



# CONTENTS

## 3-WAY VALVES - 2 to 32

SMALL

Introduction	02 - 03
33 Series	04
34 Series	05 - 06
35 Series	07 - 08
36 Series	09 - 12
37 Series	13 - 14
100 Series	15
200 Series	16
1100 Series	17

LARGE

Introduction	18 - 19
52 Series	20 - 21
53 Series	22 - 23
54 Series	24
55 Series	25
56 Series	26
57 Series	27
58 Series	28
59 Series	29
67 Series	30
68 Series	31
69 Series	32

## 4-WAY VALVES - 34 to 76

SMALL

Introduction	34 - 35
24 Series	36
44 Series	37 - 39
45 Series	40 - 41
46 Series	42 - 45
47 Series	48 - 49
400 Series	50 - 51
700 Series	52
800	53 - 54
900 Series	55

LARGE

Introduction	56 - 57
82 Series	58 - 61
83 Series	62 - 63
92 Series	64 - 67
93 Series	68 - 69
1300 Series	70
1800 Series	71
2700 Series	72
6200 Series	73
6300 Series	74
6500 Series	75
6600 Series	76

## ISO VALVES

Introduction	77 - 78
ISO SERIES - 3 WAY	79 - 80
ISO SERIES - 4 WAY	81 - 82

## PROPORTIONAL PRESSURE CONTROL (PPC)

PPC5C	83
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## BULLET VALVES

9mm, 10mm & 14mm	84 - 86
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SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

PPC

ISO VALVES

BULLET VALVES



Patents and Patents Pending

SMALL 3 WAY SOLENOID, AIR AND MECHANICALLY OPERATED VALVES

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 balanced poppet. The fifth series (1100) is a range of mechanically operated valves using the 100 series body assemblies.

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.



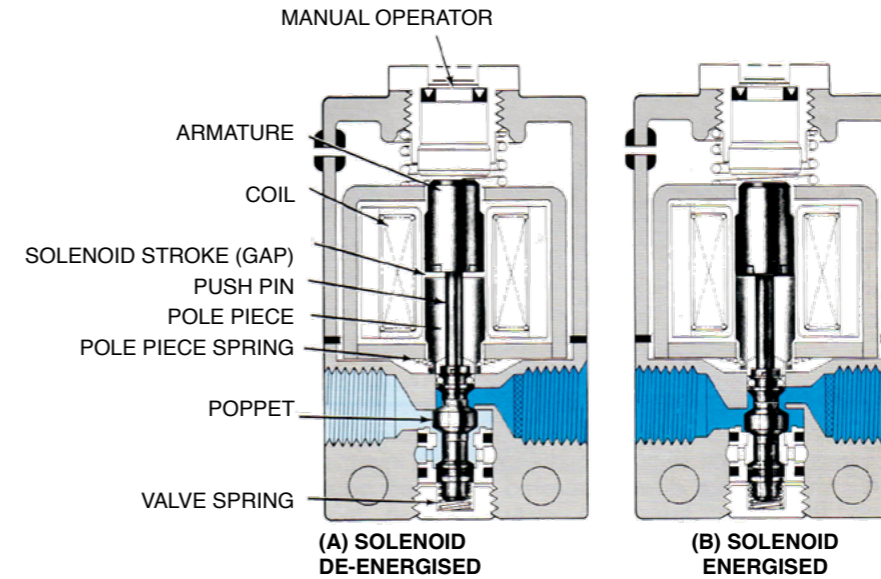
The 35 series is the most versatile solenoid valve in this group. It has an all molded encapsulated coil and can be supplied as an individual inline, stacking or manifold base mounted valve. It is also available mounted on an extruded circuit bar which can be machined to customers specs. Other options 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.



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

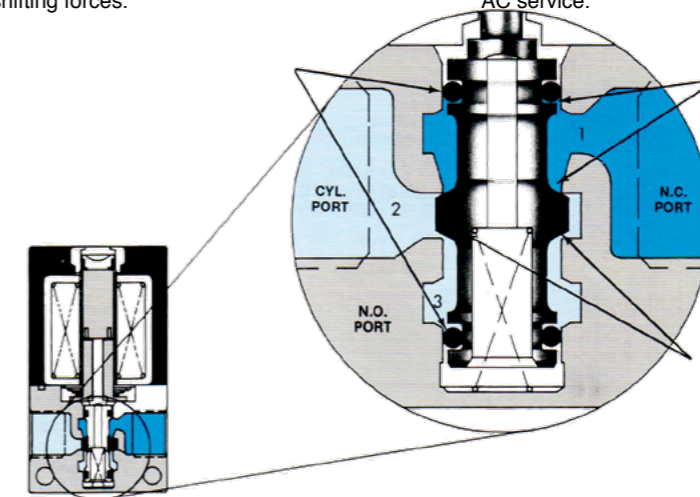


SEQUENCE OF EVENTS

- (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 SHISHIFTING 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

- 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.

# 33 SERIES

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

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

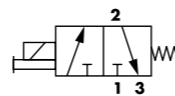
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 N/C	M3	0.082 Cv	Vac. to 120PSI	Inline

### OPERATIONAL BENEFITS

1. 8mm valve, direct solenoid operated.
2. Balanced poppet, immune to variations of pressure.
3. Short stroke with high flow.
4. Patented solenoid develops high shifting forces.
5. Powerful return spring.
6. Low wattage solenoids.
7. Extremely fast response times.



N/C Only



### 33 SERIES

**33A - XXX - R XXX - XXX**  
 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**  
B N.C. Only
- 4 - Voltage**  
DC 24VDC (1.8w) DJ 12VDC (1.8w)  
DF 24VDC (4.0w) DM 12VDC (4.0w)

- 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 - XXXXX - 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 - XXXXX - XXXX - 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

# 34 SERIES

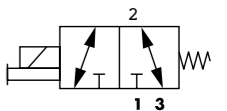
The MAC 34 Series is a direct solenoid operated 3-way - 10mm - poppet valve. A direct operated 3-way of this size with such high flow is unique to MAC due to patented design innovations. It features an oval armature in the solenoid, a balanced poppet and powerful return spring. These features translate into high shifting forces, fast consistent response times, high flow in a small package and long life. For more information regarding 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

1. 10mm valve, direct solenoid operated.
2. Balanced poppet, immune to variations of pressure.
3. Short stroke with high flow.
4. Patented solenoid develops high shifting forces.
5. Powerful return spring.
6. Manual operator standard on all valves.



### 34 SERIES VALVE & BASE OPTIONS

**34B/C - XXX - G XXX - XXX**  
 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**  
AA 120 VAC (2.5w) DG 12 VDC (1.0W)  
AB 240 VAC (4.0w) DJ 12 VDC (1.8W)  
(Use with "HA" or "HD" connector) DN 12 VDC (4.0W)  
AC 24 VAC (4.0W) EB 48 VDC (1.8W)  
DA 24 VDC (1.0W) GD 12 VDC (0.5W)  
DC 24 VDC (1.8W) GE 24 VDC (0.5W)  
DF 24 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  
BB Flying leads with ground wire  
BC Flying leads with LED light parallel to leads  
BD Flying leads with LED light parallel to leads & ground wire  
BE Flying leads with suppression diode  
BF Flying leads with suppression diode & ground wire  
BG Flying leads with suppression diode plus LED light parallel to leads  
BH Flying leads with suppression diode plus LED light parallel to leads & ground wire  
BN Flying leads with suppression diode plus blocking diode  
BP Flying leads with suppression diode plus blocking diode & ground wire  
BR Flying leads with suppression diode plus blocking diode & LED light parallel to leads

- 7 - Electrical Connectors(contd.)**  
BS Flying leads with suppression diode plus blocking diode & LED Light parallel to leads & ground wire  
BT Flying leads with LED light on top  
BU Flying leads with LED light on top & ground wire  
BV Flying leads with suppression diode plus LED light on top  
BW Flying leads with suppression diode plus LED light on top & ground wire  
BX Flying leads with suppression diode plus blocking diode & LED on top  
BY Flying leads with suppression diode plus blocking diode & LED on top & ground wire  
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

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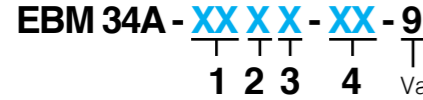


**7 - Electrical Connector (Available with Rev. C Valves only) Note:** MAC JAC Connector not available with AC Voltage options.  
**Non Plug-In Valves**

- 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

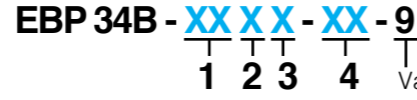
- GJ MAC JAC Solenoid Plug-In (Male Only)
- GK MAC JAC Solenoid Plug-In w/ Diode (Male Only)
- GL MAC JAC Solenoid Plug-In w/ MOV (Male Only)
- GM MAC JAC Solenoid Plug-In w/ LED (Male Only)
- GN MAC JAC Solenoid Plug-In w/ Diode and LED (Male Only)
- GP MAC JAC Solenoid Plug-In w/ MOV and LED (Male Only)
- GR MAC JAC Solenoid Plug-In w/ Rectifier (Male Only)
- GS MAC JAC Solenoid Plug-In w/ Rectifier and LED (Male Only)

**34 SERIES CIRCUIT BAR NON PLUG-IN**



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

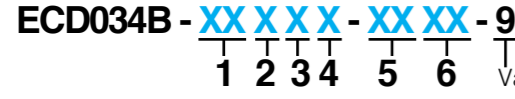


Valves and cover plates assembled to bar

- 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**



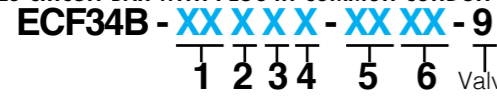
Valves and cover plates assembled to bar

- 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



**34 SERIES CIRCUIT BAR WITH PLUG-IN COMMON CONDUIT**



Valves and cover plates assembled to bar

- 1 - Spacing**  
00 10.5mm Spacing
- 2 - Configuration**  
A Side cylinder port  
B Bottom cylinder port  
C Flow control w/side cylinder port  
D Flow control w/bottom cylinder port  
E\* Regulator w/bottom cylinder port
- 3 - Port Size & Thread Type**  
D M5 Metric
- 4 - Style**  
A Standard Bar B DIN rail mount

- 5 - Plug-In Connector/Location**  
*Left End*  
LA 9 Pin Sub D  
LB 15 Pin Sub D  
LC 25 Pin Sub D  
*Right End*  
RA 9 Pin Sub D  
RB 15 Pin Sub D  
RC 25 Pin Sub D
- 6 - Stations**  
Number of Stations (01, 02, 03, etc.)
- Accessories**  
M-34005 Valve cover plate  
N-44002 Flow ctrl. needle kit  
N-44003 Regulator cover plate  
24180 Plug in protector

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

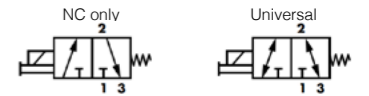
**Stock Part Number:** 35A-ACA-DAAJ-2KD, 35A-ACA-DAFA-1BA, 35A-ACA-DAFJ-1JD, 35A-ACA-DAJJ-2JD, 35A-ACADAJJ-2KD, 35A-ACA-DDAA-1BA Mod532F, 35A-ACA-DDAJ-1JD

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

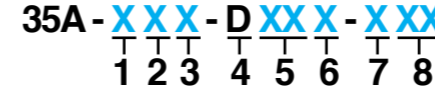


**OPERATIONAL BENEFITS**

1. Burn-out proof solenoid on AC service.
2. Balanced poppet, immune to variations of pressure.
3. Short stroke with high flow.
4. Patented solenoid develops high shifting forces.
5. Powerful return spring.
6. Manual operator standard on all valves.



**35 SERIES VALVE & BASE OPTIONS**



- 1 - Body Type**  
*Inline*  
A Inline Body  
*Stacking Body*  
S Stacking Body  
*Base Mount Body*  
0 No Valve Body or Regulator Only  
B Manifold Valve (Universal Poppet)  
H No Body Blank Station
- 2 - Port Size And Thread Type**  
0 Manifold Body Only or Regulator Only  
C 1/8" BSPPL  
H 1/8" BSPPL manifold with bottom cylinder port
- 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*  
0 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 with regulator  
J N.C. Manifold Base with regulator with adjust knob  
K N.O. Manifold Base with regulator with adjust knob  
N N.C. Manifold Base Cascade Type  
P N.C. Manifold Base with regulator Cascade Type  
R N.C. Manifold Base with regulator - adjust knob (Cascade Type)  
S N.C. Manifold Base with regulator - locking stem  
T N.O. Manifold Base with 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 RAIX Remote Air
- 5 - Voltage**  
AA 120/60, 110/50 DD 24VDC (7.3W)  
AC 24/60, 24/50 DE 12VDC (12.7W)(MOD CLSF only)  
AF 240/50 DF 24VDC (12.7W)(MOD CLSF only)  
BA 48/50 DN 6VDC (6W)  
DA 24VDC (5.4W) FB 24VDC (1.8W)  
DB 12VDC (5.4W) FE 12VDC (2.4W)  
DC 12VDC (7.5W) FF 24VDC (2.4W)

- 6 - Lead Wire Length**  
A 18" Coil Leads  
J External Plug-in Lead
- 7 - Manual Operator**  
0 No Operator  
2 Locking Manual Operator  
4 Locking Extended Operator  
1 Non-Locking Manual Operator  
3 Non-Locking Extended Operator
- 8 - Electrical Connector**  
BA Grommet  
CA Conduit 1/2"  
DK Grommet with Diode (ECC Bar)  
FM Plug-in (For ECD & ECE Bar)  
FN Plug-in with Diode (For ECD & ECE Bar)  
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 with Light & M.O.V.  
KG Mini Plug-in with LED Light & Diode  
KJ Mini Plug-in Male Only  
KK Mini Plug-in Male Only with Diode  
KL Mini Plug-in Male Only with M.O.V.  
TA Dual Tabs (.110) with Receptacles
- 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 with 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**  
0446 High Temp Body RPTC 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 - XX XX - XX - 9**  
 1 2 3 4 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.

35 SERIES CIRCUIT BAR COMMON CONDUIT

**ECC35A - XX XX - XX - XX - 9**  
 1 2 3 4 5 Valves and cover plates assembled to bar

- 1 - Spacing**  
00 21mm Spacing  
03\* 30mm Spacing  
\* Required Spacing for Terminal Strip with Light
- 2 - Configuration**  
1 Side Cylinder Port (21mm)  
4 Regulator with Bottom Cylinder Port (21mm)
- 3 - Port Size & Thread Type**  
C 1/8" BSPPL  
M 1/8" BSPTR
- 4 - Terminal Strip/Lights**  
A0 Standard (No Light) (21mm)  
AA Standard w/Light (120 Volt) (21mm)  
AB Standard w/Light (240 Volt) (21mm)  
AD Standard w/Light (24 Volt) (21mm)

- 5 - Stations**  
Number of Stations (01, 02, 03, etc.)
- Accessories**  
M-35004 Valve Blanking Plate  
M-35005 Regulator Blanking Plate
- Regulators**  
35A-00L Slotted Stem  
35A-00M Adjusting Knob  
35A-00U Locking Stem

Note: Regulator must be ordered separately.

35 SERIES CIRCUIT BAR PLUG-IN COMMON CONDUIT

**ECD35A - XX XX - XX - XX - 9**  
 1 2 3 4 5

- 1 - Spacing**  
00 21mm Spacing  
03\* 30mm Spacing  
\*Required Spacing for Terminal Strip with Light for the ECD Type Bar
- 2 - Configuration**  
1 Side Cylinder Port (21mm)  
4 Regulator with Bottom Cylinder Port (21mm)
- 3 - Port Size & Thread Type**  
C 1/8" BSPPL
- 4 - Terminal Strip/Light**  
A0 Standard (No Light)  
AA Standard w/Light (120 Volt)  
AB Standard w/Light (240 Volt)  
AD Standard w/Light (24 Volt)

- 5 - Stations**  
Number of Stations Required (01, 02, 03, etc.)
- Accessories**  
M-35004 Valve Blanking Plate  
M-35005 Regulator Blanking Plate
- Regulators**  
35A-00L Slotted Stem  
35A-00M Adjusting Knob  
35A-00U Locking Stem
- Modifications**  
MOD 1065 Pre-Wired Option for ECD Bar Only (Wiring Charge)  
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 constant 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.

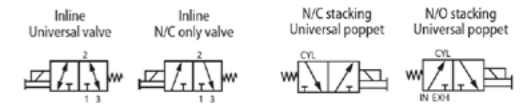
Stock Part Number: 36A-ACA-JDBA-OBL Mod 532S, 36A-B00-JDAA-1GA

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

**36A - X X X - J X X X - X X X (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 (For use with plastic cover)  
2\* Base Mount Body w/ Light (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.)

\*Use only with Base Mount Body option "J"

36 SERIES SOLENOID OPTIONS

**J X X X - X X X (G)**  
 4 5 6 7 8 9 - When ground is required

- 4 - Operator**  
J SOLENOID
- 5 - Voltage**  
AA 120 VAC (5.4W) LA 120 VAC (5.4w)  
AC 24 VAC (5.4W) - Max Cv = 0.23  
DA 24 VDC (5.4W) LB 24 VAC (5.4w)  
DB 12 VDC (5.4W) - Max Cv = 0.23  
DC 24 VDC (2.4W) MA 24 VDC (5.4w)  
DD 12 VDC (2.4W) - Max Cv = 0.23  
DE 24 VDC (1.8W) MB 12 VDC (5.4w)  
DF 12 VDC (1.8W) - Max Cv = 0.23
- 6 - Lead Wire Length**  
0 NO LEAD WIRES (use only with "J", "K", and "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



**8 - Electrical Cover Connection (Contd.)**

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

**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

**9.4 mm 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 - XXX - XX - JXX P - XXX (G)**  
 1 2 3 4 5 6 7 8 9 10 11 - 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**

AA	120 VAC (5.4w) - Max Cv = 0.3
AC	24 VAC (5.4w) - Max Cv = 0.3
DA	24 VDC (5.4w) - Max Cv = 0.3
DB	12 VDC (5.4w) - Max Cv = 0.3
DC	24 VDC (2.4w)
DD	12 VDC (2.4w)
DE	24 VDC (1.8w)
DF	12 VDC (1.8w)
LA	120 VAC (5.4w) - Max Cv = 0.23
LB	24 VAC (5.4w) - Max Cv = 0.23
MA	24 VDC (5.4w) - Max Cv = 0.23
MB	12 VDC (5.4w) - Max Cv = 0.23

**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 - XXX - XX - JXX P - XXX (G)**  
 1 2 3 4 5 6 7 8 9 10 11

**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	MAConnect

**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 (5.4w) Cv to 0.3	LA	120 VAC (5.4w) Cv to 0.23
AC	24 VAC (5.4w) Cv to 0.3	LB	24 VAC (5.4w) Cv to 0.23
DA	24 VDC (5.4w) Cv to 0.3	MA	24 VDC (5.4w) Cv to 0.23
DB	12 VDC (5.4w) Cv to 0.3	MB	12 VDC (5.4w) Cv to 0.23
DC	24 VDC (2.4w)	DE	24 VDC (1.8w)
DD	12 VDC (2.4w)	DF	12 VDC (1.8w)

**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
632996	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 - XXXX**  
 1 2 3

**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 - XXXXXX - XX - 9  
 1 2 3 4 5 - 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 - XXXXXX - XX - XX - 9  
 1 2 3 4 5 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
  - 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 - XXXX - 9  
 1 2 3 4 - 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 constant 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.

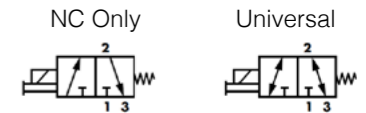
Stock Part Number: 37A-AF0-HDAA-1BC

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



OPERATIONAL BENEFITS

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



37 SERIES

37A - XXX - H XXX - XXX  
 1 2 3 4 5 6 7

- 1 - Body Configuration**  
0 Base Only  
A 3 Port Universal Inline  
B 3 Port N.C. Only Inline  
D Base Mount N.C. Only No Port In Body  
E Base Mount Universal Cyl Port In Body (19.5mm)  
F Base Mount N.C. Only Cyl Port In Body(19.5mm)  
G Base Mount Universal w/ Gage Port  
H Base Mount N.C. Only w/ Gage Port
- 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 XXX - XXX  
 4 5 6 7

- 4 - Voltage**  
AA 120 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 (2.4w)  
DC 24 VDC (1.8w)  
DF 12 VDC (5.2w)  
DG 12 VDC (2.4w)  
DH 12 VDC (1.8w)
- 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/ M.O.V.  
KD MINI PLUG-IN W/ LIGHT  
KE MINI PLUG-IN W/ LIGHT AND DIODE  
KF MINI PLUG-IN W/ LIGHT AND M.O.V.  
KG MINI PLUG-IN W/ LED LIGHT AND 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.  
KM MINI PLUG-IN W/ RECTIFIER  
KN MINI PLUG-IN W/ M.O.V. AND RECTIFIER

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

37 SERIES REGULATOR

PR37A - **XXXX-X**  
 1 2 3 4 5

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

- 0 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 - **XXXX-X-XX-9**  
 1 2 3 4 5 6

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

- Valves and cover plates assembled to bar

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

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 - **XXXX-X-XX-XX-9**  
 1 2 3 4 5 6

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)
- A0 No light AD Light (24v)
- AA Light (120v)

6 - Stations

Number of stations

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



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

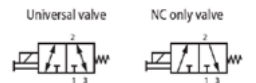
Stock Part Number: 117B-50-1BA

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



OPERATIONAL BENEFITS

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



100 SERIES

1 **XXB-XXXX**  
 1 2 3 4 5

1 - Valve Function

- 1 Universal Ind. Inline
- 3 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)
	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
- CA - Conduit 1/2" NPS
- JA - Square w/No Light
- JB - Rectangle
- JC - Square w/Light
- JD - Rectangle w/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	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	CLSF	High Temperature Coil Option
313P	Inlet Isolation (Manifold Base)	RPTe	Energize Repeatability
313E	Exhaust Isolation (Manifold Base)	T65C	Ambient Temperatures Up to 65°C (150°F)

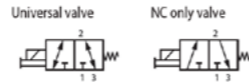


# 200 SERIES

The MAC 200 Series is a direct solenoid operated 3-way poppet valve. This unique series is also available for hazardous location applications (Class I/Div B, C & D - Class II/Div E, F & G). It also 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 information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific..

**Stock Part Number:** 225B-112JC

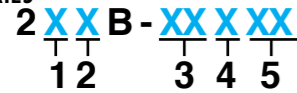
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.5 Cv	Vac. to 150PSI	Inline



### 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.

### 200 SERIES



#### 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)
	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
- CA Conduit 1/2" NPS
- CC Conduit 1/2" NPT (CSA Threads)
- EA Hazardous Locationt
- JA Din w/No Light
- JC Din with Light
- JJ No Plug

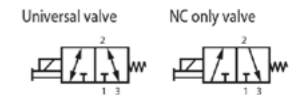
Mod. No.	Description	Model Availability
CLSF	Class F Coil	All Voltages
T65C	For Ambient Temperatures up to 65 degrees C	All Models
0449	For long extended energisation applications	All Models
0005	BSP 3 Port - 257B	All Models

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

**Stock Part Number:** 1116A-037

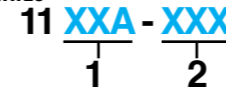
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.18 Cv	Vac. to 150PSI	Inline



### OPERATIONAL BENEFITS

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

### 1100 SERIES



#### 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 less 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

Patents and Patents Pending

## LARGE 3 WAY SOLENOID

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

### 1. The 52, 55 and 56 SERIES (Cv 1.1 to 6.2)

The 52 Series pilot is identical to the 400 Series pilot (44 and 45 series).

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

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

The solenoids, electrical options and enclosures for the 55 and 56 series are identical to the 100 series. These valves can also 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 44 and 45 series.



52 SERIES



55 SERIES



56 SERIES

### 2. The 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 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.

#### 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

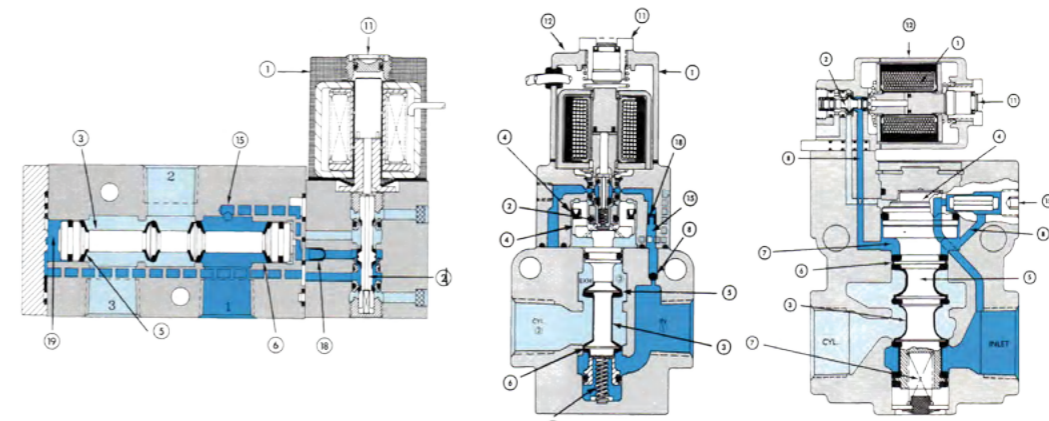
Use external pilot and connect vacuum source to exhaust port. Inlet may be left open to atmosphere or connected to pressure to provide a selector application (vacuum/pressure).

## OPERATIONAL BENEFITS

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

#### EXHAUST

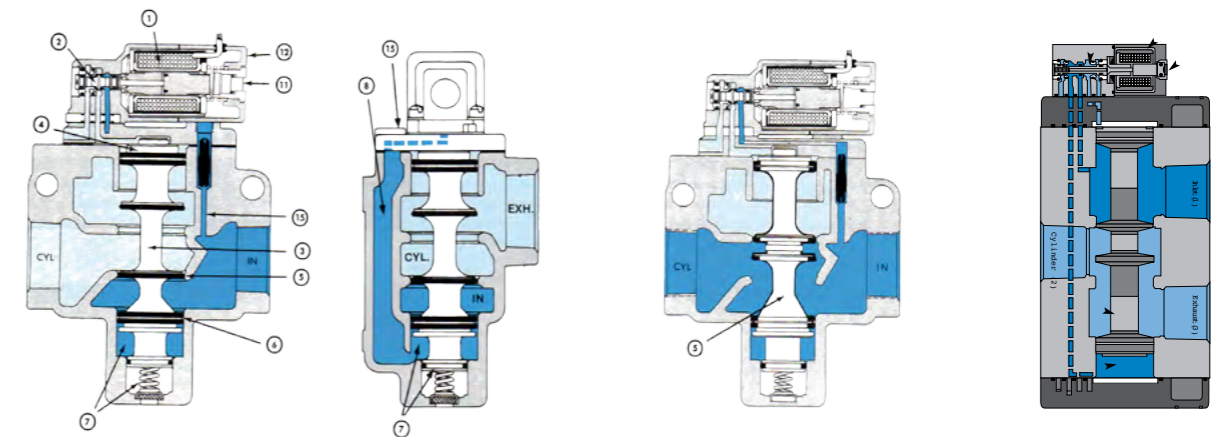
#### PRESSURE



52 Series

55 Series  
(N.C. spools shown)

56 Series



57, 58, 59 Series  
(N.C. spools shown)

57, 58 Series  
(N.O. spools shown)

67 Series



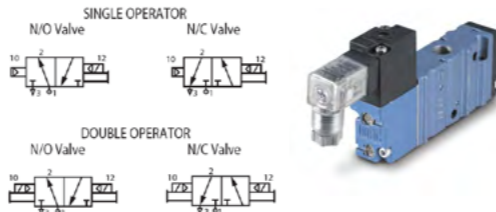
The MAC 52 series is a 3-way balanced spool valve pilot operated by a small direct operated 4-way solenoid valve - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons - and minimal resistance to shifting. The balanced design in the pilot means shifting 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:** 52A-14-D0A-DM-DDBJ-1JD

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

**OPERATIONAL BENEFITS**

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



**52 SERIES**

**52A - XX - XXX - XX - D XXX - XXX**  
 1 2 3 4 5 6 7 8 9 10

**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**

- 0 Manifold body
- D 1/4" BSPPL

**4 - Body Configurations**

- 0 Inline/manifold body

**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 - D XXX - XXX**  
 7 8 9 10

**7 - Voltage**

- JA 120/60, 110/50
- JC 24/60, 24/50
- DA 24 VDC (5.4W)
- DB 12 VDC (5.4W)
- DE 12 VDC (12.7W) (MOD CLSF ONLY)
- DF 24 VDC (12.7W) (MOD CLSF ONLY)
- FA 12 VDC (1.8W)
- FF 24 VDC (2.4W)
- JF 240/50 (2.8w)

**8 - Lead Wire Length**

- A 18" Coil Leads
- J External Plug-In Lead
- \* 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 with M.O.V.
- KD Mini plug-in with light
- KE Mini plug-in with light & diode
- KF Mini plug-in with light & M.O.V.
- KG Mini plug-in with LED light & diode
- KJ Mini plug-in male only
- KK Mini plug-in male only with diode
- KL Mini plug-in male only with M.O.V.

**Complete Pilot Valve**

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

**52 SERIES REMOTE AIR**

**52A - XX - XXX - RA**  
 1 2 3 4 5 6

**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**

- 3 Port Size And Thread Type
- 0 Manifold Body
- 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 Operator Valves, Use MOD 1493

**52 SERIES CIRCUIT BAR (CBM)**

**CBM052A - XXXXX - XX - 9**  
 1 2 3 4 5 9

Valves & cover plates assembled to manifold

**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 (Priced from Section 1 & 2)

**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 - XXXXX - XX - 9**  
 1 2 3 4 5 9

Valves & cover plates assembled to manifold

**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 (Priced from Section 1 & 2)

**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

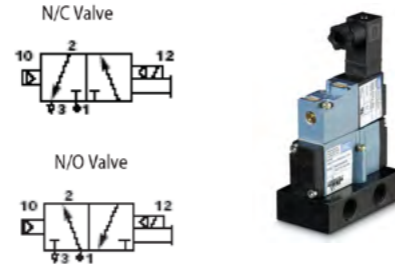
The MAC 53 series is a 3-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons or springs - and minimal resistance to shifting. The balanced design in the pilot means 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:** 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: to 120 PSI	Inline

**OPERATIONAL BENEFITS**

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



**53 SERIES VALVE & BODY OPTIONS**

**53A - XXX - XX - D XXX - XXX**  
 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
  - C 1/4" BSPPL
  - D 3/8" BSPPL
  - D 3/8" BSPPL
- 4 - Pilot Body**
- DM Muffled Pilot Exhaust
  - GM Muffled Pilot Exhaust

**53 SERIES: DM SOLENOID PILOT OPTIONS**

**D XXX - XXX**  
 5 6 7 8

- 5 - Voltage**
- JA 120/60, 110/50
  - JC 24/60, 24/50
  - JF 240/50 AC (2.8w)
  - DA 24 VDC (5.4W)
  - DB 12 VDC (5.4W)
  - DE 12 VDC (12.7W) (MOD CLSF ONLY)
  - DF 24 VDC (12.7W) (MOD CLSF ONLY)
  - FA 12 VDC (1.8W)
  - FB 24 VDC (1.8W)
  - FE 12 VDC (2.4W)
  - FF 24 VDC (2.4W)
- 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 extended operator
  - 4 Locking extended operator
- 8 - Electrical Connector**
- BA Grommet
  - BK Grommet with diode
  - 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 with light & M.O.V.
  - KG Mini plug-in with LED light & diode
  - KJ Mini plug-in male only
  - KK Mini plug-in male only with diode
  - KL Mini plug-in male only with M.O.V.

**Complete Pilot Valve**  
 DMB-DXXX-XXX-1 Pilot Valve

**53 SERIES SINGLE REMOTE AIR**

**53A - XXX - DM - RA1 X**  
 1 2 3 4 5 6

- 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 - XXX - RA**  
 1 2 3

- 1 - Spool Type**
- 0 Base Only
  - 3 Double Operator Normally Closed
  - 4 Double Operator Normally Open
- 2 - External Pilot**
- D Remote Air

- 5 - Pilot Port**
- J Pilot Port Size M5 (Metric)
- 6 - Style**
- RA Remote Air

Note: For Single Operator Valves, Use MOD 1493

**53 SERIES CIRCUIT BAR (EBM)**

**EBM053A - XXXXX - XX - 9**  
 1 2 3 4 5

- 1 - Spacing**
- 00 25.4m m 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

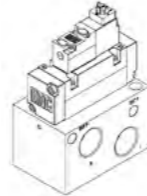
The MAC 54 series is a 3-way balanced spool valve piloted by a small direct operated balanced poppet valve. This is an extremely versatile valve:

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. to 120PSI, Int. 20 to 120PSI	Inline



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

- |  |  |
|--|--|
| <p><b>1 - Function</b></p> <ul style="list-style-type: none"> <li>O Base Only</li> <li>A Single op. N/C Non Plug In</li> <li>B Single op. N/O Non Plug In</li> <li>C Single op. N/C Plug In</li> <li>D Single op. N/O Plug In</li> </ul> <p><b>2 - Body Type</b></p> <ul style="list-style-type: none"> <li>O Base Only</li> <li>A Base mount Body Nt. Pilot</li> <li>B Base mount Body - Ext. Pilot (12 End)</li> <li>C Base mount Body - Ext. Pilot (10 End)</li> <li>E* Base mount Body - Nt. Pilot (Pilot Exh. out main exh.)</li> <li>F* Base mount Body - Ext. Pilot (12 End (Pilot Exh. out main exh.))</li> <li>G* Base mount Body - Ext. Pilot (10 End (Pilot Exh. out main exh.))</li> </ul> <p>* Must use "DU" Pilot Body - Main exhaust cannot be restricted</p> | <p><b>3 - Port Size And Thread Type</b></p> <ul style="list-style-type: none"> <li>O Base Mount E 1/2" BSPPL</li> <li>A 3/8" BSP F 3/4" BSPPL</li> <li>B 1/2" BSP G 3/8" BSPPL</li> <li>C 3/4" BSP H 1/2" BSPPL</li> <li>D 3/8" BSPPL J 3/4" BSPPL</li> </ul> <p><b>4 - Base Type &amp; Configuration</b></p> <ul style="list-style-type: none"> <li>O Base Mount</li> <li>1 Individual Base side ports</li> <li>2 Individual Base Bottom cyl. port (No side cyl. port)</li> </ul> <p><b>5 - Base Type</b></p> <ul style="list-style-type: none"> <li>O Base Mount B Plug In Base</li> <li>A Non Plug In Base</li> </ul> |
|--|--|

**4-WAY PILOT VALVE**  
**XX - DXX X - X XX**  
 6 7 8 9 10

- |   |                           |                   |                        |                 |                  |                 |                 |                 |                 |                 |                   |  |   |
|---|---------------------------|-------------------|------------------------|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|--|---|
| <p><b>6 - Pilot Style</b></p> <ul style="list-style-type: none"> <li>DM Muffled Exhaust</li> <li>DP Piped Exhaust</li> <li>DU Universal Pilot, Pilot exhaust out main exhaust</li> </ul> <p><b>7 - Voltage</b></p> <table border="0"> <tr> <td>JA 120/160, 110/50 (2.9w)</td> <td>DF* 12VDC (12.7w)</td> </tr> <tr> <td>JC 24/60, 24/50 (3.7w)</td> <td>FA 12VDC (1.8w)</td> </tr> <tr> <td>JF 240/50 (2.8w)</td> <td>FB 24VDC (1.8w)</td> </tr> <tr> <td>DA 24VDC (5.4w)</td> <td>FE 12VDC (2.4w)</td> </tr> <tr> <td>DB 12VDC (5.4w)</td> <td>FF 24VDC (2.4w)</td> </tr> <tr> <td>DE* 12VDC (12.7w)</td> <td></td> </tr> </table> <p><b>8 - Lead Wire Length plug-in Valve Base</b></p> <ul style="list-style-type: none"> <li>J Plug-In, Non Plug-In valve/Base</li> <li>A 18"</li> </ul> <p><b>9 - Manual Operator</b></p> <ul style="list-style-type: none"> <li>O No manual operator</li> <li>1 Recessed non locking operator</li> <li>2 Recessed locking operator</li> <li>3 Extended non locking operator</li> <li>4 Extended locking operator</li> </ul> | JA 120/160, 110/50 (2.9w) | DF* 12VDC (12.7w) | JC 24/60, 24/50 (3.7w) | FA 12VDC (1.8w) | JF 240/50 (2.8w) | FB 24VDC (1.8w) | DA 24VDC (5.4w) | FE 12VDC (2.4w) | DB 12VDC (5.4w) | FF 24VDC (2.4w) | DE* 12VDC (12.7w) |  | <p><b>10 - Electrical Connection Non Plug-In Valve/Base</b></p> <ul style="list-style-type: none"> <li>BA Grommet</li> <li>CA Conduit 1/2"NPS</li> </ul> <p><b>External Plug-In Valve</b></p> <ul style="list-style-type: none"> <li>JB Rect. Plug-In w/ Light <i>Plug-In Valve Base</i></li> <li>JD Rect. Plug-In w/ Light <i>FM Plug-In</i></li> <li>JM Rect. Male On</li> <li>JA Square Plug-In</li> <li>JC Square Plug-In w/ Light</li> <li>JJ Square Male On</li> <li>KA Mini Plug-In no Light</li> <li>KB* Mini Plug-In w/ Diode</li> <li>KC* Mini Plug-In w/ M.O.V.</li> <li>KD* Mini Plug-In w/ Light</li> <li>KE* Mini Plug-In w/ Light &amp; Diode</li> <li>KF* Mini Plug-In w/ Light &amp; M.O.V.</li> <li>KG* Mini Plug-In w/ LED and Diode</li> <li>KJ Mini Plug-In Male Only</li> </ul> <p>*M.O.V., Diode &amp; Light are in female connector in these options.</p> |
| JA 120/160, 110/50 (2.9w)   | DF* 12VDC (12.7w)         |                   |                        |                 |                  |                 |                 |                 |                 |                 |                   |  |   |
| JC 24/60, 24/50 (3.7w)  | FA 12VDC (1.8w)           |                   |                        |                 |                  |                 |                 |                 |                 |                 |                   |  |   |
| JF 240/50 (2.8w)  | FB 24VDC (1.8w)           |                   |                        |                 |                  |                 |                 |                 |                 |                 |                   |  |   |
| DA 24VDC (5.4w)   | FE 12VDC (2.4w)           |                   |                        |                 |                  |                 |                 |                 |                 |                 |                   |  |   |
| DB 12VDC (5.4w)   | FF 24VDC (2.4w)           |                   |                        |                 |                  |                 |                 |                 |                 |                 |                   |  |   |
| DE* 12VDC (12.7w)   |                           |                   |                        |                 |                  |                 |                 |                 |                 |                 |                   |  |   |

**54 SERIES DOUBLE REMOTE AIR**  
**54A - XX - XXX - RA**  
 1 2 3 4 5

- |   |  |   |
|---|--|---|
| <p><b>1 - Function</b></p> <ul style="list-style-type: none"> <li>O Base Only E Dbl. Oper. N/C</li> <li>F Dbl. Oper. N/O</li> </ul> <p><b>2 - Body Type</b></p> <ul style="list-style-type: none"> <li>O Base Only</li> <li>D Remote Air</li> </ul> | <p><b>3 - Port Size And Thread Type</b></p> <ul style="list-style-type: none"> <li>O Valve Only</li> <li>D 3/8" BSPPL</li> <li>E 1/2" BSPPL</li> <li>F 3/4" BSPPL</li> </ul> | <p><b>4 - Base Type &amp; Configuration</b></p> <ul style="list-style-type: none"> <li>O Valve Only</li> <li>1 Individ. Base Side Ports</li> <li>2 Individ. Base Bottom Cyl. Port Only (No side Cyl. Port)</li> </ul> <p><b>5 - Base Type</b></p> <ul style="list-style-type: none"> <li>O Valve Only C Remote Air</li> </ul> |
|---|--|---|

# 55 SERIES

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:

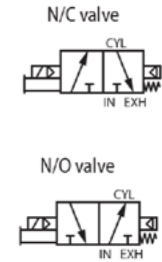
1. It can be converted for use in vacuum.
2. It can be changed from an internal pilot to external by simply rotating the adapter between the pilot and main valve bodies.
3. It can also be converted to a remote air operated valve by removing the solenoid pilot assembly - just to name a few.

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 N/O-N/C, 2/2 N/O-N/C	1/4"-3/8"	2.2 Cv	Ext. to 150PSI, Int. 30 to 150PSI	Inline

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



**55 SERIES**  
**55 B - XX - XX - XXX XX**  
 1 2 3 4 5 6

- |   |  |
|---|--|
| <p><b>1 - Valve Function</b></p> <ul style="list-style-type: none"> <li>1 Normally Closed</li> <li>2 Normally Open</li> </ul> <p><b>2 - Port Size</b></p> <ul style="list-style-type: none"> <li>3 1/4" BSPP</li> <li>4 3/8" BSPP</li> </ul> <p><b>3 - Port Size</b></p> <ul style="list-style-type: none"> <li>PI Internal Pilot</li> <li>PE External Pilot</li> </ul> <p><b>4 - Voltage</b></p> <p><i>Remote Air Pilot</i></p> <ul style="list-style-type: none"> <li>RA 25-150 PSI</li> <li>RE VAC-25 PSI</li> </ul> <p><i>AC Voltage</i></p> <ul style="list-style-type: none"> <li>11 120/60, 110/50</li> <li>22 24/50-60</li> <li>39 240/50</li> </ul> <p>* Other voltage options available</p> <p><i>DC Voltage</i></p> <ul style="list-style-type: none"> <li>50 24VDC (6W)</li> <li>55 12VDC (6W)</li> <li>57 12VDC (2.5W)</li> <li>59 24VDC (2.5W)</li> <li>60 12VDC (8.5)</li> <li>61 24VDC (8.5)</li> </ul> | <p><b>5 - Manual Operator Indicator Lights</b></p> <ul style="list-style-type: none"> <li>0 No Operator</li> <li>1 Non-Locking Recessed (Std.)</li> <li>2 Locking Recessed</li> <li>3 Non-Locking Extended</li> <li>4 Locking Extended</li> </ul> <p><b>6 - Enclosure</b></p> <ul style="list-style-type: none"> <li>BA Grommet</li> <li>CA Conduit 1/2" NPS</li> <li>JA Square w/No Light</li> <li>JB Rectangle</li> <li>JC Square w/Light</li> <li>JD Rectangle w/Light</li> </ul> <p>* - Lights are available for 120/60, 110/50 or 24VDC with JIC enclosure only (AA).</p> |
|---|--|

- |   |  |
|---|--|
| <p><b>Modifications</b></p> <p><i>Diverter models</i></p> <ul style="list-style-type: none"> <li>MOD 0575 Diverter Internal pilot</li> <li>Diverter External pilot</li> <li>MOD 0158 Heavy Duty Spring</li> </ul> | <p><b>Remote Air Pilot Operated Models</b></p> <p><i>Normally closed</i></p> <ul style="list-style-type: none"> <li>55B-13-RA</li> <li>55B-14-RA</li> </ul> <p><i>Normally open</i></p> <ul style="list-style-type: none"> <li>55B-23-RA</li> <li>55B-24-RA</li> </ul> |
|---|--|

# 56 SERIES

The MAC 56 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:** 56C-16-392JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	3/8"-1/2"-3/4"	5.7 Cv	Ext. to 150PSI, Int. 25 to 150PSI	Inline

### OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. Large spool area provides maximum shifting forces.
4. Checked accumulator guarantees maximum pilot pressure.
5. Powerful return force thanks to the combination of mechanical and air springs.
6. Bonded spool with minimum friction, shifting in a glass-like finished bore.
7. Wiping effect eliminates sticking.
8. 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 C - XX - XX 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 3/8" BSPP
- 6 1/2" BSPP
- 8 3/4" BSPP

#### 3 - Voltage

Remote Air Pilot	DC Voltage
RA 25-150 PSI	50 24VDC (6W)
RE VAC-25 PSI	55 12VDC (6W)
AC Voltage	57 12VDC (2.5W)
11 120/60, 110/50	59 24VDC (2.5W)
22 24/50-60	60 12VDC (8.5)
39 240/50	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 w/No Light
- JB Rectangle w/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).

#### Accessories

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

#### Pilot Valve

130B - XX X XX

#### Remote Air Pilot Operated Models

##### Normally Closed

Model	Normally Open
56C-525RA	56C-85RA
56C-536RA	56C-86RA
56C-578RA	56C-88RA

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

#### Modifications

MOD 0158	Heavy Duty Spring
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# 57 SERIES

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.

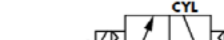
**Stock Part Number:** 57D-16-252JC

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
3/2 NO-NC, 2/2 NO-NC	1/2"-3/4"-1"	17.4 Cv	Ext. to 150PSI, Int. 25 to 150PSI	Inline

### OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. Large spool area provides maximum shifting forces.
4. Checked accumulator guarantees maximum pilot pressure.
5. Powerful return force thanks to the combination of mechanical and air springs.
6. Bonded spool with minimum friction, shifting in a glass-like finished bore.
7. Wiping effect eliminates sticking.
8. 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 D - XX - XX 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

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

#### 4 - Voltage

Remote Air Pilot	RA 25-150 PSI
RE VAC-25 PSI	

#### AC Voltage

- 11 120/60, 110/50
- 22 24/50-60
- 25 240/50

\* Further voltage options

#### DC Voltage

- 50 24VDC (6W)
- 52 24VDC (2.5W)
- 55 12VDC (6W)
- 60 12VDC (8.5)
- 61 24VDC (8.5)

#### Remote Air Pilot Models

Normally Closed	Normally Open
57D-54-RA	57D-84-RA
57D-55-RA	57D-85-RA
57D-56-RA	57D-86-RA

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

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

\* - 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 ("O"). DC not available below 6 watts.

#### Accessories

R-59003	Remote Air Pilot Block
250B - XXYZZ	(200 Series) Standard
130B - XXYZZ	(100 Series) Optional



# 58 SERIES

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 NO-NC, 2/2 NO-NC	1"-1 1/4"-1 1/2"	26.0 Cv	Ext. to 150PSI, Int. 25 to 150PSI	Inline

### OPERATIONAL BENEFITS

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

N/C pilot - NC spool



N/O pilot - N/C spool



### 58 SERIES

**58 D - XX - XXXXX**  
 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

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

#### 3 - Voltage

Remote Air Pilot	DC Voltage
RA 25-150 PSI	50 24VDC (6W)
RE VAC-25 PSI	52 24VDC (2.5W)
AC Voltage	55 12VDC (6W)
11 120/60, 110/50	60 12VDC (8.5)
22 24/50-60	61 24VDC (8.5)
25 240/50	

Further voltage options.

#### 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 Din w/No Light
- JC Din with Light\*

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

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

#### Accessories

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

#### Pilot Valve

250B - XX X XX

#### Remote Air Pilot Operated Models

Normally Closed	Normally Open
58D-54-RA	58D-84-RA
58D-55-RA	58D-85-RA
58D-56-RA	58D-86-RA

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

#### Modifications

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

# 59 SERIES

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.

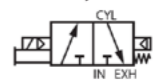
**Stock Part Number:** 59B-16-112JC

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

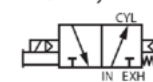
### OPERATIONAL BENEFITS

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

N/C only valve



N/O only valve



### 59 SERIES

**59 B - XX - XXXXX**  
 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

#### 4 - Voltage

Remote Air Pilot	DC Voltage
RA 25-150 PSI	50 24VDC (6W)
RE VAC-25 PSI	52 24VDC (2.5W)
AC Voltage	55 12VDC (6W)
11 120/60, 110/50	60 12VDC (8.5)
22 24/50-60	61 24VDC (8.5)
25 240/50	

#### 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

- AA JIC w/1/2" NPS Conduit
- BA Grommet
- CC Conduit 1/2" NPT
- EA Hazardous Location\*\*
- JA Din w/No Light
- JC 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 ("O"). DC not available below 6 watts.

#### Remote Air Pilot Models

##### Normally Closed

59B-55-RA

59B-56-RA

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

##### Pilot valve

250B - XXYZZ

#### Accessories

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

#### Modifications BSSP Threads

- 0523 Contaminated Atmosphere
- 0575 59B Diverter
- 0158 Heavy Duty Spring

# 67 SERIES

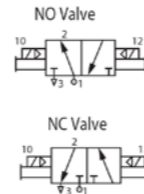
The MAC 67 series is a 3-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons or springs - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are consistently high and response times are repeatable regardless of inlet pressure fluctuations. For more information 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 NO-NC, 2/2 NO-NC	3/4 - 1"	20.0 Cv	Ext. to 150PSI, Int. 20 to 150PSI	Inline

### OPERATIONAL BENEFITS

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



### 67 SERIES

**67A-XX-XXX-XX-DXXX-XXX**  
 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

**XX-DXXX-XXX**  
 6 7 8 9 10

- 6 - Pilot Style / Remote Air**
  - DM Pilot Valve w/muffled exhaust
  - RA Remote Air
- 7 - Voltage**
  - JA 120/60, 110/50
  - JC 24/60, 24/50
  - JF 240/50
  - DA 24 VDC (5.4W)
  - DB 12 VDC (5.4W)
  - DE 12 VDC (12.7W)(CLSF)
  - DF 24 VDC (12.7W)(CLSF)
  - FE 12 VDC (2.4W)
  - FF 24 VDC (2.4W)
- 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-In
  - JD Rectangular Plug-In w/Light
- Solenoid and Cover Assembly**
  - DXXX - XXX1
- Complete Pilot Valve**
  - DMB-DXXX-XXX1

Note: Low Wattage Available As Complete Valves Only

# 68 SERIES

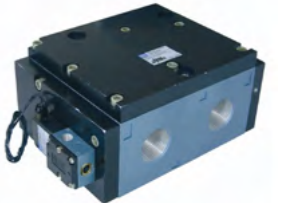
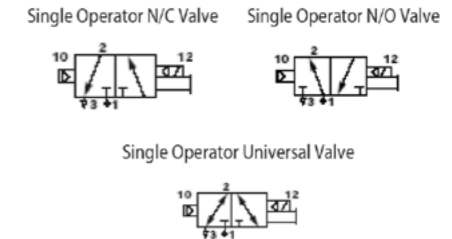
The MAC 68 series is a 3-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons or springs - and minimal resistance to shifting. The balanced design in the pilot means 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 NO-NC, 2/2 NO-NC	1"-1 1/4"-1 1/2"	31.0 Cv	Ext. to 150PSI, Int. 20 to 150PSI	Inline

### OPERATIONAL BENEFITS

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



### 68 SERIES

**68A-XX-XXX-JXXX-XXX(-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
  - G Single Operator - Universal Spool
- 2 - Spool Return**
  - 1 Standard Return
- 3 - Port Size & Thread Type**
  - D 1" BSPPL
  - E 1 1/4" BSPPL
  - F 1 1/2" BSPPL
  - H 1 1/4" BSPTR
  - J 1 1/2" BSPTR
  - 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

**JXXX-XXX(-G)**  
 6 7 8 9 10 11 - When ground is required

- 6 - Operator**
  - J Solenoid
- 7 - Voltage**
  - AA 240/50
  - AC 24 VAC (5.4W)\*
  - DA 24 VDC (5.4W)
  - DB 12 VDC (5.4W)
  - \*Requires Electrical Cover w/ Rectifier
  - DC 24 VDC (2.4W)
  - DD 12 VDC (2.4W)
  - DE 24 VDC (1.8W)
  - DF 12 VDC (1.8W)
- 8 - Lead Wire Length**
  - 0 NO LEAD WIRES
  - A 18" LEADS
  - F 96" 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 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-XX-XXX-RA-RE**  
 1 2 3 4 5 6 - When ground is required

- 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 Sgl. Remote Air (w/ Air Spring Return)
  - 4 Dbl. Remote Air
- 3 - Port Size & Thread Type**
  - F 1 1/2" BSPPL
  - 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



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 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.

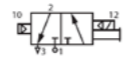
**Stock Part Number:** 69A-A1A-EAB-JDA0-2JD

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

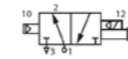
**OPERATIONAL BENEFITS**

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

Single Operator N/C Valve



Single Operator N/O Valve



**69 SERIES**

**69A - XX - XXX - JXX X - XXX (-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**

**JXX X - XXX (-G)**  
 6 7 8 9 10 11

- 6 - Operator**
  - J Solenoid
- 7 - Voltage**
  - AA 240/50
  - AC 24 VAC (5.4W) (Req: Electrical Cover w/ Rectifier)
  - DA 24 VDC (5.4W)
  - DB 12 VDC (5.4W)
  - DC 24 VDC (2.4W)
  - DD 12 VDC (2.4W)
  - DE 24 VDC (1.8W)
  - DF 12 VDC (1.8W)
- 8 - Lead Wire Length**
  - 0 NO LEAD WIRES
  - A 18" LEADS
  - F 96" 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 - XX - XXX - RA**  
 1 2 3 4 5 6

- 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 Double Remote Air
  - RE Single Remote Air w/External Air Spring Return

LARGE 3-WAY

LARGE 3-WAY

Patents and Patents Pending  
SMALL 4 WAY SOLENOID



### AVAILABILITY TABLE

#### SERIES FEATURES

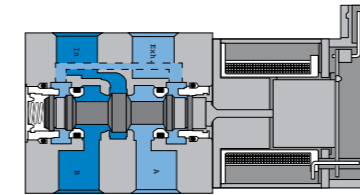
	44	45	700	400	800	900
Single Solenoid	✓	✓	✓	✓	✓	✓
Double Solenoid	✗	✓	✓	✓	✓	✓
Inline	✓	✓	✓	✓	✓	✓
Base Mounted	✓	✓	✗	✓	✗	✗
Stacking	✗	✓	✓	✗	✓	✓
Add-a-Unit Manifold	✗	✓	✗	✗	✗	✗
Circuit Bar	✓	✓	✗	✓	✓	✗
Internal Pilot Operated	N/A	N/A	✓	✓	✓	✓
External Pilot Operated	N/A	N/A	✓	✓	✓	✗
3-Position	✗	✗	✗	✓	✓	✗
Remote Air Operated	✗	✓	✓	✗	✓	✓
Remote Air, Pilot Operated	N/A	N/A	✓	✓**	✓	✓
Folw Controls	N/A	✓	✓	✗	✓	✗
Pressure Regulator	✗	✓	✗	✗	✗	✗
Flow(Cv)	01	0.18*	0.8	1.0	1.4	1.4

LEGEND: ✓ = Available  
N/A = Not Applicable  
✗ = Not Available

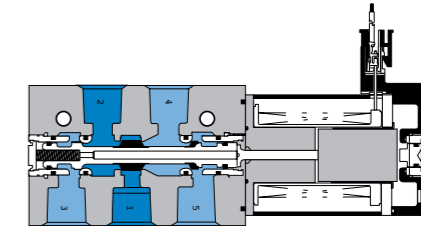
\* Higher flows available with higher wattages  
\*\* Consult Factory

## OPERATIONAL BENEFITS

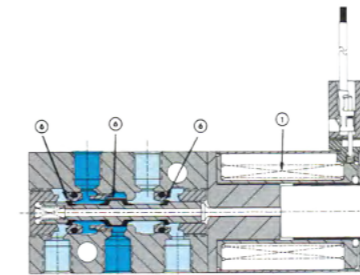
EXHAUST  
PRESSURE



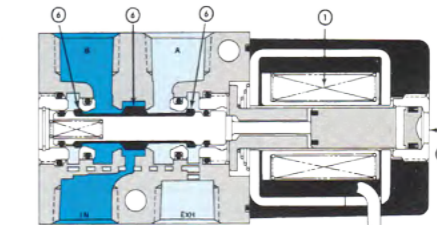
46 Series



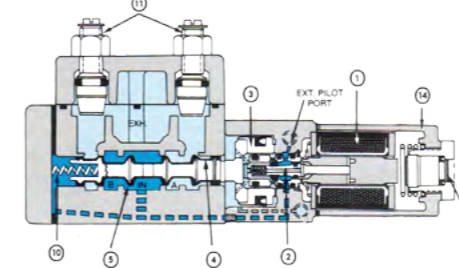
47 Series



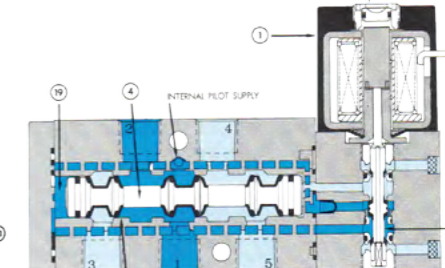
44 Series



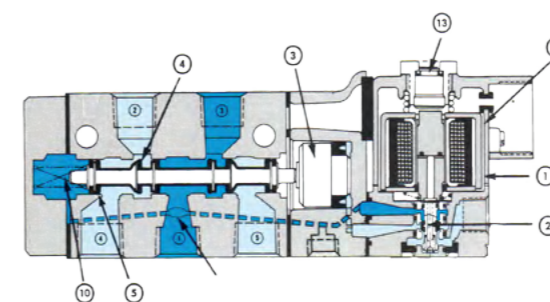
45 Series



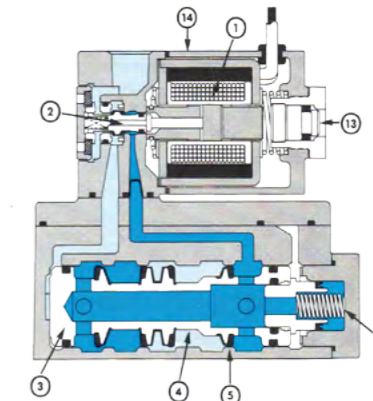
700 Series



400 Series



800 Series



900 Series

SMALL 4-WAY

SMALL 4-WAY



# 24 SERIES

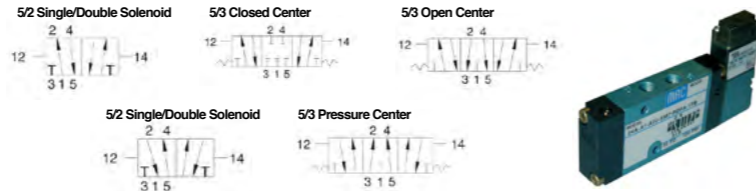
The MAC 24 series is a compact - high flow - 10mm - solenoid pilot operated 4-way spool valve. The valve offers high flow not common for a valve of its size. The valve utilises our new 8mm E-pilot with oval armature for maximised shifting forces in a small package size. The balanced design in the pilot 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	0.25 / 250 Cv	2pos. int. pilot: sgle. sol.: 30 to 120 dble sol.: 20 to 120	Inline

### OPERATIONAL BENEFITS

- 10 mm 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 - XX - B00 - EXX - R XX X - X XX**  
 1 2                      3                      4 5 6 7

1 - Solenoid		2 - Pilot Air	
Single Pressure	Dual Pressure (internal pilot only)	Single Pressure	Dual Pressure (internal pilot only)
A 5/2 Single Solenoid	C 5/2 Single Solenoid	1 Internal	2 Internal from port #3
B 5/2 Double Solenoid	D 5/2 Double Solenoid	4 External	3 Internal from port #5
E 5/3 Closed Centre	G 5/3 Pressure Centre		
F 5/3 Open Centre			

### SOLENOID OPERATOR

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

3 - Pilot Type	6 - Manual Operator
M2 Muffled exhaust	0 No manual operator
	1 Recessed non locking
	3 Extended non locking
4 - Voltage	7 - Electrical Connector
DC 24VDC (1.8 W)	BA Flying leads
DF 24VDC (4.0W)	BB Flying leads w/ LED
DJ 12VDC (1.8W)	
DM 12VDC (4.0W)	
5 - Lead Wire Length	Options
O* No lead wire	<b>24A-XX -B X 0-Exx-Rxxx-xxx</b>
A 18" / 45 cm	1 Individual base – Side ports
* Not available for flying lead connectors	2 Individual base – Bottom ports (no side ports)
	Note: For pilot exhaust out main exhaust mod. 0353 is required

# 44 SERIES

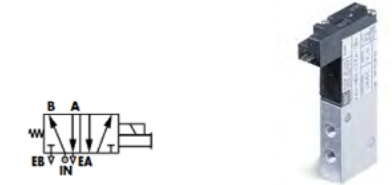
The MAC 44 series is a direct solenoid operated 4-way, 10mm poppet valve. A direct operated 4-way of this small package size is unique to MAC due to patented design innovations. It features an oval armature in the solenoid, a balanced poppet and conical seats. These features translate into high shifting 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 INLINE & BASE MOUNT VALVES

**44B/C - X XX - G XX X - X XX**  
 1 2                      L XX X - X XX

1 - Body Type	2 - Port Size And Thread Type
A Individual inline	00 Base Mount Body Only
L Base mount body	BA M5 (Metric)

### 44 SERIES STANDARD SOLENOID OPTIONS

**G XX X - X XX**  
 3 4 5 6

3 - Voltage	4 - Lead Wire Length	5 - Manual Operator	6 - Electrical Connector
AB 240 VAC (4.0W) (Use with "HA" or "HD" Connector)	0 No Lead Wire	1 Recessed non-locking operator	BA Flying leads - STANDARD STOCK
AC 24 VAC (4.0W)	A 18" Coil Leads	2 Recessed Locking Operator	DE* Plug-in w/suppression diode
DA 24 VDC (1.0W)	P Plug-IN	3 Extended Non Locking Operator	DF* Plug-in w/suppression diode w/ground pin
		4 Extended Locking Operator	DJ* Plug-in
			DM* Plug-in w/ground pin
			DT* Plug-in w/LED light
			DU* Plug-in w/LED light w/ground pin
			DV* Plug-in w/suppression diode w/LED light
			DW* Plug-in w/suppression diode w/LED light w/ground pin
			HA Plug-In Wire Assembly w/ Full Wave Rectifier Plus LED & Ground
			HD Same as "HA" w/o Lead Wire Assembly
			KA Solenoid Plug-In Wire Assembly - STANDARD STOCK
			KB Solenoid Plug-In Wire Assembly w/ Ground
			KC Solenoid Plug-In Wire Assembly w/ Rectifier & LED
			KD Solenoid Plug-In Wire Assembly w/ Rectifier & LED w/ Ground
			KE Solenoid Plug-In Wire Assembly w/ Suppression Diode
			KF Solenoid Plug-In Wire Assembly w/ Suppression Diode & Ground
			KJ* Solenoid Plug-In Housing w/o Wire asbly. ("KA" opt. w/o wire asbly.)
			KM* Solenoid Plug-In Housing w/o Wire asbly. ("KB" opt. w/o wire asbly.)
			KN Solenoid Plug-In Wire Assembly w/ Suppression + Blocking Diode
			KP Solenoid Plug-In Wire Assembly w/ Suppression Diode Plus Blocking Diode & Ground
			KT Solenoid Plug-In Wire Assembly w/ LED On Top
			KU Solenoid Plug-In Wire Assembly w/ LED On Top & Ground
			KV Solenoid Plug-In Wire Assembly w/ Suppression Diode Plus LED On Top
			KW Solenoid Plug-In Wire Assembly w/ Suppression Diode Plus LED On Top & Ground
			KX Solenoid Plug-In Wire Assembly w/ Suppression Diode Plus Blocking Diode & LED On Top
			KY Solenoid Plug-In Wire Assembly w/ Suppression Diode Plus Blocking Diode & LED On Top & Ground
			<b>6 - Electrical Connector (Avail. with rev. C valves only)</b>
			<b>Non Plug-In Valves</b>
			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)

Note: MAC JAC Connector Not Available with AC Voltage Options

SMALL 4-WAY

SMALL 4-WAY

#### 44 SERIES PLUG-IN MANIFOLD

44B/C - XXX - XX - GXXX-XXX  
 LXXX-XXX  
 1 2 3 4 5

##### 1 - Body Type

- 0 Base only
- L Base mount body
- M Base mount body w/end seals

##### 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)

##### 5 - Manifold Configuration

- 0 Valve only
- C Side cylinder's
- D Bottom cylinder's
- E Side cylinder's w/flow controls
- F Bottom cylinder's 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)
- 44B-0SA-AC-L (Use with "L" Solenoid)

#### 44 SERIES STANDARD SOLENOID OPTIONS - Plug-In Options

G XXX - XXX  
 6 7 8 9

##### 6 - Voltage

- AA 120 VAC (2.5w)
- AC 24 VAC (4.0w)
- DC 24 VDC (1.8W)
- DF 24 VDC (4.0W)
- DJ 12 VDC (1.8W)
- DK 12 VDC (2.5W)

##### 7 - Lead Wire Length

- P Plug-In

##### 8 - Manual Operator

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

##### 9 - Electrical Connector

- DC Base/Manifold Plug-In with Rectifier & LED
- DD Base/Manifold Plug-In with Rectifier & LED with Ground
- DE Base/Manifold Plug-In w/ Suppression Diode
- DF Base/Manifold Plug-In w/ Suppression Diode w/ Ground
- DJ Base/Manifold Plug-In
- DM Base/Manifold Plug-In w/ Ground
- DT Base/Manifold Plug-In w/ LED Light
- DU Base/Manifold Plug-In w/ LED Light w/ Ground
- DV Base/Manifold Plug-In w/ Suppression Diode w/ LED Light
- DW Base/Manifold Plug-In w/ Suppression Diode w/ LED Light w/ Ground

##### Parts

- 28486 Inlet Isolator Disc
- 28487 Exhaust Isolator Disc
- M-44008-01P End Plate Kit (for use with plug-in manifolds)
- M-44007-XX-01P MACConnect Fastening End Plate Kit (Rev. B)
- M-44011-XX-01P MACConnect Fastening End Plate Kit (Rev. C)
- (XX= 01 or 02)

##### Modifications

- MOD 1974 Negative Commons

#### 44 SERIES REGULATOR

PR44A - XXXX - X  
 1 2 3 4 5

##### 1 - Type of Adjustment

- A Manual adjust knob

##### 2 - Configuration

- O 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 - XXXX - XX - 9  
 1 2 3 4

##### 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.)



#### 44 SERIES CIRCUIT BAR PLUG-IN COMMON CONDUIT

ECD044B - XXXXX - XXXX - 9  
 1 2 3 4 5 6

##### 1 - Spacing

- 00 10.5mm Spacing (Standard)
- 01 15mm Spacing (Required for Single Station Add-A-Unit w/Flow Controls)

##### 2 - Configuration

- 1 Side Cylinder Ports
- 4\* Bottom Cylinder Ports w/Regulator
- 5 Side Cylinder Ports w/Flow Controls
- 7\* Bottom Cylinder Ports w/Regulator and Flow Controls
- \*NOTE: Price Regulator Separately

##### 3 - Style

- A Standard Bar
- B Add-On Style Bar (Includes End Plate)
- C Add-A-Unit Station (10.5mm) Add-A-Unit Station (15mm)

##### 4 - Port Size & Thread Type

- B #10-32
- D M5 Metric

##### 5 - Lights

- A0 Standard (No Light)

##### 6 - Stations

- Number of Stations

##### Accessories

- E-34041-018G Base Lead Wire Assembly w/Ground
- M-44002-01P Right Hand End Plate Kit
- N-44001-03 Body Fastening Kit
- N-44001-01 Body Fastening Kit (Station w/Flow Controls)
- N-44002 Flow Control Needle Assembly (2 Required)
- 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-44003 Blank Station Cover Plate
- 35048 End Plate Mounting Screw

#### 44 SERIES CIRCUIT BAR WITH MULTI-PIN CONNECTORS

ECF44B - XXXXX - XXXX - 9  
 1 2 3 4 5 6

##### 1 - Spacing

- 00 10.5mm Spacing

##### 2 - Configuration

- A w/o cylinder ports
- B Side cylinder ports
- C Bottom cylinder ports
- D Flow controls w/o cylinder ports
- E Flow controls w/bottom cylinder ports
- F\* Regulator w/o cylinder ports
- G\* Regulator w/bottom cylinder ports

##### 3 - Port Size & Thread Type

- D M5 Metric (NPTF Commons)
- H M5 Metric (BSPPL Commons)
- L M5 Metric (BSPTR Commons)

##### 4 - Style

- A Standard Bar
- B Din rail mount

##### 5 - Plug-In Connectors/Location

###### Use With Standard Solenoid

- |                 |                 |
|-----------------|-----------------|
| Left End        | Right End       |
| LA 9 Pin Sub D  | RA 9 Pin Sub D  |
| LB 15 Pin Sub D | RB 15 Pin Sub D |
| LC 25 Pin Sub D | RC 25 Pin Sub D |

###### Use With Latching Solenoid

- |   |   |
|---|---|
| Left End                                  | Right End                                     |
| MA 9 Pin Sub D                            | SA 9 Pin Sub D                                |
| MB 15 Pin Sub D                           | SB 15 Pin Sub D                               |
| MC 25 Pin Sub D                           | SC 25 Pin Sub D                               |
| MD 10 Pin ribbon cable                    | SD 10 Pin ribbon cable                        |
| ME 16 Pin ribbon cable                    | SE 16 Pin ribbon cable                        |
| MF 20 Pin ribbon cable                    | SF 20 Pin ribbon cable                        |
| MG 26 Pin ribbon cable                    | SG 26 Pin ribbon cable                        |
| MH 3/8" NPSM Conduit port 2 wire w/ground | SH 3/8" NPSM Conduit port standard base wires |
| MJ 3/8" NPSM Conduit port 4 wire w/ground | SJ 3/8" NPSM Conduit port 4 wire w/ground     |
| MK 3/8" NPSM Conduit port 3 wire          | SK 3/8" NPSM Conduit port 3 wire              |

Valves and cover plates assembled to valve



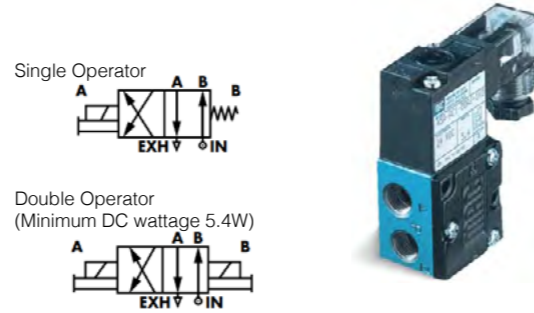
The MAC 45 series is a direct solenoid operated 4-way poppet valve. These feature a short stroke solenoid, a balanced poppet and conical seats. These features translate into high shifting forces, fast constant response times, and long life. For more information regarding certifications (such as UL, CSA, 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**

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



**45 SERIES VALVE & BASE OPTIONS**

**45A - XXX - D XXX - XXX**  
 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  
 H O-ring mount ports (inline only)  
 K 1/8" BSPPL bottom cylinder ports (individual base)
- 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 DE 12 VDC (12.7W) (MOD CLSF only)  
 AC 24/60, 24/50 DF 24 VDC (12.7W) (MOD CLSF only)  
 AF 240/50 FE 12 VDC (2.4w)  
 DA 24 VDC (5.4w) FF 24 VDC (2.4w)  
 DB 12 VDC (5.4W)
- 6 - Lead Wire Length**  
 A 18" coil leads  
 J External plug-in lead
- 7 - Manual Operator**  
 0 No operator 3 Non-locking extended op.  
 1 Non-locking manual op. 4 Locking extended operator  
 2 Locking manual op.
- 8 Electrical Connector**  
 BA Grommet  
 FM Plug-in (For ECD & ECE Bar)  
 FN Plug-in with diode (for ECD & ECE bar)  
 FP Plug-in with M.O.V. (for ECD & ECE bar)  
 JB Rectangular plug-in - No Light  
 JD Rectangular plug-on with light  
 JM Rectangular male only  
 KA Mini plug-in - No Light  
 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 with light & M.O.V.  
 KG Mini plug-in with LED light & diode  
 KJ Mini plug-in male only
- Accessories**  
 M-45001-01P End plate kit (stacking)  
 M-45004 Spacer plate conduit kit  
 M-45005-01P End plate kit — common conduit (stacking)  
 M-45008-01P End plate kit (manifold)  
 M-45010 Blank station cover plate (manifold)  
 M-45010-01 Blank station " " w/pressure outlet  
 N-45001 Top plate (individual)  
 N-45002 Flow control plate (individual)  
 N-45003 Top plate (stacking)  
 N-45004 Flow control plate (stacking)  
 N-45005 nlet and exhaust isolator (stacking)  
 N-45006 Inlet isolator (stacking)  
 N-45007 Exhaust isolator (stacking)  
 N-45008 Inlet & exhaust isolator (manifold)  
 N-45009 Inlet isolator (manifold)  
 N-45010 Exhaust isolator (manifold)  
 N-45015 Manifold base end cover plate plain  
 N-45016 Manifold base end cover plate w/flow controls  
 N-45018 Flow control needle assembly (Individual Base)

**45 SERIES SANDWICH REGULATOR**

**PR45A - XXXX - 9**  
 1 2 3 4 - Valves and 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 Gage 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 - XXXX - XX - 9**  
 1 2 3 4 - Valves and 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



**45 SERIES CIRCUIT BAR COMMON CONDUIT**

**ECC45A - XXXX - XX - XX - 9**  
 1 2 3 4 5 - Valves and cover plates assembled to bar

- 1 - Spacing**  
 00 21mm Spacing  
 03 30mm Spacing
- 2 - Configuration**  
 1 Side Cylinder Ports (21mm)  
 4 Regulator with Bottom Cylinder Ports (21mm)  
 5 Flow Controls with Side Cylinder Ports (30mm)  
 7 Regulator and Flow Controls w/Bottom Cylinder Ports (21mm)
- 3 - Port Size & Thread Type**  
 C 1/8" BSPPL  
 M 1/8" BSPTR
- 4 - Terminal Strip/Lights**  
 A0 Standard (No Light) (21mm)  
 AA Standard w/Light (120 Volt) (21mm)  
 AB Standard w/Light (240 Volt) (21mm)  
 AD Standard w/Light (24 Volt) (21mm)
- 5 - Stations**  
 Number of Stations (01, 02, 03, etc.)
- Accessories**  
 M-45010 Valve Blanking Plate  
 M-35005 Regulator Blanking Plate
- Regulators**  
 35A-00L Slotted Stem  
 35A-00M Adjusting Knob  
 35A-00U Locking Stem
- Regulators With Flow Controls**  
 45A-001 Slotted Stem  
 45A-002 Adjusting Knob  
 45A-003 Locking Stem

Note: Regulators Must Be Ordered Separately.

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 constant 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**

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



**46 SERIES**

**46A - XXX - JXXX - XXX (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  
 M Single Solenoid Base Mount Body with Gauge Port  
 N Double Solenoid Base Mount Body  
 P Double Solenoid Base Mount Body w/ Gauge Ports

- 2 - Port Size & Thread Type**  
 0 Base Mount Body  
 B #10 - 32 UNF  
 C 1/8" BSPPL  
 D M5 (Metric)  
 G Use with O-Ring Mount Body Option "D"  
 1 Base Mount Body (For use with plastic cover)  
 2 Base Mount Body w/ Light (For use with plastic cover)
- 3 - Configuration**  
*Base Mount*  
 0 Base Mount Body  
*Inline or Stacking Body*  
 1 No Flow Controls  
 2 With Flow Controls

**46 SERIES SOLENOID**

**JXX X - XXX (G)**  
 4 5 6 7 8 9

- 4 - Operator**  
 J SOLENOID
- 5 - Voltage**  
 AC 24 VAC (5.4W) - MAX. Cv = 0.3  
 DA 24 VDC (5.4W) - MAX. Cv = 0.3  
 DB 12 VDC (5.4W) - MAX. Cv = 0.3  
 DC 24 VDC (2.4W)  
 DD 12 VDC (2.4W)
- 6 - Lead Wire Length**  
 0 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 JAC SOLENOID PLUG-IN WITH MOV & LED
- 8 - Electrical Cover Connection - contd.**  
*9.4 mm 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

- GG MAC JAC SOLENOID PLUG-IN WITH RECTIFIER  
 GH MAC JAC SOLENOID PLUG-IN WITH RECTIFIER & LED  
 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 CONNECOTR W / RECTIFIER W / LIGHT  
 JJ SQUARE CONNECOTR 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  
 JM RECTANGULAR CONNECTOR 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 Isolator (Stacking)

**46 SERIES REGULATOR**

**PR46A - XXXX - 9**  
 1 2 3 4 - Assembled to Valve

- 1 - Style**  
 0 Regulator Only  
 A Plug-In Block (Single Solenoid Only)  
 B Non Plug-In Block
- 2 - Adjustment**  
 0 Regulator Block Only  
 A Slotted Stem  
 B Adjusting Knob  
 C Slotted Stem with Locknut

- 3 - Gauge**  
 0 Regulator Block Only  
 A Gage Port Plugged
- 4 - Pressure Range**  
 0 Regulator Block Only  
 A 0-120 psi  
 B 0-80 psi  
 C 0-30 psi

SMALL 4-WAY

SMALL 4-WAY



## 46 SERIES PLUG-IN MANIFOLD

**46A - XXX - XX - JXX P - XXX - (G)**

1 2 3 4 5 6 7 8 9 10 11 - 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
- B 1/8" BSPPL

### 4 - Manifold Wiring

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

### 5 - Manifold Configuration

- 0 Valve only
- C Side cylinder ports
- 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

### 6 - Solenoid

- J Solenoid

### 7 - Voltage

- AA 240/50 VAC (5.4w) - Max Cv = 0.3
- AC 24 VAC (5.4w) - Max Cv = 0.3
- DA 24 VDC (5.4w) - Max Cv = 0.3
- DB 12 VDC (5.4w) - Max Cv = 0.3
- DC 24 VDC (2.4w)
- DD 12 VDC (2.4w)

### 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 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 ECD PLUG-IN CIRCUIT BAR

**ECD46A - XXXXX - XX - XX - 9**

1 2 3 4 5 6 - 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

### 5 - 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

## 46 SERIES CIRCUIT BAR NON PLUG-IN

**EBM46A - XXXXX - XX - 9**

1 2 3 4 - 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.

# 47 SERIES

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 constant 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-AD0-HDAA-1BA

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
4/2	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

**47A-XXXX-HXXX-XXX**  
 1 2 3 4 5 6 7

#### 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

**HXXX-XXX**  
 4 5 6 7

#### 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 (2.4w)  |
| DA 24 VDC (5.2w)    | DH 12 VDC (1.8w)  |
| DB 24 VDC (2.4w)    | 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

### 47 SERIES REGULATOR & FLOW CONTROL

**PR47A-XXXX-X**  
 1 2 3 4 5

#### 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/ Gauge Port Extension
- Manual Adjust w/ Knob
- E Plug-In
- F Non Plug-In
- G Regulator Only
- H Regulator Only Non Plug-In w/ Gauge 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/ Gauge Port Extension

#### 2 - Configuration

- 0 Regulator Only
- A Sandwich Regulator Block

#### 3 - Gauge Port Option

- A No Gauge Port
- B Gauge Port (plugged)
- C Gauge (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

#### Flow Control Pricing

- FC47A-AA Plug-In Sandwich Flow Control Block
- FC47A-BA Non Plug-In Sandwich Flow Control Block

### 47 SERIES EBM CIRCUIT BAR

**EBM47A-XXXX-XX-9**  
 1 2 3 4 5 9

#### 1 - Spacing

- 00 18mm spacing
- 01 20mm spacing

#### 2 - Configuration

- A Bottom cylinder ports
- B Bottom cylinder ports w/ flow controls
- C No cylinder ports
- D No cylinder ports w/ flow controls
- E Bottom cylinder ports
- F Bottom cylinder ports w/ flow controls
- G No cylinder ports
- H No cylinder ports w/ flow controls
- J Side cylinder ports
- K Side cylinder ports w/ regulator
- L Bottom cylinder ports
- M Bottom cylinder ports w/ regulator
- N No cylinder ports
- P No cylinder ports w/ regulator

#### 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

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

#### 5 - Stations

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

#### Accessories

- M-47001 Blank station cover plate (17.5mm)
- M-47002 Blank station cover plate (19.5mm)
- M-47004-01P Right hand end plate kit (35mm)
- M-47005-01P Right hand end plate kit (44mm)

Note: Regulators must be ordered separately.

### 47 SERIES ECD CIRCUIT BAR

**ECD47A-XXXX-XX-XX-9**  
 1 2 3 4 5 6 9

#### 1 Spacing

- 00 18mm Spacing
- 01 30mm Spacing

#### 2 - Configuration

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

#### 3 - Style

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

#### 4 - Port Size & Thread Type

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

#### 5 - Terminal Strip/Lights

- A0 Standard (No Light)
- AA Standard w/Light (120 Volt)
- AB Standard w/Light (240 Volt)
- AD Standard w/Light (24 Volt)
- B0 4 Wire Latching

Valves and cover plates assembled to bar

- BC 4 Wire Latching w/ Light (24v)
- C0 Terminal Strip (No Light)
- CA Terminal Strip w/Light (120 Volt)
- CB Terminal Strip w/Light (240 Volt)
- CD Terminal Strip w/Light (24 Volt)
- D0 4 Wire Latching w/ Terminal Strip
- DC 4 Wire Latching w/ Terminal Strip w/ Light (24v)
- E0 3 Wire Plug-In (Latching)
- F0 3 Wire Plug-In w/ Terminal Strip (Latching)

#### 6 - Stations

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

#### Accessories

- M-47001 Blank station cover plate (17.5mm)
- M-47003-01P End plate kit
- 16520 Wire connector protector for blank station

Note: Regulator must be ordered separately.



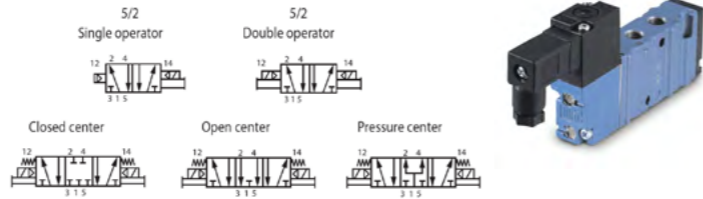
The MAC 400 series is a 4-way spool valve pilot operated by a small direct operated 4-way solenoid valve - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons - and minimal resistance to shifting. The balanced design in the pilot means shifting forces 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 XXXA-XXXX-XX-DXXX-XXX**  
1 2 3 4 5 6 7 8 9 10

**1 Spool Type - Valve Function**

- 0 Base only
- 1 Single operator, single pressure
- 2 Double operator, single pressure
- 3 Single operator, 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 with memory spring
- 6 Manifold body with memory 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 external pilot (circuit bar)

**6 - Pilot Type**

- DM Muffled Exhaust
- DP Piped Exhaust

**400 SERIES: DM PILOT OPTIONS**

**DM - D XXXX - XXX**  
7 8 9 10

**7 - Voltage** *Other Options Available*

JA 120/60, 110/50	DE 12VDC (12.7W)
JF 240/50	(MOD CLSF ONLY)
JC 24/60, 24/50	DF 24VDC (12.7W)
DA 24 VDC (5.4W)	(MOD CLSF ONLY)
DB 12 VDC (5.4W)	FE 12VDC (2.4W)
DC 12VDC (7.5W)	FF 24VDC (2.4W)
DD 24VDC (7.3W)	

**8 - Lead Wire Length**

A 18" Coil leads	E 72" Coil leads
B 24" Coil leads	F 96" Coil leads
C 36" Coil leads	J External plug-in connector
D 48" Coil leads	

**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	KE Mini plug-in with light & diode
BK Grommet with diode	
BL Grommet with M.O.V..	KF Mini plug-in with light & M.O.V.
JB Rectangular plug-in	
JD Rectangular plug-in w/ light	KG Mini plug-in with LED light & diode
JM Rectangular male only	KJ Mini plug-in male only
KA Mini plug-in	KK Mini plug-in male only with diode
KB Mini plug-in with diode	
KC Mini plug-in with M.O.V.	KL Mini plug-in male only with M.O.V.
KD Mini plug-in with light	

**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 XXXA-XXXX-RA**  
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

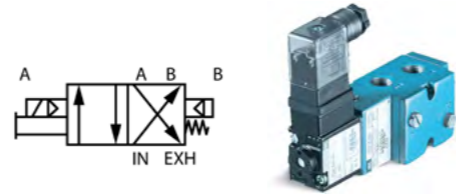
The MAC 700 series is a versatile 4-way solenoid piloted spool valve. This series features our balanced poppet in the pilot and an air/spring return for constant shifting regardless of inlet pressure fluctuations. Versatility in Piping means the valve can be piped as a 4-way, 3-way, or 2-way, normally 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:** 711C-14-PI-391JD

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 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**

**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
  - 12 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	55 12VDC (6W)
26 400/50	57 12VDC (2.5W)
39 240/50	59 24VDC (2.5W)
	60 12VDC (8.5W)
	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
CA Conduit 1/2" NPS	JC Square w/Light
JA Square w/No Light	JD Rectangle w/Light

**OPTIONS**

**7XXC-XX-PX-XX X XX**

- For bottom ports (1/8" only) replace by 2.
- \* - Double Solenoid

**Solenoid Pilot Operated Models (Sample Options)**

- Individual Models**
  - 711C-14-PI-111BA 1/4" BSPP threads
  - 721C-14-PI-111BA\* 1/4" BSPP threads
- Individual Models With Flow Controls**
  - 712C-14-PI-111BA 1/4" BSPP threads
  - 722C-14-PI-111BA\* 1/4" BSPP threads
- Stacking Models**
  - 713C-14-PI-111BA 1/4"BSPP Threads
  - 723C-14-PI-111BA\* 1/4" BSPP Threads
- Stacking Models With Flow Controls**
  - 714C-14-PI-111BA 1/4" BSPP Thread

**Remote Air Pilot Operated Models (Sample Options)**

- Individual Models**
  - 711C-14-RA 1/4" BSPP threads
  - 721C-14-RA 1/4" BSPP threads
- Individual Models With Flow Controls**
  - 712C-14-RA 1/4" BSPP threads
  - 722C-14-RA 1/4" BSPP threads
- Stacking Models**
  - 713C-14-RA 1/4" BSPP threads
  - 723C-14-RA 1/4" BSPP threads
- Stacking Models With Flow Controls**
  - 714C-14-RA 1/4" BSPP threads
  - 724C-14-RA 1/4" BSPP threads

- Accessories**
  - 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

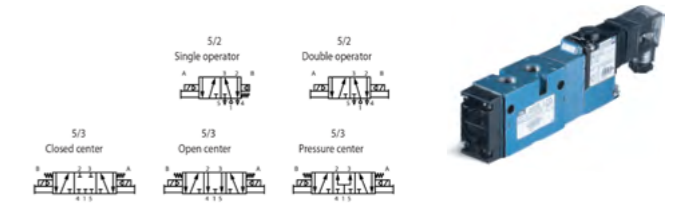
The MAC 800 series is a versatile 4-way solenoid piloted spool valve. This series features our balanced poppet in the pilot and an air/spring return for constant shifting regardless of inlet pressure fluctuations. Versatility in piping means the valve can be piped as a 4-way, 3-way or 2-way, normally 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:** 811C-PM-111JD-155

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	1/4"	1.4 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**

**8 X X C - XX - XX XX - XXX**  
 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	Other AC & DC Voltages available. DC wattages from 1.0 to 17 watts. Consult MVP.
11 120/60, 110/50	
22 24/50-60	
39 240/50	

- DC Voltages**
  - 50 24VDC (6W)
  - 55 12VDC (6W)
  - 57 12VDC (2.5W)
  - 59 24VDC (2.5W)
  - 60 12VDC (8.5W)
  - 61 24VDC (8.5W)

**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         |
| CA Conduit 1/2" NPS  | JC Square w/Light    |
| JA Square w/No Light | JD Rectangle w/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 - Spool 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)**

INT. PILOT PART NO.	EXT. 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

*Example:* 811C-PM-111DA-155 MOD 0358



800 SERIES CIRCUIT BAR (EBM)

**EBM800A - XX XX - XX - 9**  
 1 2 3 4 - Valves and cover plates assembled to bar

- 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 - XX XX - XX - 9**  
 1 2 3 4 - Valves and cover plates assembled to bar

- 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

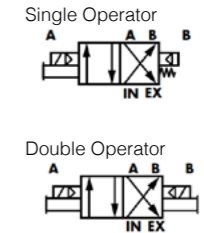
The MAC 900 series is a versatile 4-way solenoid piloted spool valve. This features our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Versatility in piping means the valve can be piped as a 4-way, 3-way, or 2-way, normally closed 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: 911B-PM-391JD**

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

**OPERATIONAL BENEFITS**

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



900 SERIES

**9 XX B - XX - XXX 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 Voltages
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)
	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

**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

**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

Patents and Patents Pending  
LARGE 4 WAY SOLENOID



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	/	/	/	/
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**

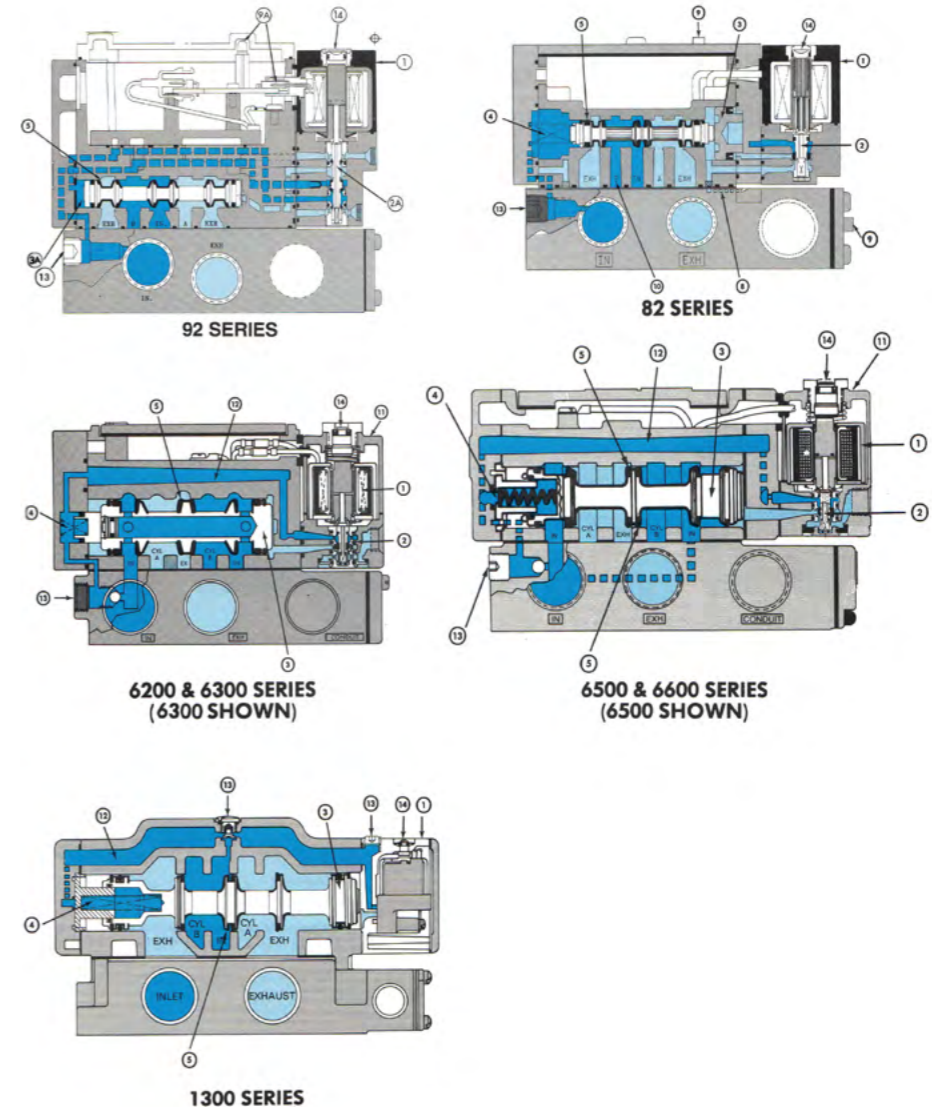
PORT SIZE	92	82	6200	6300	6500	6600	ISO 1	ISO 2
1/4"	/•	/•+	/•	/•	/•	/•	/•+	/•+
3/8"	/•	/•	/•+	/•+	/•	/•	/•+	/•+
1/2"	/•	/•	/•+	/•+	/•	/•	/•+	/•+
3/4"	/•	/•	/•+	/•+	/•	/•	/•+	/•+
1"	/•	/•	/•+	/•+	/•	/•	/•+	/•+
1 1/4"	/•	/•	/•+	/•+	/•	/•	/•+	/•+

**LEGEND:**  
 / = side ports  
 • = bottom cylinder ports  
 + = bottom inlet (92 series – consult factory)

## OPERATIONAL BENEFITS

1. Unique patented MACSOLENOID for fastest possible response times.
2. Balanced poppet pilot valve for high flow, precise repeatability and consistent operation.
- 2A. Balanced poppet 4 way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. Large spool or piston for maximum shifting forces even at minimum operating pressure.
- 3A. Air only return. Optional memory spring is also available.
4. Air/Spring return for consistent shifting on single solenoid valves.
5. MAC spool and bore combination for wiping away contamination, eliminating sticking and for use on lubricated and non-lubricated service.
6. Patented, virtually burnout proof AC solenoid.
7. Optional low wattage DC solenoids down to 18W (82 series) or 10W (92, 6000, 1300 & ISO series).
8. Plug-in design of valves, bases, flow controls and regulators for modular assembly and ease of maintenance.
9. Indicator lights in valve body, base or external plug-in connector.
- 9A. Plug-in solenoid and optional circuit board to allow for lights, diodes, MOV's and AC rectification
10. Very high flow in a very compact package.
11. NEMA 4 solenoid enclosure (6000 & ISO series)
12. A large checked accumulator for consistent shifting on single and double solenoid models (6300, 6500, 6600, 1300 & ISO 3)
13. Internal or external pilot operation: manifolds supplied with optional common external pilot.
14. Non-locking manual operators standard on all valves; other types of manual operators available.
15. Add-on style circuit bar manifolds provide for additional stations to be added to existing manifold.

EXHAUST  
PRESSURE



LARGE 4-WAY

LARGE 4-WAY



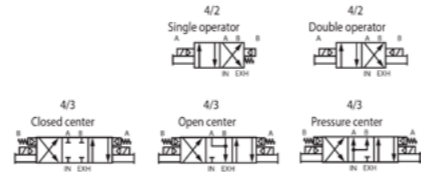
The MAC 82 series is a versatile 4-way solenoid piloted spool valve. This features our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Our balanced spool means the valve can be piped as a 4-way, 3-way or 2-way, normally closed or 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 VALVE & BASE OPTIONS**

**82A - XX - XXX - XX - D XXX - XXX**  
 1 2 3 4 5 6 7 8 9 10

**1 Spool Type - Valve Function**

- 0 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
- D **Plug-in With Pilot Exhaust Out Main Exhaust (TU Pilot Only)**
  - Single & Double
- E **Non Plug-in With Pilot Exhaust Out Main Exhaust (TU Pilot Only)**
  - Single & Double
- F **Plug-in With Pilot Exhaust Out Main Exhaust And Indicator Light In Body (TU Pilot Only)**
  - Single Light 120V    Single Light 240V
  - Single Light 24V    Double Light 120V
  - Double Light 240V    Double Light 24V

**3 - Port Size And Thread Type**

- 0 Valve Only
- D 1/8" BSPPL Ports
- 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**

- 0 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
- N Manifold Bottom Inlet & Bottom Cylinder Ports
- P Manifold Both Bottom & End Cylinder Ports
- R Manifold Bottom Inlet & Bottom & End Cylinder Ports
- S Selector Manifold Base
- T Selector Manifold Base Bottom Inlet

**5 - Internal/External Pilot**

- 0 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
- G Internal Pilot - No Light - Special Base Leads
  - Single Solenoid    Double Solenoid

**6 - Pilot Body**

- TM Pilot Valve with muffled exhaust
- TP Pilot Valve with piped exhaust
- TU Pilot Valve; pilot exhaust out main exhaust (sgle. prsr. only)

**7 - Voltage**

- AA 120/60, 110/50
- AC 24/60, 24/50
- AF 240/50
- DA 24 VDC (5.4W)
- DB 12 VDC (5.4W)
- 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 (2.4W)
- FF 24 VDC (2.4W)

**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**

- Plug-In Valves**
- DA Plug-in
  - DK Plug-in with Diode
- Non Plug-In Valves**
- 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 with 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

**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**  
 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 - XXXX - X**  
 TTTT T  
 1 2 3 4 5

**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**

- 0 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

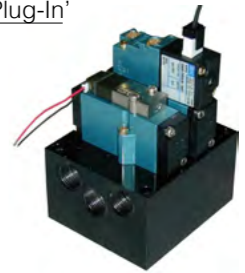
The MAC 83 series is a 4-way balanced spool valve piloted by a small direct operated 4-way solenoid pilot - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons or springs - and minimal resistance to shifting. The balanced design in the pilot means shifting forces are 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: 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'

**OPERATIONAL BENEFITS**

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



**83 SERIES VALVE & BODY OPTIONS R**

**83A - XXX - XX - DXX X - XXX**  
 TTT T  
 1 2 3

**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**

**DXXX - XXX**  
 TTT T  
 1 2 3 4

**5 - Voltage**

- JA 120/60, 110/50
  - JC 24/60, 24/50
  - DA 24 VDC (5.4W)
  - DE 12 VDC (12.7W)\*
  - FE 12 VDC (2.4W)
  - JF 240/50
  - JD 100/60, 100/50, 110/60
  - DB 12 VDC (5.4W)
  - DF 24 VDC (12.7W)\*
  - FF 24 VDC (2.4W)
- \* 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 man. op.
- 2 Locking man. op.
- 3 Non-locking extd. op.
- 4 Locking extd. oper.

**8 - Electrical Connector**

- BA Grommet
- BK Grommet with diode
- BL Grommet with M.O.V..
- CA Conduit 1/2"
- JB Rectangular plug-in
- 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: TM SOLENOID PILOT OPTIONS

D XX X - X XX  
 5 6 7 8

**5 - Voltage**

- AA 120/60, 110/50
- AB 240/60, 220/50
- AC 24/60, 24/50
- DA 24 VDC (5.4W)
- DB 12 VDC (5.4W)
- DE 12 VDC (12.7W) (MOD CLSF ONLY)
- DF 24 VDC (12.7W) (MOD CLSF ONLY)
- FE 12 VDC (2.4W)
- FF 24 VDC (2.4W)

**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 extended operator
- 4 Locking extended operator

**8 - Electrical Connector**

- BA Grommet
- BK Grommet with diode
- BL Grommet with M.O.V.
- CA Conduit 1/2"
- JB Rectangular plug-in
- JD Rect. 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**

- TM-DXXX-XXX-1 Pilot Valve

83 SERIES: RM SOLENOID PILOT OPTIONS

R XX X - X XX  
 5 6 7 8

**5 - Voltage**

- DA 24 VDC (0.5w) - Double Solenoid Only
- DB 24 VDC (1.0w) - Double Solenoid Only
- DC 24 VDC (1.8W)
- DD 24 VDC (2.5W)
- DE 24 VDC (3.0w)
- DF 24 VDC (4.0W)
- DG 12 VDC (0.5w) - Double Solenoid Only
- DH 12 VDC (1.0w) - Double Solenoid Only
- DJ 12 VDC (1.8W)
- DK 12 VDC (2.5W)
- DL 12 VDC (3.0w)
- DM 12 VDC (4.0W)

**6 - Lead Wire Length**

- 0\* No lead wire
- A 18"

\*Longer Options Available

**7 - Manual Operator**

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

**8 - Electrical Connector**

- BA Flying Leads
- BB Flying Leads w/ LED
- BC Flying Leads w/ MOV
- BD Flying Leads w/ LED and MOV
- RA Mini JAC Solenoid Plug-In
- RB Mini JAC Solenoid Plug-In with LED
- RC Mini JAC Solenoid Plug-In with MOV
- RD Mini JAC Solenoid Plug-In with LED and MOV
- TA JST Solenoid Plug-In
- TB JST Solenoid Plug-In w/ LED
- TC JST Solenoid Plug-In w/ MOV
- TD JST Solenoid Plug-In w/ LED and MOV

\*Not Available for Flying Leads Connector

83 SERIES SINGLE REMOTE AIR

83A - XXX - DM - RA1 X  
 1 2 3 4 5 6

**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 - XXX - RA  
 1 2 3

**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
- H 1/4" BSPPL (Bottom Ports)

83 SERIES CIRCUIT BAR (EBM)

EBM83A - XX XXX - XX - 9  
 1 2 3 4 5

**1 - Spacing**

- 00 25.4mm 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

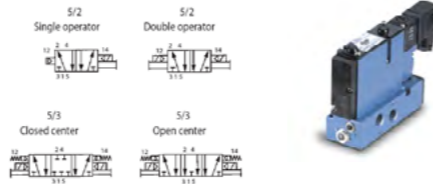
The MAC 92 series is a 4-way spool valve pilot operated by a small direct operated 4-way solenoid valve - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons - and minimal resistance to shifting. The balanced design in the pilot means shifting forces 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**

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



**92 SERIES VALVE & BASE OPTIONS**

**92B - XXXX - XXX - XX - D XXX - XXX**  
 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
- F Suppression Diode, Blocking Diode & Light
- H M.O.V. and Light

**4 - Port Size And Thread Type**

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

**8 - Voltage**

- |                    |                  |
|--------------------|------------------|
| JA* 120/60, 110/50 | DU 24 VDC (5.9W) |
| JC 24/60, 24/50    | FA 12 VDC (1.8W) |
| JF* 240/50         | FB 24 VDC (1.8W) |
| DA 24 VDC (5.4W)   | FE 12 VDC (2.4w) |
| DB 12 VDC (5.4W)   | FF 24 VDC (2.4W) |

\* 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            | JM Rectangular Male Only            |
| DH Plug-In w/Diode & Ground    | KA Mini Plug-In                     |
| DJ Plug-In w/M.O.V. & Ground   | KB Mini Plug-In w/Diode             |
| DM Plug-In                     | KC Mini Plug-In w/M.O.V.            |
| DN Plug-In w/Diode             | KD Mini Plug-In w/Light             |
| DP Plug-In w/ M.O.V.           | KE Mini Plug-In w/Light & Diode     |
| BA Grommet                     | KF Mini Plug-In w/Light & M.O.V.    |
| BK Grommet w/Diode             | KG Mini Plug-In w/LED Light & Diode |
| JB Rectangular Plug-In         |                                     |
| JD Rectangular Plug-In w/Light |                                     |

**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)

**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*

LARGE 4WAY

LARGE 4WAY



**92 SERIES REGULATOR**  
**PR92C - XXXX - X**  
 1 2 3 4 5

- 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 @ 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 - XXXXX - XX - XX - 9**  
 1 2 3 4 5 6 9

- 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-Sgl Stat  
 30mm-Sgl Stat

- 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

Valves and cover plates assembled to valve

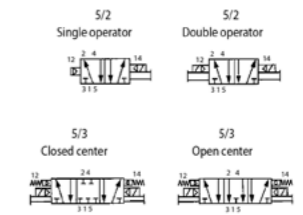
The MAC 93 series is a 4-way spool valve pilot operated by a small direct operated 4-way solenoid valve - a one-off in air valve manufacturing. The 4-way pilot means a low minimum operating pressure - no pistons - and minimal resistance to shifting. The balanced design in the pilot means shifting forces 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**

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



**93 SERIES VALVE & BASE OPTIONS**  
**93A - XXXX - XXX - XX - D XXX - XXX**  
 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  
 D 1/4" BSPPL
- 5 - Base/Manifold Configurations**  
 0 Basic Valve Only/Inline  
 A Side Ports (Individual Base)  
 B Bottom Ports Only (1/4" & 3/8" only) (Indiv. Base)  
 C Side & Bottom Ports (1/4" & 3/8" only) (Indiv. Base)  
 D Side Inlet & Exhaust, Bottom Cylinder Ports (1/4" & 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
- 8 - Voltage**  
 JA\* 120/60, 110/50 DF 24 VDC (12.7W) (CLSF)  
 JC 24/60, 24/50 DN 6 VDC (6W)  
 JF\* 240/50 FE 12 VDC (2.4W)  
 DA 24 VDC (5.4W) FF 24 VDC (2.4W)  
 DB 12 VDC (5.4W) \* Must use electrical connection  
 DE 12 VDC (12.7W) (CLSF) 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

LARGE 4WAY

LARGE 4WAY

**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

**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)

**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

The MAC 1300 series is a versatile 4-way solenoid piloted spool valve spool valve. This series 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.

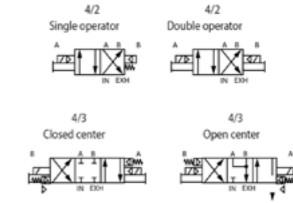
**Stock Part Number: 1303G-111D-3**

Function	Port size	Flow (Max)	Pressure Range
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

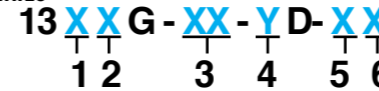
**Individual Mounting**  
Individual Sub Base. Plug-in

**OPERATIONAL BENEFITS**

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



**1300 SERIES**



**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.

NOTE: Further voltage options available.

**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



# 1800 SERIES

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

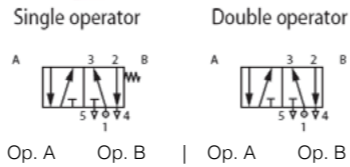
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2	1/4"	1.4 Cv	Vac. to 200PSI	Inline

### OPERATIONAL BENEFITS

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



Lever parallel to body



### 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 by 2 for lever operator with boot (see photo)

# 2700 SERIES

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.

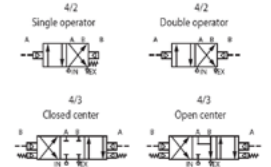
**Stock Part Number:** 2703G-3

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

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



### 2700 SERIES

27 **XX** **G** - **X**  
 1 2 3

#### 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 - Spool Type

- 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.

#### Bases Only:

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

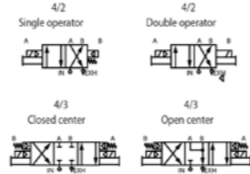
The MAC 6200 series is a versatile, 4-way, solenoid-piloted spool valve. Balanced poppet in the pilot and an air/spring return for consistent shifting, regardless of inlet pressure fluctuations. Balanced spool means valve can be piped as a 4-way, 3-way or 2-way, normally closed or normally open, and 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**



**1 - Function**

- Single Solenoid
- Double Solenoid
- 3 Position Closed Centre
- 3 Position Open Centre

**2 - Body Type**

- Plug-In
- Non Plug-In Or Remote Air
- Plug-In Lights In Body

**3 - Port Size**

- Valve Only-No Base
- 1/4" Base
- 3/8" Base
- 1/4" Manifold
- 3/8" Manifold

**4 - Pilot Air - BSPP Options**

- Valve Only-No Base
- Internal Pilot
- External Pilot
- Internal Pilot (Single Remote Air)
- External Pilot (Double Remote Air)

**5 - Porting Options**

- Valve Only-No Base
- Side Ports without lights
- Side Ports with lights (Single Solenoid)
- Side Ports with lights (Double Solenoid)
- Bottom Ports without lights
- Bottom Ports with lights (Single Solenoid)
- Bottom Ports with lights
- Side & bottom Ports without lights\*
- Side & bottom Ports with lights (Single Solenoid)\*
- Side & bottom Ports with lights (Double Solenoid)\*

\*Manifold Bases Only

**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

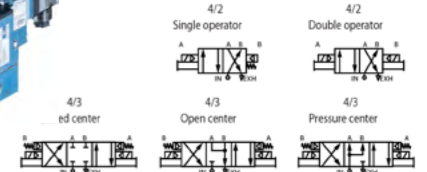
The MAC 6300 series are a versatile 4-way solenoid piloted spool valve. This series feature our balanced poppet in the pilot and an air/spring return for consistent shifting regardless of inlet pressure fluctuations. Our balanced spool means the valve can be piped as a 4-way, 3-way or 2-way, normally 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**



**1 - Function**

- Single Solenoid
- Double Solenoid
- 3 Position Closed Centre
- 3 Position Open Centre
- 3 Position Pressure Centre

**2 - Body Type**

- Plug-In
- Non Plug-In Or Remote Air
- 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**

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

**4 - Pilot Air - BSPP Options**

- Valve Only-No Base
- Internal Pilot
- External Pilot
- Internal Pilot (Single Remote Air)
- External Pilot (Double Remote Air)

**5 - Porting Options**

- Valve Only-No Base
- Side Ports without lights
- Side Ports with lights (Single Solenoid)
- Side Ports with lights (Double Solenoid)
- Bottom Ports without lights
- Bottom Ports with lights (Single Solenoid)
- Bottom Ports with lights
- Side & bottom Ports without lights\*
- Side & bottom Ports with lights (Single Solenoid)\*
- Side & bottom Ports with lights (Double Solenoid)\*

\*Manifold Bases Only

**MODIFICATIONS**

MOD0210 Bottom inlet port in addition to side inlet port (manifolds 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**

- No Operator
- Non-Locking Recessed (Standard)
- Locking Recessed
- Non-Locking Extended
- 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)

**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.



# 6500 SERIES

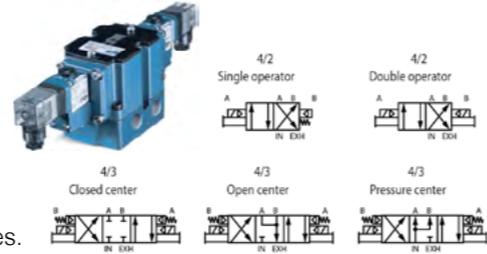
The MAC 6500 series are a versatile 4-way solenoid piloted spool valve. This series feature our balanced poppet in the pilot and an air/spring return for constant shifting regardless of inlet pressure fluctuations. Our balanced spool means the valve can be piped as a 4-way, 3-way or 2-way, normally closed 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:** 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 **XX** B - **XXX** - **XX** - **XX XX**  
 1 2 3 4 5 6 7 8 9

#### 1 - Function

- Single Solenoid
- Double Solenoid
- 3 Position Closed Centre
- 3 Position Open Centre
- 3 Position Pressure Centre

#### 2 - Body Type

- Plug-In
- Non Plug-In Or Remote Air
- Plug-In Lights In Body

**Dual pressure body options for use with regulator**

#### 3 - Port Size

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

#### 4 - Pilot Air - BSP Options

- Valve Only-No Base
- Internal Pilot
- External Pilot
- Internal Pilot (Single Remote Air)
- External Pilot (Double Remote Air)

#### 5 - Porting Options

- Valve Only-No Base
- Single Pressure without lights
- Single Pressure with lights (Single Solenoid)
- Single Pressure with lights (Double Solenoid)
- Dual Pressure without lights
- Dual Pressure with lights (Single Solenoid)
- Dual Pressure with lights (Double Solenoid)

**NOTE: For sandwich regulators use Single Pressue 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

- 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

- No Operator
- Non-Locking Recessed (Standard)
- Locking Recessed
- Non-Locking Extended
- 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)  
*Individual Base 3/8" & 1/2" only.*
- 0004 Full side porting & additional bottom inlet, exh, & cylinder ports.  
*Individual Base 3/8" only.*
- 0112 Side inlet & exhaust w/ bottom cyl. ports (No end cylinder ports)  
*All manifold models.*
- 0210 Porting as ordered in model number + an additional bottom inlet.  
*All manifold models.*
- 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.  
*All manifold models.*

# 6600 SERIES

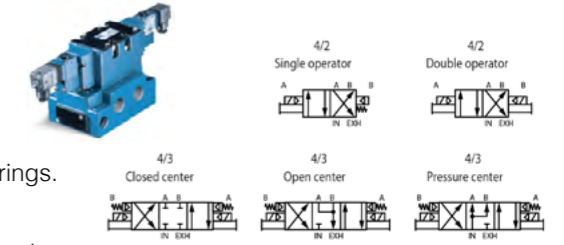
The MAC 6600 series are a versatile 4-way solenoid piloted spool valve. This series feature our balanced poppet in the pilot and an air/spring return for constant shifting regardless of inlet pressure fluctuations. Our balanced spool means the valve can be piped as a 4-way, 3-way or 2-way, normally closed 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 **XX** A - **XXX** - **XX** - **XX XX**  
 1 2 3 4 5 6 7 8 9

#### 1 - Function

- Single Solenoid
- Double Solenoid
- 3 Position Closed Centre
- 3 Position Open Centre
- 3 Position Pressure Centre

#### 2 - Body Type

- Plug-In
- Non Plug-In Or Remote Air
- Plug-In Lights In Body

#### 3 - Port Size

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

#### 4 - Pilot Air BSP Options

- Valve Only-No Base
- Internal Pilot
- External Pilot
- Internal Pilot (Single Remote Air)
- External Pilot (Double Remote Air)

#### 5 - Porting Options

- Valve Only-No Base
- Single Pressure without lights
- Single Pressure with lights (Single Solenoid)
- Single Pressure with lights (Double Solenoid)
- Dual Pressure without lights
- Dual Pressure with lights (Single Solenoid)
- Dual Pressure with lights (Double Solenoid)

#### Note:

- The valve less base is always the same for internal or external pilot. These options are effected in the base or the manifold.
- Bottom ports: Refer modification table below.
- To order bases or manifolds without the valve, choose the base or manifold from the above table & options, then add 6600A as a prefix.
- 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.
- MANIFOLD ACCESSORIES: Inlet & exhaust isolator #28367
- 2 position & 3 position valve bodies are not interchangeable.

#### 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

- No Operator
- Non-Locking Recessed (Standard)
- Locking Recessed
- Non-Locking Extended
- 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.*

## 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.

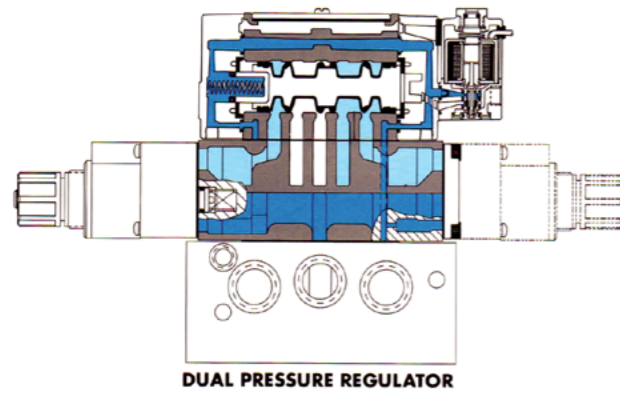


ISO 1 SERIES (Cv 1.0)

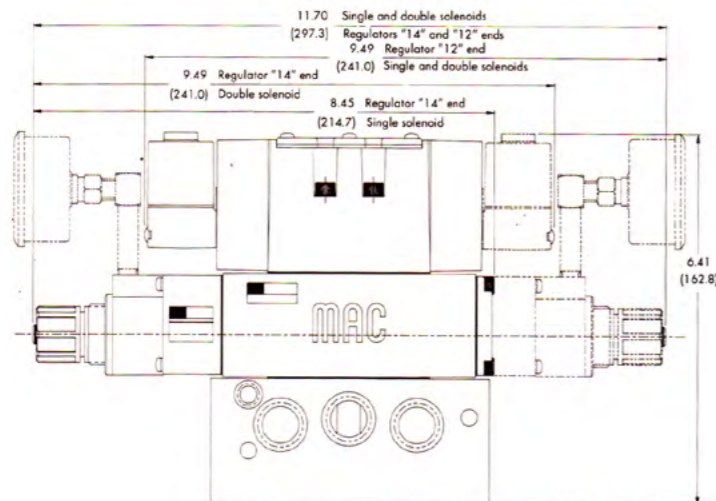
With single and Dual Pressure Regulators

EXHAUST  
PRESSURE

\* For single or dual pressure choose appropriate valve on opposite page.



DUAL PRESSURE REGULATOR



## 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)  
ISO 3 (Cv 5.4)

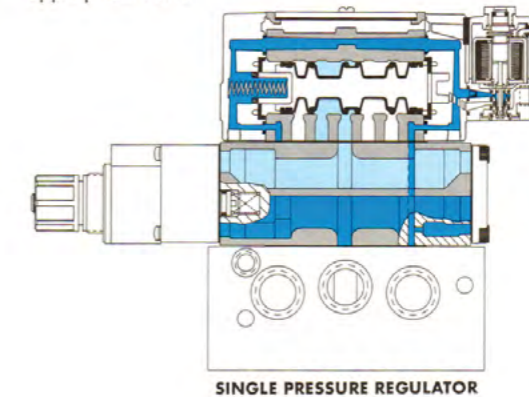


SINGLE PRESSURE REGULATOR

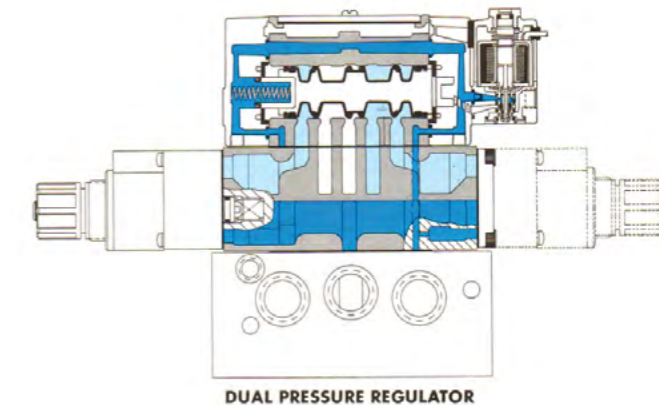


DUAL PRESSURE REGULATOR

\* For single or dual pressure choose appropriate valve



SINGLE PRESSURE REGULATOR



DUAL PRESSURE REGULATOR



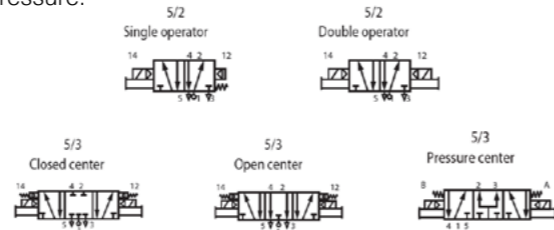
# ISO SERIES - 3 WAY PILOT

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

1. Fastest available response time with patented MACSOLENOID®.
2. No-stick operation is ensured by wiping action of unique MAC spool/bore combination.
3. Balanced poppet pilot valve for high flow, precise repeatability, and consistent operation.
4. Large spool piston for high shifting force even at minimum operating pressure.
5. Air/spring return for consistent shifting on single solenoid models.
6. Patented virtually burn-out proof AC solenoid.
7. Optional low wattage DC solenoids down to 1.0 watt.
8. Various manual operators & electrical connectors are available.
9. Muffled or threaded pilot exhaust ports.
10. Internal of external pilot models available.



### 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

#### 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

#### 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 w/o Light (On Solenoid)
- JB Rectangular w/o Light (On Solenoid)
- JC Square w/Light (On Solenoid)
- JD Rectangular w/Light (On Solenoid)
- JE Square w/o Light (On Body)
- JF Rectangular w/o Light (On Body)
- JG Square w/Light (On Body)
- JH Rectangular 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
	3/4"	-	6.3
3 Position	1/4"	1.4	-
	3/8"	1.4	2.7
	1/2"	-	2.7
	3/4"	-	5.8

### ISO NON PLUG-IN BASES AND MANIFOLDS

**MX - AXC - XXX - 9**

1 2 3 4 - Assembled to Valve

#### 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
- 4 Bottom Port #1
- 5 Side Ports w/Bottom #1, 2, & 4 Ports
- 6 Bottom Port #1, 3, & 5
- 7 Bottom Port #3, & 5
- 8 Bottom Port #2, 3, 4 & 5

#### Manifold accessories

- MA1003 Blank station cover plate
- 32835 Inlet/Exhaust Isolator Plug
- N-63002-01 Manifold fastening kit



### ISO SANDWICH FLOW CONTROL

#### Style

- FCP1A-AA Plug-In flow control w/screwdriver slot
- FCP1A-BA Non Plug-In flow control w/screwdriver slot
- FCP1A-AB Plug-In flow control w/locking knob
- 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 REGULATOR

**PRA X A - XXXX - X**

ISO 1, 2 & 3 1 2 3 4 5

#### 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

- 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)
- 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 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
- Gage assemblies -

N-82016-01	gage kit (0-120 PSI - "B & C" options)
N-82016-02	gage kit (0-120 PSI - "D & E" options)
N-82016-03	gage kit (0-80 PSI - "B & C" options)
N-82016-04	gage kit (0-80 PSI - "D & E" options)
N-82016-05	gage kit (0-30 PSI - "B & C" options)
N-82016-06	gage kit (0-30 PSI - "D & E" options)
N-82015-01	gage kit (0-120 PSI - "F & G" options)
N-82015-02	gage 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 as indicated below:

MV-AXB-XX4X-XX-XXXZZ  
 EXAMPLE: MV-A2B



ISO NON PLUG-IN BASES AND MANIFOLDS

**MX - AXC - XXX - 9**

1 2 3 4 - Assembled to Valve

**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
- 7 Bottom Port #3, & 5
- 8 Bottom Port #2, 3, 4 & 5

**Manifold accessories**

- MA1003 Blank station cover plate
- 32835 Inlet/Exhaust Isolator Plug
- N-63002-01 Manifold fastening kit

1 ISO#1      2 ISO#2      3 ISO#3



ISO NON PLUG-IN BASES AND MANIFOLDS

**MX - AXC - XXX - 9**

1 2 3 4 - Assembled to Valve

**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

**Manifold accessories**

- MA1003 Blank station cover plate
- 32835 Inlet/Exhaust Isolator Plug
- N-63002-01 Manifold fastening kit

1 ISO#1      2 ISO#2      3 ISO#3

ISO SANDWICH FLOW CONTROL

**Style**

- FCP1A-AA Plug-In flow control w/screwdriver slot
- FCP1A-BA Non Plug-In flow control w/screwdriver slot
- FCP1A-AB Plug-In flow control w/locking knob
- 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 REGULATOR

**PRA X A - XXXX - X**

ISO 1,2 & 3      1 2 3 4 5

**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**

- 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)
- 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 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
- Gage assemblies -
- N-82016-01 gage kit (0-120 PSI - "B & C" options)
- N-82016-02 gage kit (0-120 PSI - "D & E" options)
- N-82016-03 gage kit (0-80 PSI - "B & C" options)
- N-82016-04 gage kit (0-80 PSI - "D & E" options)
- N-82016-05 gage kit (0-30 PSI - "B & C" options)
- N-82016-06 gage kit (0-30 PSI - "D & E" options)
- N-82015-01 gage kit (0-120 PSI - "F & G" options)
- N-82015-02 gage 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 as indicated below:

MV-AXB-XX4X-XX-XXXZZ  
EXAMPLE: MV-A2B



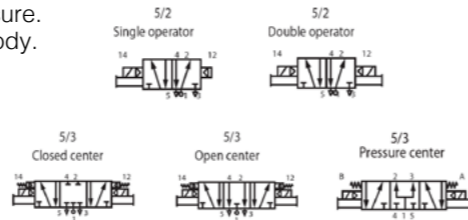


# ISO SERIES - 4 WAY PILOT

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

1. Unique patented MACsolenoid with oval shaped armature for fastest possible response times.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
4. Large spool area for maximum shifting force seven at minimum operating pressure.
5. Very high flow in a compact package. Pilot valve and main valve in the same body.
6. Internal or external pilot operation.
7. Air only return.
8. Optional low wattage DC solenoid down to 1.0 Watt.



## ISO MV-X1A (4-WAY PILOT)

**MV - X X A - X X X X - X X - D X X X - X X X**

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

- 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
- 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 P.C.
- 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 with Universal)
- D Standard return / light on top
- E Memory spring / light on top
- G Standar Return/Pilot Exhaust out Main Exhaust (DU Pilot Only)
- 6 - Internal / External Pilot**
- A Internal pilot sgl. pressure
- B External pilot 12 end
- C External pilot 14 end
- D Dual pressure internal pilot from #3
- E Dual pressure internal pilot from #5
- 7 - Pilot Valve Exhaust Options**
- DM Pilot valve w/muffl ed 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 (5.4W)
- DB 12 VDC (5.4W)
- 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 (2.4W)
- FF 24 VDC (2.4W)

## 9 - Lead Length - Other Options Available

- P Plug-in standard      0 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 operator
- 3 Non-locking extended manual operator
- 4 Locking extended manual operator

## 11 - Electrical Connection Options

- |                                    |  |
|------------------------------------|--|
| BA Grommet                         | KF Mini plug-in with light & M.O.V.    |
| BK Grommet with diode              | KG Mini plug-in with LED light & diode |
| BL Grommet with M.O.V.             | KJ Mini plug-in male only with light   |
| JB Rectangular plug-in             | KK Mini plug-in male only with diode   |
| JD Rectangular plug-in             | KL Mini plug-in male only with M.O.V.  |
| 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 |  |

*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

**MX - P X A - X X X - X X X - 9**

T
T
T
T
T
T
T

1
2
3
4
5
6
9

- Assembled to Valve

## 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 - PPC 5C

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

Function	Flow (Max)(Cv/NI/min)	Pressure Range	Individual Mounting
1/8"	0.07/70, 0.09/90	Contact MVP	Covered Analog



### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 34 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Rugged enclosure.
7. Not affected by vibrations.
8. Accurate pressure control.
9. Can be stand alone or used in combination with our remote air sandwich regulators.
10. Analog command signal and output.

### PPC5C - ANALOG

**PPC5C - XXX - XXXX - XXX - XX**  
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 J 75 PSI  
B 60 PSI K 117 PSI  
C 30 PSI L 4 PSI  
D 15 PSI M 150 PSI  
E 50 PSI N 10 PSI  
F 80 PSI P 90 PSI  
G 2 PSI V VAC  
H 20 PSI
- 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  
*OPTION FROM SECTION 11:*  
B 3 Ft. Cable  
D 6 Ft. Cable  
E 12 Ft. Cable

NOTE: Other options and configuration available



Mac Valves is pleased to release the latest Normally Closed, 9mm, 10mm, and 14mm Bullet Valve® featuring our patent pending D-flex™ technology. This design is one of a kind in its ability to create a low leak valve (< 1cc/min) without sacrificing the balanced design that is a pillar performance advantage in any MAC valve. This technology also produces higher shifting force margins as compared to the traditional Bullet Valves® enabling the diaphragm version to provide more flow at a given wattage (more on this below), or the same flow at lower wattage – with power as low as 0.75 watts offered while maintaining MAC’s high shifting forces. For more information regarding certifications (such as UL, CSA, RoHS and CE) please ask our team at Mac Valves Pacific.

Function	Flow (Max)	Pressure Range	Manifold Mounting	Series
3/2 NC, Universal	Up to 0.09 Cv	Vac. to 120PSI	Cartridge	BV310A



**OPERATIONAL BENEFITS**

1. Short stroke with high shifting forces
2. Balanced poppet, immune to pressure fluctuations
3. Precise repeatability
4. Solenoid isolated from contaminated air
5. Very few parts
6. Extremely long life
7. Unique mounting - no fasteners or screws required

**BULLET VALVE**

**BV XXX A - XXX - XX - XXXX - XXX**  
 1 2 3 4 5 6 7 8 9 10 11 12

- 1 - Cartridge**
  - 2 2 Way
  - 3 3 Way
- 2 - Size**
  - 09 9mm (Outside Cartridge Diameter)
  - 10 10mm (Outside Cartridge Diameter)
  - 14 14mm (Outside Cartridge Diameter)
- 3 - Body Type**
  - C Cartridge
  - D Cartridge (Diaphragm) (Size 09 & 10 Only)
- 4 - Configuration**
  - A 2 Way
  - B Axial Flow (2-Way)
  - C 3 Way Normally Closed
  - D 3 Way Universal
- 5 - Manual Operator**
  - 0 No operator (For use with axial flow only)
  - 1 Non Locking Recessed
- 6 - Cartridge**
  - 0 No Base (Body Only)
- 7 - Base Type**
  - 0 No Base (Body Only)
  - 8 Solenoid Type
  - B Round
- 9 - Voltage**

**Voltage (BVX14)**

CA 24 VDC (1.0w)	CF 12 VDC (1.0w)
CB 24 VDC (1.8w)	CG 12 VDC (1.8w)
CC 24 VDC (2.5w)	CH 12 VDC (2.5w)
CD 24 VDC (3.0w)	CJ 12 VDC (3.0w)
CE 24 VDC (4.0w)	CK 12 VDC (4.0w)

- Voltage (BV210)**
  - EH 24 VDC (2.5w)
  - EG 24 VDC (4.0w)
  - EK 12 VDC (2.5w)
  - EJ 12 VDC (4.0w)
- Voltage (BV209)**
  - GC 24 VDC (2.5w)
  - GE 24 VDC (4.0w)
  - GH 12 VDC (2.5w)
  - GK 12 VDC (4.0w)
- \* Diaphragm Body Type Only*
- 10 - Lead Length Options**
  - 0 No Leads
  - A 18" B 24" C 36"
  - D 48" E 72" F 96" H 144"
- 11 - Solenoid Can**
  - C Can with External Threads
- 12 - Electrical Connector**

**"JST" Plug-In Cover**

  - TA No Ground
  - TC Blocking and Suppression Diode and LED (No Ground)
  - TE Blocking and Suppression Diode (No Ground)
  - TG LED (No Ground)
  - TJ MOV (No Ground)
  - TL LED and MOV (No Ground)

**Flying Leads Cover**

  - BA No Ground
  - BC Blocking and Suppression Diode and LED (No Ground)
  - BE Blocking and Suppression Diode (No Ground)
  - BG LED (No Ground)
  - BJ MOV (No Ground)
  - BL LED and MOV (No Ground)
  - GA MAC JAC Solenoid Plug-In

- Modifications**
  - MOD L001 Low Leak Mod for Diaphragm Valve (09 & 10 only)
- Accessories - 14mm**

**Individual Test Block**

  - 39026-01-1 2 Way
  - 39027-26-2 2 Way Axial Flow
  - 39028-01-1 3 Way.

- Voltage (BV310)**
  - HR\* 24 VDC (.75w)
  - HA 24 VDC (1.0w)
  - HB 24 VDC (1.8w)
  - HC 24 VDC (2.5w)
  - HD 24 VDC (3.0w)
  - HE 24 VDC (4.0w)
  - HS\* 12 VDC (.75w)
  - HF 12 VDC (1.0w)
  - HG 12 VDC (1.8w)
  - HH 12 VDC (2.5w)
  - HJ 12 VDC (3.0w)
  - HK 12 VDC (4.0w)
- Voltage (BV309)**
  - GA 24 VDC (1.0w)
  - GB 24 VDC (1.8w)
  - GC 24 VDC (2.5w)
  - GD 24 VDC (3.0w)
  - GE 24 VDC (4.0w)
  - GF 12 VDC (1.0w)
  - GG 12 VDC (1.8w)
  - GH 12 VDC (2.5w)
  - GJ 12 VDC (3.0w)
  - GK 12 VDC (4.0w)

**CARTRIDGE STYLE BAR FOR 14MM BULLET VALVE**  
**CCMV14A-XXXX-XX-9**  
 1 2 3 4 5

- 1 - Spacing**
  - 00 17mm Spacing
- 2 - Configuration**
  - A Side Cyl. Port
  - B Bottom Cyl. Port
- 3 - Style**
  - A 2-Way
  - B 3-Way

- 4 - Cyl. Port Size and Thread Type**

w/ NPTF Common thru ports

A M7	B 1/8" NPTF
C* 5/32 Tube Receptacle	D M7 BSPPL
E 1/8" BSPP	F* 5/32 Tube Receptacle
G M7 BSPT	H 1/8" BSPT

J 5/32 Tube Receptacle  
 \* With BSPT Common thru ports  
**Note: Common Thru Ports are 1/4"**

- 5 - Stations**
  - Number of Stations (01, 02, 03, etc.)
- ORDERING EXAMPLES**
  - CCMV14A-00ABA-06
  - BV14 Series, Cartridge Bar, 17mm Spacing, Side Cylinder, 3-Way, M7 Cyl., w/ NPTF Common thru ports, and six stations

**BV214/314 CONNECTOR OPTIONS**

**BV214**

**BV314**

**BV214/314 CARTRIDGE STYLE BAR**

**BV214**

**BV314**

**BULLET VALVE 14mm CARTRIDGE CIRCUIT BAR NON PLUG IN**

**CCMV14A - XX X X X - XX - 9**

1 2 3 4 5

- Valves and cover plates assembled to bar

**1 - Spacing**

00 17mm Spacing

**2 - Configuration**

A Side Cylinder Port  
B Bottom Cylinder Port

**3 - Style**

A 2 Way  
B 3 Way

**4 - Port Size and Thread Type Per Station**

A M7 (NPTF Common thru ports)  
B 1/8" (NPTF Common thru ports)  
C 5/32 Tube Receptacle (NPTF Common thru ports)  
D M7 (BSPPL Common thru ports)  
E 1/8" (BSPPL Common thru ports)  
F 5/32 Tube Receptacle (BSPPL Common thru ports)  
G M7 (BSPTR Common thru ports)  
H 1/8" (BSPTR Common thru ports)  
J 5/32 Tube Receptacle (BSPTR Common thru ports)

**5 - Stations**

Number of Stations