op.: 10-150 PSI, Ext.: vac. to 150PSI	Inline

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- The piston (booster) provides maximum shifting forces.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.
- Long service life.



700 SERIES



700 SERIES

7 X X C - XX - XX - XX - X - XX
 1 2 3 4 5 6 7

1 - Operator	
1 Single Operator	2 Double Operator
2 - Flow Control	
1 Without Flow Controls	2 With Flow Controls
3 - Port Size	
11 1/8 BSP	14 1/4 BSP
4 - Pilot Air	
PI Internal	PE External

5 - Voltage			
AC Voltage		DC Voltage	
11	120/60, 110/50	50	24VDC (6W)
22	24/50-60	57	12VDC (2.5W)
39	240/50	60	12VDC (8.5W)
55	12VDC (6W)	59	24VDC (2.5W)
61	24VDC (8.5W)		
6 - Manual Operator Indicator Lights			
0	No Operator	1	Non-Locking Recessed (Std.)
2	Locking Recessed	3	Non-Locking Extended
4	Locking Extended		
7 - Enclosure			
BA	Grommet	JB	Rectangle - No Light
CA	Conduit 1/2" NPS	JC	Square With Light
JA	Square - No Light	JD	Rectangle With Light

OPTIONS

7XX C- X X - P X - XX - X - XX

- For bottom ports (1/8" only) replace by 2.

Solenoid Pilot Operated Models (Sample Options)	
<i>Individual Models</i>	
711C-14-PI-111BA	1/4" BSPP threads
721C-14-PI-111BA*	1/4" BSPP threads
<i>Individual Models With Flow Controls</i>	
712C-14-PI-111BA	1/4" BSPP threads
722C-14-PI-111BA*	1/4" BSPP threads
<i>Stacking Models</i>	
713C-14-PI-111BA	1/4" BSPP Threads
723C-14-PI-111BA*	1/4" BSPP Threads
<i>Stacking Models With Flow Controls</i>	
714C-14-PI-111BA	1/4" BSPP Thread

Remote Air Pilot Operated Models (Sample Options)	
<i>Individual Models</i>	
711C-14-RA	1/4" BSPP threads
721C-14-RA	1/4" BSPP threads
<i>Individual Models With Flow Controls</i>	
712C-14-RA	1/4" BSPP threads
722C-14-RA	1/4" BSPP threads
<i>Stacking Models</i>	
713C-14-RA	1/4" BSPP threads
723C-14-RA	1/4" BSPP threads
<i>Stacking Models With Flow Controls</i>	
714C-14-RA	1/4" BSPP threads
724C-14-RA	1/4" BSPP threads
<i>Accessories</i>	
M-07001-01-01P	End Plate Kit – Internal Pilot
M-07001-02-01P	End Plate Kit – External Pilot
N-07005	Isolator Kit – Inlet/Exhaust
N-07006	Isolator Kit – Inlet Only
N-07007	Isolator Kit – Exhaust Only

The MAC 900 series is a versatile 4-way solenoid piloted spool valve. This features our balanced poppet in the pilot and an air/spring return for constant shifting regardless of inlet pressure fluctuations. Versatility in piping means the valve can be piped as a 4-way, 3-way, or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 911B-PM-391JD

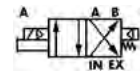
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2	1/8"-1/4"	1.2 Cv	Sgls. op.: 25-150PSI, Dble. op.: 10-150PSI	Inline

OPERATIONAL BENEFITS

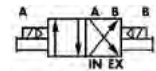
- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- Large spool area provides maximum shifting forces.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.
- Long service life.



Single Operator



Double Operator



900 SERIES

9 X X B - XX - XX X XX
 1 2 3 4 5 6

1 - Operator

- 1 Single Solenoid
- 2 Double Solenoid

2 - Port Size

- 5 1/8 BSP
- 6 1/4 BSP

3 - Pilot Exhaust

- PM Pilot Exh. Muffled

4 - Voltage

AC Voltage		DC Voltage	
11	120/60, 110/50	50	24VDC (6W)
22	24/50-60	55	12VDC (6W)
26	400/50	59	24VDC (2.5W)
39	240/50	60	12VDC (8.5W)
		61	24VDC (8.5W)

5 - Manual Operator Indicator Lights

- | | |
|--------------------|-------------------------------|
| 0 No Operator | 1 Non-Locking Recessed (Std.) |
| 2 Locking Recessed | 3 Non-Locking Extended |
| 4 Locking Extended | |

6 - Enclosure

- | | |
|----------------------|----------------------|
| BA Grommet | CA Conduit 1/2" NPS |
| JA Square w/No Light | JB Rectangle |
| JC Square w/Light | JD Rectangle w/Light |

Solenoid Models - Example

Individual Models

- 916B - PM -111BA Single 1/4" BSPP
- 926B - PM -111BA* Double 1/4" BSPP - *Use 100 Solenoid Options

Stacking Models

- 917B - PM -111BA 1/8" BSPP
- 918B - PM -111BA 1/4" BSPP

Modifications

- 0158 Heavy Duty Spring

Accessories

- | | |
|-------------|--------------------------------|
| M-09001-01P | End Plate Kit |
| N-09002 | Inlet and Exhaust Isolator Kit |
| N-09003 | Exhaust Isolator Kit |
| N-09004A | Inlet Isolator Kit |

Remote Air Operated Models - Example

Individual Models

- 916A - RA Single 1/4" BSPP
- 926B - RA Double 1/4" BSPP

Stacking Models

- 918B - RA 1/4" BSPP
- 928B - RA 1/4" BSPP

LARGE 4-WAY

Mac Valves with 4 or 5 ports; inlet, a common exhaust (4 way) or two exhausts (5 way) and two cylinder ports, one normally open and the other normally closed. Their common application is to operate double acting cylinders.

Patents and Patents Pending
LARGE 4-WAY SOLENOID

82, 83, 92, 93, 800, 1300, 1800, 2700, 62-6600 SERIES (Cv from 1.2)



AVAILABILITY TABLE

SERIES FEATURES	92	82	6200	6300	6500	6600	1300	ISO 1	ISO 2	ISO 3
SGL DBL SOL 2 POSN	/	/	/	/	/	/	/	/	/	/
3 POSITION C.C.	/	/	/	/	/	/	/	/	/	/
3 POSITION O.C.	/	/	/	/	/	/	/	/	/	/
3 POSITION P.C.	/	/	X	•	/	/	X	/	/	/
SANDWICH REGULATOR	/	/	/	/	/	X	X	/	/	/
SANDWICH FLOW CONTROL	/	/	X	X	X	X	X	X	X	X
DUAL PRESSURE	/	/	X	••	/	/	X	/	/	/
INT./EXT PILOT	/	/	/	/	/	/	/	/	/	/

LEGEND:

- = available on 6300 manifold only.
- = available on 6300 manifold only with sandwich pressure regulator.
- / = available
- X = not available

PORTING – INDIVIDUAL BASES

PORT SIZE	92	82	6200	6300	6500	6600	1300	ISO 1	ISO 2	ISO 3
1/8"	/•	/•	/•	/•	/•	/•	/•	/•	/•	/•
1/4"	/•	/•	/•	/•	/•	/•	/•	/•	/•	/•
3/8"	/•	/•	/•	/•	/•	/•	/•	/•	/•	/•
1/2"	/•	/•	/•	/•	/•	/•	/•	/•	/•	/•
3/4"	/•	/•	/•	/•	/•	/•	/•	/•	/•	/•
1"	/•	/•	/•	/•	/•	/•	/•	/•	/•	/•
1 1/4"	/•	/•	/•	/•	/•	/•	/•	/•	/•	/•
1 1/2"	/•	/•	/•	/•	/•	/•	/•	/•	/•	/•

LEGEND:

- / = side ports
- = bottom ports available (no side ports)

PORTING – MANIFOLD BASES

PORT SIZE	92	82	6200	6300	6500	6600	ISO 1	ISO 2
1/4"	/•	/•+	/•	/•	/•	/•	/•+	/•+
3/8"	/•	/•	/•+	/•+	/•	/•	/•+	/•+
1/2"	/•	/•	/•+	/•+	/•	/•	/•+	/•+
3/4"	/•	/•	/•+	/•+	/•+	/•	/•	/•
1"	/•	/•	/•+	/•+	/•+	/•	/•	/•
1 1/4"	/•	/•	/•+	/•+	/•+	/•+	/•	/•

LEGEND:

- / = side ports
- = bottom cylinder ports
- + = bottom inlet (92 series – consult factory)

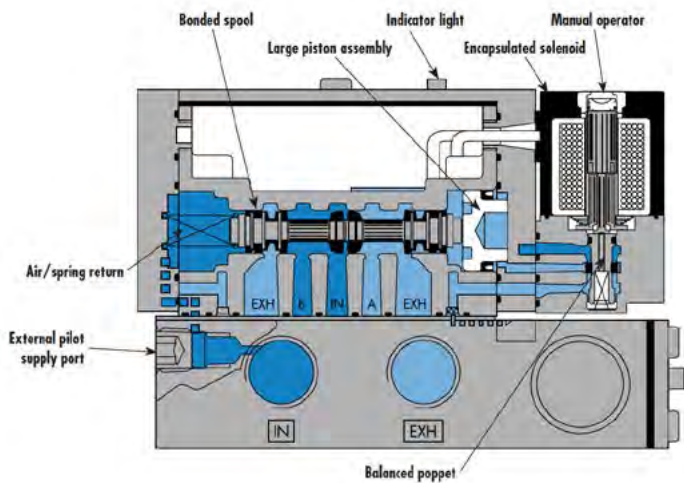
- SMALL 3-WAY
- LARGE 3-WAY
- SMALL 4-WAY
- LARGE 4-WAY
- ISO VALVES
- PPC VALVES
- PULSE VALVES
- BULLET VALVES

OPERATIONAL BENEFITS

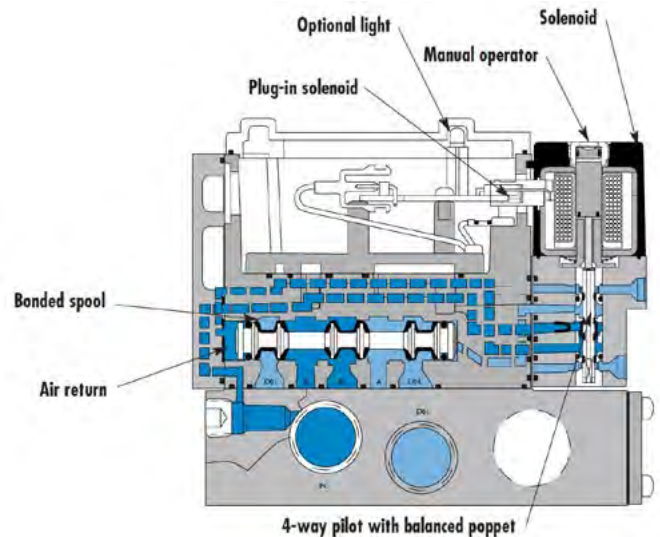
- Unique patented MACSOLENOID for fastest possible response time with its non burnout feature on AC service.
- Unique patented MACSOLENOID for fastest possible response times.
- Balanced poppet pilot valve for high flow, precise repeatability and consistent operation.
- Balanced poppet 4 way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
- Large spool or piston for maximum shifting forces even at minimum operating pressure.
- Air only return. Optional memory spring is also available.
- Air/Spring return for consistent shifting on single solenoid valves.
- MAC spool and bore combination for wiping away contamination, eliminating sticking and for use on lubricated and non-lubricated service.
- Patented, virtually burnout proof AC solenoid.
- Optional low wattage DC solenoids down to 18W (82 series) or 10W (92, 6000, 1300 & ISO series).
- Plug-in design of valves, bases, flow controls and regulators for modular assembly and ease of maintenance.
- Indicator lights in valve body, base or external plug-in connector.
- Plug-in solenoid and optional circuit board to allow for lights, diodes, MOV's and AC rectification
- Very high flow in a very compact package.
- NEMA 4 solenoid enclosure (6000 & ISO series)
- A large checked accumulator for consistent shifting on single and double solenoid models (6300, 6500, 6600, 1300 & ISO 3)
- Internal or external pilot operation: manifolds supplied with optional common external pilot.
- Non-locking manual operators standard on all valves; other types of manual operators available.
- Add-on style circuit bar manifolds provide for additional stations to be added to existing manifold.

EXHAUST

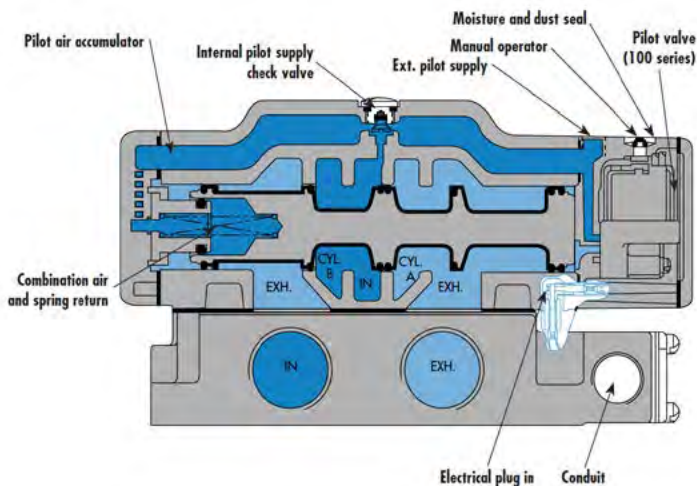
PRESSURE



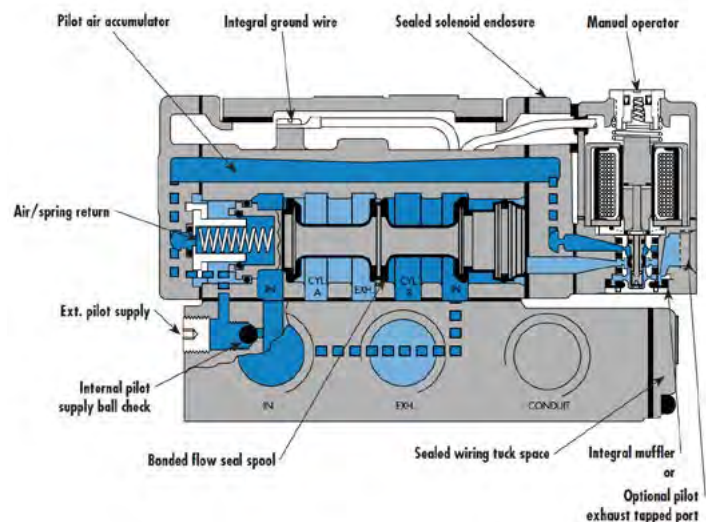
82 Series



92 Series



1300 Series



6500 Series



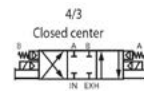
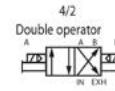
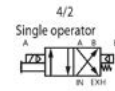
The MAC 82 series is a versatile 4-way solenoid piloted spool valve. This features our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Our balanced spool means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open or can be used vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 82A-AC-000-TM-DDAP-1DA

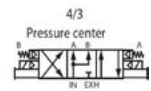
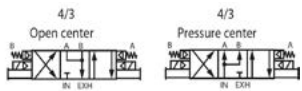
Function	Port size	Flow (Max)	Individual Mounting
4/2, 4/3	1/8"-1/4"-3/8"	1.35 Cv	Sub Base 'Plug-In'/'Non Plug-In'

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- The piston (booster) provides maximum shifting forces.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.
- Long service life.



82 SERIES



82 SERIES VALVE & BASE OPTIONS

82A - X X - X X X - XX - D XX X - X XX
 T T T T T T T T T T
 1 2 3 4 5 6 7 8 9 10

1 - Spool Type - Valve Function

- O Base or Manifold Only
- A Single Solenoid - Single Pressure
- B Double Solenoid - Single Pressure
- C Single Solenoid - Dual Pressure
- D Double Solenoid - Dual Pressure
- E Double Solenoid - 3-Position Closed Center
- F Double Solenoid - 3-Position Open Center
- G Double Solenoid - 3-Position Pressure Center
- H Double Solenoid - 3-Position - Dual Pressure - Pressure Center
- J Single Solenoid - Single Pressure With Solenoid On "B" End
- K Single Solenoid - Dual Pressure With Solenoid On "B" End
- L Double Solenoid - 3-Position Dual Pressure - Open Center
- M Double Solenoid - 3-Position Dual Pressure - Closed Center

2 - Body Type/Lights In Body

- A Plug-in Body
- B Non Plug-in Body
- C Internal Plug-in With Light In Body
 - Single Light 120V Single Light 240V
 - Single Light 24V Double Light 120V
 - Double Light 240V Double Light 24V

3 - Port Size And Thread Type

- O Valve Only
- E 1/4" BSPPL Ports
- F 3/8" BSPPL Ports
- L 1/4" Dual Pressure BSPPL Ports (Individual Base Only)
- M 3/8" Dual Pressure BSPPL Ports (Individual Base Only)

4 - Base/Manifold Configurations

- O Valve Only
- A Individual Base - Standard Porting
- B 1/4" Bottom Ports
- C 1/4" Both Bottom & Side Ports
- D Individual Side Inlet & Exhaust - Bottom Cylinder Ports
- K Manifold Base - Standard Ports
- L Manifold With Bottom Cylinder Ports
- M Manifold With Additional Bottom Inlet
- R Manifold Bottom Inlet & Bottom & End Cylinder Ports

5 - Internal/External Pilot

- O Internal Pilot Valve Only - No Base
- A No Indicator Light
- B Single Indicator Light in Base or Manifold
 - 110V 240V 24V
- C Double Indicator Light in Base or Manifold
 - 110V 240V 24V
- D External Pilot - No Light
 - Individual Base Manifold
- E External Pilot - Single Light in Base or Manifold
 - Individual Base 110V Individual Base 240V
 - Individual Base 24V Manifold 110V
 - Manifold 240V Manifold 24V
- F External Pilot - Double Light in Base or Manifold
 - Individual Base 110V Individual Base 240V
 - Individual Base 24V Manifold 110V
 - Manifold 240V Manifold 24V

6 - Pilot Body

- TM Pilot Valve with muffled exhaust
- TP Pilot Valve with piped exhaust
- TU Pilot Valve; pilot exhaust out main exhaust (Single Pressure Only)

*Continued Next Page

7 - Voltage

AA 120/60, 110/50	AC 24/60, 24/50
AF 240/50	DA 24 VDC (54W)
DB 12 VDC (54W)	DC 12 VDC (7.5W)
DD 24 VDC (7.3W)	DE 12 VDC (12.7W) (CLSF)
DF 24 VDC (12.7W) (CLSF)	FE 12 VDC (24W)
FF 24 VDC (24W)	

8 - Wire Length

Plug-in Valve/Base		Non Plug-in Valve/Base	
P Plug-in 8" - Standard	A 18"	E 72"	
1 18"	4 48"	B 24"	F 96"
2 24"	5 72"	C 36"	J 6"*
3 36"	6 96"	D 48"	

* Lead wire length for external plug-in connectors must be "J"

9 - Manual Operator

- 0 No Operator
- 1 Non-Locking Manual Operator
- 2 Locking Manual Operator
- 3 Non-Locking Extended Manual Operator
- 4 Locking Extended Manual Operator

10 - Electrical Connector

DA Plug-in	BA Grommet
CA Conduit 1/2"	JB Rectangular Plug-in
JD Rectangular Plug-in with Light	JM Rectangular Male Only
KA Mini Plug-in	KB Mini Plug-in with Diode
KC Mini Plug-in with M.O.V.	KD Mini Plug-in with Light
KE Mini Plug-in with Light & Diode	KF Mini Plug-in w/light & M.O.V.
KG Mini Plug-in with LED Light & Diode	

82 Series Pilot Valves - Bodies and Assemblies

TM	Pilot Body Assembly Only
TP	Pilot Body Assembly Only
TU	Pilot Body Assembly Only
TM-DXXY-XXX*	Complete Pilot Valve
TP-DXXY-XXX*	Complete Pilot Valve
TU-DXXY-XXX*	Complete Pilot Valve
TM-RAIX	Complete Remote Air Pilot Valve
TP-RAIX	Complete Remote Air Pilot Valve
TU-RAIX	Complete Remote Air Pilot Valve
TO-RAIX	Remote Air Operator
DXXY-XXX*	Solenoid and Cover Assembly

Note: Low wattage available as complete valves only

82 Series Flow Control Module

FC82A-AA	Plug-in Flow Control Assembly
FC82A-BA	Non Plug-in Flow Control Assembly

82 Series Accessories

N-82005-01	Manifold Fastening Kit
32835 3/8"	Isolation Plugs
M-82003	Blank Station Cover Plate (Manifold)
M-82003-00-1	Blank Station Cover Plate when used with regulator

82 SERIES REMOTE AIR

82A-XX-XXX-RA
TT TTT
1 2 3 4 5

1 - Spool - Valve Function

- 0 Base Only
- A Single Operator — Single Pressure
- B Double Operator — Single Pressure
- E 3-Position Closed Centre
- F 3-Position Open Centre
- G 3-Position - Single Pressure - Pressure Centre
- H 3-Position Dual Pressure, Pressure Centre

2 - Remote Air

- B Remote Air Body

3 - Port Size And Thread Type

- 0 Valve Only — No Base
- D 1/8" BSPPL
- E 1/4" BSPPL
- F 3/8" BSPPL

4 - Base Configurations

- 0 Valve Only — No Base
- A Base with Standard Porting
- B Base with Bottom Ports Only (1/8" or 1/4")
- C Base with Side and Bottom Ports (1/8" or 1/4")
- D Base with Side Inlet and Exhaust and Bottom Cylinder Ports

5 - Single/Double Remote Air Base

- 0 Valve Only — No Base
- A Single Remote Air — Internal Pilot
- D Single Remote Air — External Pilot or Double Remote Air



82 SERIES REGULATOR

PR82A - $\begin{matrix} X & X & X & X & X \\ T & T & T & T & T \\ 1 & 2 & 3 & 4 & 5 \end{matrix}$

1 - Adjustment Type

Manual Adjust With Slotted Stem

- A Plug-in Solenoid
- B Remote Air or Non Plug-in
- C Regulator Only

Air Pilot Adjust (0-120 PSI Only)

- D Plug-in Solenoid
 - Single
 - Double
- E Remote Air or Non Plug-in Body
 - Single
 - Double
- F Regulator Only

Manual Adjust With Locking Knob

- G Plug-in Solenoid
 - Single
 - Double
- H Remote Air or Non Plug-in Body
 - Single
 - Double
- J Regulator Only

Manual Adjust With Locking Slotted Stem

- K Plug-in Solenoid
 - Single
 - Double
- L Remote Air or Non Plug-in
 - Single
 - Double
- M Regulator Only

2 - Configuration

- O Regulator Only
- A Regulator on "A" end (Standard)
- B Regulator on "B" end with by-pass on "A" end
- C Regulator on "A" end with by-pass on "B" end
- D Regulators on both ends
- S Selector to inlet of next valve (Dual Reg.)
- T Selector to inlet of next valve (Sgle. reg. w/by-pass on "A")

3 - Gauges

- A No gauge port
- B Gauge with face perpendicular to manual operator**
 - Single & Double
- C Gauge with face parallel to manual operator**
 - Single & Double
- D Gauge port with pipe plug
 - Single & Double

4 - Pressure Range

- A 0-120 PSI
- B 0-80 PSI
- C 0-30 PSI
- D 0-120 PSI on "A" end
0-80 PSI on "B" end
- E 0-120 PSI on "B" end
0-80 PSI on "A" end
- F 0-120 PSI on "A" end
0-30 PSI on "B" end
- G 0-120 PSI on "B" end
0-30 PSI on "A" end
- H 0-80 PSI on "A" end
0-30 PSI on "B" end
- J 0-80 PSI on "B" end
0-30 PSI on "A" end

5 - Assembly

- 7 Regulator block supplied with extra long screws to be used in conjunction with flow control blocks
- 8 Same as 7 except valve assembles to block
- 9 Regulator block assembled to valve

MAC 82 Series Regulator Accessories

- *N-82013 Extra long screws for sandwich regulator mounted with flow control block.

Note: If option #7 or #8 are ordered in position #5, this kit does not need to be ordered separately

Gauges

Gauge Assemblies

- N-82016-01 (0-120 PSI — "B" option)
- N-82016-02 (0-120 PSI — "C" option)
- N-82016-03 (0-80 PSI — "B" option)
- N-82016-04 (0-80 PSI — "C" option)
- N-82016-05 (0-30 PSI — "B" option)
- N-82016-06 (0-30 PSI — "C" option)

Gauges Only

- 24143-030P
- 24143-100P
- 24143-160P

Gauge Extensions

- 32602 (90°)
- 32603 (Straight)

Note: Gauges called out in regulator must be ordered as separate line item @ N/C

The MAC 83 series is a 4-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons or springs - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are constantly high and response times are repeatable regardless of inlet pressure fluctuations. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 83A-AAD-DM-DDAJ-1JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 4/3	1/4" - 3/8"	1.5 Cv	Vac. to 120PSI	Sub Base 'Plug-In'/Non Plug-In'



83 SERIES

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- The piston (booster) provides maximum shifting forces.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.
- Long service life.

83 SERIES VALVE & BODY OPTIONS

83A - $\begin{matrix} X & X & X \\ T & T & T \\ 1 & 2 & 3 \end{matrix}$ - XX - $\begin{matrix} R \\ D \end{matrix}$ XX X - X XX

1 - Spool Type

- 0 Base Only
- A Single Operator Single Pressure
- B Double Operator Single Pressure
- C Single Operator Dual Pressure
- D Double Operator Dual Pressure
- E 3 Position Closed Center
- F 3 Position Open Center
- G 3 Position Dual Pressure, Pressure Center
- M Single Operator Single Pressure w/ Memory Spring
- N Single Operator Dual Pressure w/ Memory Spring

2 - Internal/External Pilot

- A Internal Pilot
- B Internal Pilot Dual Pressure (supply from #5 port)
- D External Pilot from #14 End
- E External Pilot from #12 End

3 - Port Size And Thread Type

- 0 Valve Only
- C 1/4" BSPPL
- D 3/8" BSPPL

4 - Pilot Body

- DM Muffled Pilot Exhaust
- TM Muffled Pilot Exhaust

83 SERIES: DM SOLENOID PILOT OPTIONS

D $\begin{matrix} XX & X & - & X & XX \\ T & T & T & T \\ 1 & 2 & 3 & 4 \end{matrix}$

5 - Voltage

- | | |
|--------------------|--------------------|
| JA 120/60, 110/50 | JF 240/50 |
| JC 24/60, 24/50 | DA 24 VDC (54W) |
| DB 12 VDC (54W) | DE 12 VDC (12.7W)* |
| DF 24 VDC (12.7W)* | FE 12 VDC (24W) |
| FF 24 VDC (24W) | |

* MOD CLSF Only

6 - Lead Wire Length - Longer Options Available

- A 18" Coil leads
- J External plug-in lead

7 - Manual Operator

- | | |
|------------------------|----------------------------|
| 0 No operator | 1 Non-locking manual op. |
| 2 Locking manual op. | 3 Non-locking extended op. |
| 4 Locking extended op. | |

8 - Electrical Connector

- | | |
|--------------------------------------|---------------------------------|
| BA Grommet | BK Grommet with diode |
| BL Grommet with M.O.V. | CA Conduit 1/2" |
| JB Rectangular plug-in - No Light | JD Rectangular plug-in w/light |
| JM Rectangular male only | KA Mini plug-in |
| KB Mini plug-in w/ diode | KC Mini plug-in w/ M.O.V. |
| KD Mini plug-in w/ light | KE Mini plug-in w/light & diode |
| KF Mini plug-in w/ light & M.O.V. | |
| KG Mini plug-in w/ LED light & diode | |

Complete Pilot Valve

- DMB-DXXX-XXX-1 Pilot Valve



83 SERIES - SINGLE REMOTE AIR

83A - $\begin{matrix} \text{X} & \text{X} & \text{X} & \text{DM} & \text{RA1} & \text{X} \\ \text{1} & \text{2} & \text{3} & \text{4} & \text{5} & \text{6} \end{matrix}$

1 - Spool Type

- 0 Base Only
- A Single Operator Single Pressure
- C Single Operator Dual Pressure
- M Single Operator Single Pressure with Memory Spring
- N Single Operator Dual Pressure with Memory Spring

2 - Internal/External Pilot

- A Internal Pilot
- B Internal Pilot Dual Pressure (supply from #5 port)
- D External Pilot from "14" End
- E External Pilot from "12" End

3 - Cylinder Port Size And Thread Type

- 0 Valve Only
- C 1/4" BSPPL
- D 3/8" BSPPL

4 - Pilot Body

- DM Muffled Exhaust

5 - Remote Pilot Operator

- RA1 Pilot Operator

6 - Pilot Port Size and Thread Type

- 4 1/8" BSPPL

83 SERIES - DOUBLE REMOTE AIR

83A - $\begin{matrix} \text{X} & \text{X} & \text{X} & \text{RA} \\ \text{1} & \text{2} & \text{3} & \end{matrix}$

1 - Spool Type

- 0 Base Only
- B Double Op. Sgle. Prs.
- D Double Op. Dual Prs.
- E 3 Position Closed Center
- F 3 Position Open Center
- G Dual Pressure Pressure Center

2 - External Pilot

- F Remote Air

3 - Port Size & Thread Type

- 0 Valve Only
- C 1/4" BSPPL
- D 3/8" BSPPL

83 SERIES - CIRCUIT BAR (EBM)

EBM83A - $\begin{matrix} \text{XX} & \text{X} & \text{X} & \text{X} & \text{X} & \text{XX} & \text{9} \\ \text{1} & \text{2} & \text{3} & \text{4} & \text{5} & & \end{matrix}$

1 - Spacing

- 00 254mm Spacing

2 - Configuration

- A Side Port
- B Bottom Port
- C Regulator w/Bottom Ports

3 - Style

- A Standard Bar Internal Pilot
- B Standard Bar External Pilot

4 - Port Size & Thread Type

- D 1/8" BSPPL
- E 1/4" BSPPL

5 - Stations

- Number of Stations (02, 03, 04, etc.)

Note: Regulators priced separately

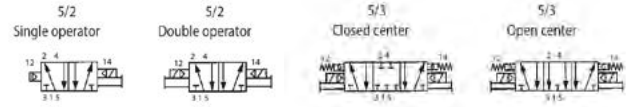
The MAC 92 series is a 4-way spool valve pilot operated by a small direct operated 4-way solenoid valve - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 92B-ABA-000-DM-DJCJ-2JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 4/3	1/8"-3/8"	1.2 Cv	Int.: 20-120PSI, 3 pos.: 35-120PSI Ext.: vac. to 120PSI, 3 pos.: 35-120PSI	Sub Base 'Plug-In'/ 'Non Plug-In'

OPERATIONAL BENEFITS

- The 4-way pilot develops maximum shifting forces both ways.
- Memory spring available.
- Balanced spool, immune to variations of pressure, also provides high flow.
- Short stroke with high flow.
- Bonded seal spool with minimum friction, shifting in a glass-like finished bore.
- Pilot with balanced poppet, high flow; short and consistent response times.



92 SERIES VALVE & BASE OPTIONS

92B - X X X - X X X - XX - D XX X - X XX
 1 2 3 4 5 6 7 8 9 10 11

1 - Spool Type - Valve Function

- 0 Base Only
- A Single Solenoid - Single Pressure
- B Double Solenoid - Single Pressure
- C Single Solenoid - Dual Pressure
- D Double Solenoid - Dual Pressure
- E Double Solenoid - 3 Position Closed Centre
- F Double Solenoid - 3 Position Open Centre
- G Double Solenoid - 3 Position Pressure Centre
- H Double Sol. - 3 Position Dual Pres., Pres. Centre
- J Double Sol. - 3 Position Dual Pres., Closed Centre
- K Double Solenoid - 3 Position Open Centre
- L Single Solenoid - Single Pressure w/Memory Spring
- N Single Solenoid - Dual Pressure w/Memory Spring

2 - Plug-In/Non Plug-In - Pilot Exhaust

- 0 Base Only
- A Plug-In Standard Exhaust
- B Non Plug-In Standard Exhaust
- C Plug-In w/Pilot Exst. to Main Exst. (DU Pilot Only)
- D Non Plug-In w/Pilot Exst. to Main Exst. (DU Pilot Only)

3 - Body Options

- 0 Base Only
- A No Light in Top
- B Light in Top

110V AC	220/240V AC	24V AC
12VDC	24VDC	

4 - Port Size And Thread Type

- 0 Basic Valve Only
- D 1/8" BSPPL
- E 1/4" BSPPL
- F 3/8" BSPPL

5 - Base/Manifold Configurations

- 0 Basic Valve Only
- A Side Ports (Individual Base)
- B Bottom Ports Only (1/8" only) (Individual Base)
- C Side & Bottom Ports (1/8" only) (Individual Base)
- D Side Inlet & Exhaust, Bottom Cylinder Ports (1/8" only) (Individual Base)
- J Side Cyl. Ports (Manifold Base)

6 - Internal/External Pilot - Base Light Options

- 0 Basic Valve Only
- A Internal Pilot - No Light In Base
- B Internal Pilot - Single Light In Base

110 Volt	240 Volt	24 Volt
----------	----------	---------
- C Internal Pilot - Double Light In Base

110 Volt	240 Volt	24 Volt
----------	----------	---------
- D External Pilot - No Light In Base
- E External Pilot - Single Light In Base

110 Volt	240 Volt	24 Volt
----------	----------	---------
- F External Pilot Double Light In Base

120 Volt	240 Volt	24 Volt
----------	----------	---------
- G Non Plug-In Internal Pilot
- H Non Plug-In External Pilot

7 - Pilot Body Exhaust Options

- DM Pilot Valve w/muffled exhaust
- DP Pilot Valve w/piped exhaust
- DU Pilot Valve; pilot exhaust out main exhaust



92 SERIES VALVE & BASE OPTIONS

92B - $\begin{matrix} X & X & X \\ \text{T} & \text{T} & \text{T} \end{matrix}$ - $\begin{matrix} X & X & X \\ \text{T} & \text{T} & \text{T} \end{matrix}$ - $\begin{matrix} XX \\ \text{T} \end{matrix}$ - D $\begin{matrix} XX & X \\ \text{T} & \text{T} \end{matrix}$ - $\begin{matrix} X & X \\ \text{T} & \text{T} \end{matrix}$

1 2 3 4 5 6 7 8 9 10 11

8 - Voltage

JA*	120/60, 110/50	JC	24/60, 24/50
JF*	240/50	DA	24 VDC (54W)
DB	12 VDC (54W)	FA	12 VDC (1.8W)
FB	24 VDC (1.8W)	FE	12 VDC (24w)
FF	24 VDC (24W)		

* Must use electrical connection with ground wire

9 - Lead Wire Length

P	Plug-in 8" Standard
1	18" Base Leads
0	No Wires
A	18" Coil Leads
J	External Plug-In Lead

10 - Manual Operator

0	No Operator
1	Non-Locking Manual Operator
2	Locking Manual Operator
3	Non-Locking Extended Manual Operator
4	Locking Extended Manual Operator

11 - Electrical Connector

DG	Plug-In w/Ground	DH	Plug-In w/Diode & Ground
DJ	Plug-In w/M.O.V. & Ground	DM	Plug-In
DN	Plug-In w/Diode	BA	Grommet - Flying Lead
BK	Grommet w/Diode		
JB	Rectangular Plug-In - No Light	JD	Rectangular Plug-In w/Light
JM	Rectangular Male Only	KA	Mini Plug-In
KB	Mini Plug-In w/Diode	KC	Mini Plug-In w/M.O.V.
KD	Mini Plug-In w/Light	KE	Mini Plug-In w/Light & Diode
KF	Mini Plug-In w/Light & M.O.V.		
KG	Mini Plug-In w/LED Light & Diode		

OPTIONAL ACCESSORIES

Flow Control Module

FC92B-AA	Plug-in Flow Control Assembly - Single Sol.
FC92B-BA	Plug-in Flow Control Assembly - Double Sol.
FC92B-CA	Non Plug-in Flow Control Assembly

Modifications

416G	2 1/2 Ft. Prewired Cord (For Mini Connector)
416K	6 Ft Prewired Cord (For Mini Connector)
416L	10 Ft Prewired Cord (For Mini Connector)

Pilot Valves - Bodies and Assemblies

DMB-A1	4-Way Pilot Body (Muffled Exhaust)
DPB-A1	4-Way Pilot body (Piped Exhaust)
DUB-A1	4-Way Pilot body (Pilot Exhaust to main Exhaust)
DMB-DXXX-XXX1	Complete Pilot Valve (4-Way)
DPB-DXXX-XXX1	Complete Pilot Valve (4-Way)
DUB-DXXX-XXX1	Complete Pilot Valve (4-Way)
DMB-RA11	Complete Remote Air Pilot Valve (4-Way)
RDM001-01	Remote Air Operator (used w/ 4-Way Body)

Manifold Accesories

M-92004-01-01P	(BSPPL) Manifold End Plate Kit Internal Pilot
M-92004-02-01P	(BSPPL) Manifold End Plate Kit External Pilot
M-92002	Blank Station Cover Plate Kit
M-92002-01	Blank Station Cover Plate Kit Sgl Pressure Inlet to "B" Port
M-92002-02	Blank Station Cover Plate Kit Dual Pressure Inlet to "A" & "B" Ports
N-92018	Inlet and Exhaust Isolater Disc

Note: Low wattage available as complete valves only

92 SERIES - REGULATOR

PR92C - $\begin{matrix} X & X & X & X & - & X \\ T & T & T & T & - & T \\ 1 & 2 & 3 & 4 & & 5 \end{matrix}$

1 - Adjustment Type

Manual adjust with slotted stem

- | | |
|---------------------------|---------------------------|
| A Plug-In Single Solenoid | B Plug-In Double Solenoid |
| C Non Plug-In | D Regulator Only |

Air pilot adjust (0-120 PSI only)

- | | |
|---------------------------|---------------------------|
| E Plug-In Single Solenoid | F Plug-In Double Solenoid |
| G Non Plug-In | H Regulator Only |

Manual adjust with locking knob

- | | |
|---------------------------|---------------------------|
| J Plug-In Single Solenoid | K Plug-In Double Solenoid |
| L Non Plug-In | M Regulator Only |

Manual adjust with locking slotted stem

- | | |
|---------------------------|---------------------------|
| N Plug-In Single Solenoid | P Plug-In Double Solenoid |
| R Non Plug-In | S Regulator Only |

2 - Configuration

- O Regulator Only
- A Regulator "A" End
- B Regulator "B" End
- C Regulator "A" End With By-Pass On "B" End
- D Regulator "B" End With By-Pass On "A" End
- E Regulators Both Ends
- P Select To "A" Port - Regulator "A" End With By-Pass On "B" End
- R Select To "B" Port - Regulator "B" End With By-Pass On "A" End
- S Select To "A" Port - Regulators Both Ends
- T Select To "B" Port - Regulators Both Ends

3 - Gauges

- A Gauge Port (Plugged)
- B Gauge With face Perp. To Manual Operator
- C Gauge With Face Parallel to Manual Operator

Note: Gauges ordered in regulator must be called out as separate line item at N/C

4 - Pressure Range

- A 0-120 PSI
- B 0-80 PSI
- C 0-30 PSI
- D 0-120 PSI On "A" End 0-80 PSI On "B" End
- E 0-120 PSI On "B" End 0-80 PSI On "A" End
- F 0-120 PSI On "A" End 0-30 PSI On "B" End
- G 0-120 PSI On "B" End 0-30 PSI On "A" End
- H 0-80 PSI On "A" End 0-30 PSI On "B" End
- J 0-80 PSI On "B" End 0-30 PSI On "A" End

5 - Assembly

- 9 Regulator Block Assembled To Valve

Gauge assemblies

- | | |
|------------|--|
| N-92006-01 | (23mm Gauge w/90° Fitting) 0-160 PSI Perpendicular |
| 24177-160 | (23mm Gauge - No Fitting) 0-160 PSI Parallel |
| N-92006-02 | (23mm Gauge w/90° Fitting) 0-100 PSI Perpendicular |
| 24177-100 | (23mm Gauge - No Fitting) 0-100 PSI Parallel |
| N-92006-03 | (23mm Gauge w/90° Fitting) 0-60 PSI Perpendicular |
| 24177-60 | (23mm Gauge - No Fitting) 0-60 PSI Parallel |
| N-92004-01 | (15mm Gauge w/90° Fitting) |
| N-92004-02 | (15mm Gauge w/Straight Fitting) |
| 24165-150 | (15mm Gauge - No Fitting) |

92 SERIES - CIRCUIT BAR

CBM092B - $\begin{matrix} XX & X & X & X & - & XX & - & XX & - & 9 \\ T & T & T & T & - & T & - & T & - & T \\ 1 & 2 & 3 & 4 & & 5 & & 6 & & \end{matrix}$ Valves and cover plates assembled to valve

1 - Spacing

- 01 25mm Spacing
- 03* 30mm Spacing (required Spacing for Terminal Strip with or without Light)

2 - Configuration

- A Side Cylinder Port
- B Bottom Cylinder Ports

3 - Style

- A Standard Bar
- B Add-on Style Bar (Includes End Plate)
- C Add-a-Unit Station
 - 25mm-Single Station
 - 30mm-Single Station

4 - Port Size & Thread Type

- B 1/8" BSPPL
- E 1/4" BSPPL
- H 3/8" BSPPL

5 - Terminal Strip/Lights

- AA Standard w/Light (120 V)
- AB Standard w/Light (240 V)
- AD Standard w/Light (24 V)

6 - Stations

- Number of Stations (01, 02, 03, etc.)

Accessories

- | | |
|-------------|--|
| M-92001-01P | Right Hand End Plate Kit |
| 28413 | Isolator Disc (Inlet/Exhaust) |
| M-92002 | Blank Station Cover Plate |
| M-92002-01 | Blank Station Cover Plate |
| | Single Pressure |
| | Inlet to Cylinder B |
| M-92002-02 | Blank Station Cover Plate |
| | Dual Pressure |
| | Inlet to Cylinder A, Inlet to Cylinder B |



The MAC 93 series is a 4-way spool valve pilot operated by a small direct operated 4-way solenoid valve - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 93A-AAB-000-DM-DDAP-1DG

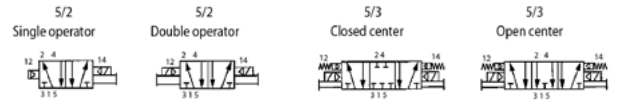
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	3/8" - 1/2"	3.8 Cv	Int.: 20-120PSI Ext.: Vac. to 120PSI	Inline

OPERATIONAL BENEFITS

- Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof solenoid operation.
- Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
- Air only return. Optional memory spring is also available.
- Optional low wattage DC solenoid down to 1 watt.
- MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.



93 SERIES



93 SERIES - VALVE OPTIONS

93A - X X X - X X X - XX - D XX X - X XX
 1 2 3 4 5 6 7 8 9 10 11

1 - Spool Type - Valve Function

- 0 Base Only
- A Single Solenoid Single Pressure
- B Double Solenoid Single Pressure
- C Single Solenoid Dual Pressure
- D Double Solenoid Dual Pressure
- E Double Solenoid 3 Position Closed Center
- F Double Solenoid 3 Position Open Center
- H Double Solenoid 3 Position Dual Pres., Pres. Center
- L Single Solenoid Single Pressure w/ Memory Spring
- K Double Solenoid 3 Position Dual Pres. Open Center
- J Double Solenoid 3 Position Dual Pres. Closed Center
- N Single Solenoid Dual Pressure w/ Memory Spring
- R Universal Spool, Single Solenoid
- S Universal Spool, Double Solenoid

2 - Plug-In/Non Plug-In - Pilot Exhaust

- 0 Base Only
- A Plug-In Standard Exhaust
- B Non Plug-In Standard Exhaust
- J Inline Body

3 - Body Options

- 0 Base Only/Inline
 - A No Light in Top
 - B Light in Top
- | | | |
|---------|-------------|--------|
| 110V AC | 220/240V AC | 24V AC |
| 12V DC | 24V DC | |

4 - Port Size And Thread Type

- 0 Basic Valve Only
- E 3/8" BSPPL
- F 1/2" BSPPL

5 - Base/Manifold Configurations

- 0 Basic Valve Only/Inline
- A Side Ports (Individual Base)
- B Bottom Ports Only (3/8" only) (Indiv. Base)
- C Side & Bottom Ports (3/8" only) (Indiv. Base)
- D Side Inlet & Exhaust, Bottom Cylinder Ports (3/8" only) (Individual Base)
- J Side Cyl. Ports (Manifold Base)
- K Bottom Cyl. Ports (Manifold Base)

6 - Internal/External Pilot - Base Light Options

- 0 Basic Valve Only
- A Internal Pilot - No Light In Base
- B Internal Pilot - Single Light In Base
- C Internal Pilot - Double Light In Base
- D External Pilot - No Light In Base
- E External Pilot - Single Light In Base
- F External Pilot Double Light In Base
- G Non Plug-In Internal Pilot
- H Non Plug-In External Pilot
- J Internal Pilot (Inline Valve)
- K External Pilot (Inline Valve)

7 - Pilot Body Exhaust Options

- DM Pilot Valve w/muffled exhaust
- DP Pilot Valve w/piped exhaust
- DU Pilot Valve w/exhaust to main exhaust

Continued Next page

93 SERIES - BASE OPTIONS

93A - $\begin{matrix} X & X & X & - & X & X & X & - & XX & - & D & XX & X & - & X & XX \\ T & T & T & T & T & T & T & T & T & T & T & T & T & T & T & T \\ 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 \end{matrix}$

8 - Voltage

JA*	120/60, 110/50
JC	24/60, 24/50
JF*	240/50
DA	24 VDC (54W)
DB	12 VDC (54W)
DE	12 VDC (12.7W) (CLSF)
DF	24 VDC (12.7W) (CLSF)
FE	12 VDC (24w)
FF	24 VDC (24W)

* Must use electrical connection with ground wire

9 - Lead Wire Length

P	Plug-in 8" Standard
1	18" Base Leads
0	No Wires
A	18" Coil Leads
J	External Plug-In Lead (use with "J" or "K" type electrical connector)

10 - Manual Operator

0	No Operator
1	Non-Locking Manual Operator
2	Locking Manual Operator
3	Non-Locking Extended Manual Operator
4	Locking Extended Manual Operator

Flow Control Module

FC93A-AA	Plug-in Flow Control w/ Screwdriver slot
FC93A-AB	Plug-in Flow Control w/ Locking Knob
FC93A-BA	Non Plug-in Flow Control w/ Screwdriver slot
FC93A-BB	Non Plug-in Flow Control w/ Locking Knob

Note: If flow control module is to be installed between valve and base at the factory, add -9 after the flow control module number.

For example: FC93A-AA-9

Pilot Valves - Bodies and Assemblies

DMB-A1	4-Way Pilot Body (Muffled Exhaust)
DPB-A1	4-Way Pilot body (Piped Exhaust)

11 - Electrical Connector

JB	Rectangular Plug-In
BA	Grommet
DG	Plug-In w/ Ground
JD	Rectangular Plug-In w/Light
JM	Rectangular Male Only
JA	Square Plug-In
JC	Square Plug-In with light
JJ	Square Male Only
KA	Mini Plug-In
KB	Mini Plug-In w/Diode
KC	Mini Plug-In w/M.O.V.
KD	Mini Plug-In w/Light
KE	Mini Plug-In w/Light & Diode
KF	Mini Plug-In w/Light & M.O.V.
KG	Mini Plug-In w/LED Light & Diode
KJ	Mini Plug-In Male Only
KK	Mini Plug-In Male Only w/Diode
KL	Mini Plug-In Male Only w/M.O.V.

Note: Further Voltage & Plug-In options available

Manifold Accesories

M-93001-01-01P	(BSPPL) Manifold End Plate Kit Internal Pilot
M-93001-02-01P	(BSPPL) Manifold End Plate Kit External Pilot
M-93002	Blank Station Cover Plate Kit
M-93002-01	Blank Station Cover Plate Kit - Inlet to Cyl B
M-93002-02	Blank Station Cover Plate Kit - Inlet to Cyl A & B
N-93008	Isolator Disc For Inlet and/or Exhausts



800 SERIES

The MAC 800 series is a versatile 4-way solenoid piloted spool valve. This series features our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Versatility in piping means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance.

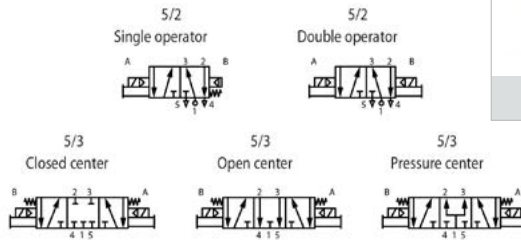
For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 811C-PM-111JD-155

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	1/4"	14 Cv	Int.: sgle. op. & 3 pos.: 20-150PSI, dble. op.: 10-150PSI Ext.: vac. to 200PSI	Inline

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- The piston (booster) provides maximum shifting forces.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.
- Long service life.



800 SERIES

800 SERIES

8 X X C - XX - XX X XX - X X X
 1 2 3 4 5 6 7 8 9

1 - Operator

- 1 Single Solenoid
- 2 Double Solenoid

2 - Pilot Air

- 1 Internal Pilot - 2 Position
- 2 External Pilot - 2 Position
- 5 Internal Pilot - 3 Position
- 6 External Pilot - 3 Position

3 - Pilot Exhaust

PM Pilot Exh. Muffled PP Pilot Exh. Piped

4 - Voltage

AC Voltage			
11	120/60, 110/50	22	24/50-60
39	240/50		
DC Voltage			
50	24VDC (6W)	55	12VDC (6W)
57	12VDC (2.5W)	59	24VDC (2.5W)
60	12VDC (8.5W)	61	24VDC (8.5W)

Other AC & DC Voltages available. DC wattages from 1.0 to 17 watts.

5 - Manual Operators

- | | |
|--------------------|-------------------------------|
| 0 No Operator | 1 Non-Locking Recessed (Std.) |
| 2 Locking Recessed | 3 Non-Locking Extended |
| 4 Locking Extended | |

6 - Enclosure

- | | |
|----------------------|-------------------------|
| BA Grommet | JB Rectangle - No Light |
| CA Conduit 1/2" NPS | JC Square With Light |
| JA Square - No Light | JD Rectangle With Light |

7 - Spool Configurations

- 1 Single Pressure Position
- 2 Dual Pressure 2 Position
- 5 Single Pressure 3 Position Closed Centre
- 6 Single Pressure 3 Position Open Centre
- 7 Dual Pressure 3 Position Pressure Centre*
- 8 Single Pressure 3 Position Pressure Centre

* - Not available on models with integral flow controls.

8 - Body Configurations

- 1 Individual Stacking Body, External Pilot
- 2 Stacking Body, 3 Common Ports (inlet & Exhausts)
- 9 Port Size
- 5 1/4" BSPP
- 6 3/8" BSPP (Stacking valves only)

9 - Port Size

- 5 1/4" BSPP
- 6 3/8" BSPP

ISOLATORS - Sections of a gang may be isolated permitting different pressures to be fed to either end of the gang.
Part# N-08001 (inlet), N-08002 (exhaust).

ACCESSORIES - MANIFOLD END PLATE KITS (BSPP)

Internal Pilot Part No.	External Pilot Part No.	Models Used With...
M-08001-01-01P	M-08001-02-01P	3 com. port or 1 com. port models, stacks of 1 thru 16 valves.
M-08002-01-01P	M-08002-02-01P	Com. conduit models, stacks of 1 thru 16 valves.
M-00005-01-01P	M-00005-02-01P	3 com. port or 1 com. port models, stacks of 17 or more valves.
M-00007-01-01P	M-00007-02-01P	Com. conduit models, stacks of 17 more valves.

MODIFICATIONS

Mod. No.	Description	Model Availability
0358	3/8" inlet and cylinder ports	Individual Valves
<i>Example: 811C-PM-111DA-155 MOD 0358</i>		

800 SERIES - CIRCUIT BAR (EBM)

EBM800A - $\frac{XX}{1} \frac{X}{2} \frac{X}{3} \frac{XX}{4} - \frac{9}{T}$
Valves and cover plates assembled to valve

1 - Spacing

00 31mm Spacing (Std.)

2 - Configuration

- 1 Standard Common Inlet & Exhaust
- 2 Standard with Flow Controls

3 - Port Size & Thread Type

B 3/8" BSPPL

4 - Stations

Number of Stations (02, 03, 04, etc.)

Accessories

- Blanking Plate — M-08008
- Flow Control Assembly — N-08006

800 SERIES - CIRCUIT BAR (EBI)

EBI800A - $\frac{XX}{1} \frac{X}{2} \frac{X}{3} \frac{XX}{4} - \frac{9}{T}$
Valves and cover plates assembled to valve

1 - Spacing

00 31mm Spacing

2 - Configuration

- 1 Valve Mount

3 - Port Size & Thread Type

B 3/8" BSPPL

4 - Stations

Number of Stations (02, 03, 04, etc.)

Accessories

- M-08011 Blank Station Cover Plate



The MAC 1300 series is a versatile 4-way solenoid piloted spool valve. This series features our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Versatility in piping means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 1303G-111D-3

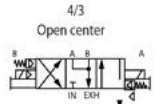
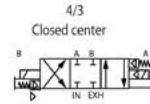
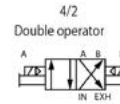
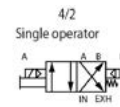
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 4/3	3/4"-1"-1 1/4"-1 1/2"	15.9 Cv	Int.: sgle. op. & 3 pos.: 25-150PSI, dble. op.: 10-150PSI, Ext.: vac. to 150PSI	Individual Sub Base Plug-in

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- High shifting forces.
- Checked accumulator guarantees maximum pilot pressure.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



1300 SERIES



1300 SERIES

13 X X G - XX - X D - X X
1 2 3 4 5 6

1 - Port Size

- 0 Valve Only - No Base
- 2 3/4" Base
- 3 1" Base
- 5 1 1/4" Base
- 6 1 1/2" Base

2 - Operator

- 1 Single Solenoid
- 3 Double Solenoid
- 7 3 Position Closed Centre
- 8 3 Position Open Centre

3 - Voltage

AC Voltage

11	120/60, 110/50	22	24/50-60
39	240/50		

DC Voltage

50	24VDC (6W)	55	12VDC (6W)
60	12VDC (8.5W)	61	24VDC (8.5W)

Other AC & DC voltages available. DC wattages up to 17 watts for faster response times.

4 - Manual Operators

- 0 No Operator
- 1 Non-Locking Recessed
- 2 Locking Recessed
- 3 Non-Locking Extended
- 4 Locking Extended

5 - Pilot & Pipe Thread

- 3 Internal Pilot BSPP
- 4 External Pilot BSPP

6 - Indicator Light

- 5 With Light

BASES ONLY:

10952-00-05P	3/4" BSP Single Solenoid
10953-MOD-005	1" BSP
10954-00-05P	1/4" BSP

SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

ISO VALVES

PPC VALVES

PULSE VALVES

BULLET VALVES

The MAC 1800 series is a versatile 4-way mechanical valve. This series features a wide variety of manual operator options, from levers and push-buttons to cams and remote air operated versions. Versatility in piping means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

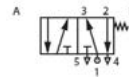
Stock Part Number: 1800001-115-0003

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2	1/4"	14 Cv	Vac. to 200PSI	Inline

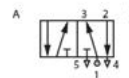
OPERATIONAL BENEFITS

- Short stroke with high flow.
- Powerful return force.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Long service life.

Single operator



Double operator



1800 SERIES

18 XXXX - YYY - XXXX
 Oper. B Body Oper. A

Mechanical Operator A & B

- 0001 Spring (Use 02 on Push/Pull)
- 0002 Retainer (Used with 0034, 0035, & 0039)
- 0003 Pilot (2-Pos.)
- 0004 Pilot Sequence
- 0006 Spring retainer end mount
- 0010 Side pilot (2-Pos.)
- 0011 Side pilot w/Manual operator & Indicator (2-Pos.)
- 0012 Side pilot sequence
- 0013 Lever cam perpendicular to ports 2 & 3
- 0014 Lever cam parallel to ports 2 & 3
- 0021 Lever locking push perpendicular to body
- 0022 Lever non-locking push perpendicular to body
- 0023 Lever locking pull perpendicular to body
- 0024 Lever non-locking pull perpendicular to body
- 0025 Lever locking push parallel to body
- 0026 Lever non-locking push parallel to body
- 0027 Lever locking pull parallel to body
- 0028 Lever non-locking pull parallel to body
- 0031 Push button
- 0032 Push button (panel mounting)
- 0033 Push button with guard
- 0034 Push Pull
- 0035 Push Pull (panel mounting)
- 0036 Palm button
- 0037 Palm button (panel mounting)
- 0038 Palm button with guard
- 0039 Push Pull palm button
- 0111 Cam roller parallel to ports 2 & 3
- 0112 Cam roller perpendicular to ports 2 & 3

Body - Note: Port 2 & 3 always = Cylinder Ports

Indiv. Body - Ext. All 1/4" BSP, Individual Body

- 115 2 Pos - Single Pressure
- 215 2 Pos - Dual Pressure
- 515 3 Pos - Closed Centre
- 615 3 Pos - Open Centre
- 715 3 Pos - Pressure Centre, Dual Pressure,
- 815 3 Pos - Pressure Centre, Single Pressure, (Port 1 Inlet)

Stack - 3 Common Ports. All 1/4" BSP, Stacking Body

- 125 2 Pos - Single Pressure
- 225 2 Pos - Dual Pressure
- 525 3 Pos - Closed Centre
- 625 3 Pos - Open Centre
- 725 3 Pos - Pressure Control, Dual Pressure Ports 4&5 Inlet
- 825 3 Pos - Pressure Control, Single Pressure Port 1 Inlet

Accessories

- M - 08003 Dual inlet block
- N - 08001 Isolator plug port #1
- N - 08002 Isolator plug ports #4 and #5
- 10951 Flow control and muffler
- M - 08001 - 03 - 01P* Manifold end plate kit (style A)
- M - 18001 - 02 - 01P* Manifold end plate kit (style B)
- M - 00005 - 03 - 01P** Manifold end plate kit (style A)

*For stacks of 1 thru 16 valves

**For stacks of 17 valves or more

002X - Replace '0' with '2' for lever operator with Boot



The MAC 2700 series is a versatile 4-way remote air operated valve with large flow capabilities. Versatility in piping means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 2703G-3

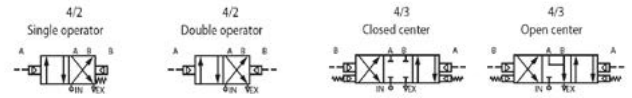
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 4/3	3/4"-1"-1 1/4"-1 1/2"	15.9 Cv	Vac to 150PSI	Sub-Base

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- The piston (booster) provides maximum shifting forces.
- Powerful return thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Low leakage rate.



2700 SERIES



2700 SERIES

27 $\begin{matrix} X & X & G & - & X \\ T & T & & & T \\ & & & & 3 \end{matrix}$

1 - Port Size

- 0 Valve Less Base
- 2 3/4" Base
- 3 1" Base
- 5 1 1/4" Base
- 6 1 1/2" Base

2 - Operator

- 1 Single Pilot
- 3 Double Pilot
- 7 3 Position Closed Centre
- 8 3 Position Open Centre

3 - Pilot & Pipe Thread Options

- 0 No Operator
- 1 Non-Locking Recessed
- 2 Locking Recessed
- 3 Non-Locking Extended
- 4 Locking Extended

BOTTOM PORTS Available only on 3/4" valves.

For bottom ports only, specify MOD 0002. For side and bottom ports, specify 0004.

BASE ONLY

- 10986-1P 3/4" BSP
- 10987-1P 1" BSP
- 10988-1P 1 1/4" BSP
- 10989-1P 1 1/2" BSP

SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

ISO VALVES

PPC VALVES

PULSE VALVES

BULLET VALVES

6200 SERIES

The MAC 6200 series is a versatile, 4-way, solenoid-piloted spool valve. Balanced poppet in the pilot and an air/spring return for consistent shifting, regardless of inlet pressure fluctuations. Balanced spool means valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open, and can be used for vacuum, diverter or selector applications. One piece, bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 6211C-000-PM-111DA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 4/3	1/4" - 3/8"	1.6 Cv	Vac. to 150PSI	Sub-Base

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- High shifting forces.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



6200 SERIES

62 $\begin{matrix} X & X & C \\ \hline 1 & 2 \end{matrix}$ - $\begin{matrix} X & X & X \\ \hline 3 & 4 & 5 \end{matrix}$ - $\begin{matrix} XX \\ \hline 6 \end{matrix}$ - $\begin{matrix} XX & X & X \\ \hline 7 & 8 & 9 \end{matrix}$

1 - Function

- | | |
|----------------------------|--------------------------|
| 1 Single Solenoid | 2 Double Solenoid |
| 3 3 Position Closed Centre | 4 3 Position Open Centre |

2 - Body Type

- | | |
|--------------------------|-----------------------------|
| 1 Plug-In | 2 Non Plug-In Or Remote Air |
| 3 Plug-In Lights In Body | |

3 - Port Size

- | | |
|----------------------|-----------------|
| 0 Valve Only-No Base | 1 1/4" Base |
| 2 3/8" Base | 4 1/4" Manifold |
| 5 3/8" Manifold | |

4 - Pilot Air - BSPP Options

- | | |
|--------------------------------------|--------------------------------|
| 0 Valve Only-No Base | 5 Internal Pilot |
| 6 External Pilot | 7 Int. Pilot (Sgl. Remote Air) |
| 8 External Pilot (Double Remote Air) | |

5 - Porting Options

- | | |
|--|----------------------------------|
| 0 Valve Only-No Base | 1 Side Ports without lights |
| 2 Side Ports with lights (Sgl. Sol.) | 3 Side Ports w/lights (Dbl. Sol) |
| 4 Bottom Ports without lights | |
| 5 Bottom Ports with lights (Single Solenoid) | |
| 6 Bottom Ports with lights | |
| 7 Side & bottom Ports without lights* | |
| 8 Side & bottom Ports with lights (Single Solenoid)* | |
| 9 Side & bottom Ports with lights (Double Solenoid)* | |

*Manifold Bases Only

6 - Pilot Exhaust

- | | |
|--------------------------|------------------------|
| PM Pilot Exhaust Muffled | PP Pilot Exhaust Piped |
| RA Remote Air | |

If RA is selected XX & Y options do not apply. Other AC & DC voltages available. DC wattages from 1.0 up to 17 watts.

7 - Voltage

<i>AC Voltage</i>	
11 120/60, 110/50	22 24/50-60
39 240/50	
<i>DC Voltage</i>	
50 24VDC (6W)	55 12VDC (6W)
57 12VDC (2.5W)	59 24VDC (2.5W)
60 12VDC (8.5W)	61 24VDC (8.5W)

8 - Manual Operators

- | | |
|--------------------|----------------------------|
| 0 No Operator | 1 Non-Locking Resd. (Std.) |
| 2 Locking Recessed | 3 Non-Locking Extended |
| 4 Locking Extended | |

9 - Electrical Connectors

- | |
|--|
| DA Plug In |
| JC Din Square w/Light (Non Plug-In) |
| JD Din Rectangle w/Light (Non Plug-In) |

MODIFICATIONS

- | | |
|---------|--|
| MOD0210 | Bottom inlet port in addition to side inlet port (manifolds only). |
|---------|--|

NOTE:

- The valve less base is always the same for internal or external pilot. These options are effected in the base or manifold.
- To order bases or manifolds without the valve, choose the base or manifold from the above table & options, then add 6200C as a prefix.
- When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
- Manifolds for solenoid and remote air operated valves must be ganged separately.
- Manifold accessories: Inlet & Exhaust Isolators #32839



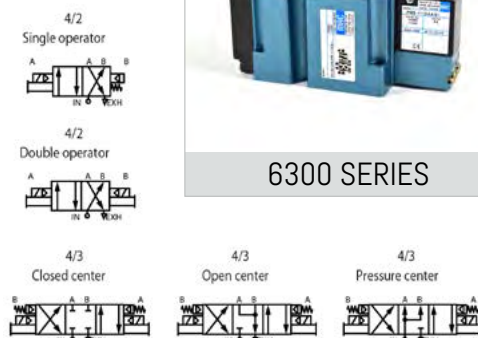
The MAC 6300 series are a versatile 4-way solenoid piloted spool valve. This series feature our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Our balanced spool means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 6311C-000-PM-501DA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 4/3	3/4" - 1/2"	3.0 Cv	Int.: sgle. op. & 3 pos.: 25-150PSI dble. op.: 10-150PSI Ext.: vac. to 150PSI	Sub-Base

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- High shifting forces.
- Checked accumulator guarantees maximum pilot pressure.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



6300 SERIES

63 $\begin{matrix} X & X & D \\ \hline 1 & 2 & 3 \end{matrix}$ - $\begin{matrix} X & X & X \\ \hline 3 & 4 & 5 \end{matrix}$ - $\begin{matrix} XX \\ \hline 6 \end{matrix}$ - $\begin{matrix} X & X & X & X \\ \hline 7 & 8 & 9 \end{matrix}$

1 - Function

1	Single Solenoid	2	Double Solenoid
3	3 Position Closed Centre	4	3 Position Open Centre
5	3 Position Pressure Centre		

2 - Body Type

1	Plug-In	2	Non Plug-In Or Remote Air
3	Plug-In Lights In Body	4-6	Dual Pressure Options **

**Dual pressure body option for use with regulators:

63X4D:	Plug-In	63X5D:	Non Plug-In
63X6D:	Plug-In w/ Lights		

3 - Port Size

0	Valve Only-No Base	1	1/4" Base
2	3/8" Base	3	1/2" Base
4	1/4" Manifold	5	3/8" Manifold
6	1/2" Manifold		

4 - Pilot Air - BSPP Options

0	Valve Only-No Base	5	Internal Pilot
6	External Pilot	7	Int. Pilot (Single Remote Air)
8	External Pilot (Double Remote Air)		

5 - Porting Options

0	Valve Only-No Base	1	Side Ports - No lights
2	Side Ports w/lights (Sgl. Sol.)	3	Side Ports w/lights (Dbl.Sol.)
4	Bottom Ports without lights	5	Bot. Ports w/lights (Sgl.Sol.)
6	Bottom Ports with lights	7	Side & bot. Ports No lights*
8	Side & bottom Ports with lights (Single Solenoid)*		
9	Side & bottom Ports with lights (Double Solenoid)*		

*Manifold Bases Only

6 - Pilot Exhaust

PM	Pilot Exhaust Muffled	PP	Pilot Exhaust Piped
RA	Remote Air		

If RA is selected XX & Y options do not apply. Other AC & DC voltages available. DC wattages from 1.0 up to 17 watts.

7 - Voltage

AC Voltage			
11	120/60, 110/50	22	24/50-60
39	240/50		
DC Voltage			
50	24VDC (6W)	55	12VDC (6W)
57	12VDC (2.5W)	59	24VDC (2.5W)
60	12VDC (8.5W)	61	24VDC (8.5W)

8 - Manual Operators

0	No Operator	1	Non-Locking Recessed (Std.)
2	Locking Recessed	3	Non-Locking Extended
4	Locking Extended		

9 - Electrical Connectors

DA	Plug In Base	JC	Din Square w/Light (Non Plug In)
JD	Din Rectangle w/Light (Non Plug In)		

MODIFICATIONS

MOD0210	Bottom inlet port in addition to side inlet port (manifolds only).
---------	--

NOTE:

- The valve less base is always the same for internal or external pilot. These options are effected in the base or manifold.
- To order bases or manifolds without the valve, choose the base or manifold from the above table & options, then add 6300D as a prefix.
- When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
- Manifolds for solenoid and remote air operated valves must be ganged separately.

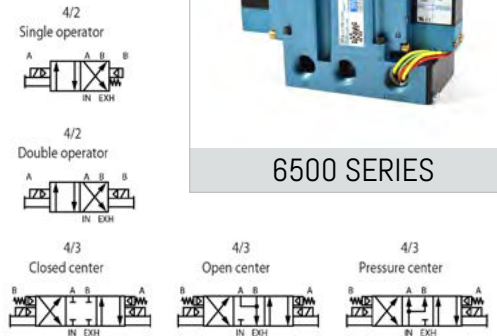
The MAC 6500 series are a versatile 4-way solenoid piloted spool valve. This series feature our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Our balanced spool means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 6511C-000-PM-112DA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 4/3	3/8" - 3/4"	5.1 Cv	Int.: sgle. op. & 3 pos.: 25-150PSI, dble. op.: 10-150PSI Ext.: vac. to 150PSI	Sub-Base Non 'Plug-In'

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- High shifting forces.
- Checked accumulator guarantees maximum pilot pressure.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



6500 SERIES

65 $\begin{matrix} X & X & B \\ T & T & \end{matrix}$ - $\begin{matrix} X & X & X \\ T & T & T \end{matrix}$ - $\begin{matrix} XX \\ T & T \end{matrix}$ - $\begin{matrix} XX & X & XX \\ T & T & T \end{matrix}$

1 2 3 4 5 6 7 8 9

1 - Function	
1	Single Solenoid
2	Double Solenoid
3	3 Position Closed Centre
4	3 Position Open Centre
5	3 Position Pressure Centre

2 - Body Type	
1	Plug-In
2	Non Plug-In Or Remote Air
3	Plug-In Lights In Body

Note: Dual pressure body options for use with regulator

3 - Port Size	
0	Valve Only-No Base
1	3/8" Base
2	1/2" Base
3	3/4" Base
4	3/8" Manifold
5	1/2" Manifold
6	3/4" Manifold

4 - Pilot Air - BSPP Options	
0	Valve Only-No Base
5	Internal Pilot
6	External Pilot
7	Internal Pilot (Sgl. Rem. Air)
8	External Pilot (Double Remote Air)

5 - Porting Options	
0	Valve Only-No Base
1	Single Pressure - No lights
2	Single Pressure with lights (Single Solenoid)
3	Single Pressure with lights (Double Solenoid)
4	Dual Pressure - No lights
5	Dual Pressure with lights (Single Solenoid)
6	Dual Pressure with lights (Double Solenoid)

Note: For sandwich regulators use Single Pressure option

6 - Pilot Exhaust	
PM	Pilot Exhaust Muffled
PP	Pilot Exhaust Piped
RA	Remote Air

If RA is selected XX & Y options do not apply. Other AC & DC voltages available. DC wattages from 1.0 up to 17 watts.

7 - Voltage	
<i>AC Voltage</i>	
11	120/60, 110/50
22	24/50-60
39	240/50

<i>DC Voltage</i>	
50	24VDC (6W)
55	12VDC (6W)
57	12VDC (2.5W)
59	24VDC (2.5W)
60	12VDC (8.5W)
61	24VDC (8.5W)

8 - Manual Operators	
0	No Operator
1	Non-Locking Recessed (Std)
2	Locking Recessed
3	Non-Locking Extended
4	Locking Extended

9 - Electrical Connectors	
DA	Plug In
JC	Din Square w/Light (Non Plug-In)
JD	Din Rectangle w/Light (Non Plug-In)

MODIFICATIONS	
0002	Bottom inlet, exh, & cyl ports (no side ports) <i>Individual Base 3/8" & 1/2" only.</i>
0004	Full side porting & additional bottom inlet, exh, & cylinder ports. <i>Individual Base 3/8" only.</i>
0112	Side inlet & exhaust w/ bottom cyl. ports (No end cyl. ports) <i>All manifold models.</i>
0210	Porting ordered in model number + an additional bottom inlet. <i>All manifold models.</i>
0364	SINGLE PRESSURE - Side inlet & exhaust and additional bottom inlet with bottom cyl. ports (No end cyl. ports) DUAL PRESSURE - same as single pressure except with two bottom inlets. <i>All manifold models.</i>



6600 SERIES

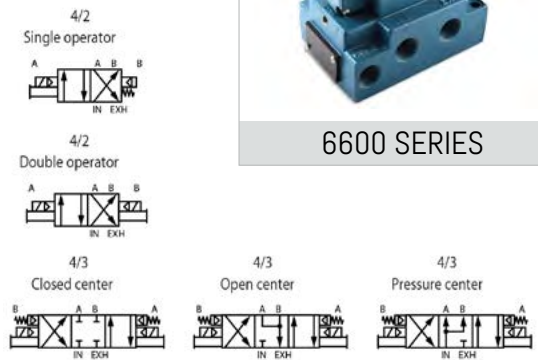
The MAC 6600 series are a versatile 4-way solenoid piloted spool valve. This series feature our balanced poppet in the pilot and an air/spring return for constant shifting regardless of inlet pressure fluctuations. Our balanced spool means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. Our one piece bonded seal spool means longer life and easy maintenance. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Stock Part Number: 6611-A-000-PM-391DA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2, 4/3	3/4" - 1"	9.6 Cv	Int.: sgle. op. & 3 pos.: 25-150PSI, dble op.: 10-150PSI Ext.: vac. to 150PSI	Sub-Base Non 'Plug-In'

OPERATIONAL BENEFITS

- Balanced spool, immune to variations of pressure.
- Short stroke with high flow.
- High shifting forces.
- Checked accumulator guarantees maximum pilot pressure.
- Powerful return force thanks to the combination of mechanical and air springs.
- Bonded spool with minimum friction, shifting in a glass-like finished bore.
- Wiping effect eliminates sticking.
- Pilot valve with balanced poppet, high flow, short and consistent response times.



6600 SERIES

66 X X A - X X X - XX - XX X XX
 1 2 3 4 5 6 7 8 9

1 - Function

1	Single Solenoid	2	Double Solenoid
3	3 Position Closed Centre	4	3 Position Open Centre
5	3 Position Pressure Centre		

2 - Body Type

1	Plug-In	2	Non Plug-In Or Remote Air
3	Plug-In Lights In Body		

3 - Port Size

0	Valve Only-No Base	2	3/4" Base
3	1" Base	4	3/4" Manifold
5	1" Manifold	6	1 1/4" Manifold

4 - Pilot Air BSP Options

0	Valve Only-No Base	5	Internal Pilot
6	External Pilot	7	Internal Pilot (Sgl. Rem. Air)
8	External Pilot (Double Remote Air)		

5 - Porting Options

0	Valve Only-No Base
1	Single Pressure - No lights
2	Single Pressure with lights (Single Solenoid)
3	Single Pressure with lights (Double Solenoid)
4	Dual Pressure without lights
5	Dual Pressure with lights (Single Solenoid)
6	Dual Pressure with lights (Double Solenoid)

6 - Pilot Exhaust

PM	Pilot Exhaust Muffled
PP	Pilot Exhaust Piped
RA	Remote Air

If RA is selected XX & Y options do not apply. Other AC & DC voltages available. DC wattages from 1.0 up to 17 watts.

7 - Voltage

AC Voltage		DC Voltage	
11	120/60, 110/50	50	24VDC (6W)
22	24/50-60	57	12VDC (2.5W)
39	240/50	60	12VDC (8.5W)
		55	12VDC (6W)
		59	24VDC (2.5W)
		61	24VDC (8.5W)

8 - Manual Operators

0	No Operator
1	Non-Locking Recessed (Standard)
2	Locking Recessed
3	Non-Locking Extended
4	Locking Extended

9 - Electrical Connectors

DA	Plug In
JC	Din Square w/Light
JD	Din Rectangle w/Light

MODIFICATIONS

0002	Bottom inlet, exh, & cyl ports (Side ports plugged) Individual Base 3/4" only.
0004	Full side porting & additional bottom inlet, exh, & cylinder ports. Individual Base 3/4" only.
0112	Side inlet & exhaust w/ bottom cyl. ports (Side cylinder ports plugged) Individual Base 3/4", Manifold Base 3/4" & 1".
0210	1 1/4" bottom inlet. Manifold Base.
0364	1 1/4" bottom inlet, 3/4" or 1" bottom cylinder. Manifold Base.
CLSF	Class F coil option. All voltages.

NOTE:

1. The valve less base is always the same for internal or external pilot.
These options are effected in the base or the manifold.
2. Bottom ports: Refer modification table below.
3. To order bases or manifolds without the valve, choose the base or manifold from the above table & options, then add 6600A as a prefix.
4. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is require for all the valves in the manifold whether single or double solenoid.
5. MANIFOLD ACCESSORIES: Inlet & exhaust isolator #28367
6. 2 position & 3 position valve bodies are not interchangeable.



SMALL
3-WAY



LARGE
3-WAY



SMALL
4-WAY



LARGE
4-WAY



ISO
VALVES



PPC
VALVES



PULSE
VALVES



BULLET
VALVES

ISO SERIES

3 & 4-Way options. Fastest available response time with patented MACSOLENOID®, a balanced poppet pilot valve for high flow, precise repeatability, and consistent operation.

Patents and Patents Pending

ISO SERIES VALVES

ISO001, ISO002, ISO1, ISO2, ISO3 SERIES (Cv from 043)



ISO 1



ISO 2



ISO 3

SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

ISO VALVES

ISO SERIES 1 - OPERATING DATA

REGULATOR: 0 to 120 PSI

Single Regulator - Single Pressure

Pressure supplied to the base or manifold passes through the regulator. Regulated pressure is supplied to both cylinder ports 2 & 4.

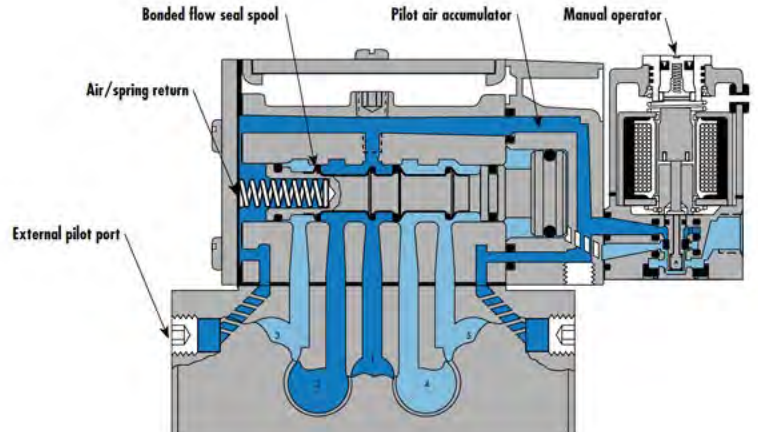
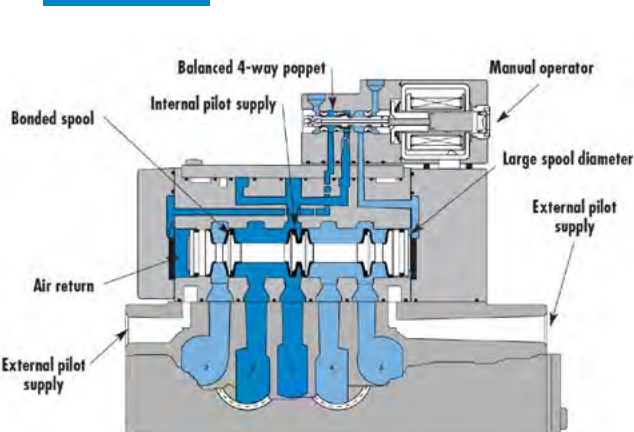
Single Regulator - Dual Pressure*

A by-pass plate opposite the regulator permits line pressure to one cylinder port and regulated pressure to the other.

Dual Regulator - Dual Pressure*

Regulated pressure from "12" end regulator supplies cylinder port 2. Regulated pressure from "14" end regulator supplies cylinder port 4.

EXHAUST PRESSURE



ISO SERIES 2 & 3 - OPERATING DATA

REGULATOR: 7 to 120 PSI

Single Regulator - Single Pressure*

Pressure supplied to the base or manifold passes through the regulator. Regulated pressure is supplied to both cylinder ports 2 & 4.

Single Regulator - Dual Pressure*

A by-pass plate opposite the regulator permits line pressure to one cylinder port and regulated pressure to the other.

Dual Regulator - Dual Pressure*

Regulated pressure from "12" end regulator supplies cylinder port 2.

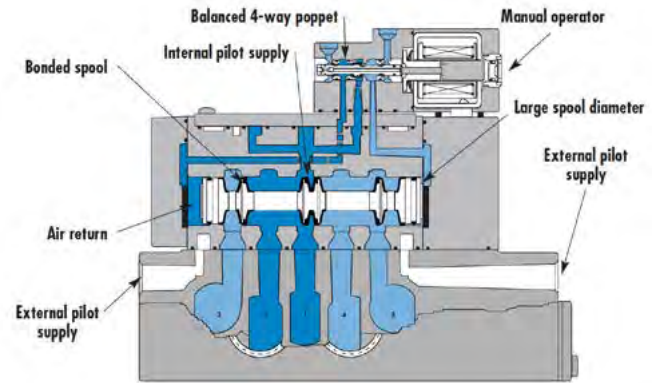
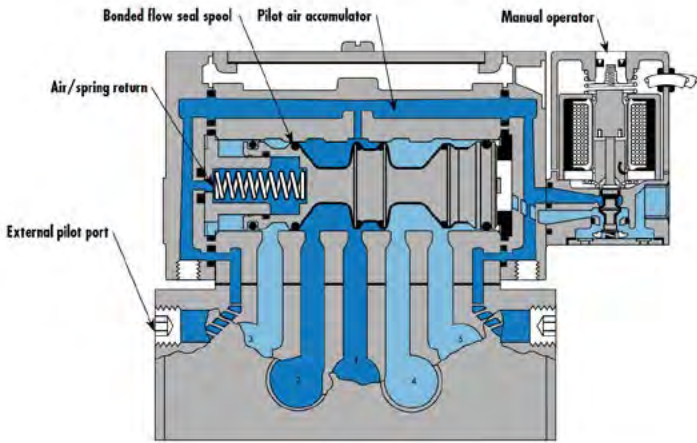
Regulated pressure from "14" end regulator supplies cylinder port 4.

EXHAUST

PRESSURE

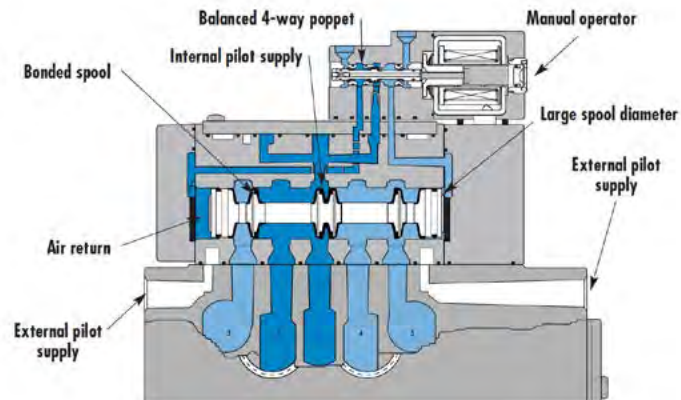
With single and Dual Pressure Regulators

ISO 2 (Cv 2.3)



With single and Dual Pressure Regulators

ISO 3 (Cv 54)



SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

ISO VALVES

PPC VALVES

PULSE VALVES

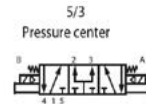
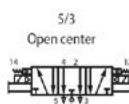
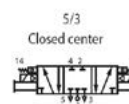
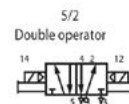
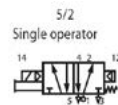
BULLET VALVES

ISO SERIES - 3-WAY PILOT

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	1/4" - 3/8"	1.8Cv	Vac to 150PSI	Coverless Analog Base Mount

OPERATIONAL BENEFITS

- Fastest available response time with patented MACSOLENOID®.
- No-stick operation is ensured by wiping action of unique MAC spool/bore combination.
- Balanced poppet pilot valve for high flow, precise repeatability, and consistent operation.
- Large spool piston for high shifting force even at minimum operating pressure.
- Air/spring return for consistent shifting on single solenoid models.
- Patented virtually burn-out proof AC solenoid.
- Optional low wattage DC solenoids down to 1.0 watt.
- Various manual operators & electrical connectors are available.
- Muffled or threaded pilot exhaust ports.
- Internal or external pilot models available.



ISO 1

ISO SERIES - MV-AXB ISO 1, 2 & 3

MV A X B - X XXX - XX - XX X XX - 9
 1 2 3 4 5 6 7 Assembled to Base

1 - ISO Number

1 ISO 1	2 ISO 2	3 ISO 3
---------	---------	---------

2 - Operator

A Solenoid	B Remote Air
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3 - Functions Of Operators

Single Pressure

111	Internal Pilot Sgl. Op. w/Air Spring Return
121	External Pilot Sgl. Op. w/Air Spring Return
211	Internal Pilot, Double Operator
221	External Pilot, Double Operator
312	Internal 3 Position Closed Centre
322	External 3 Position Closed Centre
311	Internal 3 Position Open Centre
321	External 3 Position Open Centre

Dual Pressure Value

131	Internal Pilot from Port 3. Sgl. Op. w/Air Spring
135	Internal Pilot from Port 5. Sgl. Op. w/Air Spring
141	External Pilot Sgl. Op. w/Air Spring
231	Internal Pilot from Port 3. Dbl. Op. 2 Position
232	Internal Pilot from Port 5. Dbl. Op. 2 Position
241	External Pilot Double Operator 2 Position
331	Internal Pilot from Port 3. 3 Position P. Centre
332	Internal Pilot from Port 5. 3 Position P. Centre
341	External Pilot 3 Position P. Centre
161	External Universal Spool Sgl. Op. w/Air Spring
261	External Universal Spool, Dbl. Op. 2 Position

4 - Pilot Exhaust

PM	Pilot Exhaust Muffled	PP	Pilot Exhaust Piped
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5 - Voltage

AC Voltage

11	120/60, 110/50	22	24/50-60
26	400/50	39	230/50

DC Voltage

50	24 VDC (6W)	55	12 VDC (6W)
57	12 VDC (2.5W)	59	24 VDC (2.5W)
60	12 VDC (8.5W)	61	24 VDC (8.5W)

Other AC & DC voltages available. DC wattage from 1.0 to 17 Watts

6 - Manual Operators

0	No Operator	1	Non-Locking Recessed (Standard)
2	Locking Recessed	3	Non-Locking Extended
4	Locking Extended		

7 - Enclosure

JA	Square No Light (On Sol.)	JB	Rect. No Light (On Sol.)
JC	Square w/Light (On Sol.)	JD	Rect. w/Light (On Sol.)
JE	Square w/o Light (On Body)	JF	Rect. No Light (On Body)
JG	Square w/Light (On Body)	JH	Rect. w/Light (On Body)

MODEL NUMBER EXAMPLE: MV - A1B - A212 - PM - 391JD

ISO1, Valve Only, Double Solenoid, 2-Position Single Pres., Internal Pilot, Muffled Pilot Exhaust, 230/50 AC Voltage, Standard Non Locking Recessed Override, Rectangular DIN Connector w/Light.

FLOW: Cv (average all ports: individual base & manifold)

PILOT EXHAUST		ISO1	ISO2	ISO3
2 Position	1/4"	1.6	-	-
	3/8"	1.6	3.0	-
	1/2"	-	3.0	6.3
	3/4"	-	-	6.3
3 Position	1/4"	14	-	-
	3/8"	14	2.7	-
	1/2"	-	2.7	5.8
	3/4"	-	-	5.8

ISO SANDWICH FLOW CONTROL

Style

FCP1A-AA	Plug-In flow control w/screwdriver slot
FCP1A-AB	Plug-In flow control w/locking knob
FCP1A-BA	Non Plug-In flow control w/screwdriver slot
FCP1A-BB	Non Plug-In flow control w/locking knob

Note: If flow control module is to be installed between valve and base at the factory, add -9 after the flow control model number.

For example: FCP1A-AA-9 19489 Tie Rod

ISO - NON PLUG-IN BASES AND MANIFOLDS

$\begin{matrix} \text{M} & \text{X} & \text{A} & \text{X} & \text{C} & - & \text{X} & \text{X} & \text{X} & - & 9 \\ \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & & \text{T} & \text{T} & \text{T} & & \text{T} \\ 1 & 2 & 3 & 4 & & & & & & & \text{Assembled to Base} \end{matrix}$

1 - Type

M Manifold B Individual Base

2 - ISO Number

1 ISO #1 2 ISO #2 3 ISO #3

3 - Port Size & Thread Type

ISO1	ISO2	ISO3
12 1/4" BSPP	3/8" BSPP	1/2" BSPP
13 3/8" BSPP	1/2" BSPP	3/4" BSPP
15 1/4" BSPT	3/8" BSPT	1/2" BSPT
16 3/8" BSPT	1/2" BSPT	3/4" BSPT
32 1/4" BSPP	3/8" BSPP	Common External Pilot Manifold Only
33 3/8" BSPP	1/2" BSPP	
35 1/4" BSPT	3/8" BSPT	
36 3/8" BSPT	1/2" BSPT	

4 - Porting Arrangement

- | | |
|--|-----------------------------------|
| 1 Side Ports | 2 Side Ports w/Bottom 2 & 4 Ports |
| 3 Side & Bottom Ports (all) | 4 Bottom Port #1 |
| 5 Side Ports w/Bottom #1, 2, & 4 Ports | 6 Bottom Port #1, 3, & 5 |
| 8 Bottom Port #2, 3, 4 & 5 | 7 Bottom Port #3, & 5 |

Manifold Accessories

MA1003	Blank station cover plate
32835	Inlet/Exhaust Isolator Plug
N-63002-01	Manifold fastening kit

ISO - NON PLUG-IN REGULATOR

$\begin{matrix} \text{P} & \text{R} & \text{A} & \text{X} & \text{A} & - & \text{X} & \text{X} & \text{X} & \text{X} & - & \text{X} \\ \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & & \text{T} & \text{T} & \text{T} & \text{T} & & \text{T} \\ \text{ISO } 1, 2 \text{ \& } 3 & 1 & 2 & 3 & 4 & 5 \end{matrix}$

1 - Adjustment Type

Manual Adjust w/ Slotted Stem		
A *	B **	C ***
Air Pilot Adjust		
D *	E **	F ***
Manual Adjust w/ Locking Knob		
G *	H **	J ***
Manual Adjust w/ Locking Slotted Stem		
K *	L **	M ***

- * Internal pilot
- ** External Pilot Or Double Remote Air
- *** Regulator Only

2 - Configuration

- O "Regulator only"
- A Regulator "14" end blank plate "12" end
- B Regulator "14" end w/bypass "12" end
- C Regulator "12" end blank plate "14" end
- D Regulator "12" end w/bypass "14" end
- E Regulators both ends

3 - Gauges

- | | |
|------------------------|-------------------------------|
| A No gauge | B Non-filled gauge (1) |
| C Non-filled gauge (2) | D Non-filled gauge (1) |
| E Non-filled gauge (2) | K Gauge port only w/pipe plug |

Note: Must order as separate line item @ N/C if part of regulator

4 - Pressure Range

- | | | |
|--|--------------|--------------|
| A 0 to 120PSI | B 0 to 80PSI | C 0 to 30PSI |
| D 0 to 120PSI on "14" end - 0 to 80PSI on "12" end | | |
| E 0 to 120PSI on "12" end - 0 to 80PSI on "14" end | | |
| F 0 to 120PSI on "14" end - 0 to 30PSi on "12" end | | |
| G 0 to 120PSI on "12" end - 0 to 30PSi on "14" end | | |
| H 0 to 80PSI on "14" end - 0 to 30PSi on "12" end | | |
| J 0 to 80PSI on "12" end - 0 to 30PSi on "14" end | | |

5 - Assembly

- 9 Regulator assembled to valve

Gauge Assemblies

N-82016-01	Gauge kit (0-120 PSI - "B & C" options)
N-82016-02	Gauge kit (0-120 PSI - "D & E" options)
N-82016-03	Gauge kit (0-80 PSI - "B & C" options)
N-82016-04	Gauge kit (0-80 PSI - "D & E" options)
N-82016-05	Gauge kit (0-30 PSI - "B & C" options)
N-82016-06	Gauge kit (0-30 PSI - "D & E" options)
N-82015-01	Gauge kit (0-120 PSI - "F & G" options)
N-82015-02	Gauge kit (0-120 PSI - "H & J" options)

NOTE:

Use an externally piloted valve assembly with ISO regulators. There is no need for external piping since the internal unregulated pilot air is supplied by a cross drilling in the rectangular block. To order, substitute the figure 4 (dual pressure) or 5 (single pressure) in the standard model number: MV-AXB-XX4X-XX-XXXZZ Example: MV-A2B

ISO 1



ISO 2



ISO 3

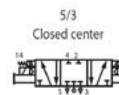
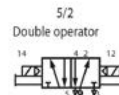
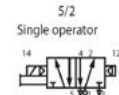


ISO SERIES - 4-WAY PILOT

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	1/4"	6.1Cv	Vac. to 150PSI	Valve only - No base non-'Plug-In'. Conform to ISO 15407/1

OPERATIONAL BENEFITS

- Unique patented MACsolenoid with oval shaped armature for fastest possible response times.
- Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
- MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
- Large spool area for maximum shifting force seven at minimum operating pressure.
- Very high flow in a compact package. Pilot valve and main valve in the same body.
- Internal or external pilot operation.
- Air only return.
- Optional low wattage DC solenoid down to 1.0 Watt.



ISO 2



ISO - MV-X1A (4-WAY PILOT)

MV - $\begin{matrix} X & X & A & - & X & X & X & X & - & XX & - & D & XX & X & - & X & XX \\ \text{T} & \text{T} & & & \text{T} & \text{T} & \text{T} & \text{T} & & \text{T} & & & \text{T} & \text{T} & & \text{T} & \text{T} \\ 1 & 2 & & & 3 & 4 & 5 & 6 & & 7 & & & 8 & 9 & & 10 & 11 \end{matrix}$

1 - Style

B 4-way non plug-in Base P 4-way plug-in Base

2 - ISO

1 ISO1 2 ISO2 3 ISO3

3 - Type

A Solenoid B Remote Air

4 - Valve Function

Option from section 1

A Sgl. Oper./Sgl. Pressure B Dbl. Oper./Sgl. Pressure
C Sgl. Oper./Dual Pressure D Dbl. Oper./Dual Pressure
E 3-Pos. Closed Center F 3-Pos. Open Center

G 3-Pos. Dual Pressure PC.
J Sgl. Oper. /Sgl. & Dual Pressure (Universal)
K Dbl. Oper./Sgl. & Dual Pressure (Universal)
L 3 Position Universal Closed Center
M 3 Position Universal Open Center

5 - Spool Return

A Standard return B Memory spring (N/A w/Univ.)
D Standard return / light on top E Memory spring / light on top
G Standard Return/Pilot Exh.out Main Exhaust (DU Pilot Only)

6 - Internal / External Pilot

A Internal pilot sgl. pressure B Ext. pilot 12 end
C External pilot 14 end D Dual pres. int. pilot from #3
E Dual pres. int. pilot from #5

7 - Pilot Valve Exhaust Options

DM Pilot valve w/muffled exhaust DP Pilot valve w/piped exhaust
DU Pilot Valve w/ Exhaust to Main Exhaust

8 - Voltage Options

JA 120/60, 110/50 JC 24/60, 24/50
JF 240/50 DA 24 VDC (54W)
DB 12 VDC (54W) DE 12 VDC (12.7W)(CLSF)
DF 24 VDC (12.7W)(CLSF) FA 12 VDC (1.8W)
FB 24 VDC (1.8W) FE 12 VDC (24W)
FF 24 VDC (24W)

9 - Lead Length - Other Options Available

P Plug-in standard O No wires
A 18" Coil leads J 6" Coil leads

10 - Manual Operator Options

0 No operator 1 Non-locking manual operator
2 Locking manual op. 3 Non-locking extended manual operator
4 Locking extended manual operator

11 - Electrical Connection Options

BA Grommet BK Grommet with diode
BL Grommet with M.O.V. JB Rectangular plug-in
JD Rect. plug-in w/light JM Rectangular male only
KA Mini plug-in KB Mini plug-in with diode
KC Mini plug-in w/M.O.V. KD Mini plug-in with light
KE Mini plug-in w/light & diode KF Mini plug-in w/light & M.O.V.
KG Mini plug-in w/LED light & diode KJ Mini plug-in male only
KK Mini plug-in male only w/diode KL Mini plug-in M. only w/M.O.V.

Note: On above options a ground wire is required when the coil is above 30 volts.

Pilot Valves - Bodies and Assemblies

DMB-A3 4 Way Pilot Body (Muffled Exhaust)
DPB-A3 4 Way Pilot Body (Piped Exhaust)
DMB-DXXX-XXX-3 Complete Pilot Valve
DPB-DXXX-XXX-3 Complete Pilot Valve
DXXX-XXX 1 Solenoid and Cover Assembly
DM3A-A3 3 Way Pilot Body (Muffled Exhaust)
DP3A-A3 3 Way Pilot Body (Piped Exhaust)
DM3A-DXXX-XXX-3 Complete 3-Way Pilot Valve
DP3A-DXXX-XXX-3 Complete 3-Way Pilot Valve

Modifications

416G 2 1/2ft. Prewired cord (for mini connector)
416K 6ft. Prewired cord (for mini connector)
416L 10ft. Prewired cord (for mini connector)

Note: Low wattage available as complete valves only.

Note: For double solenoid valves, all adders must be doubled.

ISO - PLUG-IN BASES AND MANIFOLDS

M X - P X A - X X X - X X X - 9
 T T T T T T T
 1 2 3 4 5 6 Assembled to Base

1 - Type

M Manifold B Individual base

2 - ISO

1 ISO1 2 ISO2 3 ISO3

3 - Port Size & Thread Type

Bases and End Station Manifolds

12 1/4" BSPPL 13 3/8" BSPPL

Manifolds Only

32 1/4" BSPPL (Common External Pilot)

33 3/8" BSPPL (Common External Pilot)

Manifolds Only Middle Stations

*42 1/4" BSPPL *43 3/8" BSPPL

*62 1/4" BSPPL (Common External Pilot)

*63 3/8" BSPPL (Common External Pilot)

* Common Inlet and Exhaust Ports Untapped. Use For Middle Stations In a Stack.

4 - Port Configuration

1 Side Ports 2 Side Ports w/ Bottom 2 & 4 Ports
 3 Side & Bottom Ports (all)

5 - Wiring

A Single Wire Assembly B Double Wire Assembly

6 - Light Voltage - No light in base

JA 120 Volt light JB 220/240 Volt light

DA 24 Volt light

Manifold Accessories

M-P1001 Blank station cover plate

32835 Inlet/Exhaust Isolator Plug

N-P1007-01 Manifold fastening kit

ISO PLUG-IN REGULATOR

PRP1A - X X X X - X
 T T T T T
 1 2 3 4 5

1 - Adjustment

Manual Adjust With Screwdriver Slot

A Internal Pilot B External Pilot

C Regulator Only

Air Adjust

D Internal Pilot E External Pilot

F Regulator Only

Manual Adjust With Knob

G Internal Pilot H External Pilot

J Regulator Only

Manual Adjust w/ Screwdriver Slot w/ Locknut

K Internal Pilot L External Pilot

M Regulator Only

2 - Configuration

0 "Regulator Only"

A Regulator "14" End Blank Plate "12" End

B Regulator "14" End w/Bypass "12" End

C Regulator "12" End Blank Plate "14" End

D Regulator "12" End w/Bypass "14" End

E Regulators Both Ends

3 - Gauges

A No Gauge

B Non-Filled Gauge (1) Perpendicular To Manual Operator

C Non-Filled Gauge (2) Perpendicular To Manual Operator

D Non-Filled Gauge (1) Parallel To Manual Operator

E Non-Filled Gauge (2) Parallel To Manual Operator

K Gauge Port Only w/Pipe Plug

Note: Must order as separate line item @ N/C if part of regulator

4 - Pressure Range

A 0 to 120 psi

B 0 to 80 psi

C 0 to 30 psi

D 0 to 120 psi on "14" end, 0 to 80 psi on "12" end

E 0 to 120 psi on "12" end, 0 to 80 psi on "14" end

F 0 to 120 psi on "14" end, 0 to 30 psi on "12" end

G 0 to 120 psi on "12" end, 0 to 30 psi on "14" end

H 0 to 80 psi on "14" end, 0 to 30 psi on "12" end

J 0 to 80 psi on "12" end, 0 to 30 psi on "14" end

5 - Assembly

9 Regulator Assembled To Valve

Gauge Assemblies

N-82016-01 Gauge Kit (0-120 PSI - "B & C" Options)

N-82016-02 Gauge Kit (0-120 PSI - "D & E" Options)

N-82016-03 Gauge Kit (0-80 PSI - "B & C" Options)

N-82016-04 Gauge Kit (0-80 PSI - "D & E" Options)

N-82016-05 Gauge Kit (0-30 PSI - "B & C" Options)

N-82016-06 Gauge Kit (0-30 PSI - "D & E" Options)



PPC SERIES - PPC5C

The MAC Proportional Pressure Controller, (PPC) is an innovative product which converts an electrical signal into a proportional pneumatic output. The PPC is unlike conventional I/P or V/P transducers. It offers much more in terms of performance, features, and reliability. The key to the MAC PPCs are two MAC 34, 45, 400, 47, 92 or 93 Series valves that are used to control the output pressure. The valves are operated by the PPCs closed loop electronic control circuit. Feedback is obtained from one or two transducers. The balanced poppet, fast response, and high flow of these two MAC Valves provide outstanding performance characteristics for the PPC. For more information please ask our team at Mac Valves Pacific.

Stock Part Number: PPC5C-ABA-DGAA-CAA-GB

Port Size	Flow (Max)(Cv/NI/min)	Pressure Range	Individual Mounting
1/8"	0.07/70, 0.09/90	Contact MVP	Covered Analog

OPERATIONAL BENEFITS

- Reliable operation, using two MAC 34 Series with balanced poppet.
- Fast response.
- Long life & High flow.
- Low power consumption.
- Rugged enclosure.
- Not affected by vibrations.
- Accurate pressure control.
- Can be stand alone or used in combination with our remote air sandwich regulators.
- Analog command signal and output.



PPC5C

PPC5C - ANALOG

PPC5C - X X X - X X X X - X X X - X X
 T T T T T T T T T T T T
 1 2 3 4 5 6 7 8 9 10 11 12

1 - Type

- A Analog

2 - Porting

- B 1/8" BSPPL Side Ports
- C 1/8" BSPTR Bottom Ports

3 - Feedback

- A Single Transducer Internal Sense (Pressure)
- B Single Xducer/External Sense (Pressure)

4 - Pressure

- | | |
|-----------|-----------|
| A 100 PSI | B 60 PSI |
| C 30 PSI | D 15 PSI |
| E 50 PSI | F 80 PSI |
| G 2 PSI | H 20 PSI |
| J 75 PSI | K 117 PSI |
| L 4 PSI | M 150 PSI |
| N 10 PSI | P 90 PSI |
| V VAC | |

5 - Pressure Reference

- G Gauge Pressure
- D Differential Pressure

6 - Accuracy

- | | |
|-----------------------|-----------------------|
| A +/- 1.5% Full Scale | B +/- 1.0% Full Scale |
| C +/- 0.5% Full Scale | E +/- 2.5% Full Scale |

7 - Flow

- | | |
|--------------------------|--------------------------|
| A Fill 0.07 Exhaust 0.07 | B Fill 0.09 Exhaust 0.09 |
| C Fill 0.07 Exhaust 0.09 | |

8 - Command Signal

- | | |
|--------------------------|------------------|
| B 0-10 Volt Differential | C 4-20 mA 3-Wire |
| D 4-20 mA 4-Wire | |

9 - Analog Monitor Signal

- | | |
|--------|-------------|
| A None | B 0-10 Volt |
|--------|-------------|

10 - Logic Monitor Signal

- A None
- B TTL (Low Pressure Achieved)
- C TTL (High Pressure Achieved)
- D 24 Volt (Low Pressure Achieved)
- E 24 Volt (High Pressure Achieved)

11 - Electrical Connector

- G 3-Wire Grommet
- H 4-Wire Grommet
- I 5-Wire Grommet
- J 6-Wire Grommet

12 - Cable Length

Option from Section 11:

- O No Cable
- B 3 Ft. Cable
- D 6 Ft. Cable
- E 12 Ft. Cable

Note: Other options and configuration available

SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

ISO VALVES

PPC VALVES

PULSE VALVES

BULLET VALVES

PPC5C - ANALOG WITH REMOTE TRANSDUCER

PPC5C - XXX - XXXX - XXXX - XX
 T T T T T T T T T T T T T T
 1 2 3 4 5 6 7 8 9 10 11 12

1 - Type

R Analog with Remote Transducer

2 - Porting

Side Ports

A 1/8" NPTF B 1/8" BSPPL
 C 1/8" BSPTR

Bottom Ports

D 1/8" NPTF E 1/8" BSPPL
 F 1/8" BSPTR G Bottom port O-ring Mount

3 - Feedback

A Dual Transducer Remote Sense

4 - Pressure

A 100/6.7 B 60/4
 C 30/2 E 50/3.3
 F 80/5.3 H 20/1.3
 J 75/5 K 117/7.8
 P 90/6

5 - Pressure Reference

G Gauge Pressure

6 - Remote Length Cable

A 4 ft./1.2m B 8 ft./24m
 C 12 ft./3.6m D 16 ft./4.8m
 E 20 ft./6m

7 - Flow Cv/NI/min - Fill & Exh.

A 0.07/70 0.07/70 B 0.09/90 0.09/90

8 - Command Signal

B 0-10 Volt Differential C 4-20 mA 3-Wire
 D 4-20 mA 4-Wire

9 - Analog Monitor Signal

A None B 0-10 Volt

10 - Logic Monitor Signal

A None
 B TTL (Low Pressure Achieved)
 C TTL (High Pressure Achieved)
 D 24 Volt (Low Pressure Achieved)
 E 24 Volt (High Pressure Achieved)

11 - Electrical Connector

A 3 Pin Mini B 5 Pin Mini
 C 6 Pin Mini D 3 Pin Micro
 E 5 Pin Micro F 6 Pin Micro
 G 3 Wire Grommet H 4 Wire Grommet
 I 5 Wire Grommet J 6 Wire Grommet

12 - Cable Length

Option from Section 11:

O No Cable B 3 Ft. Cable
 D 6 Ft. Cable E 12 Ft. Cable

Note: Other options and configuration available



PULSE VALVE SERIES

The MAC Pulse Valve series is designed to be a direct drop-in replacement for existing pulse technology. The MAC solution utilizes a long life, bonded-spool design, instead of the traditional diaphragm style.

Patents and Patents Pending

MAC PULSE VALVES

PV03, PV06, PV09

The MAC patented Pulse Valve series was developed to replace current diaphragm style technology and create a more robust and reliable valve solution in industrial applications. MAC Pulse Valves are ideal to replace existing diaphragm technology in applications such as reverse jet bag houses and dust collectors, pneumatic conveying and bulk material handling.

The MAC patented Pulse Valve can be ordered in one of two pilot configurations: The Integral Solenoid pilot combines fast, repeatable pulses with the addition of a Manual Operator, while our Remote Bleed version to improve performance and reliability in Hazardous Locations. The main body of the MAC Pulse Valve utilizes bonded spool technology for superior reliability beyond existing diaphragm technology. A checked accumulator and a main spool with memory spring are used to ensure a shift back to the home position, for times when air supply may not be adequate. A line of adapter plates has also been released to replace existing diaphragm pulse valves with a direct drop-in, without disturbing existing plumbing.



PV06

Direct Drop-In

The MAC Pulse Valve is available with various adapter options. These adapter options allow the MAC valve to directly replace the diaphragm technology with our bonded spool technology without disturbing plumbing. The MAC bleed configuration works with existing remotely located solenoids.

Harsh Environment Compatible

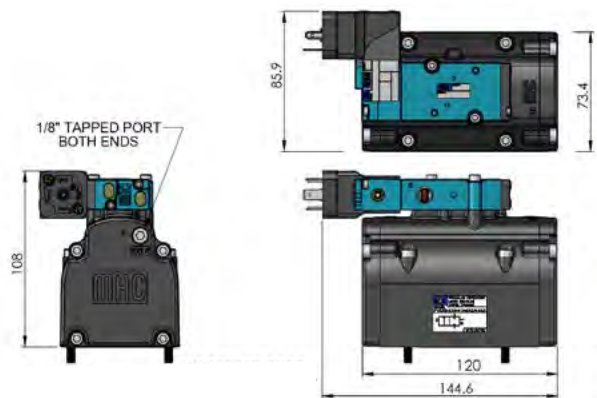
An aluminum die-cast body, nitrile seals and an environmentally protected solenoid are standard features. Viton seals are also available for extreme temperature environments and chemical resistance.

Maintenance

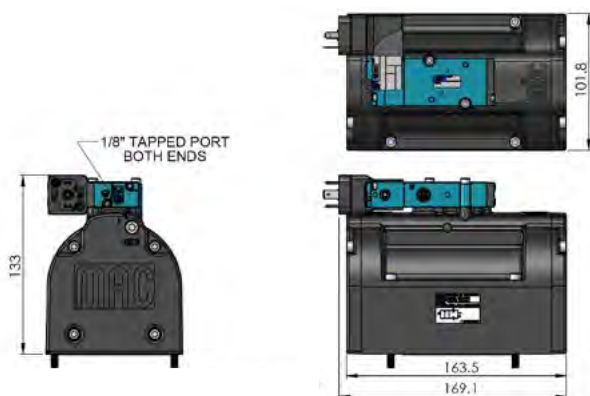
Lower cost of ownership through reduction in downtime due to high reliability. When necessary, maintenance is simplified with available spool kits.

The Pulse Valve is currently available in (3) sizes:

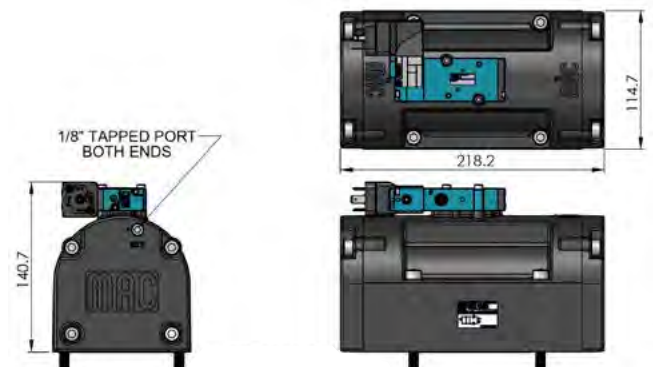
- PV03 = 3/4" & 1" Applications
- PV06 = 1 1/2" Applications
- PV09 = 2 & 2 1/2" applications



PPC SERIES - PV03



PPC SERIES - PV06



PPC SERIES - PV09

PULSE VALVE - INTEGRAL PILOT

PVO XB - XXX - 41X - D XXX - XXX
 1 2 3 4 5 6 7 8 9

1 - Pulse Valve

3 PV03B 6 PV06B 9 PV09B

2 - Spool Type

0 Base Only A N.C. Main W/Memory Spring Viton Seals

3 - Porting

0 Basic Valve No Base

PV03

A 3/4" NPTF MAC Base B 1" NPTF MAC Base
 C 3/4" BSPPL MAC Base D 1" BSPPL MAC Base
 E 3/4" BSPTR MAC Base F 1" BSPTR MAC Base

PV06

A 1 1/2" NPTF MAC Base C 1 1/2" BSPPL MAC Base
 E 1 1/2" BSPTR MAC Base

PV09

A 2" NPTF MAC Base B 2 1/2" NPTF MAC Base
 C 2" BSPPL MAC Base D 2 1/2" BSPPL MAC Base
 E 2" BSPTR MAC Base F 2 1/2" BSPTR MAC Base

4 - Internal / External Pilot

0 Base Only A Internal Pilot
 B Ext. Pilot NPTF threads C Ext. Pilot BSPPL threads
 D Ext. Pilot BSPTR threads E Int. Pilot BSPPL threads
 F Int. Pilot BSPTR threads

5 - Pilot Type

Integral

M Muffled Exh. P Piped Exh.

6 - Voltage

JA 120/60, 110/50 JB 240/60, 220/50
 JD 100/60, 100/50, 110/60 DA 24VDC (54W)
 EW 24VDC (8.0W) DB 12VDC (54W)
 DC 12VDC (7.5W)

7 - Lead Wire Length

A 18" B 24" C 36" D 48"
 E 72" F 96" J External Plug-In Lead

8 - Manual Operator

0 No Operator 1 Non Locking

9 - Electrical Connector

BA Grommet BK Grommet w/Diode
 CM Metal Conduit 1/2" CN Metal Conduit w/Ground 1/2"
 JA Square Plug-in JB Rectangular Plug-in
 JC Square Plug-in w/Light JD Rectangular Plug-in w/Light
 JJ Square Male Only JM Rectangular Male Only
 KA Mini Plug-in KB Mini Plug-in w/Diode
 KD Mini Plug-in w/Light KE Mini Plug-in w/Light & Diode
 KJ Mini Plug-in Male Only KC Mini Plug-in w/LED & Diode
 KK Mini Plug-in Male Only w/Diode

Pilot Only Options - Bodies and Assemblies

Note: Revisions A and B are currently available and identified by 4th character in PN. Be sure to order the same revision you are replacing

41HA-00A-HX-DXXV-YZZ=XXXX (solenoid operated pilot valve)
 41HB-00A-HX-DXXV-YZZ=XXXX (solenoid operated pilot valve)
 41HA-00A-H0-RBXX=XXXX (bleed pilot valve)
 41HB-00A-H0-RBXX=XXXX (bleed pilot valve)

See options above and modifications below

Modifications

One Selection Required = PV03B - XXX - 41X - DXXX - XXX - XXXX

PVVT Viton Seals, NPTF threads on pilot
 EVVT Viton Seals, BSPPL threads on pilot
 PVTR Viton Seals, BSPTR threads on pilot

Spool Kit

K-PV001-05 Viton (includes seals and spring)

PULSE VALVE - REMOTE PILOT

PVO XB - XXX - 41X - RB XX
 1 2 3 4 5 6

1 - Pulse Valve

3 PV03B 6 PV06B 9 PV09B

2 - Spool Type

0 Base Only A N.C. Main W/Memory Spring Viton Seals

3 - Porting

0 Basic Valve No Base

PV03

A 3/4" NPTF MAC Base B 1" NPTF MAC Base
 C 3/4" BSPPL MAC Base D 1" BSPPL MAC Base
 E 3/4" BSPTR MAC Base F 1" BSPTR MAC Base

PV06

A 1 1/2" NPTF MAC Base C 1 1/2" BSPPL MAC Base
 E 1 1/2" BSPTR MAC Base

PV09

A 2" NPTF MAC Base B 2 1/2" NPTF MAC Base
 C 2" BSPPL MAC Base D 2 1/2" BSPPL MAC Base
 E 2" BSPTR MAC Base F 2 1/2" BSPTR MAC Base

4 - Internal / External Pilot

0 Base Only A Internal Pilot
 B Ext. Pilot NPTF threads C Ext. Pilot BSPPL threads
 D Ext. Pilot BSPTR threads E Int. Pilot BSPPL threads
 F Int. Pilot BSPTR threads

5 - Pilot Type

Remote Bleed

0 Remote

6 - Remote Bleed

11 NPTF threads 14 BSPPL threads
 15 BSPTR threads



MAC BULLET VALVE

The Bullet Valve® (BV) represents yet another evolution in air valve technology from MAC. Very few parts, long life, lifting solenoid, one piece poppet/armature, balanced design, solenoid isolated from contaminated air, & unique mounting.

Patents and Patents Pending

BULLET VALVE

BV09, BV10, BV14, BV21 SERIES (Cv from 0.07)



BV209

9mm - 2-Way, Cartridge Style
- 0.07Cv



BV210

10mm - 2-Way, Axial Cartridge Style
- 0.08Cv



BV314

14mm - 3-Way, Universal Cartridge Style
- 0.24Cv



BV21

21mm - 2-Way, Cartridge Style
- 1.0Cv



LIQUID BULLET VALVE

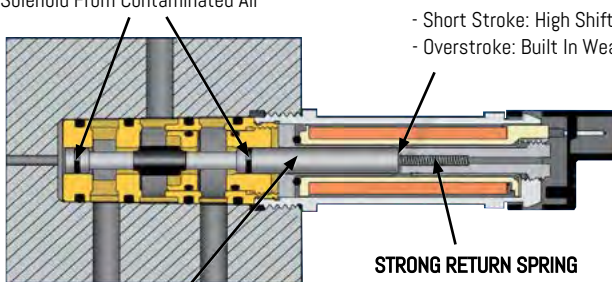
The Bullet Valve® (BV) represents yet another evolution in air valve technology from MAC. The Bullet Valve utilizes “lifting” solenoid technology. The MAC “lifting” configuration is unique, however, in that the valve maintains a balanced design – a signature feature of a MAC valve – shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. 2-way and 3-way configurations of the BV cartridge (9mm, 10mm, 14mm, and 21mm) are available.

D-SEAL TECHNOLOGY

- Minimum Friction
- Wiping Action
- Isolates Solenoid From Contaminated Air

LONG LIFE LIFTING SOLENOID

- Short Stroke: High Shifting Forces (Energised)
- Overstroke: Built In Wear Compensation



STRONG RETURN SPRING

- High Shifting Forces (De-energized)

ONE PIECE POPPET/ARMATURE

- Balanced & Repeatable
- Cushioning - Alleviates Solenoid Wear



- SMALL 3-WAY
- LARGE 3-WAY
- SMALL 4-WAY
- LARGE 4-WAY
- ISO VALVES
- PPC VALVES
- PULSE VALVES
- BULLET VALVES

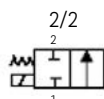
BV09 - 9mm BULLET VALVE

The BV09 represents yet another evolution in air valve technology from MAC. The Bullet Valve® utilizes "lifting" solenoid technology. The MAC "lifting" configuration is unique, however, in that the valve maintains a balanced design – a signature feature of a MAC valve – shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. 2-way and 3-way configurations of the BV09 cartridge are available.

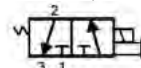
Function	Flow [max]	Manifold mounting	Series
2/2, 3/2 N.C., Universal	Up to 0.07 Cv	Cartridge	BV209A, BV309A

OPERATIONAL BENEFITS

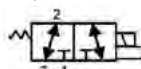
- Short stroke with high shifting forces
- Balanced poppet, immune to pressure fluctuations
- Precise repeatability
- Solenoid isolated from contaminated air
- Very few parts
- Extremely long life
- Unique mounting - no fasteners or screws required



3/2 Normally Closed



3/2 Universal



BV309

3-Way, Universal, Cartridge Style
- 0.07Cv

2&3-Way BV209A 9mm BULLET VALVE

BV209A - C X 1 - 00 - X XX X - X XX

1
2
3
4
5
6

1 - Spool Type

A 2-Way C 3-Way N.C. D 3-Way Universal

2 - Solenoid

B Round

3 - Voltage

2-Way

GC 24VDC (2.5W) GE 24VDC (4.0W)
GH 12VDC (2.5W) GK 12VDC (4.0W)

3-Way

GA 24VDC (1.0W) GB 24VDC (1.8W)
GC 24VDC (2.5W) GD 24VDC (3.0W)
GE 24VDC (4.0W) GF 12VDC (1.0W)
GG 12VDC (1.8W) GH 12VDC (2.5W)
GJ 12VDC (3.0W) GK 12VDC (4.0W)

4 - Lead Length Options

O No Leads A 18" B 24" C 36"
D 48" E 72" F 96" H 144"

5 - Solenoid Can (Round)

C For Top Cover Option and Can w/ Outer Threads

6 - Solenoid Cover

JST	Pico	Flying Leads	
TA		BA	No ground wire
TC	PC	BC	Blocking & suppr. diode & LED (no ground)
TE	PE	BE	Blocking & suppr. diode (no ground)
TG	PG	BG	LED (no ground)
TJ	PJ	BJ	MOV (no ground)
TL	PL	BL	LED & MOV (no ground)
	PN		Transfer Board

Note: Pico covers PC-PL have a 3rd pin which is an isolation pin



BV309

3-Way, Manifold Mount, POP with
BV309 Pilot - 0.25Cv



BV309

4-Way, Manifold Mount, BV309
Pilot Operated. Paintball Industry

Modifications

MOD L001 Low Leak Mod for Diaphragm Valve (09 & 10 only)

How To Order Circuit Bar

Port size	Spacing	Side Cylinder Port	
#10-32 UNF	11mm	*CCMV09A-00AAA-XX	**CCMV09A-00ABA-XX
M5	11mm	*CCMV09A-00AAB-XX	**CCMV09A-00ABB-XX
M7	11mm	*CCMV09A-00AAC-XX	**CCMV09A-00ABC-XX

* - 2-Way

** - 3-Way

XX = Number of stations

Note: for valves mounted to bar at factory, add -9 to model number.



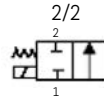
BV10 - 10mm BULLET VALVE

The BV10 represents yet another evolution in air valve technology from MAC. The Bullet Valve® utilizes "lifting" solenoid technology. The MAC "lifting" configuration is unique, however, in that the valve maintains a balanced design – a signature feature of a MAC valve – shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. 2-way and 3-way configurations of the BV10 cartridge are available.

Function	Flow [max]	Manifold mounting	Series
2/2	Up to 0.08 Cv	Cartridge	BV210A
3/2 N.C. or Universal	Up to 0.09 Cv	Manifold Mount - Non plug-in	BV310A

OPERATIONAL BENEFITS

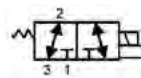
- Short stroke with high shifting forces
- Balanced poppet, immune to pressure fluctuations
- Precise repeatability
- Solenoid isolated from contaminated air
- Very few parts
- Extremely long life
- Unique mounting - no fasteners or screws required



3/2 Normally Closed



3/2 Universal



EBA-BV042 BV210

Axial 2-Way, Cartridge Style
- 0.08Cv

2-Way BV210A 10mm BULLET VALVE

BV210A - C XX - 00 - X XX X - X XX
 1 2 3 4 5 6

1 - Spool Type

A1 2-Way(Standard) B0 2-Way(Axial Flow)

2 - Base Type

B Round

3 - Voltage

EH 24 VDC (2.5w) EG 24 VDC (4.0w)
 EK 12 VDC (2.5w) EJ 12 VDC (4.0w)

4 - Lead Length Options

0 No Leads A 18" B 24" C 36"
 D 48" E 72" F 96" H 144"

5 - Solenoid Can (round)

C For Top Cover Option and Can w/ Outer Threads

6 - Solenoid Cover

JST	Pico	Flying Leads	
TA		BA	No ground wire
TC	PC	BC	Blocking & suppr. diode & LED (no ground)
TE	PE	BE	Blocking & suppr. diode (no ground)
TG	PG	BG	LED (no ground)
TJ	PJ	BJ	MOV (no ground)
TL	PL	BL	LED & MOV (no ground)
	PN		Transfer Board

Note: Pico covers PC-PL have a 3rd pin which is an isolation pin

Modifications

MOD L001 Low Leak Mod for Diaphragm Valve (09 & 10 only)



BV210

2-Way, Cartridge Style - 0.08Cv



BV210

2-Way, Axial Cartridge Style - 0.08Cv

How To Order Circuit Bar

2-Way - Standard

Port size	Spacing	Cylinder Port	
#10-32 UNF	12mm	*CCMV10A-00AAA-XX	**CCMV10A-00ABA-XX
M5	12mm	*CCMV10A-00AAB-XX	**CCMV10A-00ABB-XX
M7	12mm	*CCMV10A-00AAC-XX	**CCMV10A-00ABC-XX

2-Way - Axial Flow

#10-32 UNF	12mm	**CCMV10A-00BDA-XX
M5	12mm	**CCMV10A-00BDB-XX
M7	12mm	**CCMV10A-00BDC-XX

* - Side Cylinder Port

** - Bottom Cylinder Port

XX = Number of stations

Note: for valves mounted to bar at factory, add -9 to model number.

3-Way BV310A 10mm BULLET VALVE

BV310A - C¹ - 00 - X² X³ X⁴ - X⁵ X⁶

1
2
3
4
5
6

1 - Spool Type

C 3-Way Normally Closed D 3-Way Universal

2 - Solenoid

B Round

3 - Voltage

HA 24VDC (1.0W)	HB 24VDC (1.8W)	HC 24VDC (2.5W)
HD 24VDC (3.0W)	HE 24VDC (4.0W)	HF 12VDC (1.0W)
HG 12VDC (1.8W)	HH 12VDC (2.5W)	HJ 12VDC (3.0W)
HK 12VDC (4.0W)		

4 - Lead Length Options

O No Leads	A 18"	B 24"	C 36"
D 48"	E 72"	F 96"	H 144"

5 - Solenoid Can (round)

C For Top Cover Option and Can w/ Outer Threads

6 - Solenoid Cover

JST	Pico	Flying Leads	
TA		BA	No ground wire
TC	PC	BC	Blocking & suppr. diode & LED (no ground)
TE	PE	BE	Blocking & suppr. diode (no ground)
TG	PG	BG	LED (no ground)
TJ	PJ	BJ	MOV (no ground)
TL	PL	BL	LED & MOV (no ground)
	PN		Transfer Board

Note: Pico covers PC-PL have a 3rd pin which is an isolation pin



BV310

3-Way, Normally Closed
Cartridge Style - 0.08Cv



BV310

3-Way, Axial Inlet Direction
Operation - 0.08Cv

Modifications

MOD L001 Low Leak Mod for Diaphragm Valve (09 & 10 only)

How To Order Circuit Bar

Port size	Spacing	Cylinder Port
#10-32 UNF	12mm	*CVMV10A-00ABA-XX
M5	12mm	*CVMV10A-00ABB-XX
M7	12mm	*CVMV10A-00ABC-XX

* - Side Cylinder Port

XX = Number of stations

Note: for valves mounted to bar at factory, add -9 to model number.

* High wattage configurations require intermittent duty cycles.

** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty

3-Way BV310A 10mm MANIFOLD MOUNT - NON PLUG-IN

BV310A - L¹ - 00 - X² X³ X⁴ - X⁵ X⁶

1
2
3
4
5
6

1 - Spool Type

C 3-Way Normally Closed D 3-Way Universal

2 - Solenoid

B Round

3 - Voltage

HA 24VDC (1.0W)	HB 24VDC (1.8W)	HC 24VDC (2.5W)
HD 24VDC (3.0W)	HE 24VDC (4.0W)	HF 12VDC (1.0W)
HG 12VDC (1.8W)	HH 12VDC (2.5W)	HJ 12VDC (3.0W)
HK 12VDC (4.0W)		

4 - Lead Length Options

O No Leads	A 18"	B 24"	C 36"
D 48"	E 72"	F 96"	H 144"

5 - Solenoid Can (round)

B Cover for manifold body

6 - Solenoid Cover

JST	Pico	Flying Leads	
TA		BA	No ground wire
TC	PC	BC	Blocking & suppr. diode & LED (no ground)
TE	PE	BE	Blocking & suppr. diode (no ground)
TG	PG	BG	LED (no ground)
TJ	PJ	BJ	MOV (no ground)
TL	PL	BL	LED & MOV (no ground)
	PN		Transfer Board

Note: Pico covers PC-PL have a 3rd pin which is an isolation pin



BV310

3-Way, Manifold Mount,
Non Plug-In - 0.08Cv



BV310

3-Way, Universal Manifold
Mount - 0.08Cv

How To Order Non Plug-In Circuit Bar

2-Way - Standard

Port size	Spacing	Cylinder Port	Cylinder Port
#10-32 UNF	12mm	*CBMV10A-00ABA-XX	**CBMV10A-00BBA-XX
M5	12mm	*CBMV10A-00ABB-XX	**CBMV10A-00BBB-XX
M7	12mm	*CBMV10A-00ABC-XX	**CBMV10A-00BBC-XX

* - Side Cylinder Port

** - Bottom Cylinder Port

XX = Number of stations

Note: for valves mounted to bar at factory, add -9 to model number.

Options

BV310A - LC1-00-XXXX-XXX: Replace "1" with "0" for no manual operator

How to order bar configured for regulator:

CBMV10A-00ABB-XX: Replace with D for regulator - Side ports

Replace with E for regulator - Bottom ports



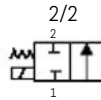
BV14 - 14mm BULLET VALVE

The BV14 represents yet another evolution in air valve technology from MAC. The Bullet Valve® utilizes "lifting" solenoid technology. The MAC "lifting" configuration is unique, however, in that the valve maintains a balanced design – a signature feature of a MAC valve – shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. 2-way and 3-way configurations of the BV14 cartridge are available.

Function	Flow [max]	Manifold mounting	Series
2/2, 3/2 N.C., Universal	Up to 0.24Cv	Cartridge	BV214, BV314

OPERATIONAL BENEFITS

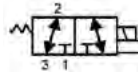
- 2-Way (BV214) & 3-Way (BV314) configurations available
- Very few parts
- Long life lifting solenoid
- One piece poppet / armature
- Balanced Design
- Solenoid isolated from contaminated air
- Unique mounting



3/2 Normally Closed



3/2 Universal



BV314

3-Way, Universal Cartridge Style
- 0.24Cv

2-Way 14mm Bullet Valve

BV214A - C X 1 - 00 - B XX X - X XX
 1 2 3 4 5 6

1 - Spool Type

A 2-Way (Standard) B 2-Way (Axial Flow)

2 - Solenoid

B Round

3 - Voltage

2-Way

EH 24 VDC (2.5w) EG 24 VDC (4.0w)
 EK 12 VDC (2.5w) EJ 12 VDC (4.0w)

4 - Lead Length Options

O No Leads A 18" B 24" C 36"
 D 48" E 72" F 96" H 144"

5 - Solenoid Can (round)

C For Top Cover Option and Can with Outer Threads

6 - Solenoid Cover

JST	Pico	Flying Leads	
TA		BA	No ground wire
TC	PC	BC	Blocking & suppr. diode & LED (no ground)
TE	PE	BE	Blocking & suppr. diode (no ground)
TG	PG	BG	LED (no ground)
TJ	PJ	BJ	MOV (no ground)
TL	PL	BL	LED & MOV (no ground)
	PN		Transfer Board
		†GA	MAC JAC Connector

Note: Pico covers PC-PL have a 3rd Pin which
 † Requires special spacing - consult MVP

Modifications

MOD L001 Low Leak Mod for Diaphragm Valve (09 & 10 only)



BV214

2-Way, Cartridge Style - 0.08Cv



BV214

2-Way, Normally Closed, Plastic
Cartridge Style - 0.24Cv

How To Order Circuit Bar

Standard 2-Way

Port Size	Spacing	Cylinder Port	
M7	17mm	*CCMV14A-00AAA-XX	**CCMV14A-00BAA-XX
1/8"	17mm	*CCMV14A-00AAB-XX	**CCMV14A-00BAB-XX
5/32"***	17mm	*CCMV14A-00AAC-XX	**CCMV14A-00BAC-XX

Axial Flow 2-Way

M7	17mm	**CCMV14A-00BDA-XX
1/8"	17mm	**CCMV14A-00BDB-XX

* - Side Cylinder Port ** - Bottom Cylinder Port

XX = Number of stations

Note: For valves mounted to bar at factory, add -9 to model number.
 Common inlet & exhaust are 1/4" NPTF. For BSPPL or BSPTR threads consult MVP



BVP214

2-Way, Normally Closed or Normally
Open, Plastic Cartridge Body - 0.4Cv

3-WAY 14mm Bullet Valve

BV314A - C X1 - 00 - X XX X - X XX
 1 2 3 4 5 6

1 - Spool Type

C 3-Way Normally Closed D 3-Way Universal

2 - Solenoid

B Round

3 - Voltage

HA 24VDC (1.0W)	HB 24VDC (1.8W)
HC 24VDC (2.5W)	HD 24VDC (3.0W)
HE 24VDC (4.0W)	HF 12VDC (1.0W)
HG 12VDC (1.8W)	HH 12VDC (2.5W)
HJ 12VDC (3.0W)	HK 12VDC (4.0W)

4 - Lead Length Options

O No Leads	A 18"	B 24"	C 36"
D 48"	E 72"	F 96"	H 144"

5 - Solenoid Can (round)

C For Top Cover Option and Can w/ Outer Threads

6 - Solenoid Cover

JST	Pico	Flying Leads	
TA		BA	No ground wire
TC	PC	BC	Blocking & suppr. diode & LED (no ground)
TE	PE	BE	Blocking & suppr. diode (no ground)
TG	PG	BG	LED (no ground)
TJ	PJ	BJ	MOV (no ground)
TL	PL	BL	LED & MOV (no ground)
	PN		Transfer Board
	†GA		MAC JAC Connector

Note: Pico covers PC-PL have a 3rd Pin which
 † Requires special spacing - consult MVP



BV314

3-Way, Conveyer Ind. - 0.24Cv



BV314

3-Way, Manifold Mount,
 Non Plug-In - 0.24Cv

Modifications

MOD L001 Low Leak Mod for Diaphragm Valve (09 & 10 only)

How To Order Circuit Bar

Standard 2-Way

Port Size	Spacing	*Cylinder Port	
M7	17mm	*CCMV14A-00ABA-XX	**CCMV14A-00BBA-XX
1/8"	17mm	*CCMV14A-00ABB-XX	**CCMV14A-00BBB-XX
5/32"***	17mm	*CCMV14A-00ABC-XX	**CCMV14A-00BBC-XX

* - Side Cylinder Port
 ** - Bottom Cylinder Port
 *** - Tube Receptacle
 XX = Number of stations

Note: For valves mounted to bar at factory, add -9 to model number.
 Common inlet & exhaust are 1/4" NPTF. For BSPL or BSPT threads consult MVP

BV214/314 CONNECTOR OPTIONS

BV214		
Flying Leads		
Flying Leads w/ LED		
JST Connector		
JST Connector w/ LED		
MAC Jac		

BV314		
Flying Leads		
Flying Leads w/ LED		
JST Connector		
JST Connector w/ LED		
MAC Jac		



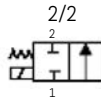
BV21 - 21mm BULLET VALVE

The BV21 represents yet another evolution in air valve technology from MAC. The Bullet Valve® utilizes “lifting” solenoid technology. The MAC “lifting” configuration is unique, however, in that the valve maintains a balanced design – a signature feature of a MAC valve – shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. 2-way and 3-way configurations of the BV21 cartridge are available.

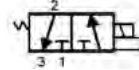
Function	Flow [max]	Manifold mounting	Series
2/2, 3/2 N.C., Universal	Up to 0.6 Cv	Cartridge	BV221, BV321

OPERATIONAL BENEFITS

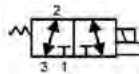
- 2-Way (BV221) & 3-Way (BV321) configurations available
- Very few parts
- Long life lifting solenoid
- One piece poppet / armature
- Balanced Design
- Solenoid isolated from contaminated air
- Unique mounting



3/2 Normally Closed



3/2 Universal



BV221

2-Way, Cartridge Style - 1.0Cv

2-Way 21mm BULLET VALVE

BV221A - C¹ - 00 - X² X³ X⁴ - X⁵ X⁶

1 - Spool Type

A 2-Way (Standard) B 2-Way (Axial Flow)

2 - Base Type

B Round

3 - Voltage

EH 24 VDC (2.5w) EG 24 VDC (4.0w)
EK 12 VDC (2.5w) EJ 12 VDC (4.0w)

4 - Lead Length Options

O No Leads A 18" B 24" C 36"
D 48" E 72" F 96" H 144"

5 - Solenoid Can (round)

C For Top Cover Option and Can w/ Outer Threads

6 - Solenoid Cover

JST	Pico	Flying Leads	
TA		BA	No ground wire
TC	PC	BC	Blocking & suppr. diode & LED (no ground)
TE	PE	BE	Blocking & suppr. diode (no ground)
TG	PG	BG	LED (no ground)
TJ	PJ	BJ	MOV (no ground)
TL	PL	BL	LED & MOV (no ground)
	PN		Transfer Board

Note: Pico covers PC-PL have a 3rd pin which is an isolation pin

For CIRCUIT BAR ordering information please consult MVP

SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

ISO VALVES

PPC VALVES

PULSE VALVES

BULLET VALVES

3-Way 21mm BULLET VALVE

BV321A - C^T1 - 00 - X^T X^T X^T - X^T X^T

1 2 3 4 5 6

1 - Spool Type

C 3-Way Normally Closed D 3-Way Universal

2 - Solenoid

B Round

3 - Voltage

HA 24VDC (1.0W)	HB 24VDC (1.8W)	HC 24VDC (2.5W)
HD 24VDC (3.0W)	HE 24VDC (4.0W)	HF 12VDC (1.0W)
HG 12VDC (1.8W)	HH 12VDC (2.5W)	HJ 12VDC (3.0W)
HK 12VDC (4.0W)		

4 - Lead Length Options

O No Leads	A 18"	B 24"	C 36"
D 48"	E 72"	F 96"	H 144"

5 - Solenoid Can (round)

C For Top Cover Option and Can w/ Outer Threads

6 - Solenoid Cover

JST	Pico	Flying Leads	
TA		BA	No ground wire
TC	PC	BC	Blocking & suppr. diode & LED (no ground)
TE	PE	BE	Blocking & suppr. diode (no ground)
TG	PG	BG	LED (no ground)
TJ	PJ	BJ	MOV (no ground)
TL	PL	BL	LED & MOV (no ground)
	PN		Transfer Board
	fGA		MAC JAC Connector

Note: Pico covers PC-PL have a 3rd pin which is an isolation pin



BV321

3-Way, Cartridge Style, Universal or Normally Closed - 1.0Cv

How To Order Circuit Bar

3-Way

Port Size	Spacing	*Cylinder Port	*Cylinder Port
1/8"	25mm	*CCMV21A-00ABA-XX	**CCMV21A-00BBA-XX
1/4"	25mm	*CCMV21A-00ABB-XX	**CCMV21A-00BBB-XX

* - Side Cylinder Port ** - Bottom Cylinder Port

XX = Number of stations

Note: For valves mounted to bar at factory, add -9 to model number.
Common inlet & exhaust are 1/4" NPTF. For BSPPL or BSPTR threads consult MVP



LIQUID BULLET VALVE

The Liquid Bullet Valve® (LBV) is the latest design innovation from MAC. With fast response times, reliable shifting forces and repeatable results – due to its patented balanced design – the MAC LBV is ideal for applications that demand reliable, low-leak performance. The LBV performs with both gas and liquid*, and is engineered to perform at the highest level throughout its life. The MAC LBV employs D-Flex™ technology to provide an exceptionally tight seal; preventing leakage and saving you product and money. D-Flex™ technology also allows the LBV to last longer and perform stronger in the toughest applications. With fewer wear points than traditional valve technology the LBV is designed to last. *Seal compatibility testing may be required.

Function	Flow [max]	Manifold mounting	Series
2/2, 3/2	Up to 0.08 Cv	Cartridge	LBV210A, LBV310A

OPERATIONAL BENEFITS

- 2-Way & 3-Way configurations available
- Non-wetted solenoid
- Accurate and repeatable dosing
- D-Flex™ technology
- Reliable operation in extreme environments



LBV



LBV - Plastic Type



LBV



SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

ISO VALVES

PPC VALVES

PULSE VALVES

BULLET VALVES

MAC Valves, Inc. has developed yet another version of its MACNoid™ solenoid for use in the newest Planet Eclipse® Ego11 paintball marker. This version of the MACNoid™ solenoid utilizes MAC® four-way Bullet Valve® lifting solenoid technology (patents pending) with integrated flow controls.

According to Jack Wood of Planet Eclipse LTD, Manchester UK; "Our newest paintball marker – Ego11 comes equipped with an industry first, a bespoke (proprietary) MACNoid™ solenoid – manufactured by MAC Valves, Inc. USA that incorporates twin flow control devices.

These Solenoid Flow Controls each comprise a quarter-turn adjuster which has a pointer to indicate position on an incremental scale etched into the body of the solenoid.

The Solenoid Flow Controls are used to independently control both the forward and rearward speed of the rammer and bolt so that, for the first time ever in a poppet marker, the user can tune the feel of the marker with a simple twist of a screwdriver.

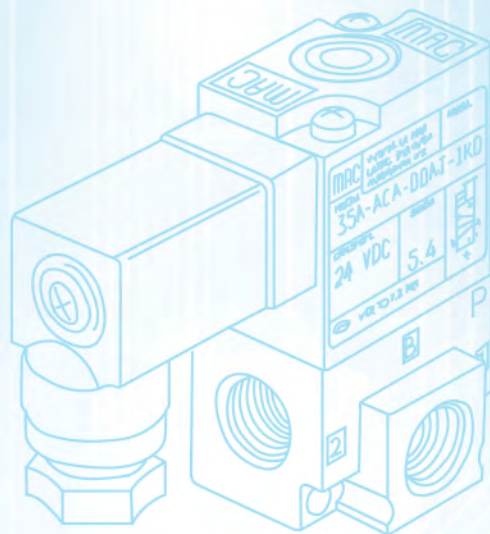
In the time it takes to turn off the tourney-lock, the EGO11 can be switched from a high speed, uncapped, free-for-all machine to the softest, gentlest, smoothest shooting poppet you have ever felt — or anything in-between.

The analogue adjustment allows an infinite level of control over the speed of the rammer and bolt in either direction, providing unprecedented influence over the dynamic characteristics of the marker. With the Ego11 it looks like you really can have your cake and eat it!"



BV412 MACNoid

4-Way, Manifold Mount, Paintball



Mac Valves are world renown, not only for their ability to withstand severe application conditions, both internally and externally, but also for their long life, repeatability and high speed.

MVP has nationwide coverage with distributors located throughout New Zealand.



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