



Pneutech

Pneumatics Australia



[®]
MAC
VALVES

MAC Valves – Core Series

Valves that don't stick



SOLENOID VALVES

Small 3 way valves

34 Series	3
35 Series	6
100 Series	9
BV Series	11

Small 4 way valves

45 Series	23
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Large 3 way valves

52 Series	28
55 Series	32
56 Series	34
57 Series	41

Large 4 & 5 way valves

400 Series	43
93 Series	45
ISO 2 Series	47

REMOTE AIR VALVES

55 Series	53
56 Series	55
900 Series	57

MACONNECT

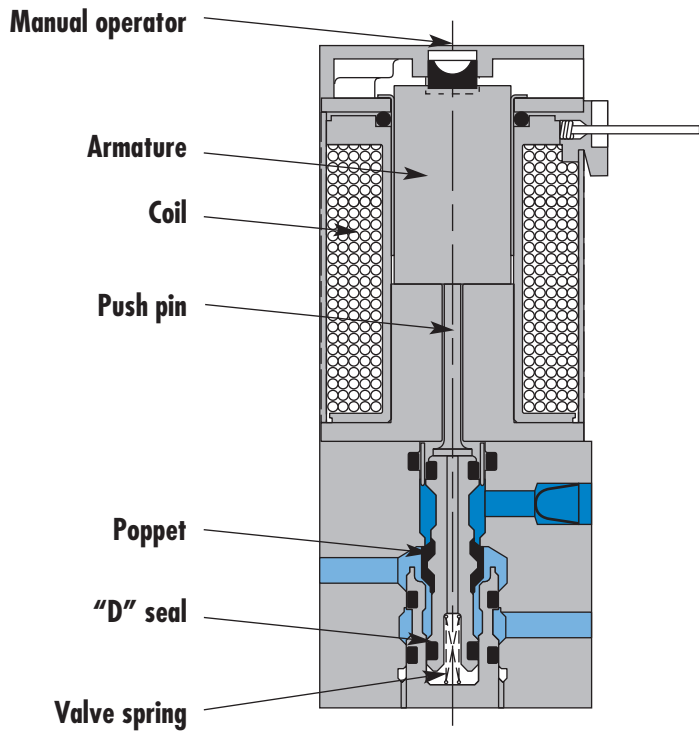
42 Series	61
48 Series	63
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Serial Communication	67

MECHANICAL AIR VALVES 69

PROPORTIONAL PRESSURE CONTROLLER 73

Individual mounting

Inline



SERIES FEATURES

- High force MACSOLENOID[®].
- Universal porting.
- # 10-32 or M5 ports.
- Rated for lubricated or non-lubricated service.
- 10 mm direct operated.



Direct solenoid and solenoid pilot operated valves



Australian MDN Partner
 pneutech.com.au
 1300 879 613

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-N	M5	0.12 C_v	Inline

OPERATIONAL BENEFITS

1. 10 mm 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.

HOW TO ORDER

Port size	Universal valve
M5	 34C-ABA-G XXX-XXX



SOLENOID OPERATOR >

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 VAC (2.5W)	A	18"	1	Non-locking recessed	BA	Flying leads
DF	24 VDC (4.0W)			3	Non-locking extended	BT	Flying leads with light
						KA	Plug-in wire assembly

Note : AC voltage requires connector with rectifier.

Washdown capability is possible for the "G" type electrical connectors. Consult factory for ordering information.



Direct solenoid and solenoid pilot operated valves

100%
OF
PRODUCTION
TESTED
100%

WARRANTY
18
MONTHS



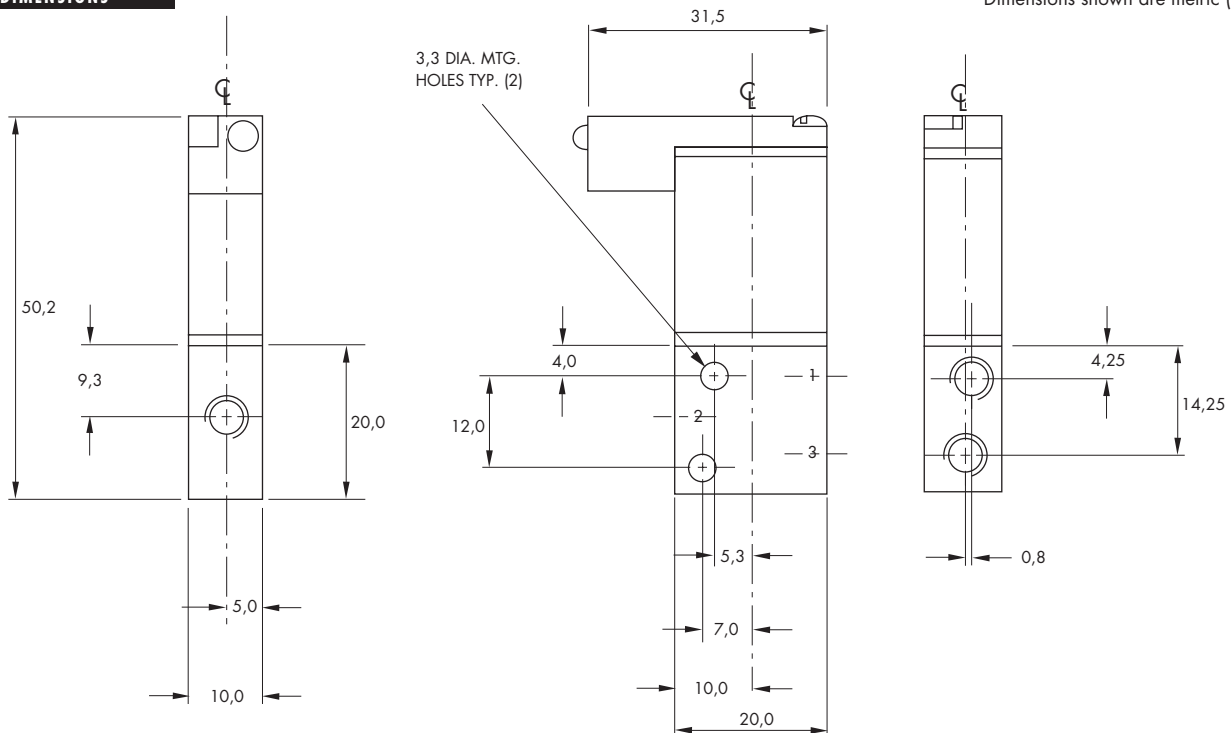
Australian MDN Partner
pneutech.com.au
1300 879 613

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 120 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 120°F (-18°C to +50°C)
Flow :	4 W : (0.12 C _v) – 2.5 W : (0.10 C _v) – 1.8 W : (0.06)C _v
Coil :	Class A wire (#22 AWG x 18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4 W – 2.5 W – 1.8 W
Response times :	Energize : 3.4 ms
(with 4 W coil)	De-energize : 1.5 ms

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

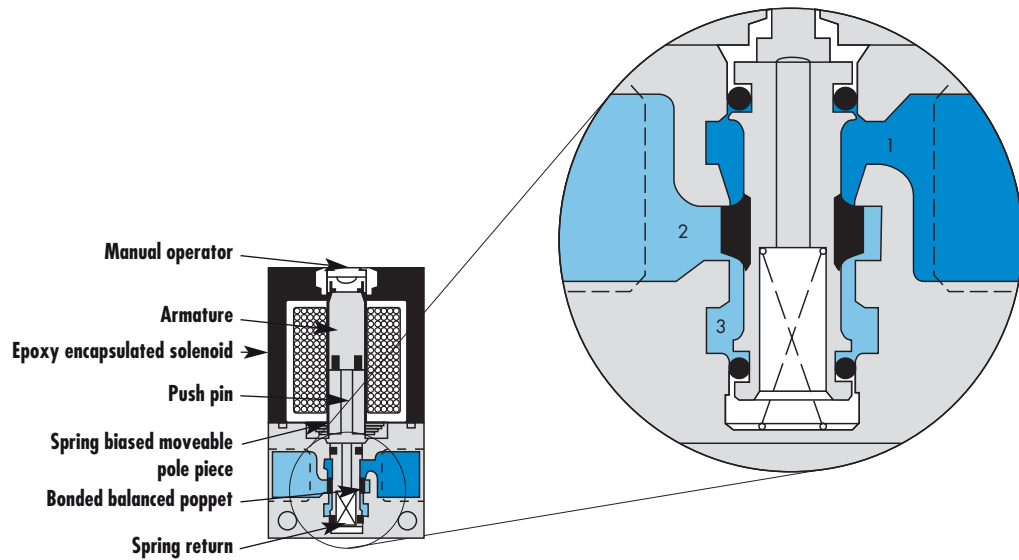
inline

Manifold mounting

stacking

sub-base non "plug-in"

sub-base with pressure regulators



SERIES FEATURES

- Patented MACSOLENOID[®] for fastest possible response times.
- Bonded balanced poppet for high flow, precise repeatability, and consistent operation.
- Balanced poppet permits versatility in function — may be used as 3-way or 2-way normally open or normally closed and may be used for vacuum, divertor, or selector applications.
- Extremely high cycle rate capability.
- Use on lube or non-lube service.
- Manual overrides as standard.
- Various solenoid enclosures and plug-in connectors.
- Optional surge suppression (M.O.V. or Diode) available.
- Low wattage DC solenoids — down to 1.8 watts.
- Patented MACSOLENOID[®] — virtually burn-out proof on AC service.



Direct solenoid and solenoid pilot operated valves

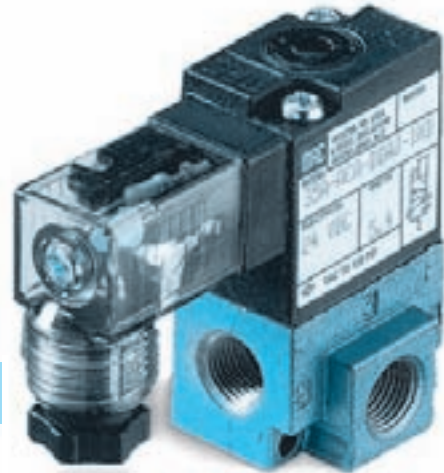


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 1300 879 613

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	1/8"	0.17 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
1/8" BSP	 35A-ACA-D xxx-xxx

SOLENOID OPERATOR >

D **XX X- X XX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120/60, 110/50	A	18" (Flying leads)	1	Non-locking	KA	Square connector
AB	240/60, 220/50	J	Connector	2	Locking	KD	Square connector with light
DA	24 VDC (5.4 W)					JB	Rectangular connector
DF	24 VDC (12.7 W)					JD	Rectangular connector with light
						BA	Flying leads

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 120 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 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 0.08 C _v , 5.4 W : 0.15 C _v		
Leak rate :	50 cm ³ /min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 VDC (5.4 W)	Energize : 6 ms	De-energize : 2 ms
	120/60	Energize : 3-8 ms	De-energize : 2-7 ms

Spare parts :

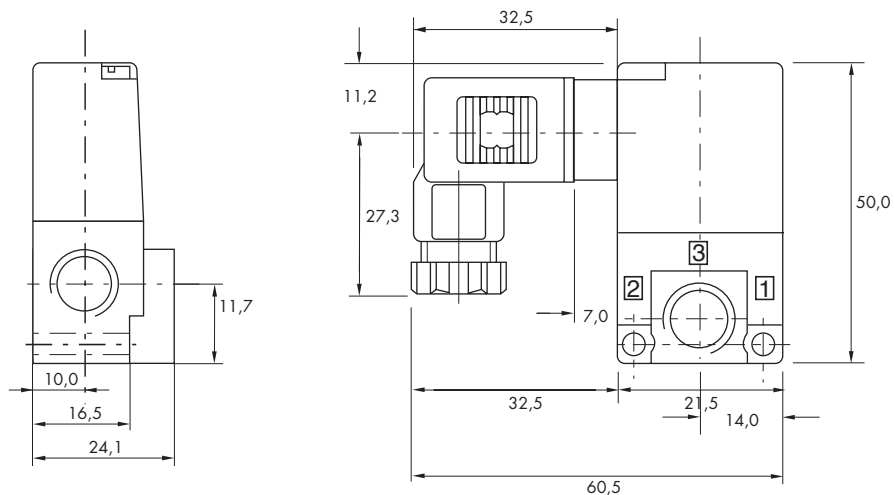
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402.

Options :

- BSPP threads. • High flow up to 0.25 C_v, according to wattage and high flow mod.

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

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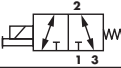
Function	Port size	Flow [Max]	Individual mounting
3/2 NO-NC, 2/2 NO-NC	G1/8" - G1/4"	180 NI/min	inline

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
	
G1/8"	116B- XXYZZ
G1/4"	117B- XXYZZ

SOLENOID OPERATOR

XX Y ZZ*

XX Voltage	Y Manual operator	ZZ Electrical connection
11 110V~/50Hz	1 Non-locking	JB Rectangular connector
12 220V~/50Hz	2 Locking	JD Rectangular connector with light
50 24V=/5,4W		JA Square connector
87 24V=/17,1W		JC Square connector with light
61 24V=/8,5W		BA Flying leads (45 cm)



Direct solenoid and solenoid pilot operated valves

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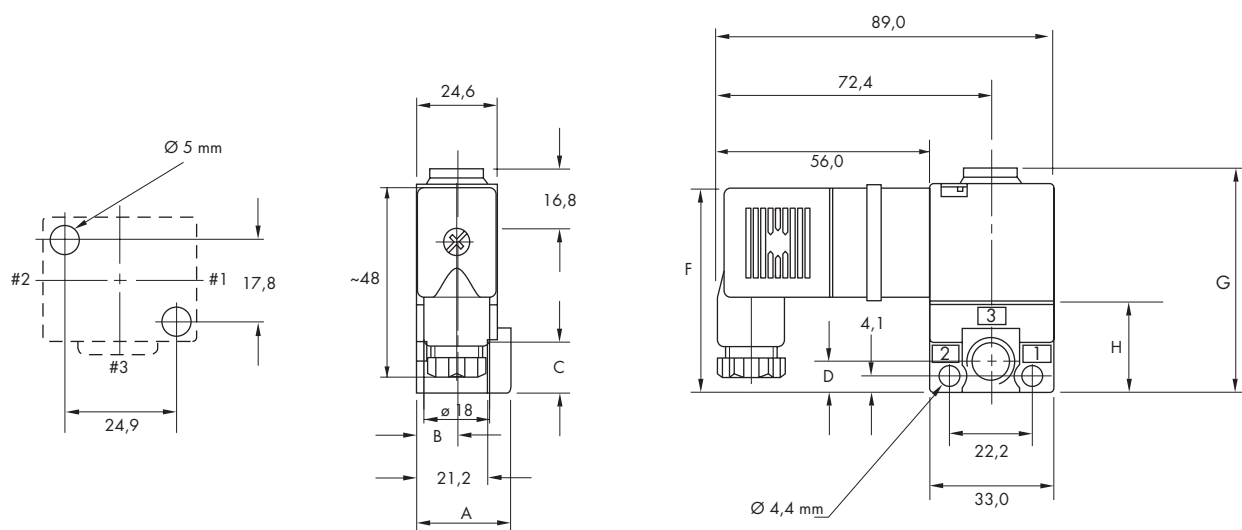
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1300 879 613

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +60°C
Orifice :	2 mm
Flow (at 6 bar, ΔP=1 bar) :	180 NI/min [C _v 0.18]
Leak rate :	50 cm ³ /min
Coil :	Epoxy encapsulated - class A wires - 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP 65
Power :	– Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17 W
Response times :	24 V=/8.5 W Energize : 7 ms De-energize : 2 ms 50Hz/6 W Energize : 3-8 ms De-energize : 2-7 ms

- Spare parts : • Solenoid operator (power ≥ 4 W) : D1-XXYZZ, including mounting screws 32184 and seal 16234.
- Options : • NPTF threads.

DIMENSIONS



PORT SIZE	A	B	C	D	E	F	G	H
G1/8"	28,4	12,7	14,0	8,0	40,1	64,9	60,1	23,2
G1/4"	29,8	13,3	12,7	9,9	40,9	65,8	60,9	24,1



Pneutech

Pneumatics Australia



[®]
MAC
VALVES

Bullet Valve

Bullet Valve™ (BV) Series

The Bullet Valve™ represents yet another evolution in air valve technology from MAC.

- VERY FEW PARTS
- LONG LIFE LIFTING SOLENOID
- ONE PIECE POPPET / ARMATURE (Patents Pending)
- BALANCED DESIGN
- SOLENOID ISOLATED FROM CONTAMINATED AIR
- UNIQUE MOUNTING

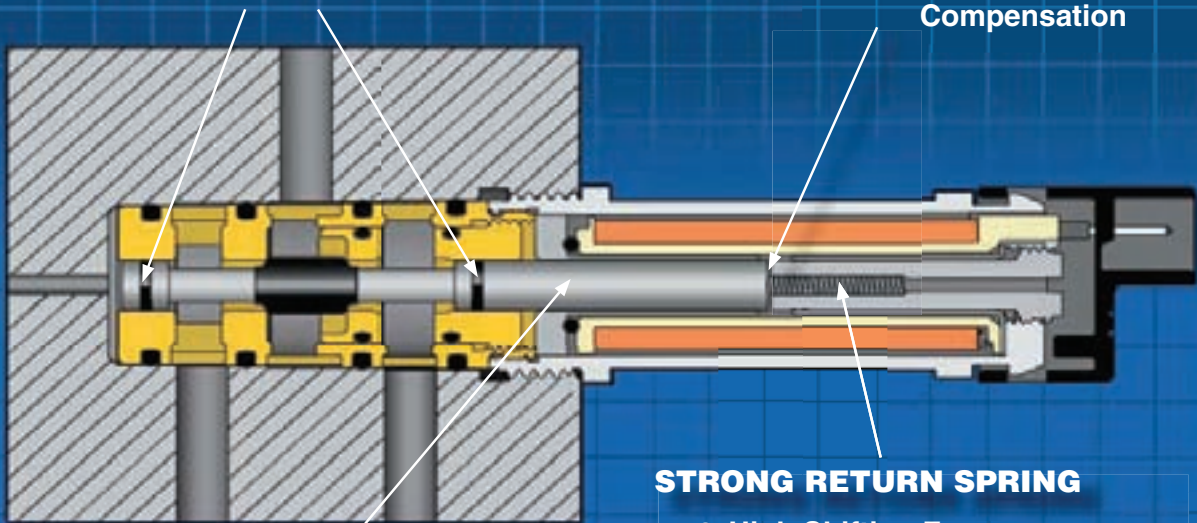
The threaded cartridge configuration allows for a variety of mounting possibilities, such as direct integration into pneumatic actuators or vacuum generators without the need of external tubing or fasteners. 2-way & 3-way models of the BV cartridge (9mm & 10mm dia.) are available. A surface manifold mount configuration is also offered.

D-SEAL TECHNOLOGY

- Minimum Friction
- Wiping Action
- Isolates Solenoid From Contaminated Air

LONG LIFE LIFTING SOLENOID

- SHORT STROKE - High Shifting Forces (Energized)
- OVERSTROKE - Built In Wear Compensation



ONE PIECE POPPET/ARMATURE (Patents Pending)

- Balanced & Repeatable
- Cushioning - Alleviates Solenoid Wear

STRONG RETURN SPRING

- High Shifting Forces (De-energized)

Function	Flow [max]	Manifold mounting	Series
2/2	Up to 0.08 Cv	Cartridge	BV210A

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



HOW TO ORDER

HOW TO ORDER VALVE

Type	2 Way
	
Cartridge	BV210A-CA1-00-xxxx-xxx

SOLENOID OPERATOR

X X X X - X X X

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover	
B Round	EH 24VDC (2.5W) EG 24VDC (4.0W) EK 12VDC (2.5W) EJ 12VDC (4.0W)	0 No lead wire A 18" B 24" C 36" D 48" E 72" F 96" H 144"	C For Top Cover Option and Can w/ Outer Threads	JST Connector TA No ground wire TC Blocking & suppr. diode & LED (no ground) TE Blocking & suppr. diode (no ground) TG LED (no ground) TJ MOV (no ground) TL LED & MOV (no ground)	Flying Leads BA BC BE BG BJ BL

* High wattage - high speed options - consult factory
 ** ERC wattage reduction options - consult factory

HOW TO ORDER CIRCUIT BAR

Port size	Spacing (mm)	Side cylinder port
# 10-32 UNF	12	CCMV10A-00AAA-xx
M5	12	CCMV10A-00AAB-xx
M7	12	CCMV10A-00AAC-xx

xx = Number of stations
 Note: for valves mounted to bar at factory, add -9 to model number.
 * High wattage configurations require intermittent duty cycles.
 ** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty

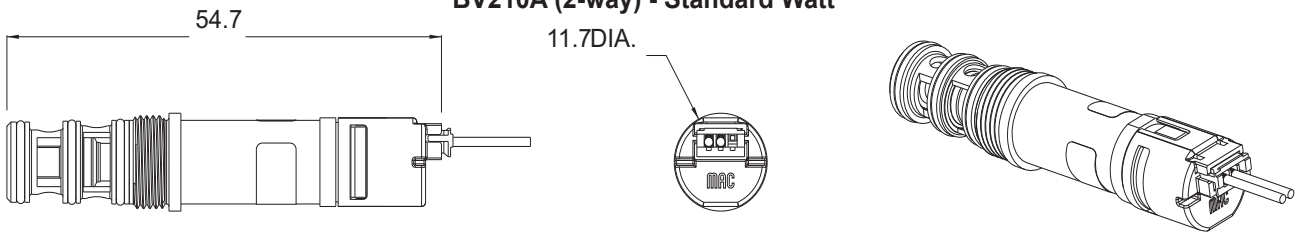
TECHNICAL DATA

Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 120 PSI
Lubrication:	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration:	40µ
Flow (at 6 bar ΔP=1bar):	Up to 0.08 Cv
Voltage range:	-15% to +10% of nominal voltage

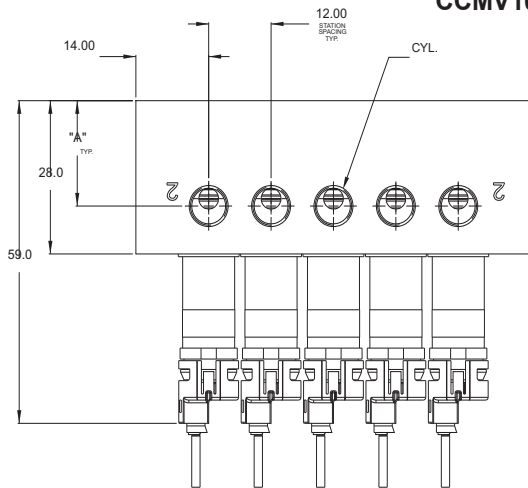
Tools: • Manifold cavity step reamer: T-6960 • Insertion/removal socket: AT-1181

DIMENSIONS

Bullet Valve with "JST" Cover and Circuit Board for LED., MOV., & Diode Options
BV210A (2-way) - Standard Watt

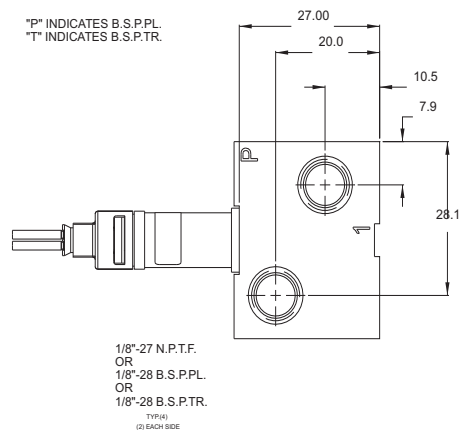
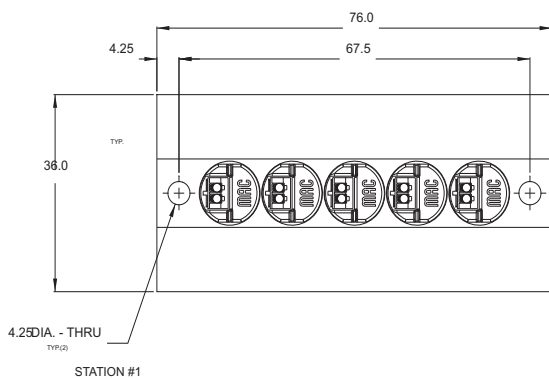


CCMV10A - Side Ports



BV210A SIDE PORTS

CYL.	DIMENSION "A"
#10-32	17.90
M5x0.8	17.90
M7x1.0	19.25



3/2 NC, Universal

Up to 0.08 Cv

Cartridge

BV310A

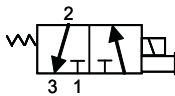
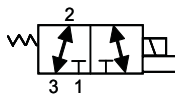
OPERATIONAL BENEFITS

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



HOW TO ORDER

HOW TO ORDER VALVE

Type	3 Way N.C.	3 Way Universal
		
Cartridge	BV310A-CC1-00- xxxx-xxx	BV310A-CD1-00- xxxx-xxx

SOLENOID OPERATOR

X X X X - X X X

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	HA 24VDC (1.0W) HB 24VDC (1.8W) HC 24VDC (2.5W) HD 24VDC (3.0W) HE 24VDC (4.0W) HF 12VDC (1.0W) HG 12VDC (1.8W) HH 12VDC (2.5W) HJ 12VDC (3.0W) HK 12VDC (4.0W)	0 No lead wire A 18" B 24" C 36" D 48" E 72" F 96" H 144"	C For Top Cover Option and Can w/ Outer Threads	JST Connector Flying Leads TA No ground wire BA TC Blocking & suppr. BC diode & LED (no ground) TE Blocking & suppr. BE diode (no ground) TG LED (no ground) BG TJ MOV (no ground) BJ TL LED & MOV BL (no ground)

* High wattage - high speed options - consult factory
 ** ERC wattage reduction options - consult factory

* M8 (pico) connector - Consult factory

HOW TO ORDER CIRCUIT BAR

Port size	Spacing (mm)	Side cylinder port
# 10-32 UNF	12	CCMV10A-00ABA- xx
M5	12	CCMV10A-00ABB- xx
M7	12	CCMV10A-00ABC- xx

xx = Number of stations

Note: for valves mounted to bar at factory, add -9 to model number.

* High wattage configurations require intermittent duty cycles.

** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty.

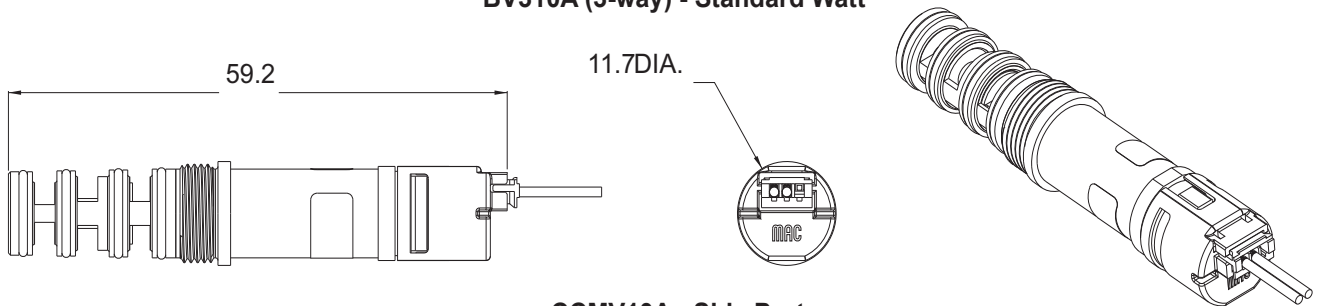
TECHNICAL DATA

Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 120 PSI
Lubrication:	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration:	40µ
Flow (at 6 bar ΔP=1bar):	Up to 0.08 Cv
Voltage range:	-15% to +10% of nominal voltage

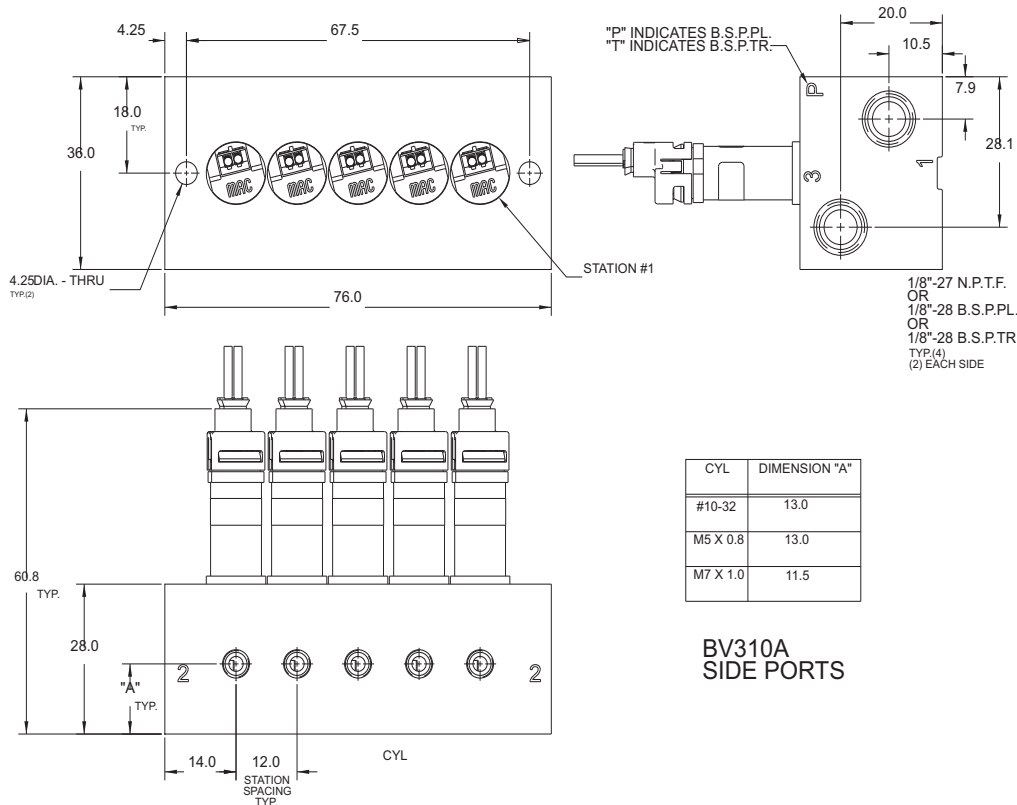
Tools: • Manifold cavity step reamer: T-6963 • Insertion/removal socket: AT-1181

DIMENSIONS

**Bullet Valve with “JST” Cover and Circuit Board for LED., MOV., & Diode Options
BV310A (3-way) - Standard Watt**



CCMV10A - Side Ports



Function	Flow [max]	Manifold mounting	Series
3/2 NC, Universal	Up to 0.08 Cv	Manifold mount - Non plug-in	BV310A

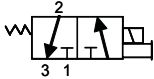
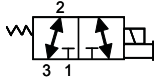
OPERATIONAL BENEFITS

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



HOW TO ORDER

HOW TO ORDER VALVE

Type	3 Way N.C.	3 Way Universal
		
Manifold Mount - Non plug-in	BV310A-LC1-00- xxxx-xxx	BV310A-LD1-00- xxxx-xxx

SOLENOID OPERATOR

X XX X - X XX

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	HA 24VDC (1.0W) HB 24VDC (1.8W) HC 24VDC (2.5W) HD 24VDC (3.0W) HE 24VDC (4.0W) HF 12VDC (1.0W) HG 12VDC (1.8W) HH 12VDC (2.5W) HJ 12VDC (3.0W) HK 12VDC (4.0W)	0 No lead wire A 18" B 24" C 36" D 48" E 72" F 96" H 144"	B Cover For Manifold Body	JST Connector Flying Leads TA No ground wire TC Blocking & suppr. diode & LED (no ground) TE Blocking & suppr. diode (no ground) TG LED (no ground) TJ MOV (no ground) TL LED & MOV (no ground)

* High wattage - high speed options - consult factory

** ERC wattage reduction options - consult factory

* M8 (pico) connector - Consult factory

HOW TO ORDER NON PLUG-IN CIRCUIT BAR

Port size	Spacing (mm)	Side cylinder port	Bottom cylinder port
# 10-32 UNF	12	CBMV10A-00ABA- xx	CBMV10A-00BBA- xx
M5	12	CBMV10A-00ABB- xx	CBMV10A-00BBB- xx
M7	12	CBMV10A-00ABC- xx	CBMV10A-00BBC- xx

xx = Number of stations

Note: for valves mounted to bar at factory, add -9 to model number.

OPTIONS

BV310A-LC 1 -00-**xxxx-xxx**

Replace with "0" for no manual operator

How to order bar configured for regulator

CBMV10A-00 **A** BB- **xx**

Replace with **D** for regulator - Side ports
Replace with **E** for regulator - Bottom ports

Note: Regulator must be ordered separately - see back

* High wattage configurations require intermittent duty cycles

**ERC - Energy Reduction Circuitry - Reduces the effectiveness wattage at continuous duty

Function	Flow [max]	Manifold mounting	Series
2/2	Up to 0.07 Cv	Cartridge	BV209A

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



HOW TO ORDER

HOW TO ORDER VALVE

Type	2 Way
	
Cartridge	BV209A-CA1-00-xxxx-xxx

SOLENOID OPERATOR

X XX X - X XX

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	GC 24VDC (2.5W) GE 24VDC (4.0W) GH 12VDC (2.5W) GK 12VDC (4.0W)	0 No lead wire A 18" B 24" C 36" D 48" E 72" F 96" H 144"	C For Top Cover Option and Can w/ Outer Threads	JST Connector Flying Leads TA No ground wire BA TC Blocking & suppr. BC diode & LED (no ground) TE Blocking & suppr. BE diode (no ground) TG LED (no ground) BG TJ MOV (no ground) BJ TL LED & MOV BL (no ground)

* High wattage - high speed options - consult factory
** ERC wattage reduction options - consult factory

* M8 (pico) connector - Consult factory

HOW TO ORDER CIRCUIT BAR

Port size	Spacing (mm)	Side cylinder port
# 10-32 UNF	11	CCMV09A-00AAA-xx
M5	11	CCMV09A-00AAB-xx
M7	11	CCMV09A-00AAC-xx

xx = Number of stations

Note: for valves mounted to bar at factory, add -9 to model number.

* High wattage configurations require intermittent duty cycles.

** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty

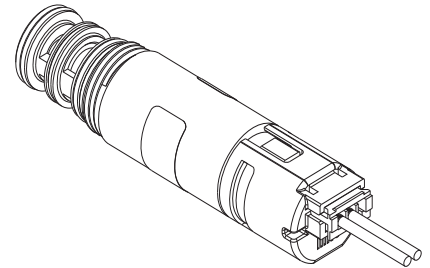
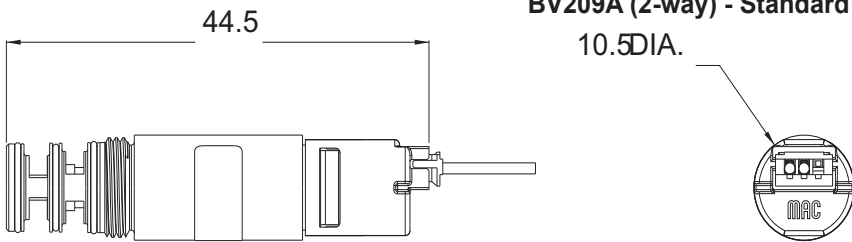
TECHNICAL DATA

Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 120 PSI
Lubrication:	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration:	40µ
Flow (at 6 bar ΔP=1bar):	Up to 0.07 Cv
Voltage range:	-15% to +10% of nominal voltage

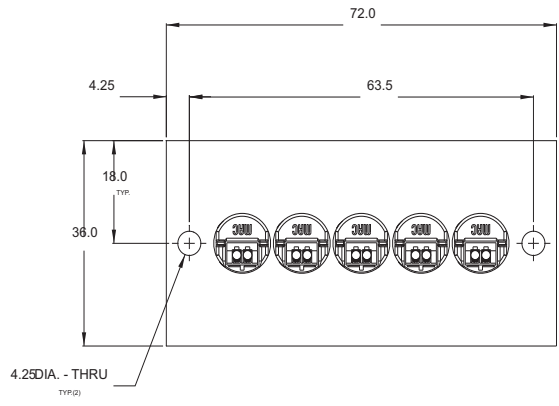
Tools: • Manifold cavity step reamer: T-6961 • Insertion/removal socket: AT-1180

DIMENSIONS

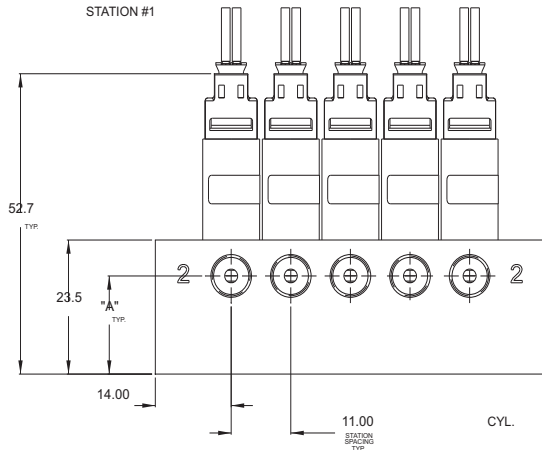
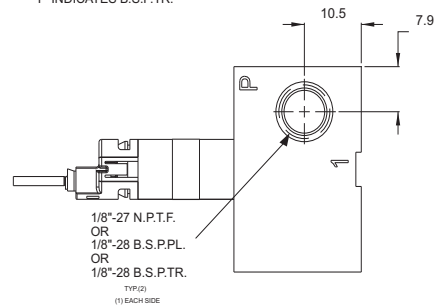
**Bullet Valve with “JST” Cover and Circuit Board for LED., MOV., & Diode Options
BV209A (2-way) - Standard Watt**



CCMV09A - Side ports



P INDICATES B.S.P.P.L.
T INDICATES B.S.P.T.R.



**BV209A
SIDE PORTS**

CYL.	DIMENSION "A"
#10-32	17.20
M5x0.8	17.20
M7x1.0	17.20

Function	Flow [max]	Manifold mounting	Series
3/2 NC, Universal	Up to 0.06 Cv	Cartridge	BV309A

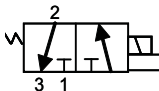
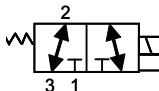
OPERATIONAL BENEFITS

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



HOW TO ORDER

HOW TO ORDER VALVE

Type	3 Way N.C.	3 Way Universal
		
Cartridge	BV309A-CC1-00- xxxx-xxx	BV309A-CD1-00- xxxx-xxx

SOLENOID OPERATOR

X XX X - X XX

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	GA 24VDC (1.0W) GB 24VDC (1.8W) GC 24VDC (2.5W) GD 24VDC (3.0W) GE 24VDC (4.0W) GF 12VDC (1.0W) GG 12VDC (1.8W) GH 12VDC (2.5W) GJ 12VDC (3.0W) GK 12VDC (4.0W)	0 No lead wire A 18" B 24" C 36" D 48" E 72" F 96" H 144"	C For Top Cover Option and Can w/ Outer Threads	JST Connector Flying Leads TA No ground wire BA TC Blocking & suppr. BC diode & LED (no ground) TE Blocking & suppr. BE diode (no ground) TG LED (no ground) BG TJ MOV (no ground) BJ TL LED & MOV BL (no ground)

* High wattage - high speed options - consult factory
 ** ERC wattage reduction options - consult factory

* M8 (pico) connector - Consult factory

HOW TO ORDER CIRCUIT BAR

Port size	Spacing (mm)	Side cylinder port
# 10-32 UNF	11	CCMV09A-00ABA- xx
M5	11	CCMV09A-00ABB- xx
M7	11	CCMV09A-00ABC- xx

xx = Number of stations

Note: for valves mounted to bar at factory, add -9 to model number.

* High wattage configurations require intermittent duty cycles.

** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty.

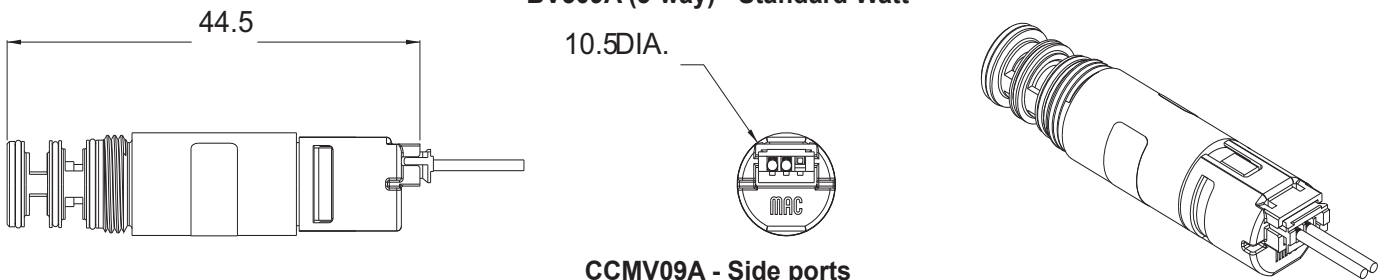
TECHNICAL DATA

Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 120 PSI
Lubrication:	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration:	40µ
Flow (at 6 bar ΔP=1bar):	Up to 0.06 Cv
Voltage range:	-15% to +10% of nominal voltage

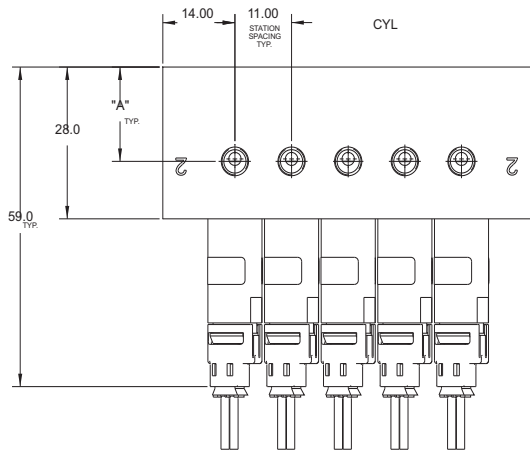
Tools: • Manifold cavity step reamer: T-6962 • Insertion/removal socket: AT-1180

DIMENSIONS

**Bullet Valve with "JST" Cover and Circuit Board for LED., MOV., & Diode Options
BV309A (3-way) - Standard Watt**

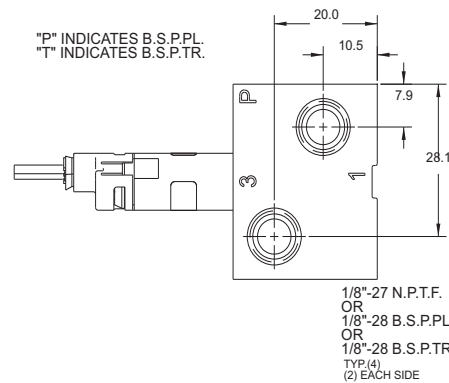
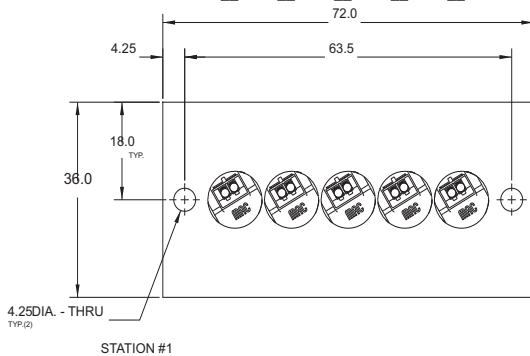


CCMV09A - Side ports



**BV309A
SIDE PORTS**

CYL	DIMENSION "A"
#10-32	17.4
M5 X 0.8	17.4
M7 X 1.0	18.9

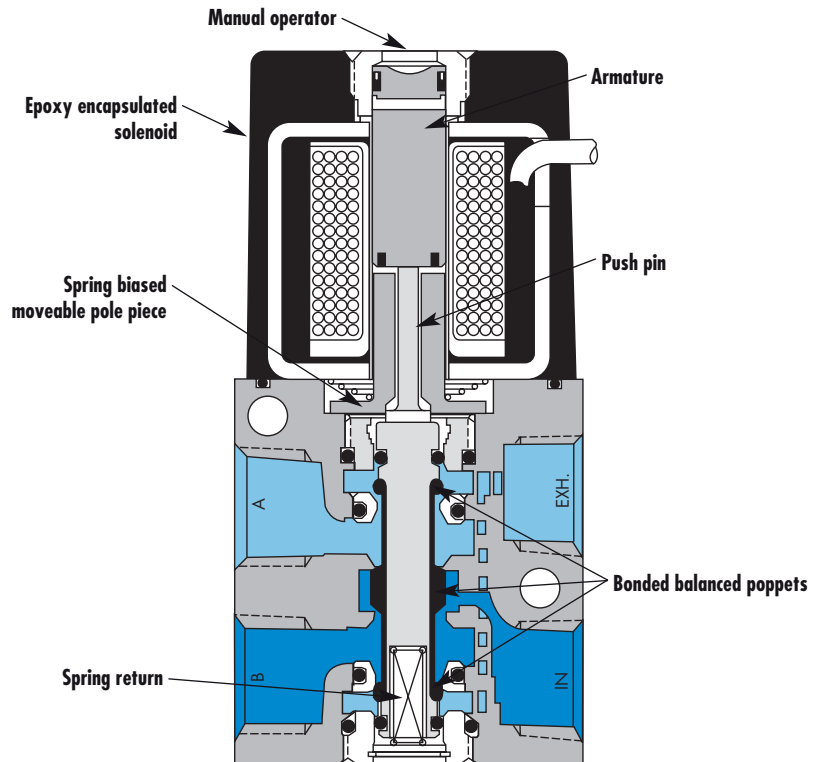


Individual mounting

inline	sub-base non "plug-in"
--------	------------------------

Manifold mounting

stacking	sub-base non "plug-in"	sub-base with pressure regulators	sub-base with pressure regulators and flow controls
----------	------------------------	-----------------------------------	---



SERIES FEATURES

- Single and double solenoid or remote air.
- The patented MACSOLENOID[®] for fastest possible response times.
- Bonded balanced poppets for high flow, precise repeatability, and consistent operation.
- Balanced poppet design permits versatility in pipping. Valves can be piped as 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications.
- Use on lube or non-lube service.
- Extremely high cycle rates.
- Extremely long service life due to unique poppet cushions.
- Manual overrides as standard.
- Various solenoid enclosures and plug-in connectors
- Optional surge suppression available.
- Low wattage DC solenoids — down to 1.8 watts.
- Patented MACSOLENOID[®] — virtually burn-out proof on AC service.



Direct solenoid and solenoid pilot operated valves

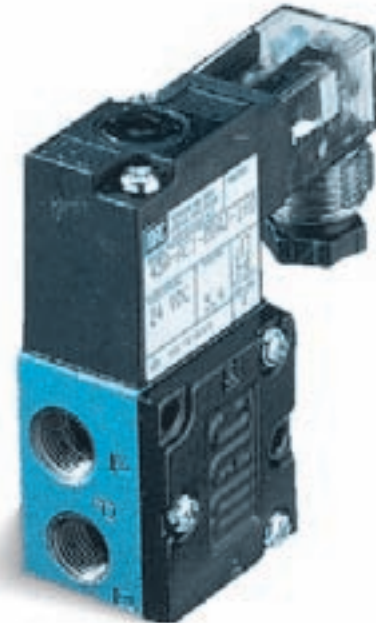


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Function	Port size	Flow (Max)	Individual mounting
4/2	1/8"	0.15 C_v	inline

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	Single operator
1/8" BSP	 45A-AC1-D xxx-xxx

WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
1/8" BSP	 45A-AC2-D xxx-xxx	 45A-GC2-D xxx-xxx

SOLENOID OPERATOR >

D **XX X- X XX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120/60, 110/50	A	18" (Flying leads)	1	Non-locking	KA	Square connector
AB	240/60, 220/50	J	Connector	2	Locking	KD	Square connector with light
DA	24 VDC (5.4 W)					JB	Rectangular connector
DF	24 VDC (12.7 W)					JD	Rectangular connector with light
						BA	Flying leads



Direct solenoid and solenoid pilot operated valves

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TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 120 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 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : (0.1 C _v), 5.4 W : (0.15C _v)		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	- Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 VDC (5.4 W)	Energize : 6 ms	De-energize : 2 ms
	120/60	Energize : 3-8 ms	De-energize : 2-7 ms

Spare parts :

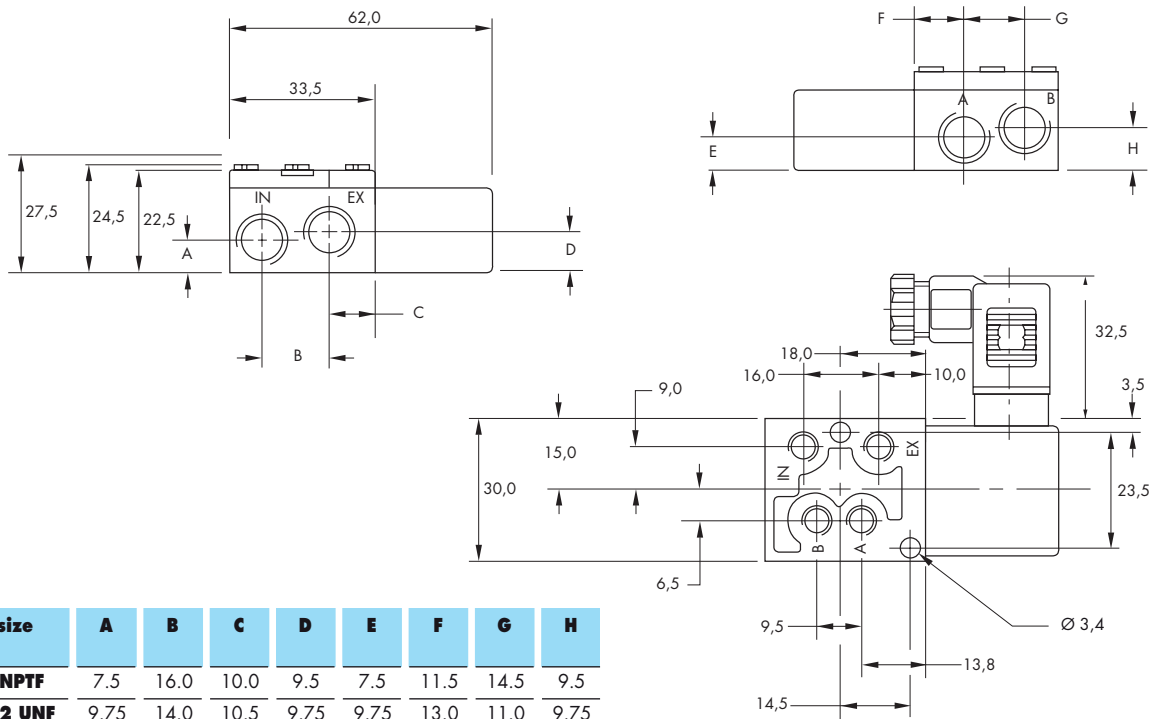
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Valve cover plate with flow controls : N-45002.

Options :

- BSPP threads. • High flow up to 0.23 C_v, according to wattage and high flow Mod. • NAMUR interface - 45A-FA1DXXX-XXX and required NAMUR adapter kit: N-45028-03 (for 3-way operation) - N-45028-04 (for 4-way operation).

DIMENSIONS

Dimensions shown are metric (mm)



Port size	A	B	C	D	E	F	G	H
1/8" NPTF	7.5	16.0	10.0	9.5	7.5	11.5	14.5	9.5
# 10-32 UNF	9.75	14.0	10.5	9.75	9.75	13.0	11.0	9.75



Direct solenoid and solenoid pilot operated valves

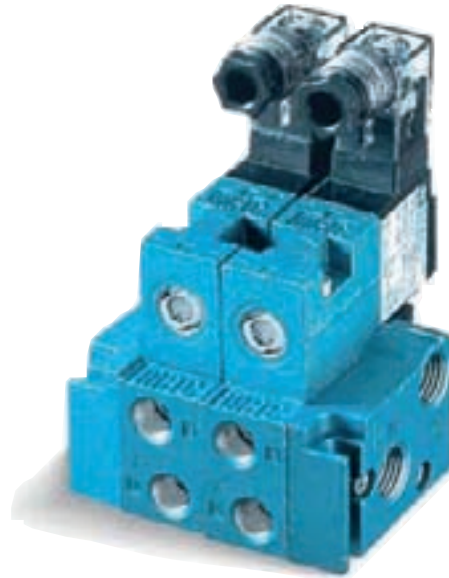


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Function	Port size	Flow (Max)	Manifold mounting
4/2	1/8"	0.11 C _v	sub-base non "plug-in"

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	Single operator	Double operator (Minimum DC wattage 5.4W)
Valve less base	45A-L00-D xxx-xxx	45A-N00-D xxx-xxx
1/8" BSP base	45A-LAC-D xxx-xxx	45A-NAC-D xxx-xxx

SOLENOID OPERATOR >

D **XX X- X XX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120/60, 110/50	A	18" (Flying leads)	1	Non-locking	KA	Square connector
AB	240/60, 220/50	J	Connector	2	Locking	KD	Square connector with light
DA	24 VDC (5.4 W)					BA	Flying leads
DF	24 VDC (12.7 W)						

* Other options available, see page 353.

End plate kit required (Port size 1/4" BSP) : M-45008-01P



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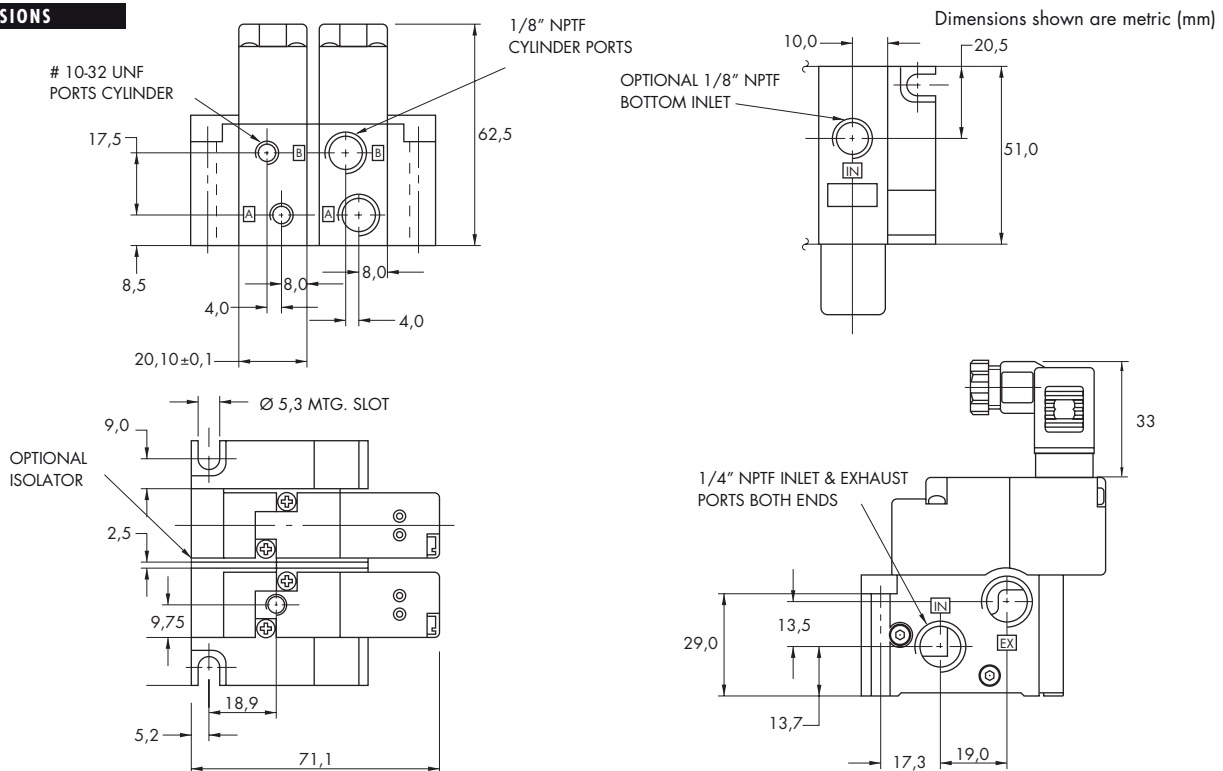
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 120 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 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1.8 W : (0.09 C _v), 5.4 W : (0.11 C _v)
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	– Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 VDC (5.4 W) Energize : 6 ms De-energize : 2 ms 120/60 Energize : 3-8 ms De-energize : 2-7 ms

- Spare parts :
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
 - Seal (between solenoid and valve body) : 16402. • Seal between base and valve : 16453. • Seal between bases : 16455.
 - Tie-rod (x2) : 19753. • Side cover plate with flow controls : N-45016.
 - Inlet & exhaust isolator : N-45008. • Inlet isolator : N-45009. • Exhaust isolator : N-45010.

- Options :
- BSPP threads. • High flow up to 0.18 C_v, according to wattage and high flow Mod. • Bottom inlet : specify Mod. 0210.

DIMENSIONS





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Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC	G1/8" - G1/4"	1500 NI/min	inline

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 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.

HOW TO ORDER

Port size	Pilot air	Single operator NC valve
G1/8"	Internal	52A-11-COA-DM-D xxx-xxx
G1/4"	Internal	52A-11-DOA-DM-D xxx-xxx
G1/8"	External	52A-11-COB-DM-D xxx-xxx
G1/4"	External	52A-11-DOB-DM-D xxx-xxx



SOLENOID OPERATOR

DM-D **XX X - X XX***

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
JA 110V~/50Hz	A 45 cm (Flying leads)	1 Non-locking	KA Square connector
JB 220V~/50Hz	J Connector	2 Locking	KD Square connector with light
DA 24V=/5,4W			JB Rectangular connector
DF 24V=/12,7W			JD Rectangular connector with light
			BA Flying leads



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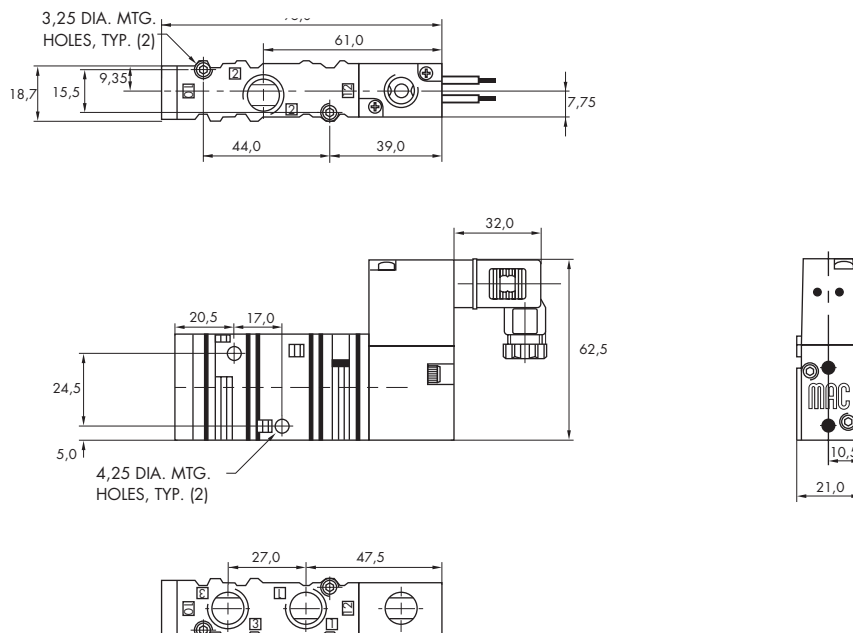
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.4 to 8.5 bar External pilot : vacuum to 8.5 bar
Pilot pressure :	1.4 to 8.5 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	7.3 mm
Flow (at 6 bar, ΔP=1bar) :	1500 NI/min (C _v 1.5)
Leak rate :	50 cm ³ /min
Coil :	Epoxy encapsulated - class A wires - 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP 65
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V= /5.4 W Energize : 7.3 ms De-energize : 5.3ms 50Hz/6 W Energize : 8-12 ms De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX, including mounting screws 35043 and seal 16524.

Options : • NPTF threads.

DIMENSIONS





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Function	Port size	Flow [Max]	Circuit bar mounting
3/2 NO-NC	G1/8" - G1/4"	1500 NI/min	cylinder ports in valve

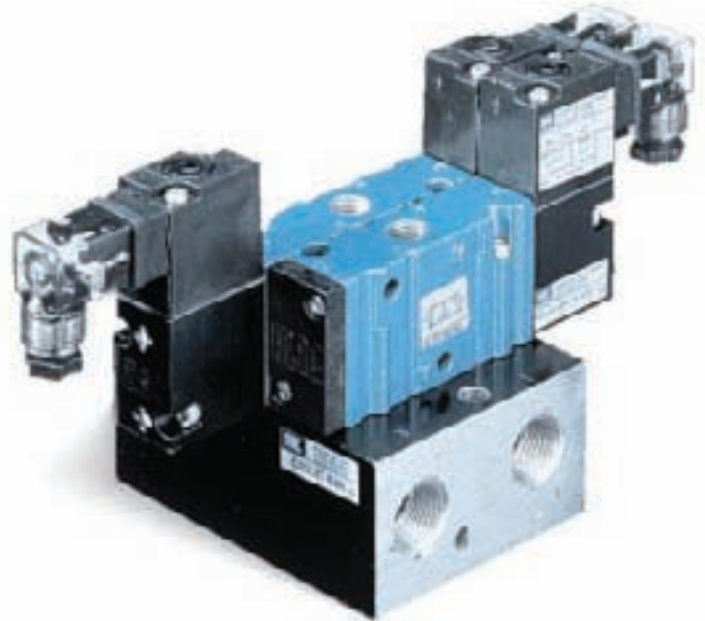
OPERATIONAL BENEFITS

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 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.

HOW TO ORDER

SOLENOID OPERATOR

Port size	Pilot air	Single operator NC valve
G1/8"	Internal	52A-11-COA-DM-D xxx-xxx
G1/4"	Internal	52A-11-DOA-DM-D xxx-xxx
G1/8"	External	52A-11-COC-DM-D xxx-xxx
G1/4"	External	52A-11-DOC-DM-D xxx-xxx



SOLENOID OPERATOR

DM-D **XX X - X XX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110V~/50Hz	A	45 cm (Flying leads)	1	Non-locking	KA	Square connector
JB	220V~/50Hz	J	Connector	2	Locking	KD	Square connector with light
DA	24V=/5,4W					JB	Rectangular connector
DF	24V=/12,7W					JD	Rectangular connector with light
						BA	Flying leads

HOW TO ORDER CIRCUIT BAR **

Port size	Pilot air	Spacing standard 19,5 mm	Spacing 26 mm (Rectangular connector)
G3/8"	Internal	CBM052A-00AAB-xx	CBM052A-02AAB-xx
	External	CBM052A-00CAB-xx	CBM052A-02CAB-xx

** Other options available. Consult factory.

Number of stations (03=3 stations)

OPTIONS

52A-31-COA-DM-D xxx-xxx

click for memory spring (replace by 4).



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TECHNICAL DATA

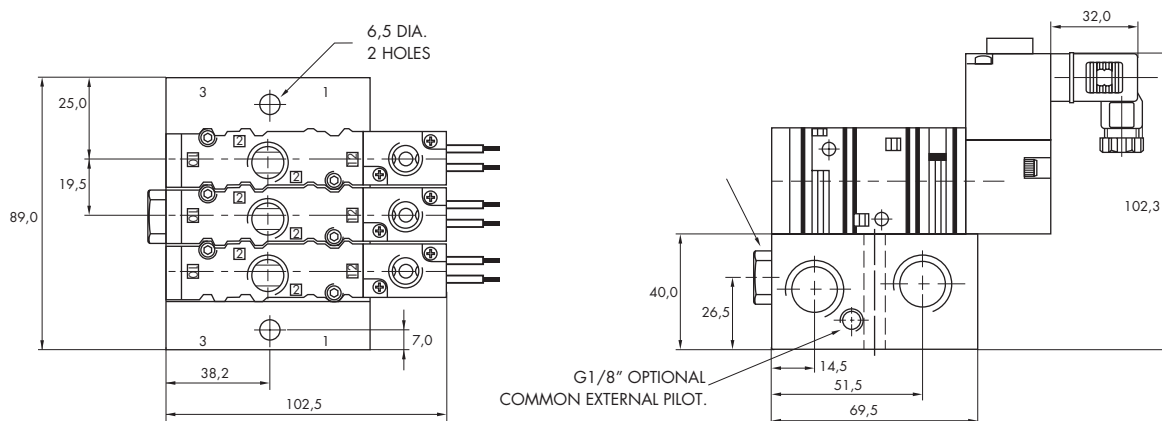
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.4 to 8.5 bar External pilot : vacuum to 8.5 bar
Pilot pressure :	1.4 to 8.5 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	7.3 mm
Flow (at 6 bar, ΔP=1bar) :	1500 NI/min (C _v 1.5)
Leak rate :	50 cm ³ /min
Coil :	Epoxy encapsulated - class A wires - 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP 65
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V=5.4 W Energize : 7.3 ms De-energize : 5.3ms 50Hz/6 W Energize : 8-12 ms De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX, including mounting screws 35043 and seal 16524.

Accessories : • Blanking plate :M-04001. • Seal (x3) : 17015-01. • Mounting screw (x2) : 35043.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS





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Function	Port size	Flow [Max]	Individual mounting
3/2 NO-NC, 2/2 NO-NC	G1/4" - G3/8"	2200 NI/min	inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	NC valve	NO valve
G1/4"	Internal	55B-13-PI- XXYZZ	55B-23-PI- XXYZZ
G3/8"	Internal	55B-14-PI- XXYZZ	55B-24-PI- XXYZZ
G1/4"	External	55B-13-PE- XXYZZ	55B-23-PE- XXYZZ
G3/8"	External	55B-14-PE- XXYZZ	55B-24-PE- XXYZZ

SOLENOID OPERATOR

XX Y ZZ*

XX Voltage	Y Manual operator	ZZ Electrical connection
11 110V~/50Hz	1 Non-locking	JM Rectangular connector - Male only
39 240V~/50Hz	2 Locking	BA Flying leads (45 cm)
50 24V=/6W		
61 24V=/8,5W		



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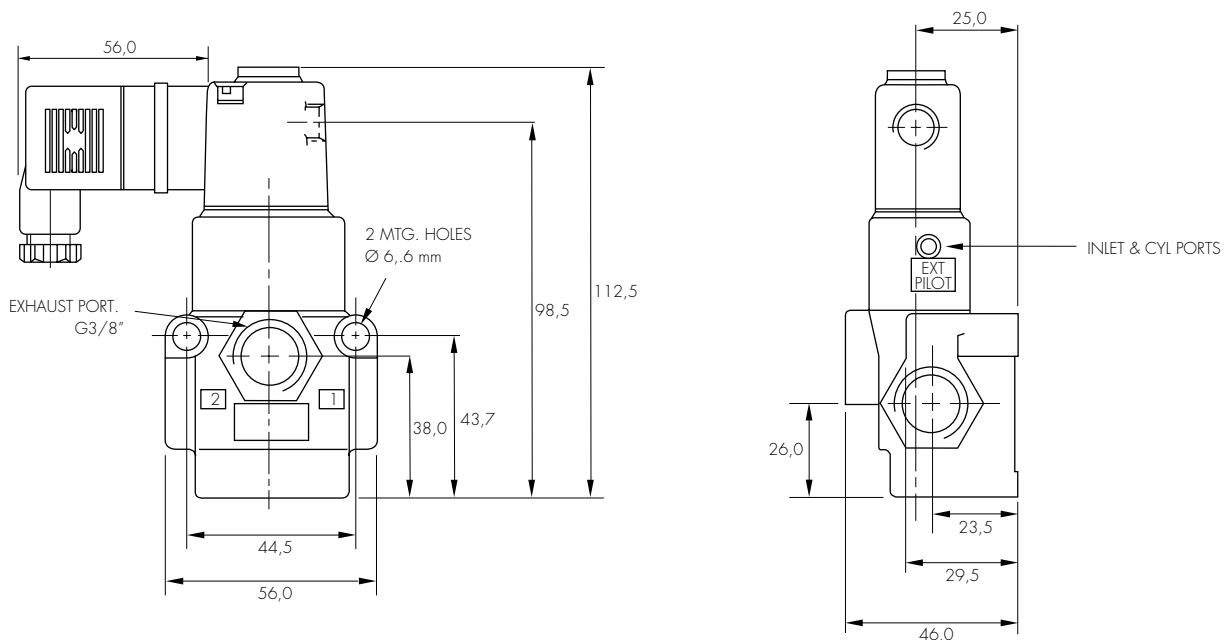
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TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.8 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	1.8 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	8 mm
Flow (at 6 bar, ΔP=1bar) :	G 1/4" :1400 Nl/min (C _v 1.4) - G 3/8" :1600 Nl/min (C _v 1.6)
Leak rate :	50 cm ³ /min
Coil :	Epoxy encapsulated - class A wires - 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP 65
Power :	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17 W
Response times :	24 V= /8.5 W Energize : 9 ms De-energize : 4.8 ms 50Hz/6 W Energize : 5-11 ms De-energize : 5-11 ms

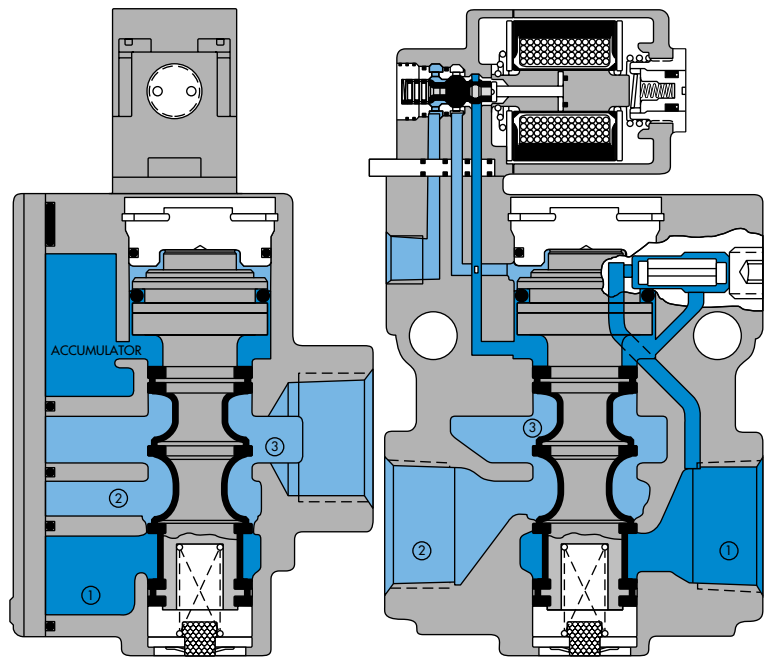
- Spare parts : • Pilot valve : PID-XYZZ, including mounting screws 35214 and seal 16363. • Check valve : 70061.
- Options : • NPTF threads.

DIMENSIONS



Individual mounting

inline





Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	G3/8" - G1/2" - G3/4"	5700 NI/min	inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	NO only valve	
		NC pilot - NC spool	NC pilot - NO spool
			
G3/8"	Internal	56C-15- XXYZZ	56C-25- XXYZZ
G1/2"		56C-16- XXYZZ	56C-26- XXYZZ
G3/4"		56C-18- XXYZZ	56C-28- XXYZZ
G3/8"	External	56C-35- XXYZZ	56C-45- XXYZZ
G1/2"		56C-36- XXYZZ	56C-46- XXYZZ
G3/4"		56C-38- XXYZZ	56C-48- XXYZZ

SOLENOID OPERATOR >

XX Y ZZ*

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	110V~/50Hz	1	Non-locking	JB	Rectangular connector
12	220V~/50Hz	2	Locking	JD	Rectangular connector with light
22	24V~/50Hz			JA	Square connector
59	24V=/2,5W			JC	Square connector with light
87	24V=/17,1W			BA	Flying leads (45 cm)
61	24V=/8,5W				

**TECHNICAL
DATA**

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	1.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	16 mm
Flow (at 6 bar, ΔP=1bar) :	G 3/8" : 4400 NI/min (C _v 4.4) - G 1/2" : 5000 NI/min (C _v 5.0) - G 3/4" : 5400 NI/min (C _v 5.4)
Leak rate :	70 cm ³ /min
Coil :	Epoxy encapsulated - class A wires - 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP 65
Power :	- Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17 W
Response times :	24 V=8.5 W Energize : 11 ms De-energize : 10,8ms 50Hz/6 W Energize : 7-12 ms De-energize : 9-14 ms

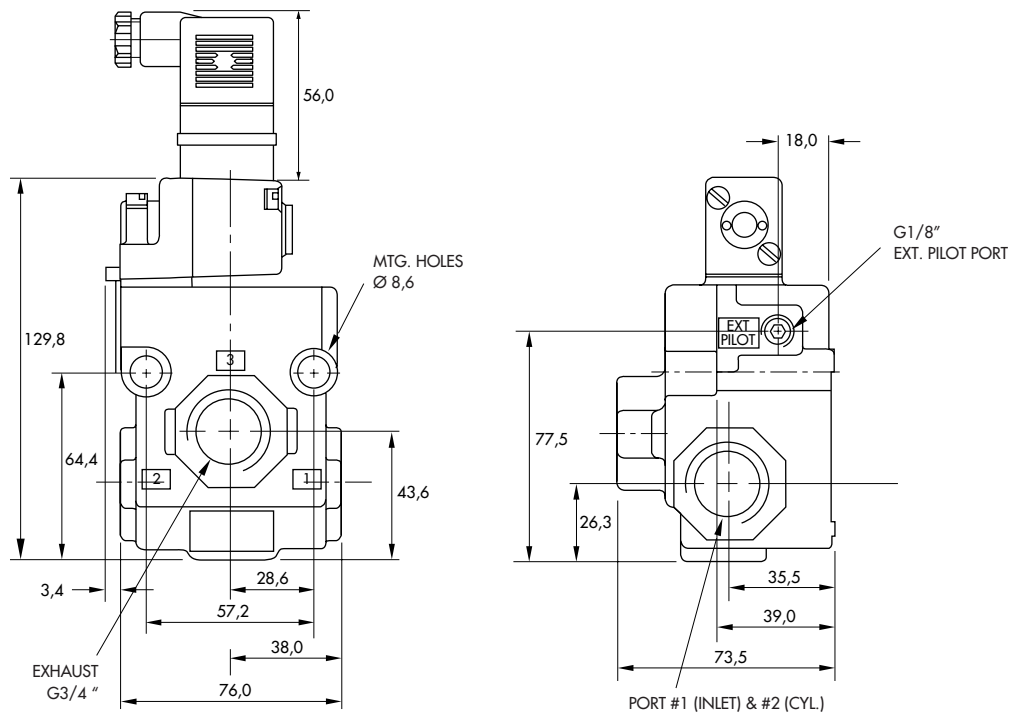
Spare parts :

- Solenoid operator (power ≥ 4 W) : D1-XXYZZ, including mounting screws 32184 and seal 16234.
- Pilot valve : 130B-XXYZZ, including function plate A2-7009. • Pilot mounting screws kit : N-56002.
- Check valve : 70063.

Options :

- NPTF threads.

DIMENSIONS



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

VALVE CODE > **-XX Y ZZ (-VV)**
1 2 3 4

OPTIONS AVAILABLE FOR	OPTIONS AVAILABLE FOR
<ul style="list-style-type: none"> - valves type 100 Series - pilot valves "CNOMO" 	<ul style="list-style-type: none"> - valves type 200 Series
<ul style="list-style-type: none"> - Pilot operated valves with pilots type 100 Series Series : 55 - 56 - 700 - 800 - 900 <li style="margin-left: 20px;">- 6200 - 6300 - 6500 - 6600 - 1300 <li style="margin-left: 20px;">- ISO 1 - ISO 2 - ISO 3. 	<ul style="list-style-type: none"> - pilot operated valves with pilots type 200 Series Series : 200 - 57 - 58 - 59.
<ul style="list-style-type: none"> - Pilot operated valves with pilots "CNOMO" Series : ISO1 - ISO2 - ISO3 	

1. VOLTAGE (type 100 Series)		1. VOLTAGE (type 200 Series)	
- XX Y ZZ	VOLTAGE	- XX Y ZZ	VOLTAGE
11	120 V~/60 Hz - 110 V~/50 Hz	11	120 V~/60 Hz - 110 V~/50 Hz - 24 V=
12	240 V~/60 Hz - 220 V~/50 Hz	12	240 V~/60 Hz - 220 V~/50 Hz
13	100 V~/60 Hz - 100 V~/50 Hz	13	100 V~/60 Hz - 100 V~/50 Hz
15	200 V~/60 Hz - 200 V~/50 Hz	14	200 V~/60 Hz - 200 V~/50 Hz
16	10 V~/60 Hz	20	6 V~/60 Hz
20	6 V~/60 Hz	21	12 V~/60 Hz
21	12 V~/50 Hz - 12 V~/60 Hz	22	24 V~/60 Hz - 24 V~/50 Hz
22	24 V~/60 Hz - 24 V~/50 Hz	23	32 V~/60 Hz - 32 V~/50 Hz
23	32 V~/60 Hz - 32 V~/50 Hz	24	48 V~/60 Hz - 42 V~/50 Hz
24	48 V~/60 Hz - 42 V~/50 Hz	25	240 V~/50 Hz
26	380 V~/50 Hz, 440 V~/50 Hz -440 V~/60 Hz, 480 V~/60 Hz-CLSF	26	480 V~/60 Hz - 440 V~/50 Hz
29	200 V~/60 Hz	27	127 V~/60 Hz
34	127 V~/50 Hz - 120 V~/50 Hz	28	415 V~/50 Hz
35	48 V~/50 Hz	29	200 V~/60 Hz
36	16 V~/60 Hz	30	380 V~/50 Hz
B1	24 V~/50 Hz	31	550 V~/60 Hz - 550 V~/50 Hz
50	24 V=/6 W	32	120 V~/60 Hz - 110 V~/50 Hz
51	24 V=/4 W	33	600 V~/60 Hz
54	12 V=/4 W	34	127 V~/50 Hz
55	12 V=/6 W	35	48 V~/50 Hz
57	12 V=/2,5 W	50	24 V=/6 W
59	24 V=/2,5 W	51	24 V=/4,5 W
60	12 V=/8,5 W	52	24 V=/2,5 W
61	24 V=/8,5 W	53	24 V=/1 W
64	6 V=/6 W	55	12 V=/6 W
65	32 V=/7 W	57	12 V=/2,5 W
66	48 V=/5,8 W	58	48 V=/2,5 W
67	64 V=/7,5 W	60	12 V=/9,5 W
68	120 V=/6,4 W	61	24 V=/8,5 W
69	220 V=/8,7 W - 250 V=/11,2 W CLSF	64	6 V=/8,5 W
75	90 V=/8,8 W CLSF	65	32 V=/10 W
76	100 V=/6,9 W CLSF	66	48 V=/11,5 W
84	125 V=/10,9 W CLSF	67	64 V=/10,5 W
87	24 V=/17,1 W CLSF	68	120 V=/12,3 W
88	12 V=/17,4 W CLSF	69	250 V=/9,2 W
89	36 V=/18,8 W CLSF	71	8 V=/8,2 W
90	28 V=/8,2 W	72	24 V=/12 W
91	6 V=/10,6 W CLSF	73	198 V=/10 W
92	190 V=/6,5 W	74	72 V=/11,3 W
94	3 V=/7 W	75	90 V=/11,3 W
95	38 V=/6,4 W	76	100 V=/9 W
A1	24 V=/1 W	77	220 V=/10 W - 230 V=/1,6 W
A2	12 V=/1 W	78	24 V=/24 W CLSF
A3	9 V=/1 W	80	55 V=/10,6 W CLSF
MOD. DD01 : Protection diode (DC)		82	179 V=/11,1 W
MOD. MOV1 : Protection varistor (AC)		83	15 V=/8,1 W
MOD. DD01 : max. 8,5 W		84	125 V=/10 W
MOD. MOV1 : max. 8,5 W		86	36 V=/11 W
		93	12 V=/24 W CLSF

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

- XX Y ZZ	MANUAL OPERATOR
0	No operator
1	Non-locking recessed
2	Locking recessed
3	Non-locking extended
4	Locking extended

3. ELECTRICAL CONNECTION (type 100 Series)

- XX Y ZZ	ELECTRICAL CONNECTION
AA	Wiring box with 1/2" NPS conduit
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPS 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
MB	Electrical common conduit
NA	CA with ground wire
NC	CC with ground wire
RA	3/8" NPS conduit
AD	Wiring box 20 mm
AH	Wiring box PG 13,5 with ground wire
CD	20 mm conduit
CG	PG 11 conduit
HH	Wiring box PG 13,5 with ground wire
ND	20 mm conduit with ground wire
NG	PG11 conduit with ground wire
HD	20 mm wiring box with ground wire

3. ELECTRICAL CONNECTION (type 200 Series)

- XX Y ZZ	ELECTRICAL CONNECTION
AA	Wiring box with 1/2" NPS conduit
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPS conduit
EA	Explosion proof (200 Series)
EA	Explosion proof (57, 58 & 59 Series)
EE	Explosion proof (CENELEC)
EN	Explosion proof with ground wire
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
AD	Wiring box 20 mm
AK	PG 16 wiring box
CD	20 mm conduit
CK	PG 16 conduit
HD	20 mm wiring box with ground wire
HK	PG16 wiring box with ground wire
ND	20 mm conduit with ground wire
NK	PG16 wiring box with ground wire

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

4. WIRE LENGTH (Common options for 100 & 200 Series)

- XX Y ZZ (-VV)	WIRE LENGTH
AA	45 cm - 18"
AB	60 cm - 24"
AD	90 cm - 36"
AE	120 cm - 48"
AF	180 cm - 72"
AG	15 cm - 6"
AR	30 cm - 12"
AU	305 cm - 120"
BA	152 cm - 60"
BB	366 cm - 144"
Series 6000 : wire length, delivered with the base	
MOD L024	60 cm - 24"
MOD L036	91 cm - 36"
MOD L048	122 cm - 48"
MOD L060	152 cm - 60"
MOD L072	180 cm - 72"
MOD L120	305 cm - 120"



Direct solenoid and solenoid pilot operated valves

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Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	G1/2" - G3/4" - G1"	17400 NI/min	inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	NO only valve		
		NC pilot - NC spool	NO pilot - NC spool	NC pilot - NO spool
G1/2"	Internal	57D-14- XXYZZ	57D-24- XXYZZ	57D-64- XXYZZ
G3/4"		57D-15- XXYZZ	57D-25- XXYZZ	57D-65- XXYZZ
G1"		57D-16- XXYZZ	57D-26- XXYZZ	57D-66- XXYZZ
G1/2"	External	57D-34- XXYZZ	57D-44- XXYZZ	57D-74- XXYZZ
G3/4"		57D-35- XXYZZ	57D-45- XXYZZ	57D-75- XXYZZ
G1"		57D-36- XXYZZ	57D-46- XXYZZ	57D-76- XXYZZ

SOLENOID OPERATOR

XX Y ZZ*

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	110V~/50Hz	1	Non-locking	JM	Square connector - Male only
25	240V~/50Hz	2	Locking	JC	Square connector with light
50	24V=/6W			BA	Flying leads (45 cm)
61	24V=/8,5W				



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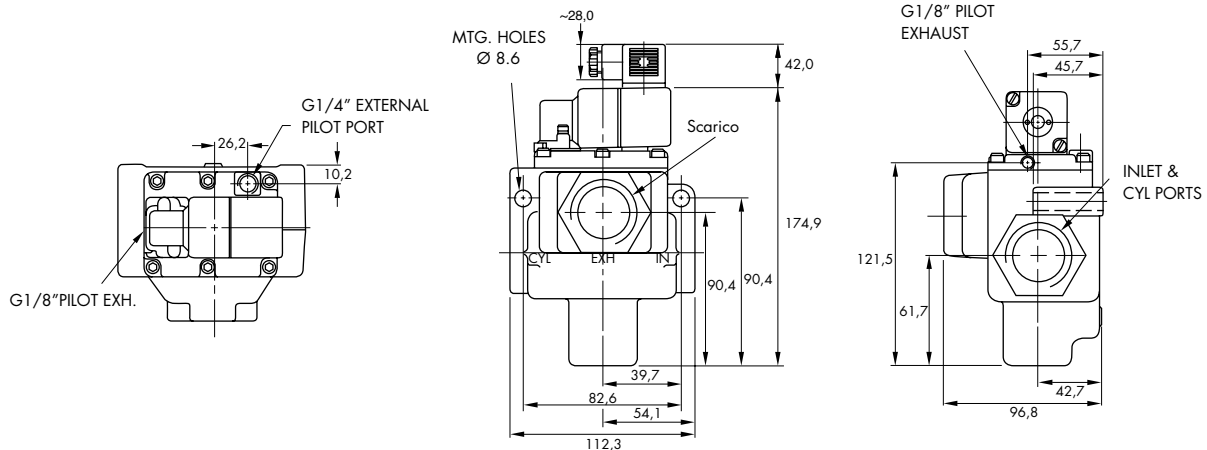
TECHNICAL D A T A

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	1.7 to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to +50°C		
Orifice :	27 mm		
Flow (at 6 bar, ΔP=1bar) :	G 1/2":9000 NI/min (C _v 9.0) - G 3/4":12700 NI/min (C _v 12.7) - G 1":15900 NI/min (C _v 15.9)		
Leak rate :	100 cm ³ /min		
Coil :	Epoxy encapsulated - class A wires - 100% ED (specify mod 0449)		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	IP 65		
Power :	~ Inrush : 33 VA Holding : 19.7 VA = 1 to 24 W		
Response times :	24 V=8.5 W	Energize : 23 ms	De-energize : 13ms
	50Hz/16 W	Energize : 9-16 ms	De-energize : 11-22 ms

Spare parts : • Pilot valve : 250B-XXYZZ, including mounting screws 32203 and function plate A2-7005. • Check valve : 70019.

Options : • NPTF threads. • Explosion-proof model.

DIMENSIONS





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Function	Port size	Flow [Max]	Individual mounting
5/2 - 5/3	G1/8" - G1/4"	1000 NI/min	inline

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 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.



HOW TO ORDER

SINGLE PRESSURE VALVES

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre	5/3 Pressure centre
G1/8"	Internal	411A-COA-DM-D xxx-xxx	421A-COA-DM-D xxx-xxx	451A-COA-DM-D xxx-xxx	461A-COA-DM-D xxx-xxx	471A-COA-DM-D xxx-xxx
G1/4"		411A-DOA-DM-D xxx-xxx	421A-DOA-DM-D xxx-xxx	451A-DOA-DM-D xxx-xxx	461A-DOA-DM-D xxx-xxx	471A-DOA-DM-D xxx-xxx
G1/8"	External	411A-COB-DM-D xxx-xxx	421A-COB-DM-D xxx-xxx	451A-COB-DM-D xxx-xxx	461A-COB-DM-D xxx-xxx	471A-COB-DM-D xxx-xxx
G1/4"		411A-DOB-DM-D xxx-xxx	421A-DOB-DM-D xxx-xxx	451A-DOB-DM-D xxx-xxx	461A-DOB-DM-D xxx-xxx	471A-DOB-DM-D xxx-xxx

DUAL PRESSURE VALVES

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre	5/3 Pressure centre
G1/8"	Internal	431A-COA-DM-D xxx-xxx	441A-COA-DM-D xxx-xxx			481A-COA-DM-D xxx-xxx
G1/4"		431A-DOA-DM-D xxx-xxx	441A-DOA-DM-D xxx-xxx	Not available	Not available	481A-DOA-DM-D xxx-xxx
G1/8"	External	431A-COB-DM-D xxx-xxx	441A-COB-DM-D xxx-xxx			481A-COB-DM-D xxx-xxx
G1/4"		431A-DOB-DM-D xxx-xxx	441A-DOB-DM-D xxx-xxx			481A-DOB-DM-D xxx-xxx

SOLENOID OPERATOR

D **XX X- X XX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JB	220V~/50HZ	A	45 cm (Flying leads)	1	Non-locking	KA	Square connector
JA	110V~/50HZ	J	Connector	2	Locking	KD	Square connector with light
JC	24V~/50HZ					JB	Rectangular connector
FB	24V=/1,8W					JD	Rectangular connector with light
DA	24V=/5,4W					BA	Flying leads
DF	24V=/12,7W						

OPTIONS

411A-COA-DM-D xxx-xxx	431A-COA-DM-D xxx-xxx
-----------------------	-----------------------

click for memory spring (replace by 4).



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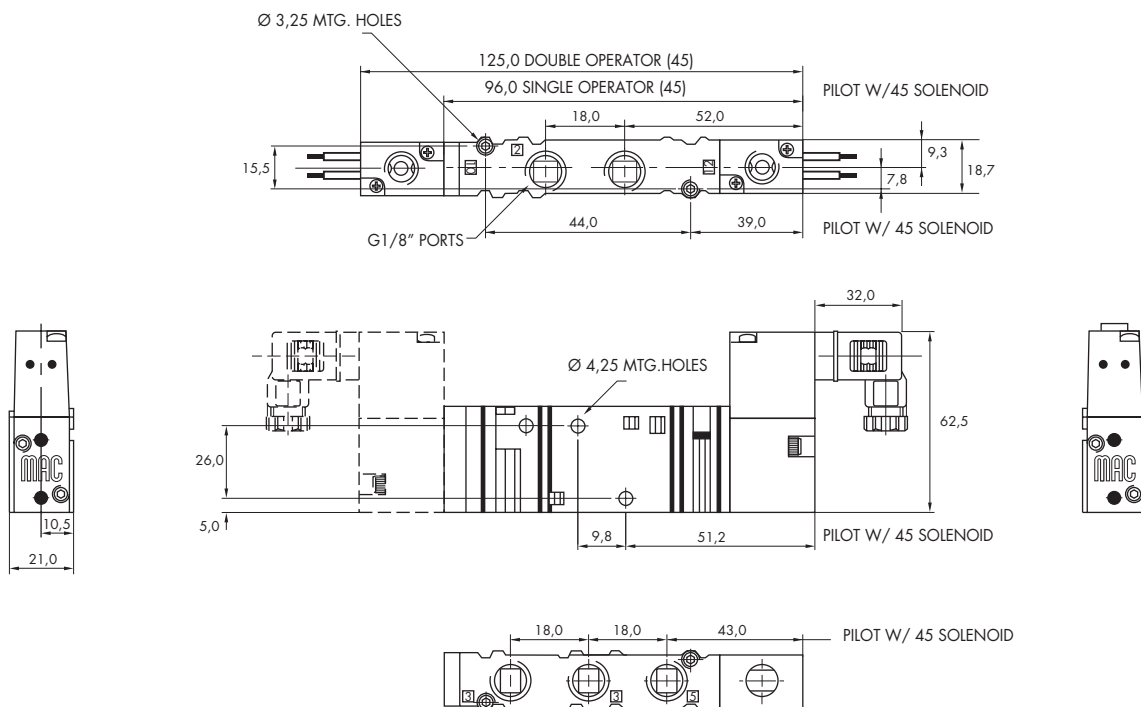
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.4 to 8.5 bar External pilot : vacuum to 8.5 bar
Pilot pressure :	1.4 to 8.5 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	6.2 mm
Flow (at 6 bar, ΔP=1bar) :	1000 NI/min (C _v 1.0)
Leak rate :	50 cm ³ /min
Coil :	Epoxy encapsulated - class A wires - 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP 65
Power :	– Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V=/5.4 W Energize : 7.3 ms De-energize : 5.3ms 50Hz/6 W Energize : 8-12 ms De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX, including mounting screws 35043 and seal 16524.

Options : • NPTF threads.

DIMENSIONS





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Function	Port size	Flow (Max)	Individual mounting
5/2, 5/3	3/8" - 1/2"	3.8 C_v	Inline

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.



SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
3/8" BSP	Internal	93A-AJO-EQJ-DM-D xxx-xxx	93A-BJO-EQJ-DM-D xxx-xxx	93A-EJO-EQJ-DM-D xxx-xxx	93A-FJO-EQJ-DM-D xxx-xxx
1/2" BSP		93A-AJO-FOJ-DM-D xxx-xxx	93A-BJO-FOJ-DM-D xxx-xxx	93A-EJO-FOJ-DM-D xxx-xxx	93A-FJO-FOJ-DM-D xxx-xxx
3/8" BSP	External	93A-AJO-EOK-DM-D xxx-xxx	93A-BJO-EOK-DM-D xxx-xxx	93A-EJO-EOK-DM-D xxx-xxx	93A-FJO-EOK-DM-D xxx-xxx
1/2" BSP		93A-AJO-FOK-DM-D xxx-xxx	93A-BJO-FOK-DM-D xxx-xxx	93A-EJO-FOK-DM-D xxx-xxx	93A-FJO-FOK-DM-D xxx-xxx

DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure center
3/8" BSP	Internal	93A-CJO-EQJ-DM-D xxx-xxx	93A-DJO-EQJ-DM-D xxx-xxx	93A-HJO-EQJ-DM-D xxx-xxx
1/2" BSP		93A-CJO-FOJ-DM-D xxx-xxx	93A-DJO-FOJ-DM-D xxx-xxx	93A-HJO-FOJ-DM-D xxx-xxx
3/8" BSP	External	93A-CJO-EOK-DM-D xxx-xxx	93A-DJO-EOK-DM-D xxx-xxx	93A-HJO-EOK-DM-D xxx-xxx
1/2" BSP		93A-CJO-FOK-DM-D xxx-xxx	93A-DJO-FOK-DM-D xxx-xxx	93A-HJO-FOK-DM-D xxx-xxx

SOLENOID OPERATOR >

DM-D **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110/50, 120/60	A	18" (Flying leads)	1	Non-locking recessed	KA	Square connector
JB	220/50, 240/60	B	24" (Flying leads)	2	Locking recessed	KD	Square connector with light
DA	24 VDC (5.4W)	J	Connector			JB	Rectangular connector
DF	24 VDC (12.7W)					JD	Rectangular connector with light
						BA	Flying leads

OPTIONS

Pilot exhaust : 93A-XJX-XXX-DM-D **xxx-xxx**

- J** Standard pilot exhaust
- K** Pilot exhaust to main exhaust (use DU pilot)



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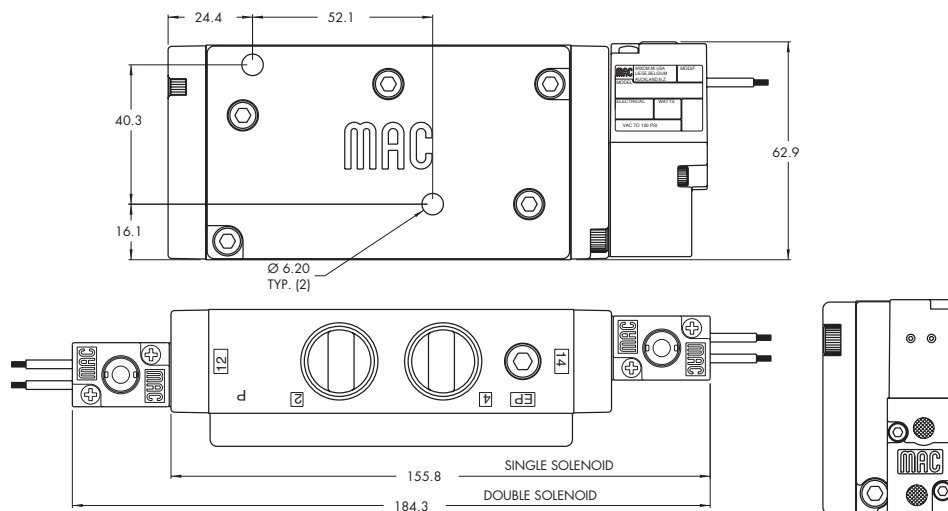
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot: 20 to 120 PSI External Pilot: Vacuum to 120 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 120°F (-18°C to +50°C)
Flow :	3.8 C _v
Coil :	Class A continuous duty, #22 AWG x 18 leads
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush 7.6 VA Holding: 4.8 VA = 1.8 to 12.7 W
Response times : (with 5.4 W coil)	Energize : 13 ms De-energize : 10 ms

Option : • BSPP threads

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow (Max)	Individual mounting & Manifold mounting
5/2 - 5/3	G3/8" - G1/2"	3000 NI/min	sub-base

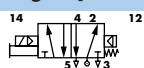
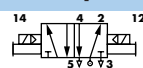
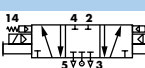
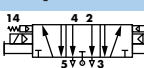
OPERATIONAL BENEFITS

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 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.

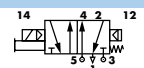
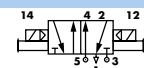



HOW TO ORDER

SINGLE PRESSURE VALVES

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
				
Internal	MV-A2B-A111-PM- XXYZZ	MV-A2B-A211-PM- XXYZZ	MV-A2B-A312-PM- XXYZZ	MV-A2B-A311-PM- XXYZZ
External	MV-A2B-A121-PM- XXYZZ	MV-A2B-A221-PM- XXYZZ	MV-A2B-A322-PM- XXYZZ	MV-A2B-A321-PM- XXYZZ

DUAL PRESSURE VALVES

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure centre
			
Internal port 3	MV-A2B-A131-PM- XXYZZ	MV-A2B-A231-PM- XXYZZ	MV-A2B-A331-PM- XXYZZ
Internal port 5	MV-A2B-A135-PM- XXYZZ	MV-A2B-A232-PM- XXYZZ	MV-A2B-A332-PM- XXYZZ
External	MV-A2B-A141-PM- XXYZZ	MV-A2B-A241-PM- XXYZZ	MV-A2B-A341-PM- XXYZZ

SOLENOID OPERATOR ►

XX Y ZZ*

	Voltage	Manual operator	Electrical connection
11	110V~/50Hz	1 Non-locking	JB Rectangular connector
12	220V~/50Hz	2 Locking	JD Rectangular connector with light
22	24V~/50Hz		JA Square connector
59	24V=/2,5W		JC Square connector with light
87	24V=/17,1W		BA Flying leads (45 cm)
61	24V=/8,5W		

Note : ISO valves are delivered w/o base.

OPTIONS

MV-A2B-A111-PM-**XXYZZ**

click for CNOMO pilot (replace by CM).

**TECHNICAL
D A T A**

Fluid :	Compressed air, vacuum, inert gases	
Pressure range :	Internal pilot : single operator and 3 positions : 1.8 to 10 bar	double operator : 0.7 to 10 bar
	External pilot : vacuum to 10 bar	
Pilot pressure :	Single operator and 3 positions : 1.8 to 10 bar	Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)	
Filtration :	40 µ	
Temperature range :	-18°C to +50°C	
Orifice :	15 mm	
Flow (at 6 bar, ΔP=1bar) :	G 3/8" - G 1/2" : 3000 NI/min (C _v 3,0)	
Leak rate :	100 cm ³ /min	
Coil :	Epoxy encapsulated - class A wires - 100% ED (specify mod 0449)	
Voltage range :	-15% to +10% of nominal voltage	
Protection :	IP 65	
Power :	- Inrush : 14.8 VA	Holding : 10.9 VA
	= 1 to 17.1 W	
Response times :	24 V=8.5 w	Energize : 10ms De-energize : 15ms
	50Hz/6 W	Energize : 6-15 ms De-energize : 10-17 ms

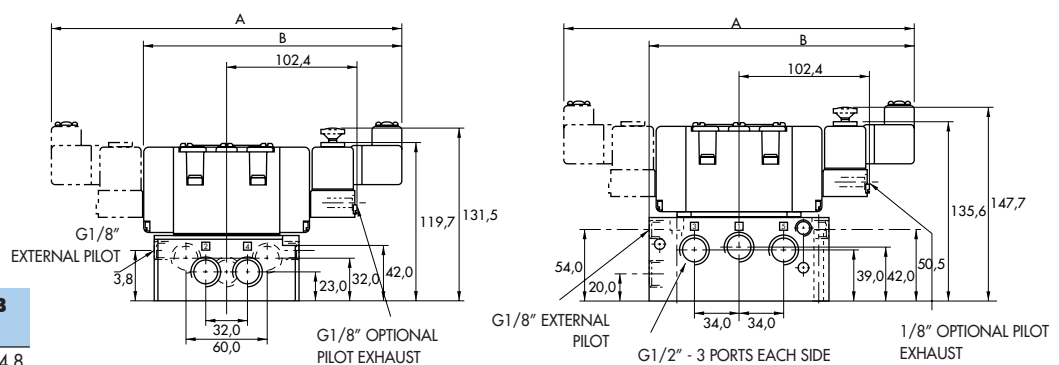
Spare parts :

- Solenoid operator (power ≥ 4 W) : D1-XXYZZ1, including mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16351.
- Mounting screw valve to base (x4) : 35412.

DIMENSIONS

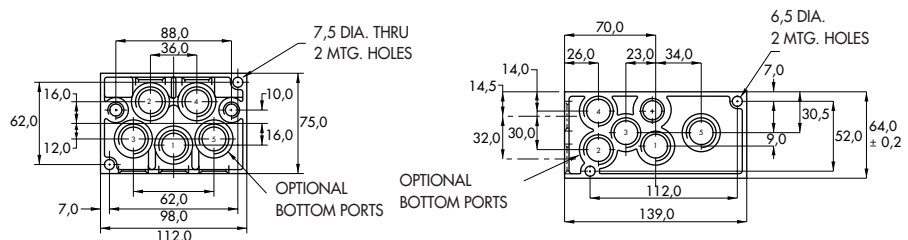
ISO 2 Manifold mounting

TYPE	A	B
JA & JC	291,6	214,8
JB & JD	314,6	226,3



ISO 2 Individual mounting

TYPE	A	B
JA & JC	291,6	212,3
JB & JD	314,6	223,8



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

VALVE CODE > **-XX Y ZZ (-VV)**
1 2 3 4

OPTIONS AVAILABLE FOR	OPTIONS AVAILABLE FOR
<ul style="list-style-type: none"> - valves type 100 Series - pilot valves "CNOMO" 	<ul style="list-style-type: none"> - valves type 200 Series
<ul style="list-style-type: none"> - Pilot operated valves with pilots type 100 Series Series : 55 - 56 - 700 - 800 - 900 <li style="padding-left: 20px;">- 6200 - 6300 - 6500 - 6600 - 1300 <li style="padding-left: 20px;">- ISO 1 - ISO 2 - ISO 3. 	<ul style="list-style-type: none"> - pilot operated valves with pilots type 200 Series Series : 200 - 57 - 58 - 59.
<ul style="list-style-type: none"> - Pilot operated valves with pilots "CNOMO" Series : ISO1 - ISO2 - ISO3 	

1. VOLTAGE (type 100 Series)		1. VOLTAGE (type 200 Series)	
- XX Y ZZ	VOLTAGE	- XX Y ZZ	VOLTAGE
11	120 V~/60 Hz - 110 V~/50 Hz	11	120 V~/60 Hz - 110 V~/50 Hz - 24 V=
12	240 V~/60 Hz - 220 V~/50 Hz	12	240 V~/60 Hz - 220 V~/50 Hz
13	100 V~/60 Hz - 100 V~/50 Hz	13	100 V~/60 Hz - 100 V~/50 Hz
15	200 V~/60 Hz - 200 V~/50 Hz	14	200 V~/60 Hz - 200 V~/50 Hz
16	10 V~/60 Hz	20	6 V~/60 Hz
20	6 V~/60 Hz	21	12 V~/60 Hz
21	12 V~/50 Hz - 12 V~/60 Hz	22	24 V~/60 Hz - 24 V~/50 Hz
22	24 V~/60 Hz - 24 V~/50 Hz	23	32 V~/60 Hz - 32 V~/50 Hz
23	32 V~/60 Hz - 32 V~/50 Hz	24	48 V~/60 Hz - 42 V~/50 Hz
24	48 V~/60 Hz - 42 V~/50 Hz	25	240 V~/50 Hz
26	380 V~/50 Hz, 440 V~/50 Hz -440 V~/60 Hz, 480 V~/60 Hz-CLSF	26	480 V~/60 Hz - 440 V~/50 Hz
29	200 V~/60 Hz	27	127 V~/60 Hz
34	127 V~/50 Hz - 120 V~/50 Hz	28	415 V~/50 Hz
35	48 V~/50 Hz	29	200 V~/60 Hz
36	16 V~/60 Hz	30	380 V~/50 Hz
81	24 V~/50 Hz	31	550 V~/60 Hz - 550 V~/50 Hz
50	24 V=/6 W	32	120 V~/60 Hz - 110 V~/50 Hz
51	24 V=/4 W	33	600 V~/60 Hz
54	12 V=/4 W	34	127 V~/50 Hz
55	12 V=/6 W	35	48 V~/50 Hz
57	12 V=/2,5 W	50	24 V=/6 W
59	24 V=/2,5 W	51	24 V=/4,5 W
60	12 V=/8,5 W	52	24 V=/2,5 W
61	24 V=/8,5 W	53	24 V=/1 W
64	6 V=/6 W	55	12 V=/6 W
65	32 V=/7 W	57	12 V=/2,5 W
66	48 V=/5,8 W	58	48 V=/2,5 W
67	64 V=/7,5 W	60	12 V=/9,5 W
68	120 V=/6,4 W	61	24 V=/8,5 W
69	220 V=/8,7 W - 250 V=/11,2 W CLSF	64	6 V=/8,5 W
75	90 V=/8,8 W CLSF	65	32 V=/10 W
76	100 V=/6,9 W CLSF	66	48 V=/11,5 W
84	125 V=/10,9 W CLSF	67	64 V=/10,5 W
87	24 V=/17,1 W CLSF	68	120 V=/12,3 W
88	12 V=/17,4 W CLSF	69	250 V=/9,2 W
89	36 V=/18,8 W CLSF	71	8 V=/8,2 W
90	28 V=/8,2 W	72	24 V=/12 W
91	6 V=/10,6 W CLSF	73	198 V=/10 W
92	190 V=/6,5 W	74	72 V=/11,3 W
94	3 V=/7 W	75	90 V=/11,3 W
95	38 V=/6,4 W	76	100 V=/9 W
A1	24 V=/1 W	77	220 V=/10 W - 230 V=/1,6 W
A2	12 V=/1 W	78	24 V=/24 W CLSF
A3	9 V=/1 W	80	55 V=/10,6 W CLSF
MOD. DD01 : Protection diode (DC)		82	179 V=/11,1 W
MOD. MOV1 : Protection varistor (AC)		83	15 V=/8,1 W
MOD. DD01 : max. 8,5 W		84	125 V=/10 W
MOD. MOV1 : max. 8,5 W		86	36 V=/11 W
		93	12 V=/24 W CLSF

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

- XX Y ZZ	MANUAL OPERATOR
0	No operator
1	Non-locking recessed
2	Locking recessed
3	Non-locking extended
4	Locking extended

3. ELECTRICAL CONNECTION (type 100 Series)

- XX Y ZZ	ELECTRICAL CONNECTION
AA	Wiring box with 1/2" NPS conduit
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPS 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
MB	Electrical common conduit
NA	CA with ground wire
NC	CC with ground wire
RA	3/8" NPS conduit
AD	Wiring box 20 mm
AH	Wiring box PG 13,5 with ground wire
CD	20 mm conduit
CG	PG 11 conduit
HH	Wiring box PG 13,5 with ground wire
ND	20 mm conduit with ground wire
NG	PG11 conduit with ground wire
HD	20 mm wiring box with ground wire

3. ELECTRICAL CONNECTION (type 200 Series)

- XX Y ZZ	ELECTRICAL CONNECTION
AA	Wiring box with 1/2" NPS conduit
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPS conduit
EA	Explosion proof (200 Series)
EA	Explosion proof (57, 58 & 59 Series)
EE	Explosion proof (CENELEC)
EN	Explosion proof with ground wire
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
AD	Wiring box 20 mm
AK	PG 16 wiring box
CD	20 mm conduit
CK	PG 16 conduit
HD	20 mm wiring box with ground wire
HK	PG16 wiring box with ground wire
ND	20 mm conduit with ground wire
NK	PG16 wiring box with ground wire

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

4. WIRE LENGTH (Common options for 100 & 200 Series)

- XX Y ZZ (-VV)	WIRE LENGTH
AA	45 cm - 18"
AB	60 cm - 24"
AD	90 cm - 36"
AE	120 cm - 48"
AF	180 cm - 72"
AG	15 cm - 6"
AR	30 cm - 12"
AU	305 cm - 120"
BA	152 cm - 60"
BB	366 cm - 144"
Series 6000 : wire length, delivered with the base	
MOD L024	60 cm - 24"
MOD L036	91 cm - 36"
MOD L048	122 cm - 48"
MOD L060	152 cm - 60"
MOD L072	180 cm - 72"
MOD L120	305 cm - 120"



Remote air valves

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WARRANTY
18
MONTHS



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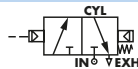

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	G1/4" - G3/8"	2200 NI/Min	Inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Air spring	NC valve	NO valve
G1/4"	Internal	 55B-13-RA	 55B-23-RA
G3/8"		55B-14-RA	55B-24-RA
G1/4"	External	55B-13-RE	55B-23-RE
G3/8"		55B-14-RE	55B-24-RE

Air pilot port : G 1/8".



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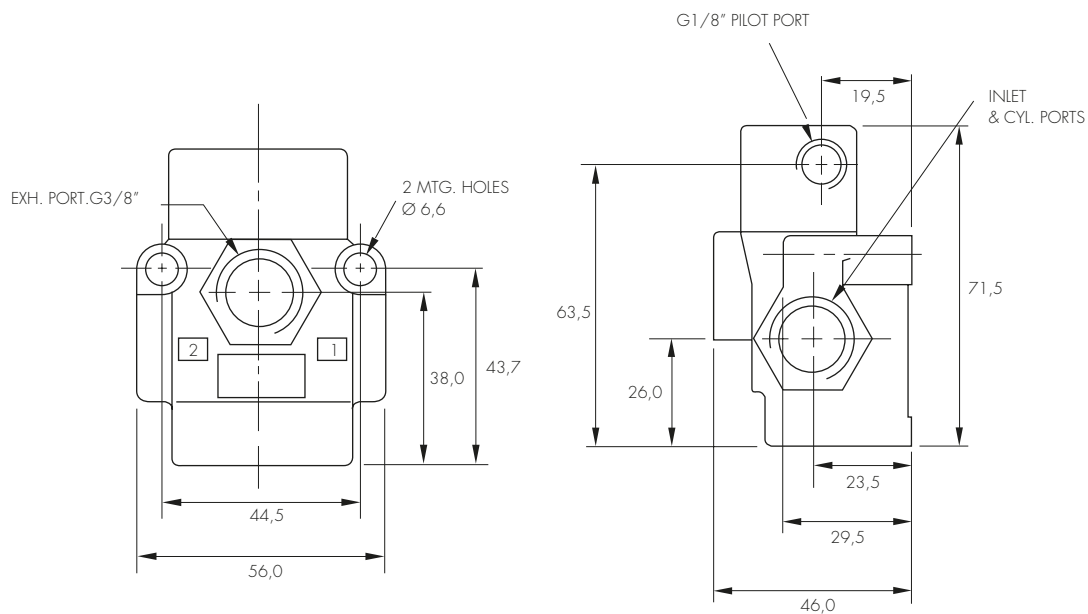
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.8 to 10 bar \geq main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 μ
Temperature range :	-18°C to +50°C
Orifice :	8 mm
Flow (at 6 bar, $\Delta P=1$ bar) :	G 1/4" :1400 NI/min (C _v 1.4) - G 3/8" :1600 NI/min (C _v 1.6)
Leak rate :	50 cm ³ /min

Spare parts : • Remote air operator : R-55001-01. • Check valve : 70061.

Options : • NPTF threads.

DIMENSIONS





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Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	G3/8" - G1/2" - G3/4"	5700 NI/Min	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. 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.



HOW TO ORDER

Port size	Air spring	NC valve	NO valve
G3/8"	Internal	56C-55-RA	56C-85-RA
G1/2"		56C-56-RA	56C-86-RA
G3/4"		56C-58-RA	56C-88-RA
G3/8"	External	56C-55-RE	56C-85-RE
G1/2"		56C-56-RE	56C-86-RE
G3/4"		56C-58-RE	56C-88-RE

Air pilot port : G 1/8".



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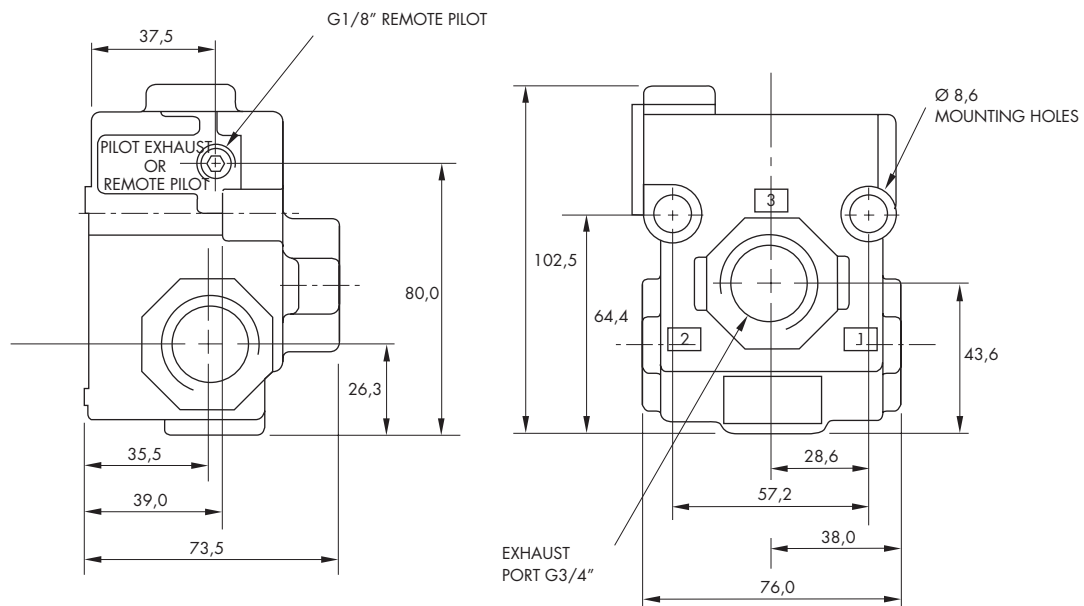
TECHNICAL D A T A

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.8 to 10 bar \geq main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 μ
Temperature range :	-18°C to +50°C
Orifice :	16 mm
Flow (at 6 bar, $\Delta P=1$bar) :	G 3/8": 4400 NI/min (C _v 4.4) - G 1/2": 5000 NI/min (C _v 5.0) - G 3/4" : 5400 NI/min (C _v 5.4)
Leak rate :	70 cm ³ /min

Spare parts : • Remote air operator : R-56001. • Check valve : 70063.

Options : • NPTF threads.

DIMENSIONS





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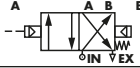
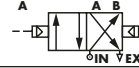
Function	Port size	Flow (Max)	Individual mounting
4/2	G1/8" - G1/4"	1200 NI/Min	Inline

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. 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.



HOW TO ORDER

Port size	Single operator	Double operator
		
G1/8"	915B-RA	925B-RA
G1/4"	916B-RA	926B-RA

Air pilot port : G 1/8".



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MONTHS

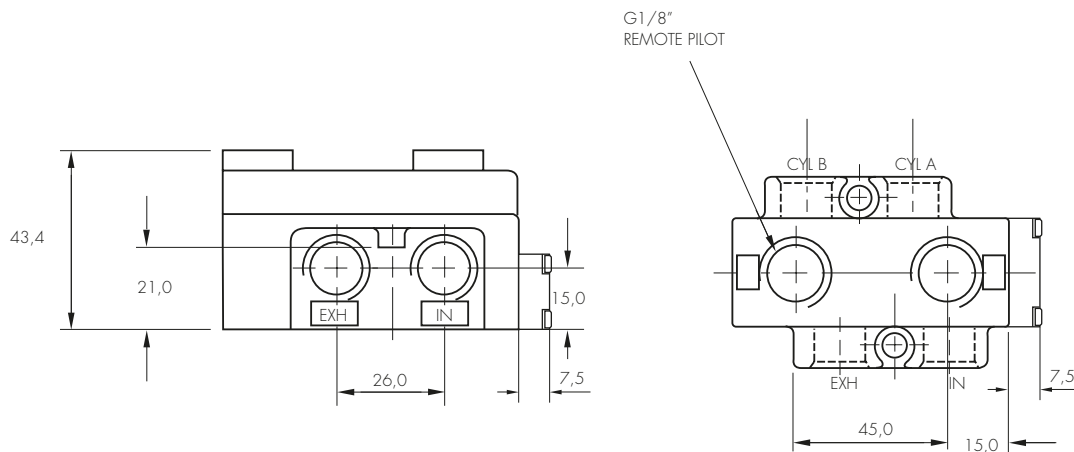


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TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.8 to 10 bar \geq main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 μ
Temperature range :	-18°C to +50°C
Orifice :	7 mm
Flow (at 6 bar, $\Delta P=1$ bar) :	G 1/8" : 800 NI/min [C _v 0.8] - G 1/4" : 1200 NI/min [C _v 1.2]
Leak rate :	50 cm ³ /min

DIMENSIONS





Pneutech

Pneumatics Australia



MACConnect 42, 48 & 92 Series

National Sales Enquiries 1300 879 613
www.pneutech.com.au

We are pleased to introduce the MAC Valves 42, 48 and 92 seriesž

These 42 and 48 series valves utilize the innovative next generation of 4-Way piloted valves in which the pilot poppet is housed in the same body as the main valve spool.

This “integral pilot” design reduces package size and cost, as well as provides for an ultra fast shifting valve.



The **42 Series** – A high performance 10mm valve package providing excellent flow rates with a CV of up to 0.4 and a very compact size



The **48 Series**, like the 42 Series is a high performance valve in a miniature package, able to provide outstanding flow relative to its size as compared to the competition. The 48 Series is a 16mm (stacks on 16.5mm centers) with a Cv of up to 1.0.

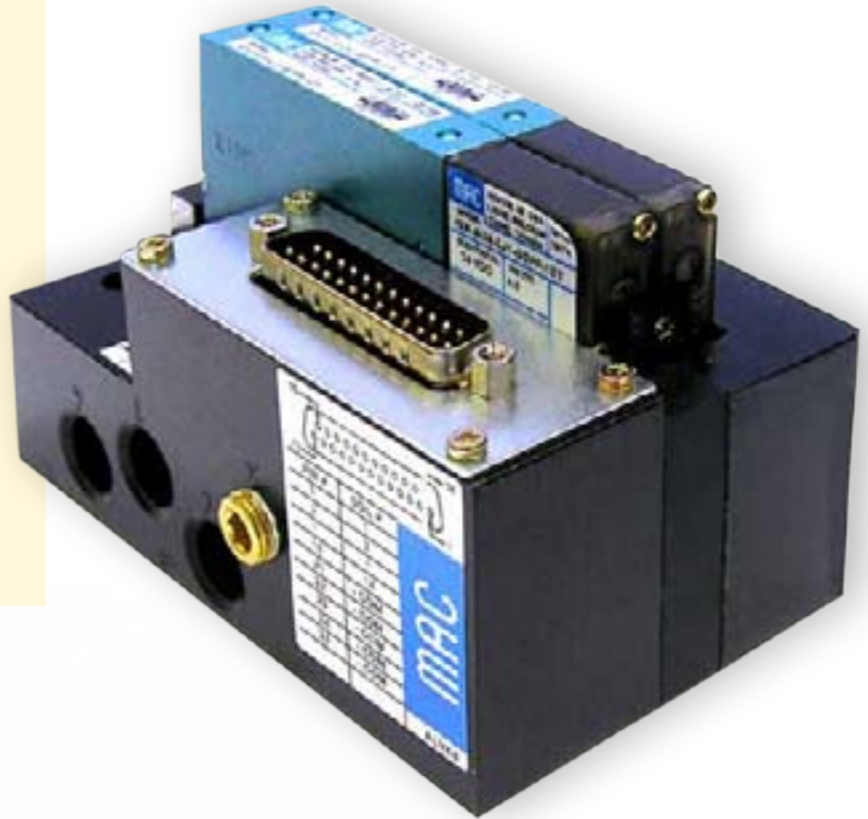


The **92 series** valve is a 31mm width valve with the highly reliable MAC DM pilot. This valve offers exceptional response for a large 4/2 way valve along with long life and consistent shifting forces regardless of pressure fluctuations.



42 Series MACConnect™

The MACConnect™ System virtually eliminates base lead wires which need to be pulled through a conduit wire-way and terminated in a junction box. With the MACConnect™ System, thin internal wiring has been replaced through utilisation of a circuit board with a multi pin connector located inside each valve's conduit area. The multi pin circuit board plugs into the circuit board of the valve adjacent to it and ultimately into a multi pin connector or serial adapter block located on the end of the manifold assembly



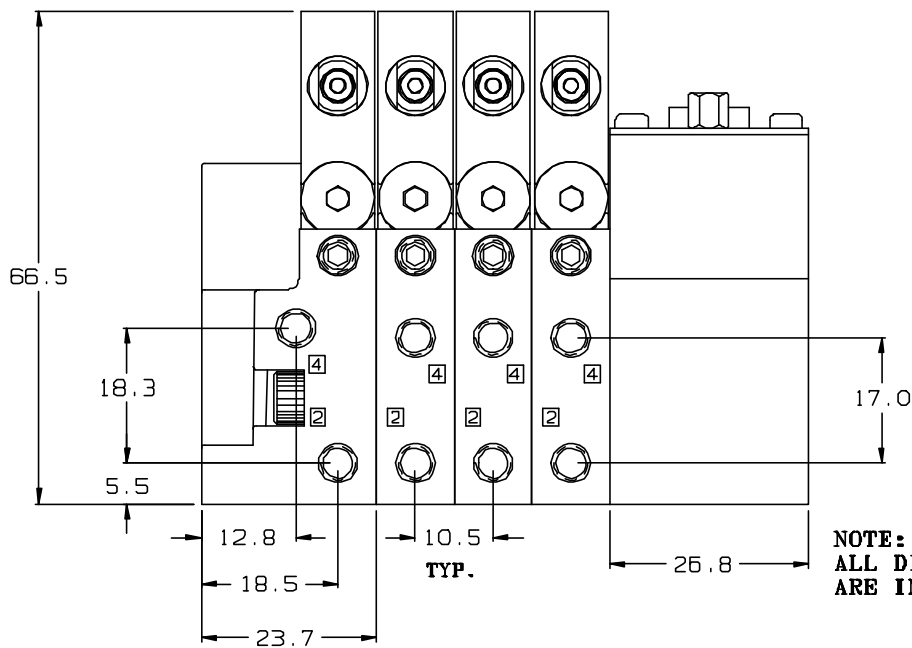
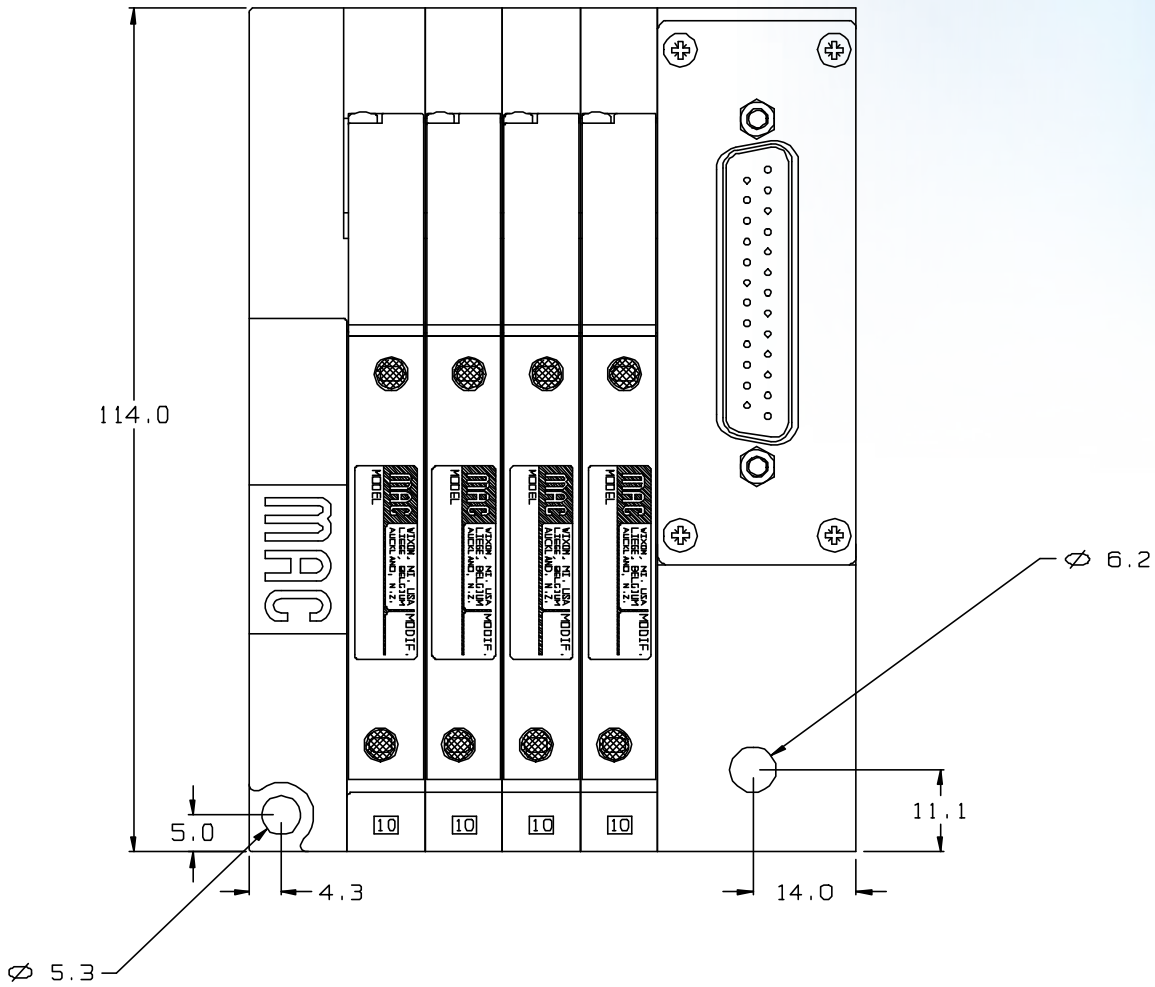
How to order 42 Series Manifold parts

Part Number	Description
42A-AUA-LJ1-GDFP-1DT MOD 1974	Single Solenoid-Middle Station Manifold
42A-AUA-LN1-GDFP-1DT MOD 1974	Single Solenoid-Right End Manifold
42A-BUE-LJ2-GDFP-1DT MOD 1974	Double Solenoid-Middle Station Manifold
42A-BUE-LN2-GDFP-1DT MOD 1974	Double Solenoid-Right End Manifold
FC42A-AB	Sandwich Flow Control
M-42005-251P-MOD1974	25 Pin Sub D Manifold-Left End
MCA-3439W-05	5m Weatherproof 25 Pin Cable
M-42004	Blank Station Cover Plate

- M7 Cylinder Ports
- 1/4" Inlet and Exhaust Ports
- 25 Pin Sub D Connector
- Negative Commons
- Cv ~ 0.4

Up to 16 Solenoids per Manifold Assembly as standard
Up to 32 Solenoids per Manifold Assembly optional





NOTE:
ALL DIMENSIONS SHOWN
ARE IN MILLIMETERS



48 Series MACConnect™

The MACConnect™ System virtually eliminates base lead wires which need to be pulled through a conduit wire-way and terminated in a junction box. With the MACConnect™ System, thin internal wiring has been replaced through utilisation of a circuit board with a multi pin connector located inside each valve's conduit area. The multi pin circuit board plugs into the circuit board of the valve adjacent to it and ultimately into a multi pin connector or serial adapter block located on the end of the manifold assembly



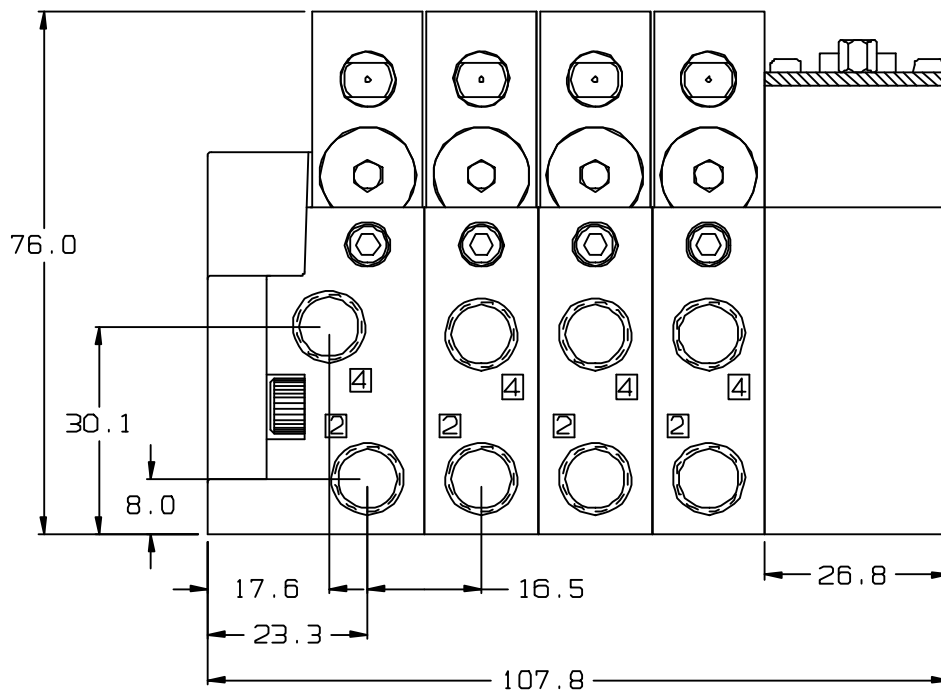
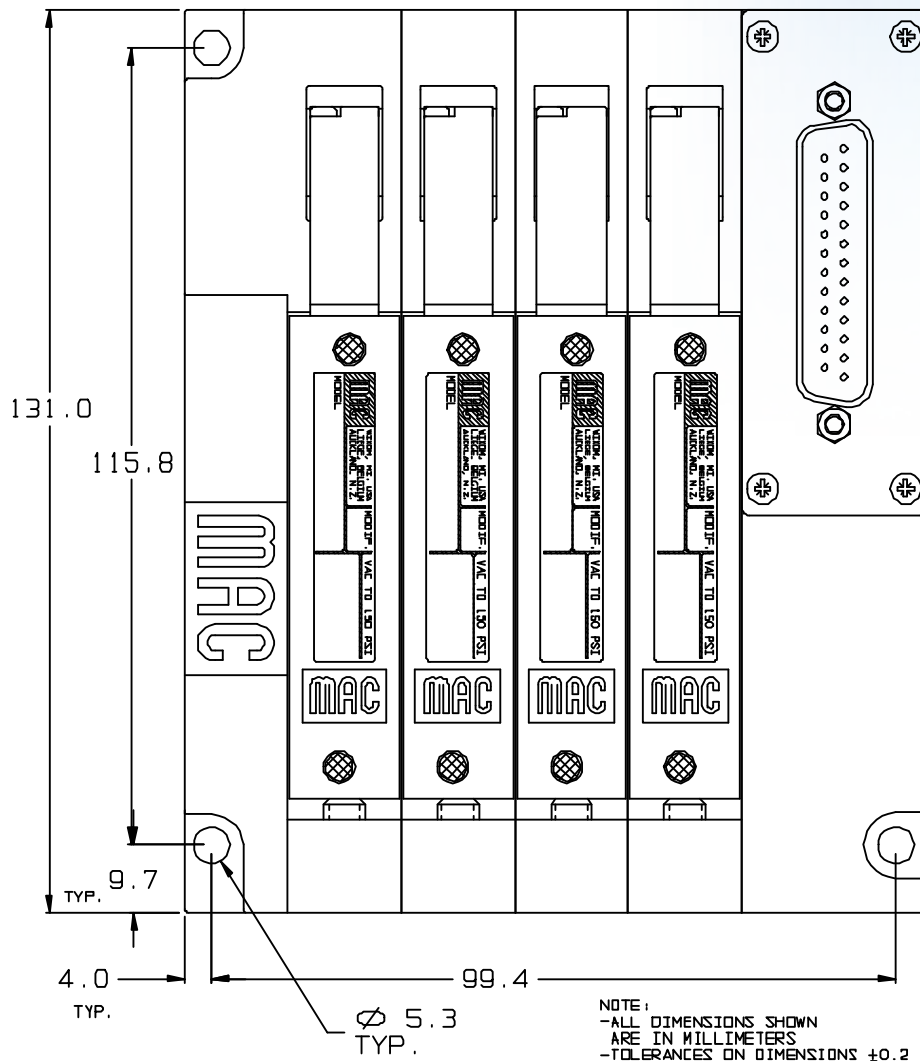
How to order 48 Series Manifold parts

Part Number	Description
48A-AUA-BJ3-GDFP-1DT MOD 1974	Single Solenoid-Middle Station Manifold
48A-AUA-BL3-GDFP-1DT MOD 1974	Single Solenoid-Left End Manifold
48A-BUA-BJ4-GDFP-1DT MOD 1974	Double Solenoid-Middle Station Manifold
48A-BUA-BL4-GDFP-1DT MOD 1974	Double Solenoid-Left End Manifold
M-48001-25-3P-M1974	25 Pin Sub D Manifold-Right End
MCA-3439W-05	5M Weatherproof 25 Pin Cable
M-48004	Blank Station Cover Plate

- 1/8" Cylinder Ports
- 1/4" Inlet and Exhaust Ports
- 25 Pin Sub D Connector
- Negative Commons
- Cv ~ 1.0

Up to 16 Solenoids per Manifold Assembly as standard





92 Series MAConnect™

- Maximum of 20 solenoids can be powered by a single multi-pin connector.
- Maximum allowable coil amperage is 250 milliamps.
- Current connection types 25 pin sub-d connectors.
- Dielectric strength to ground in excess of 2000 volts.



How to order 92 Series Manifold parts

Part Number	Description
92B-AAB-EJ3-DM-DDAP-2DM	Single Solenoid-Middle Station Manifold
92B-AAB-EL3-DM-DDAP-2DM	Single Solenoid-Left End Manifold
92B-BAB-EJ4-DM-DDAP-2DM	Double Solenoid-Middle Station Manifold
92B-BAB-EL4-DM-DDAP-2DM	Double Solenoid-Left End Manifold
FC92B-AA	Sandwich Flow Control Single Solenoid
FC92B-BA	Sandwich Flow Control Double Solenoid
M-92012-25-3P	25 Pin Sub D Manifold-Right End
MCA-3439W-05	5m Weatherproof 25 Pin Cable
M-92002	Blank Station Cover Plate

- 1/4" Cylinder Ports
- 3/8" Inlet and Exhaust Ports
- 25 Pin Sub D Connector
- Negative Commons
- Cv ~ 1.0

Up to 20 Solenoids per Manifold Assembly as standard



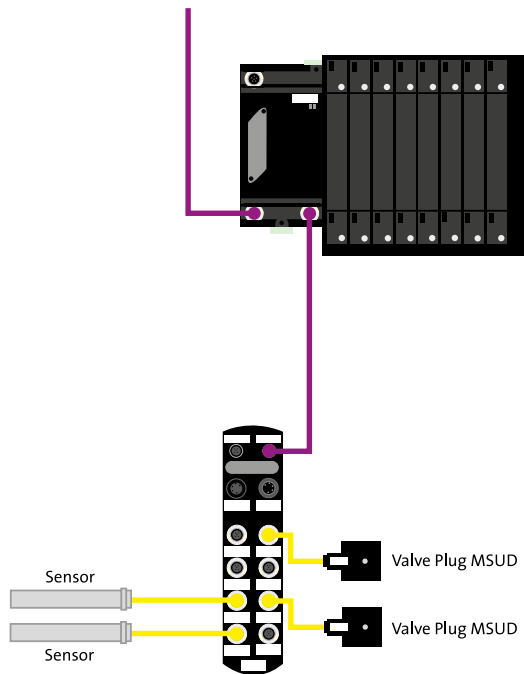
Serial Communication

- Connectivity
- Automation
- Interface
- Power Supply



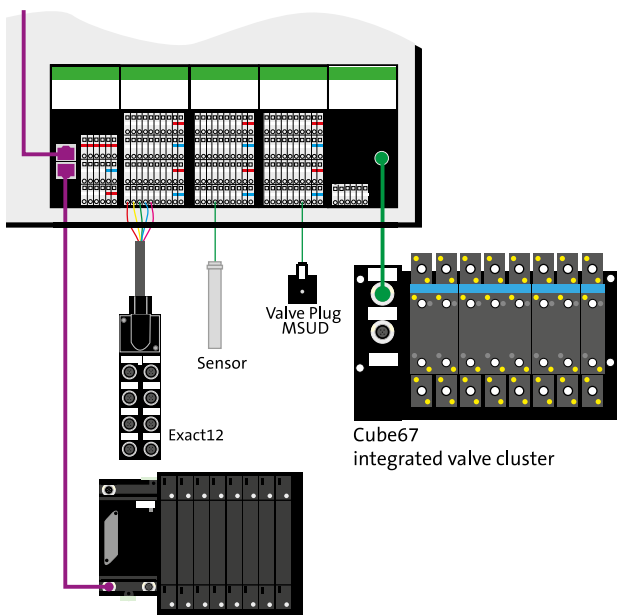
Protocol available





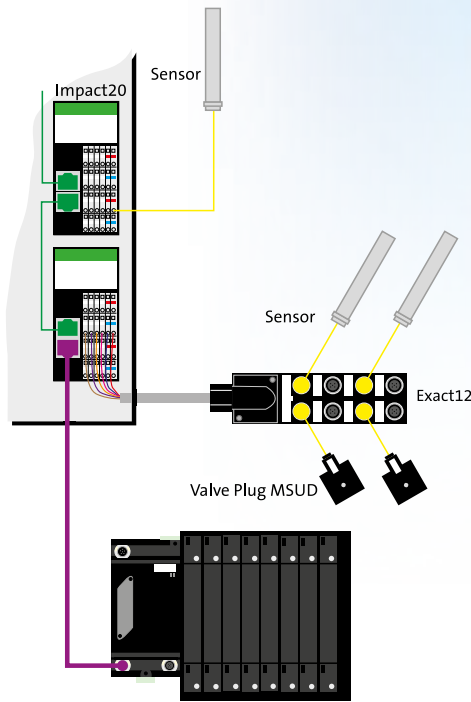
Compact IP67

The Manifold Module (MMM) configures easily to control up to 32 output signals on various MAC Valves pneumatic manifolds. The rugged, fully potted design insures IP67 sealing of the module and long life.



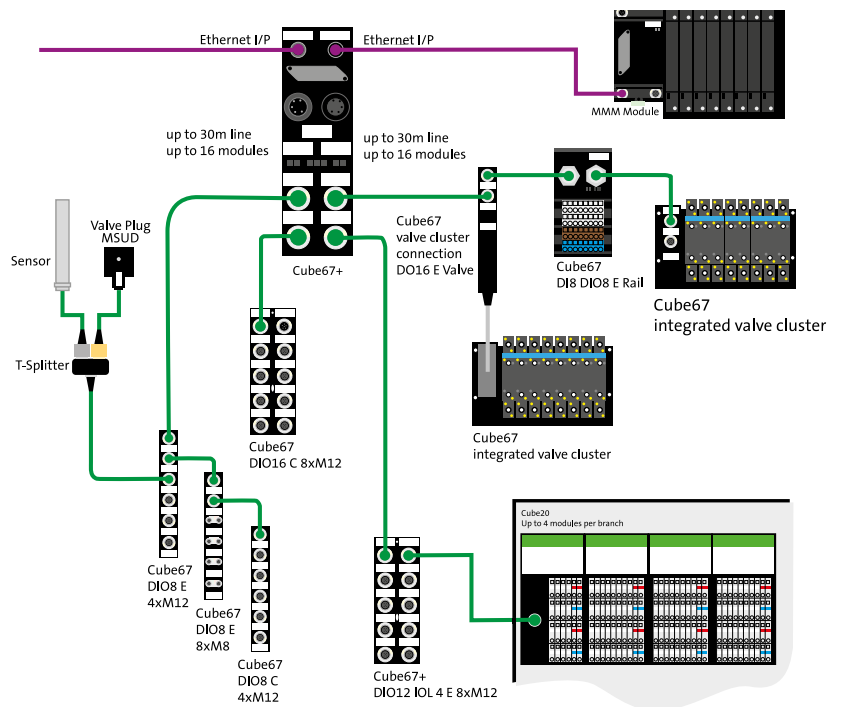
Centralized IP20

CUBE20 is the newest configurable I/O system. The modular system can handle most I/O systems with the wide variety of plug in modules. Available with digital in and out, analog in and out, RTD and thermocoupler modules as well as the ability to interface with other CUBE IP67 modules the CUBE20 system offers dense I/O control in a small space with state of the art designs.



Compact IP20

Point of use applications often begin inside the control cabinet. The IMPACT20 family is an excellent choice to start signal processing in confined spaces and low I/O count applications. The single part number and pre-defined I/O selections allow for fast installations, simple choices, and reduce components.



Decentralized IP67

For the most flexibility and modularity in an IP67 machine mounted I/O system CUBE67 is the only choice. More system modules to meet a wide variety of applications and devices the CUBE67 system reduces your wiring effort on machine I/O control. Integrate system modules for MAC Valves, digital inputs, analog signals, RTD, thermocouplers, RS232 & 485, and now I/O Link, the CUBE67 I/O system can solve your installation needs.





Pneutech

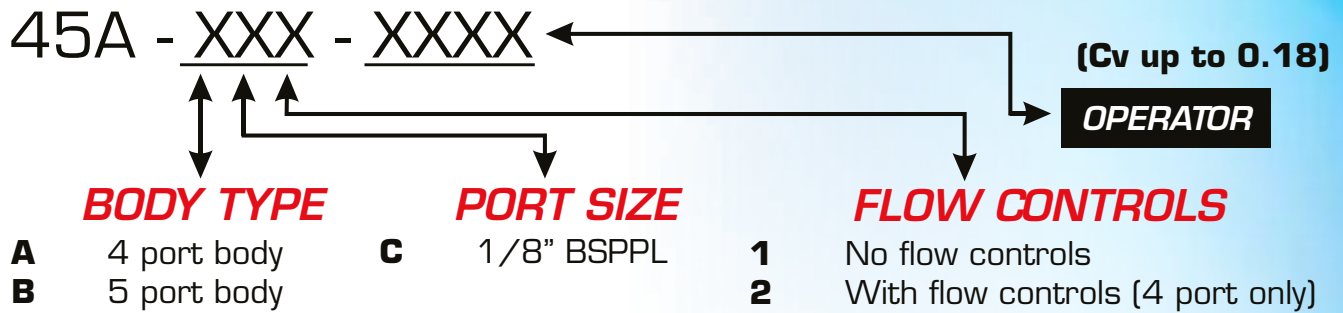
Pneumatics Australia



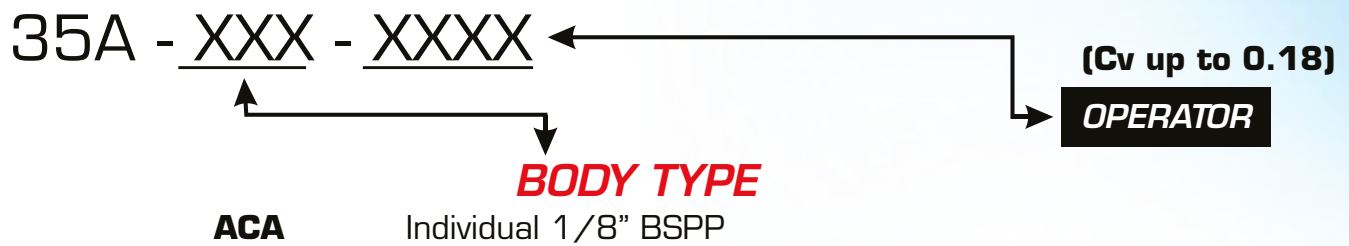
[®]
MAC
VALVES

Mechanical Valves

4/2 Valve Function



3/2 Valve Function



35A - XXX - XXXX
 45A - XXX - XXXX

OPERATOR

XXXX	FUNCTION	PANEL HOLE FOR MOUNTING
R032	Button red	25mm
G032	Button green	25mm
B032	Button black	25mm
G037	Palm button green	25mm
R037	Palm button red	25mm
0088	Push and twist	25mm
0089	Lever twist	25mm



35A-ACA-0087



35A-ACA-0088



35A-ACA-R037



35A-ACA-G032

1800 Lever Valves

(Cv up to 1.0)

OPERATOR "A" AND "B" END

BODY TYPE LEVER STYLE

180002-115-0077	2 position detented	Individual	Panel
180002-515-0087	3 position, closed centre, detente	Individual	Panel
180002-615-0077	3 position, open centre, detente	Individual	Panel
180687-515-0687	3 position, closed centre, spring to centr	Individual	Panel
180687-615-0687	3 position, open centre, spring to centre	Individual	Panel
181002-115-1077	2 position detented	Individual	Parallel
181002-515-1087	3 position, closed centre, detente	Individual	Parallel
181002-525-1087	3 position, closed centre, detente	Stacking	Parallel
181002-615-1087	3 position, open centre, detente	Individual	Parallel
181002-625-1087	3 position, open centre, detente	Stacking	Parallel
181687-515-1687	3 position, closed centre, spring to centr	Individual	Parallel
181687-525-1687	3 position, closed centre, spring to centr	Stacking	Parallel
181687-615-1687	3 position, open centre, spring to centre	Individual	Parallel

"Panel" lever right angles to ports, "Parallel" lever is in line with ports.

18XXXX - YYY - XXXX

Y SPOOL TYPE

- 1** Single pressure
Port 1 = Inlet
Ports 4&5 = exhaust or vacuum
- 5** Close centre
All ports blocked
Port 1 = Inlet
Ports 4&5 = Exhaust
- 6** Open centre
Inlet blocked
Cyl. Ports to exhaust
Port 1 = Inlet
Ports 4&5 = exhaust

Y BODY TYPE

- 1** Individual ext. pilot
(1/4" ports only)
- 2** Stacking: common ports
1,4, and 5 (1/4" or 3/8"
cylinder ports)

Y PORT SIZE

- 5** 1/4" BSPP
- 6** 3/8" BSPP stacking
body only

FOOT PEDAL

36359	5/2 Spring return	1/4" BSPP
36369	5/2 Latching	1/4" BSPP



180687-615-0687



36359



JA2 - XXXX (ISO 2) (Cv up to 3.0)

BODY TYPE

- 2LSS** 2 position, lever/spring, single pressure
- 2LLS** 2 position, lever/lever, single pressure
- 3LLO** 3 position, lever/lever, open centre position
- 3LLC** 3 position, lever/lever, closed centre position
- 3LSO** 3 position, lever/spring to centre, open centre position
- 3LSC** 3 position, lever/spring to centre, closed centre position

INDIVIDUAL / MANIFOLD*

MB-A2B-121	Individual	3/8" BSPP side port
MB-A2B-131	Individual	1/2" BSPP side port
MM-A2B-121	Manifold	1/2" BSPP side port
MM-A2B-131	Manifold	3/4" BSPP side port

JA3 - XXXX (ISO 3) (Cv up to 6.3)

BODY TYPE

- 2LSS** 2 position, lever/spring, single pressure
- 2LLS** 2 position, lever/lever, single pressure
- 3LLO** 3 position, lever/lever, open centre position
- 3LLC** 3 position, lever/lever, closed centre position
- 3LSO** 3 position, lever/spring to centre, open centre position
- 3LSC** 3 position, lever/spring to centre, closed centre position

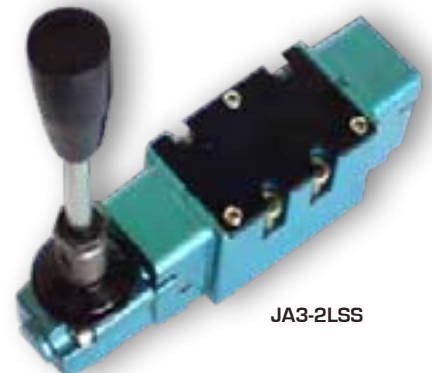
INDIVIDUAL / MANIFOLD*

MB-A3B-121	Individual	1/2" BSPP side port
MB-A3B-131	Individual	3/4" BSPP side port
MM-B3A-121-A	Manifold	1/2" BSPP side port
MM-B3A-131-A	Manifold	3/4" BSPP side port

*Note: Bases are ordered separately



JA2-2LSS



JA3-2LSS



Pressure control systems

100%
OF
PRODUCTION
TESTED
100%

WARRANTY
18
MONTHS



Australian MDN Partner
pneutech.com.au
1300 879 613

Proportional pressure controller.

OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 34 Series with balanced poppet.
2. Low power consumption.
3. Rugged enclosure.
4. Not affected by vibrations.
5. Accuracy : $\pm 1.5\%$ full scale or $\pm 0.5\%$ (upon request).
6. Can be stand alone or used in combination with our remote air sandwich regulators.
7. Analog command signal and output.
8. No hysteresis (compensated).



HOW TO ORDER

PPC5C-ABA-AGAB-XXX- **ZZ** *

Pressure range	Command signal	Standard	Analog and logic outputs
0 - 7 bar	0 - 10 V	PPC5C-ABA-AGAB-BAA- ZZ	PPC5C-ABA-AGAB-BBB- YY
	4 - 20 mA	PPC5C-ABA-AGAB-DAA- ZZ	PPC5C-ABA-AGAB-DBB- YY
0 - 4 bar	0 - 10 V	PPC5C-ABA-BGAB-BAA- ZZ	PPC5C-ABA-BGAB-BBB- YY
	4 - 20 mA	PPC5C-ABA-BGAB-DAA- ZZ	PPC5C-ABA-BGAB-DBB- YY
0 - 2 bar	0 - 10 V	PPC5C-ABA-CGAB-BAA- ZZ	PPC5C-ABA-CGAB-BBB- YY
	4 - 20 mA	PPC5C-ABA-CGAB-DAA- ZZ	PPC5C-ABA-CGAB-DBB- YY

Wire length	1 m	2 m	4 m
	ZZ	ZZ	ZZ
Flying leads (4 flying leads)	HB	HD	HE

Wire length	1 m	2 m	4 m
	YY	YY	YY
Flying leads (6 flying leads)	JB	JD	JE

* Other options available. Consult factory.



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TECHNICAL DATA

GENERAL DATA

Ambient temperature :	0 to 50°C
LED indicators :	Red : power on Green : pressure achieved
Enclosure :	Aluminium
Port size :	G 1/8", 1/8" NPT Option : bottom ports
Protection :	IP 54

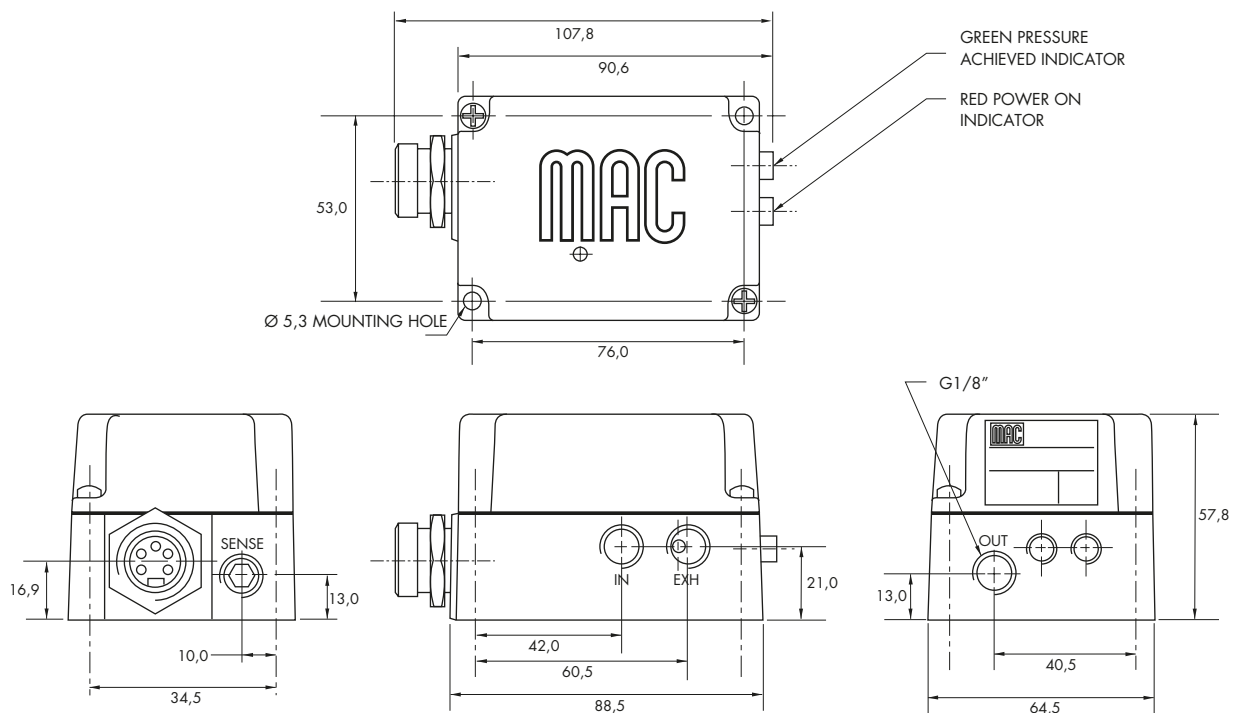
PNEUMATICAL DATA

Flow :	80 NI/min (C _v 0.08)
Fluid :	Compressed air, inert gases
Pressure range :	1 to 8 bar
Output pressure :	0 to 7 bar, 0 to 4 bar, 0 to 2 bar
Accuracy :	± 1,5 % full scale or ± 0.5 % if requested
Hysteresis :	none (compensated)
Linearity :	~ 0,75 %
Repeatability :	~ 0,75 %
Leak rate :	25 cm ³ /min

ELECTRICAL DATA

Supply voltage :	18 to 28 V=
Supply current :	50 to 275 mA
Command signal :	0 - 10 V, differential 4-20 mA, differential
Impedance :	4,99 kΩ ± 1% (0-10 V) 312 Ω ± 0,1 % (4-20 mA)
Analog output :	0 - 10 V
TTL output (NPN) :	0-5 V (Low = pressure achieved)

DIMENSIONS



Let us show you via high performance demonstration kits and animated software,

How MAC's performance advantages help make your equipment more

- **Reliable**
- **Faster**
- **More Repeatable.**

®
MAC

VALVES



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Traveling Lab Demonstration measures critical valve performance characteristics – Shifting forces, Response Time, Speed, Repeatability and Flow.

PLD

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