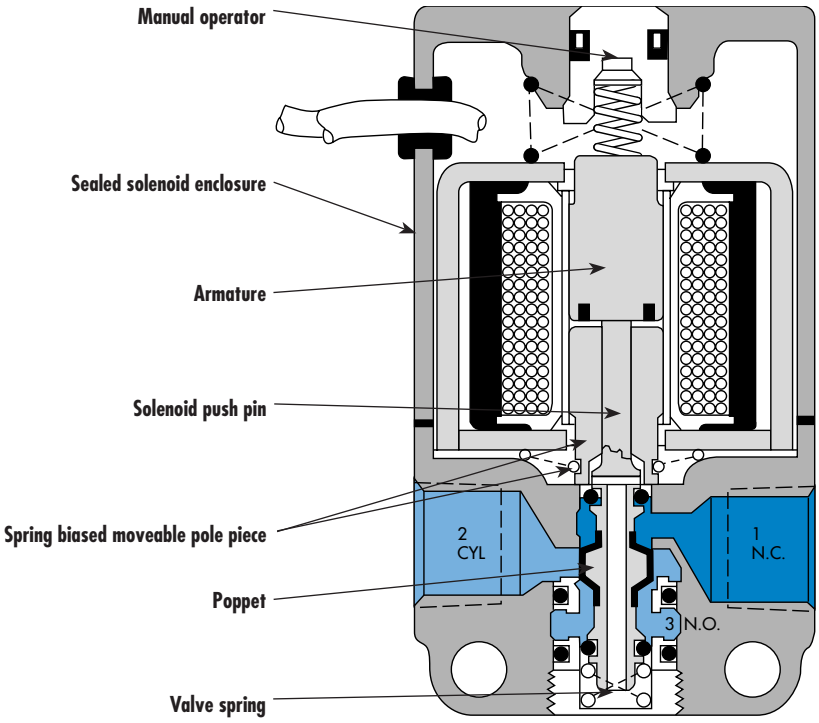
Individual mounting

inline

Manifold mounting

stacking | sub-base non "plug-in"



SERIES FEATURES

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Six valve functions with one individual valve.
- Individual, stacking body & add-a-unit manifold base capability.
- Use on lube or non-lube service.
- Extremely rapid response and cycle rate.
- Various types of manual operators and electrical enclosures.
- Extremely long service life.
- Optional low wattage DC solenoids down to 1 watt.

Consult "Precautions" page 364 before use, installation or service of MAC Valves

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

APPLICATION CONVERSION PROCEDURE:

INDIVIDUAL MODELS

The balanced poppet design facilitates using the same valve for 6 functions with any port being connected to vacuum, pressure or plugged. Piping is shown in the chart below.

STACKING BODY MODELS

The interchangeable function plate between the valve bodies permits selection of either 3-way Normally Closed or 3-way Normally Open operation.

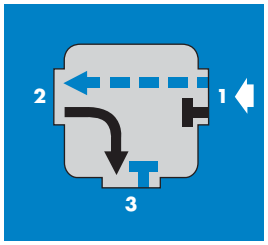
MANIFOLD BASE MODELS

The interchangeable function plate between the valve bodies and base permits selection for 2- or 3-way, Normally Closed or Normally Open operation. On 3-way applications, one function plate is used for both N.C. and N.O. When "3-NC" is visible on the plate, the function will be N.C. When "3-NO" is visible, the function is N.O. On 2-way applications, two separate plates are used-one for N.C., marked "2-NC"; the other for N.O., marked "2-NO". The 2-way plates block the exhaust at the valve, permitting the mixing in a stack of 3-ways and 2-ways. Changes within a stack from one function to another can be made without disturbing the plumbing.

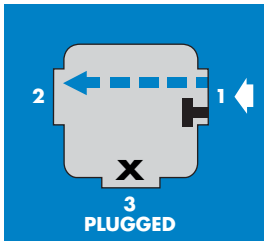
N.C. ONLY MODELS

A single purpose Normally Closed Only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

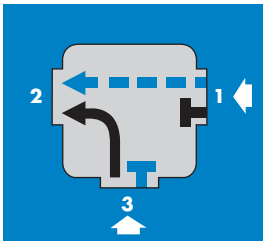
PIPING CHART FOR INDIVIDUAL MODELS



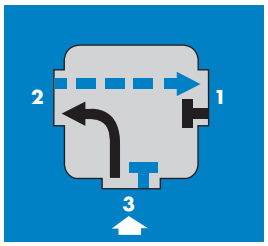
3 Way
Normally Closed



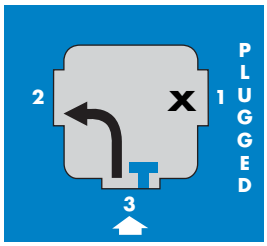
2 Way
Normally Closed



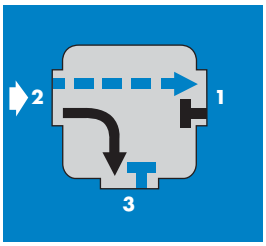
Selector



3 Way
Normally Open



2 Way
Normally Open



Divertor

Supply

Operator De-Energized

Operator Energized

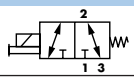
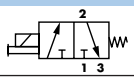
Consult "Precautions" page 364 before use, installation or service of MAC Valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	**1/8" - 1/4"**	**0.18 C_v**	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.

HOW TO ORDER

Port size	Universal valve	NC only valve
		
1/8" NPTF	111B-*XXYZZ*	161B-*XXYZZ*
1/4" NPTF	113B-*XXYZZ*	163B-*XXYZZ*

SOLENOID OPERATOR ➤ ***XX Y ZZ****

XX	Voltage
11	120/60, 110/50
12	240/60, 220/50
22	24/60, 24/50
59	24 VDC (2.5 W)
87	24 VDC (17.1 W)
61	24 VDC (8.5 W)

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (18")
CA	Conduit 1/2" NPS

* Other options available, see page 357.

Notes:
CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN
Individual inline valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1.
NORMALLY CLOSED ONLY MODELS
A single purpose Normally Closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired. Model numbers are indicated above.

35
100
200
55
56
57
58
59
45
700
900
82
6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3
MAC 125A
MAC 250A
MAC 500A

MAC

Series **100**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

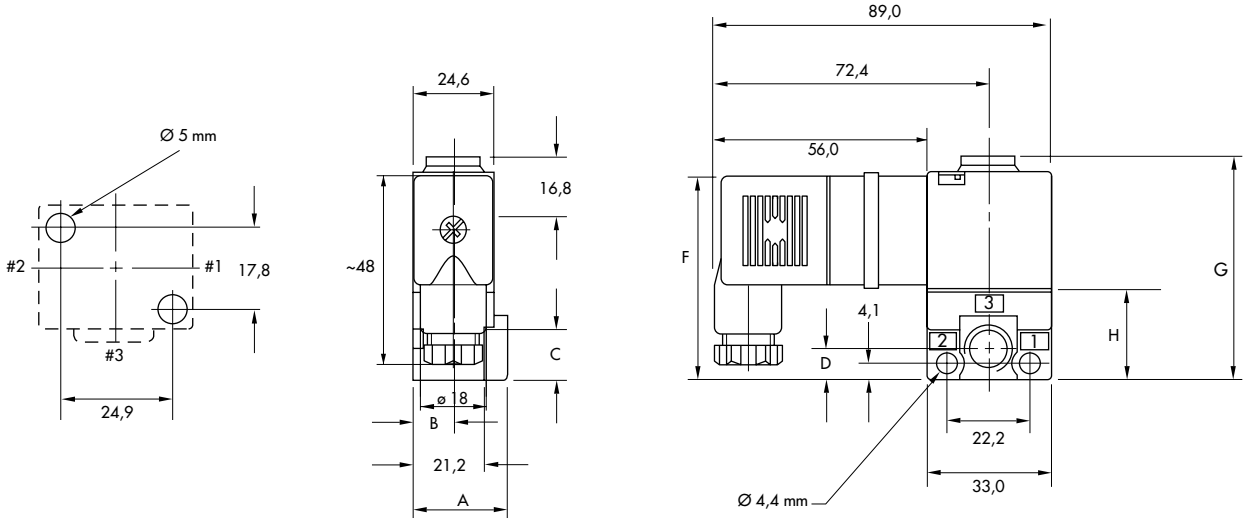
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.18 C_V		
Leak rate :			
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17 W		
Response times :	24 VDC (8.5 W)	Energize : 7 ms	De-energize : 2 ms
	120/60	Energize : 3-8 ms	De-energize : 2-7 ms

Spare parts : • Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 32184 and seal 16234.

Options : • BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



1/8"	28.4	12.7	14.0	8.0	40.1	64.9	60.1	23.2
1/4"	29.8	13.3	12.7	9.9	40.9	65.8	60.9	24.1

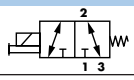
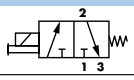
Consult "Precautions" page 364 before use, installation or service of MAC Valves

Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	**1/8" - 1/4"**	**0.18 C_v**	stacking	

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.

HOW TO ORDER

Port size	Universal valve	NC only valve
		
1/8" NPTF	181B-*XXYZZ*	184B-*XXYZZ*
1/4" NPTF	183B-*XXYZZ*	185B-*XXYZZ*

SOLENOID OPERATOR ➤ ***XX Y ZZ****

XX	Voltage
11	120/60, 110/50
12	240/60, 220/50
22	24/60, 24/50
59	24 VDC (2.5 W)
87	24 VDC (17.1 W)
61	24 VDC (8.5 W)

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
BA	Flying leads (18")
MB	Common conduit 1" NPS

* Other options available, see page 357.

End plate kit required (Port size 1/4") : M-01001-01
"MB" option also requires end plate kit: M-01002-01

Notes:
CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN
In the case of stacking valves a reversible plate, complete with indicator, is placed between each valve body assembly. This determines whether the valve is N.C. or N.O.
NORMALLY CLOSED ONLY MODELS
A single purpose Normally Closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired. Model numbers are indicated above.

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

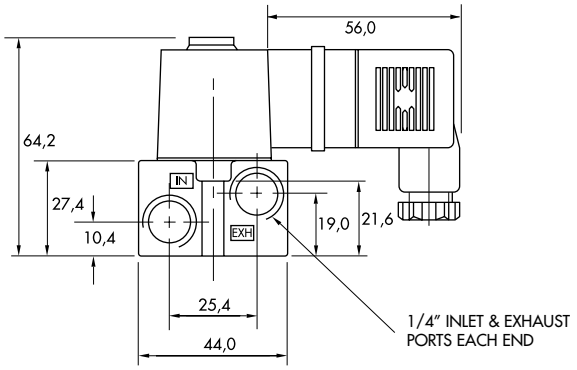
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.18 C_v		
Leak rate :	100 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush 14.8 VA	Holding : 10.9 VA	
	DC : 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 7 ms	De-energize : 2 ms
	120/60	Energize : 3-8 ms	De-energize : 2-7 ms

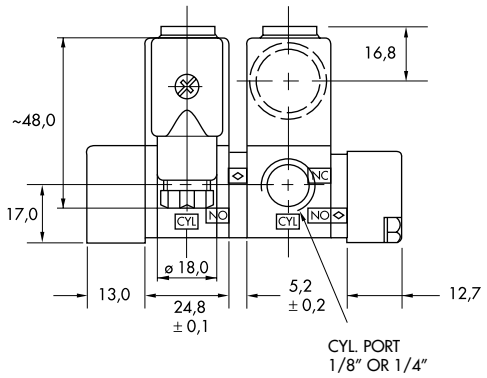
Spare parts : •-Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
• Function plate : N-01002. • Tie-rod (x2) : 19674. • Inlet isolator plate : N01003. • Exhaust isolator plate : N01004.

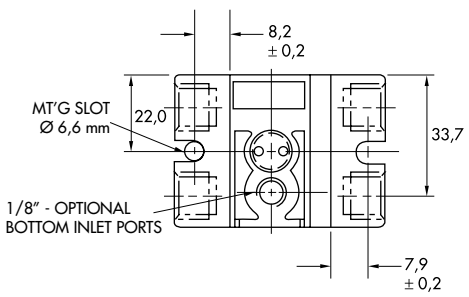
Options : • BSPP threads. • Bottom inlet (Mod. 0210).

DIMENSIONS

Dimensions shown are metric (mm)







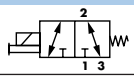
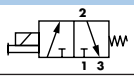
Consult "Precautions" page 364 before use, installation or service of MAC Valves

Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	**1/8"**	**0.14 C_v**	sub-base non "plug-in"	

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.

HOW TO ORDER

Port size	Universal valve	NC only valve
		
Valve less base	130B-*XXYZZ*	170B-*XXYZZ*
1/8" base NPTF	132B-*XXYZZ*	172B-*XXYZZ*

SOLENOID OPERATOR ➤ ***XX Y ZZ****

XX	Voltage
11	120/60, 110/50
12	240/60, 220/50
22	24/60, 24/50
59	24 VDC (2.5 W)
87	24 VDC (17.1 W)
61	24 VDC (8.5 W)

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
BA	Flying leads (18")
MA	Common conduit 1" NPS
RA	Conduit 3/8" NPS

* Other options available, see page 357.

End plate kit required (Port size : 1/4") : A2-5004-01
"MA" option also requires end plate kit : M-01002-01

OPTIONS

12XB-*XXYZZ*
└ 2-way N.C.

14XB-*XXYZZ*
└ 2-way N.O.

102
(Base only)

Notes:
CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN
For manifold base mounted valves a plate is provided between the valve and the base. Three plates are available; a reversible plate for 3 Way valves (N.C. & N.O.), one plate for 2 Way N.C. and one for 2 Way N.O. Appropriate plates, determined by the valve model number, are supplied automatically with the valve.
NORMALLY CLOSED ONLY MODELS
A single purpose Normally Closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired. Model numbers are indicated above.

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.14 C_V		
Leak rate :			
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17 W		
Response times :	24 VDC (8.5 W)	Energize : 7 ms	De-energize : 2 ms
	120/60	Energize : 3-8 ms	De-energize : 2-7 ms

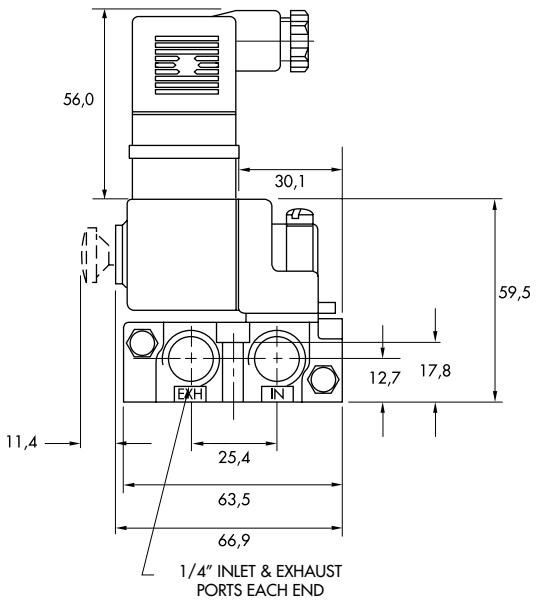
Spare parts : •-Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 32184 and seal 16234.
• Function plate : A2-7009. • Seal between manifold bases : 16226. • Tie-rod (x2) : 19546.

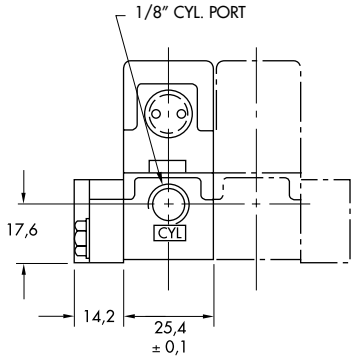
Options : • BSPP threads. • Isolation of inlet : Mod. 313P. • Isolation of exhaust : Mod. 313E. • Additional bottom inlet : Mod. 0210.
• Bottom cyl. port : Mod. 0009. • All bottom & side ports : Mod. 0004.

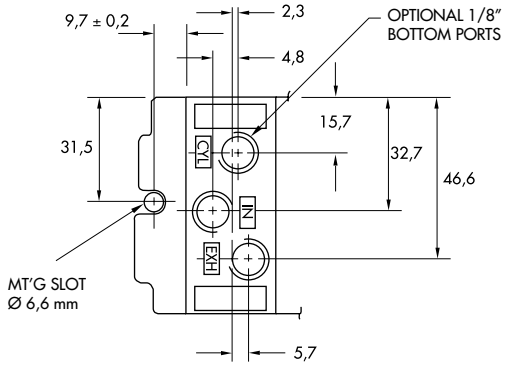
Note : • Specify mod. number after valve model number (i.e. 132B-111BA Mod. 0210)

DIMENSIONS

Dimensions shown are metric (mm)







Consult "Precautions" page 364 before use, installation or service of MAC Valves

HOW TO ORDER

BODY OPTIONS

1 X X B - (XXYZZ) - FM - SOLENOID OPTIONS SEE BELOW

SERIES — REVISION LEVEL

VALVE FUNCTION	
6	N.C. only ind. inline
7	N.C. only manifold
8	Stacking body

PORT SIZE/BODY STYLE	
0	Manifold valve less base
1	1/8" NPTF ind.inline
2	1/8" NPTF manifold
3	1/4" NPTF ind.inline
4	1/8" NPTF stacking, 3-way N.C. only
5	1/4" NPTF stacking, 3-way N.C. only
6	1/8" BSPP inline
7	1/4" BSPP inline
8	1/8" BSPP stacking, 3-way N.C. only
9	1/4" BSPP stacking, 3-way N.C. only

SOLENOID OPTIONS

EXAMPLE : XX Y ZZ - FM

XX	DC VOLTAGE
A5	12 VDC (0.6 W)
A6	24 VDC (0.6 W)

Y	MANUAL OPERATOR
0	No operator
1	Non-locking Recessed (std.)
2	Locking Recessed
3	Non-locking Extended
4	Locking Extended

ZZ	ENCLOSURE
AA	JIC w/1/2" NPS Conduit
BA	Grommet
CA	Conduit 1/2" NPS
CC	Conduit 1/2" NPT (CSA threads)
JB	Rectangular Plug-in
JM	Rectangular Male only
NA	Conduit 1/2" NPS w/ground wire
RA	Conduit 3/8" NPS for Manifold models
MA	Com. Conduit 1" NPS (Manifold models)
MB	Com. Conduit 1" NPS (Stacking models)

(MA & MB common conduit covers require 1#M-01002-01 conduit end plate kit per stack)

100 SERIES-SUPPLEMENTAL TECHNICAL DATA

MOD. NO.	DESCRIPTION	MODEL AVAILABILITY
0004	All bottom and side ports	Manifold models only
0009	Bottom and side cylinder ports with side only inlet and exhaust ports	Manifold models only
0210	Additionnal bottom inlet	Manifold & stacking models
313P	For isolating the common inlet passage between manifold bases	Manifold models only
313E	For isolating the common exhaust passage between manifold bases	Manifold models only

TO ORDER Add the appropriate modification number from the table above after the valve number,
EXAMPLE : 172B-A51BA-FM **MOD 0004**.

STACKING BODY ACCESSORIES :
STACKING END PLATE KIT-
For each gang one kit is required.

TO ORDER- Specify number **M-01001-01**
(1/4" NPTF)
or M-01001-01P
(1/4" BSPP).
INLET ISOLATOR PLATE N-01003
EXHAUST ISOLATOR PLATE N-01004

MANIFOLD ACCESSORIES :
MANIFOLD END PLATE KIT-
For each gang one kit is required.

TO ORDER- Specify number **A2-5004-01**
(1/4" NPTF)
or A2-5004-01P
(1/4" BSPP).

Consult "Precautions" page 364 before use, installation or service of MAC Valves

Codification table for voltages / Manual operator / Electrical connection / Wire length

VALVE CODE ➤ $-\underset{1}{XX}\ \underset{2}{Y}\ \underset{3}{ZZ}\ \underset{4}{(-VV)}$

OPTIONS AVAILABLE FOR	OPTIONS AVAILABLE FOR
- valves type 100 Series - pilot valves "CNOMO"	- valves type 200 Series
- Pilot operated valves with pilots type 100 Series Series : 55 - 56 - 700 - 800 - 900 - 6300 - 6500 - 6600 - 1300 - ISO 1 - ISO 2 - ISO 3. - MAC 125 - MAC 250 - MAC 500	- pilot operated valves with pilots type 200 Series Series : 200 - 57 - 58 - 59.
- Pilot operated valves with pilots "CNOMO" Series : ISO1 - ISO2 - ISO3	

Used on valve series: 100, 55, 56, 700, 800, 900, 6300, 6500, 6600, 1300, MVA1C, MVA2B, MVA3B, MAC125, MAC250, MAC500.

1. VOLTAGE (100 Serie type coil)

- XX Y ZZ	VOLTAGE
11	120/60, 110/50
12	240/60, 220/50
13	100/60, 100/50
15	200/60, 200 /50
16	10/60
20	6/60
21	12/50, 12/60
22	24/60, 24/50
23	32/60, 32/50
24	48/60, 42/50
26*	380/50, 440/50, 440/60, 480/60
29	220/60
34	127/50, 120/50
35	48/50
36	16/60
B1	24/50
50	24 VDC (6 W)
51	24 VDC (4 W)
54	12 VDC (4 W)
55	12 VDC (6 W)
57	12 VDC (2.5 W)
59	24 VDC (2.5 W)
60	12 VDC (8.5 W)
61	24 VDC (8.5 W)
64	6 VDC (6 W)
65	32 VDC (7 W)
66	48 VDC (5.8 W)
67	64 VDC (7.5 W)
68	120 VDC (6.4 W)
69*	220 VDC (8.7 W), 250 VDC (11.2 W)
75	90 VDC (8.8 W)
76*	100 VDC (6.9 W)
84*	125 VDC (10.9 W)
87*	24 VDC (17.1 W)
88*	12 VDC (17.4 W)
89*	36 VDC (18.8 W)
90	28 VDC (8.2 W)
91*	6 VDC (10.6 W)
92	190 VDC (6.5 W)
94	3 VDC (7 W)
95	38 VDC (6.4 W)
A1	24 VDC (1 W)
A2	12 VDC (1 W)
A3	9 VDC (1 W)

MOD. DD01 : Protection diode (DC) - MAX. 8.5W

MOD. MOV1 : Protection varistor (AC) - MAX. 8.5W

* Voltages are CLSF only

Used on valve series: 200, 57, 58, 59.

1. VOLTAGE (200 Serie type coil)

- XX Y ZZ	VOLTAGE
11	120/60, 110/50, 24 VDC (6 W)
12	240/60, 220/50
13	100/60, 100/50
14	200/60, 200/50
20	6/60
21	12/60
22	24/60, 24/50
23	32/60, 32/50
24	48/60, 42/50
25	240/50
26	480/60, 440/50
27	127/60
28	415/50
29	220/60
30	380/50
31	550/60, 550/50
32	120/60, 110/50
33	600/60
34	127/50
35	48/50
50	24 VDC (6 W)
51	24 VDC (4.5 W)
52	24 VDC (2.5 W)
53	24 VDC (1.0 W)
55	12 VDC (6 W)
57	12 VDC (2.5 W)
58	48 VDC (2.5 W)
60	12 VDC (9.5 W)
61	24 VDC (8.5 W)
64	6 VDC (8.5 W)
65	32 VDC (10 W)
66	48 VDC (11.5 W)
67	64 VDC (10.5 W)
68	120 VDC (12.3 W)
69	250 VDC (9.2 W)
71	8 VDC (8.2 W)
72	24 VDC (12 W)
73	198 VDC (10 W)
74	72 VDC (11.3 W)
75	90 VDC (11.3 W)
76	100 VDC (9 W)
77	220 VDC (10 W), 230 VDC (11.6 W)
78*	24 VDC (24 W)
80	55 VDC (10.6 W)
82	170 VDC (11.1 W)
83	15 VDC (8.1 W)
84	125 VDC (10 W)
86	36 VDC (11 W)
93*	12 VDC (24 W)

Consult “Precautions” page 364 before use, installation or service of MAC Valves

2. MANUAL OPERATOR (Common options for 100 & 200 Series type coils)

- XX Y ZZ	MANUAL OPERATOR		
0	No operator	5*	No Operator with Light
1	Non-locking recessed	6*	Non-Locking Recessed with Light
2	Locking recessed	7*	Locking Recessed with Light
3	Non-locking extended	8*	Non-Locking Extended with Light
4	Locking extended	9*	Locking Extended with Light

* Lights used with "AA" electrical connection

3. ELECTRICAL CONNECTION (100 Serie type coil)

- XX Y ZZ	ELECTRICAL CONNECTION
AA	Wiring box with 1/2" NPS conduit
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPT conduit
FA	Military type 2 PIN
GA	Military type 3 PIN
HA	AA with ground wire
JA*	Square connector
JB	Rectangular connector
JC*	Square connector with light
JD	Rectangular connector with light
JE	Square connector on top (ISO2, ISO3)
JF	Rectangular connector on top (ISO1, ISO2, ISO3)
JG	JE with light
JH	JF with light
JJ	Square connector, male only
JM	Rectangular connector, male only
MA	Electrical common conduit (100 Series-Manifold/900 Series)
MB	Electrical common conduit (100 Series-Stacking/700 Series)
NA	CA with ground wire
NC	CC with ground wire
RA	3/8" NPS conduit

* Not to be used with 100, 800 and 900 Series manifold mounting

3. ELECTRICAL CONNECTION (200 Serie type coil)

- XX Y ZZ	ELECTRICAL CONNECTION
AA	Wiring box with 1/2" NPS conduit
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPT conduit
EA	Explosion proof (200 Series)
EA	Explosion proof (57, 58 & 59 Series)
FA	Military type 2 PIN
GA	Military type 3 PIN
HA	AA with ground wire
JA*	Square connector
JC	Square connector with light
JJ	Square connector, male only
NA	CA with ground wire
NC	CC with ground wire

4. COIL WIRE LENGTH (Common options for 100 & 200 Serie type coils)

- XX Y ZZ (-VV)	WIRE LENGTH
AA	18″
AB	24″
AD	36″
AE	48″
AF	72″
AG	6″
AR	12″
AU	120″
BA	60″
BB	144″
Series 6000 : wire length, from the base	
MOD L024	24″
MOD L036	36″
MOD L048	48″
MOD L060	60″
MOD L072	72″
MOD L120	120″

Consult “Precautions” page 364 before use, installation or service of MAC Valves