MAC VALVES

BULLET Valve®

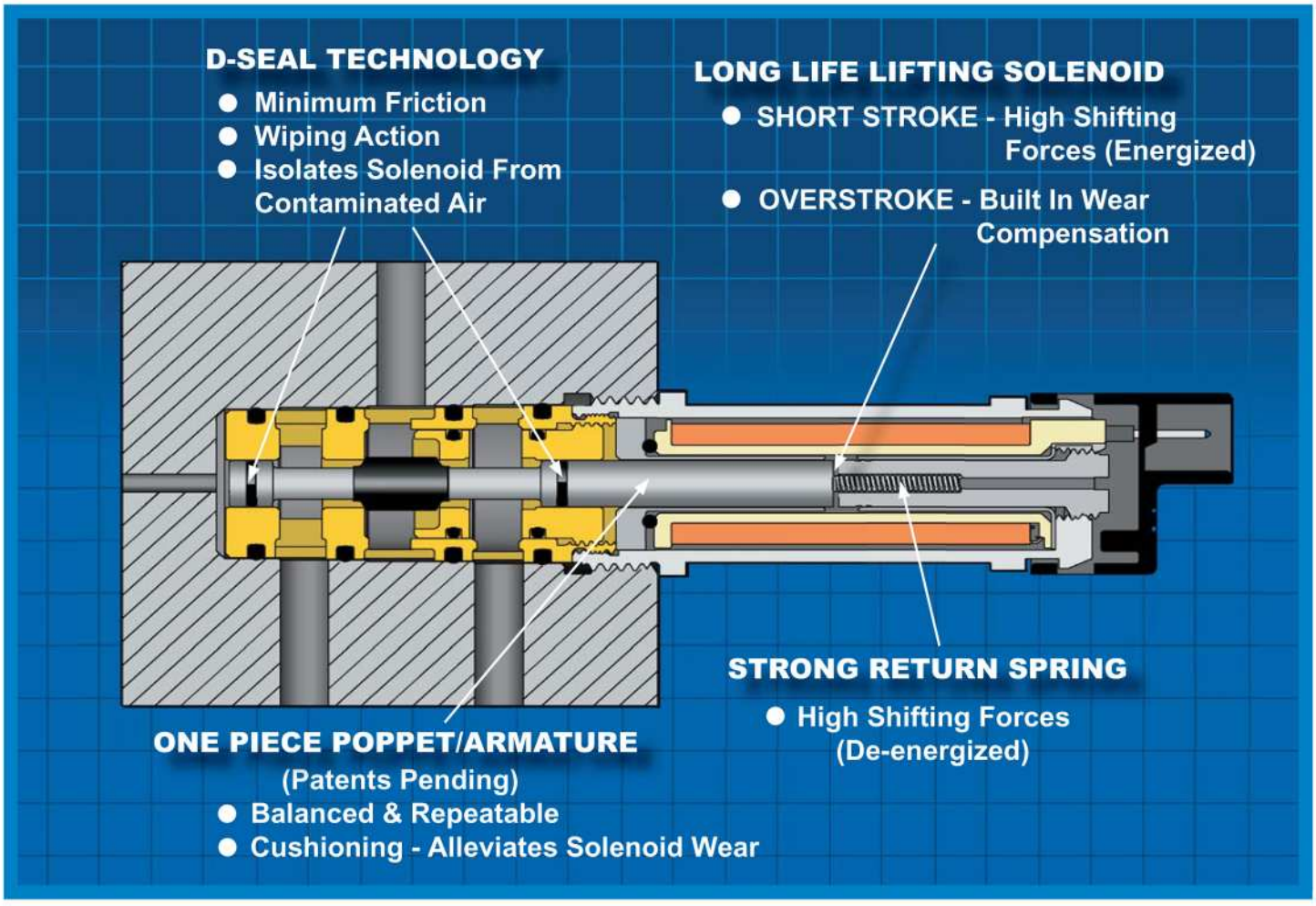
LDA
Solutions for Life

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.



Valves That Don't Stick℠

MAC
BV Series

Bullet Valve®

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

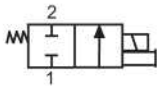
OPERATIONAL BENEFITS

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

VALVE

Type	2 Way



Cartridge (Standard)	BV209A-CA1-00-***xxxx-xxx***
Cartridge (Axial Flow)	BV209A-CB0-00-***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. diode & LED (no ground) **BC** **TE** Blocking & suppr. diode (no ground) **BE** **TG** LED (no ground) **BG** **TJ** MOV (no ground) **BJ** **TL** LED & MOV (no ground) **BL**

† Not available for flying leads cover

*High wattage - high speed options - consult factory
High wattage configurations require intermittent duty cycles.
** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty
ERC wattage reduction options - consult factory

CIRCUIT BAR

Bullet valve type	Cyl. port size	Spacing (mm)	Side cylinder port	Bottom cylinder port
Standard	**#10-32 UNF**	11	CCMV09A-00AAA-**xx**	CCMV09A-00BAA-**xx**
	M5	11	CCMV09A-00AAB-**xx**	CCMV09A-00BAB-**xx**
	M7	11	CCMV09A-00AAC-**xx**	CCMV09A-00BAC-**xx**
Axial flow	**#10-32 UNF**	11	-	CCMV09A-00BDA-**xx**
	M5	11	-	CCMV09A-00BDB-**xx**
	M7	11	-	CCMV09A-00BDC-**xx**

xx = Number of stations

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

MAC
BV Series

Bullet Valve®

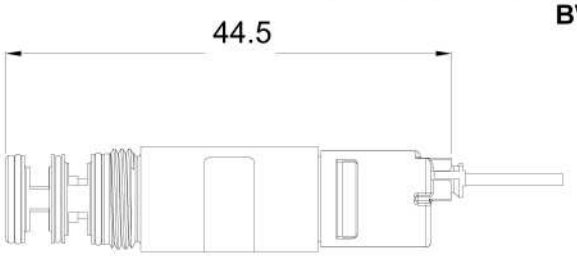
Technical Data

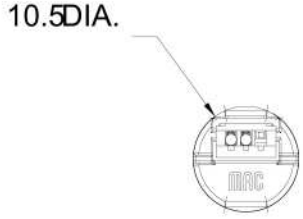
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 120 PSI
Lubrication:	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration:	40µ
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow (at 6 bar ΔP=1bar):	Up to 0.07 Cv
Voltage range:	-15% to +10% of nominal voltage

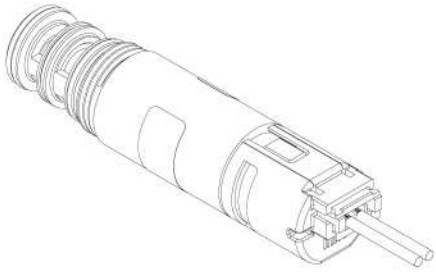
Tools: Manifold cavity step reamer: T-6961 • Insertion/removal socket: AT-1180 (Bit) AT-1185 (Bit Holder) AT-1184 (Handle)

Dimensions

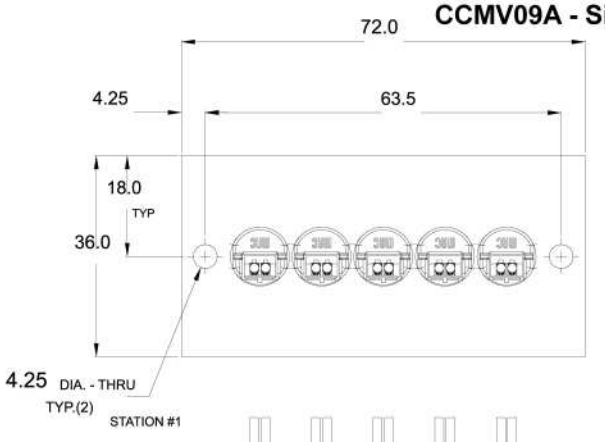
Bullet Valve with "JST" Cover and Circuit Board for LED., MOV., & Diode Options
BV209A (2-way) - Standard Watt

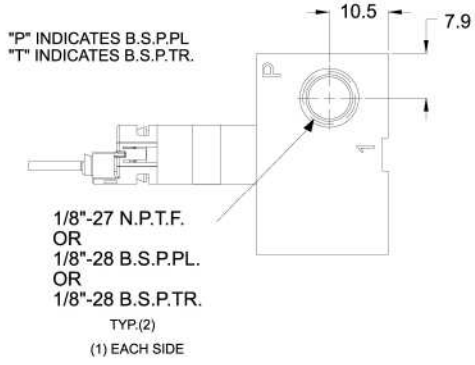


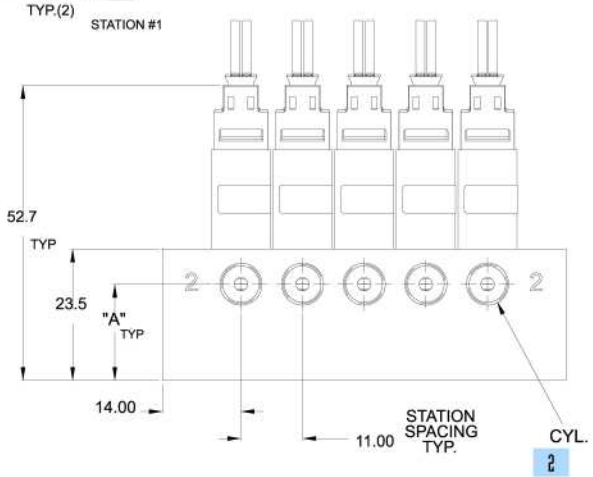




CCMV09A - Side ports







BV209A
SIDE PORTS

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

MAC
BV Series

Bullet Valve®

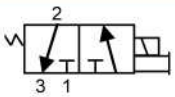
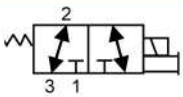
Function	Flow [max]	Manifold mounting	Series
3/2 NC, Universal	**Up to 0.06 Cv**	**Cartridge**	**BV309A**

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

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. diode & LED (no ground) / **BC** **TE** Blocking & suppr. diode (no ground) / **BE** **TG** LED (no ground) / **BG** **TJ** MOV (no ground) / **BJ** **TL** LED & MOV (no ground) / **BL**

† Not available for flying leads cover

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

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 numbers.
* High wattage configurations require intermittent duty cycles.
** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty.

BV Series

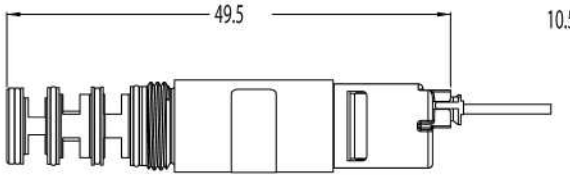
Technical Data

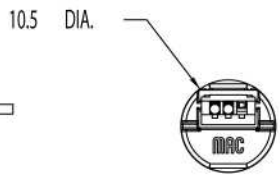
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 120 PSI
Lubrication:	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration:	40µ
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow (at 6 bar ΔP=1bar):	Up to 0.06 Cv
Voltage range:	-15% to +10% of nominal voltage

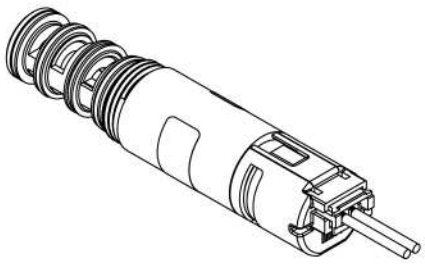
Tools: Manifold cavity step reamer: T-6962 • Insertion/removal socket: AT-1180 (Bit) AT-1185 (Bit Holder) AT-1184 (Handle)

Dimensions

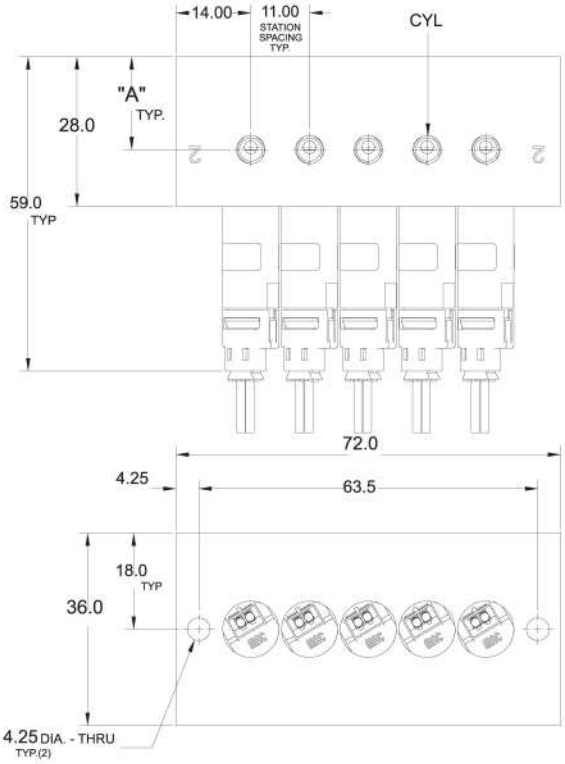
Bullet Valve with "JST" Cover and Circuit Board for LED., MOV., & Diode Options
BV309A (3-way) - Standard Watt







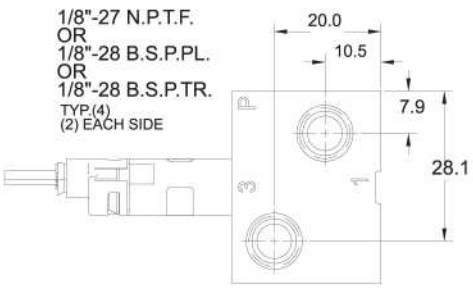
CCMV09A - Side ports



BV309A
SIDE PORTS

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

"P" INDICATES B.S.P.PL.
"T" INDICATES B.S.P.TR.



MAC BV Series

Bullet Valve®

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

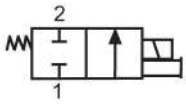
OPERATIONAL BENEFITS

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

VALVE

Type	2 Way
Cartridge (Standard)	BV210A-CA1-00-***xxxx-xxx***
Cartridge (Axial Flow)	BV210A-CB0-00-***xxxx-xxx***



SOLENOID OPERATOR

X XX X - X XX

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 / Flying Leads **TA** No ground wire **BA** **TC** Blocking & suppr. diode & LED (no ground) **BC** **TE** Blocking & suppr. diode (no ground) **BE** **TG** LED (no ground) **BG** **TJ** MOV (no ground) **BJ** **TL** LED & MOV (no ground) **BL**

† Not available for flying leads cover

* High wattage - high speed options - consult factory
High wattage configurations require intermittent duty cycles.

** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty
ERC wattage reduction options - consult factory

CIRCUIT BAR

Bullet valve type	Cyl. port size	Spacing (mm)	Side cylinder port	Bottom cylinder port
Standard	**#10-32 UNF**	12	CCMV10A-00AAA-**xx**	CCMV10A-00BAA-**xx**
	M5	12	CCMV10A-00AAB-**xx**	CCMV10A-00BAB-**xx**
	M7	12	CCMV10A-00AAC-**xx**	CCMV10A-00BAC-**xx**
Axial flow	**#10-32 UNF**	12	-	CCMV10A-00BDA-**xx**
	M5	12	-	CCMV10A-00BDB-**xx**
	M7	12	-	CCMV10A-00BDC-**xx**

xx = Number of stations

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

BV Series

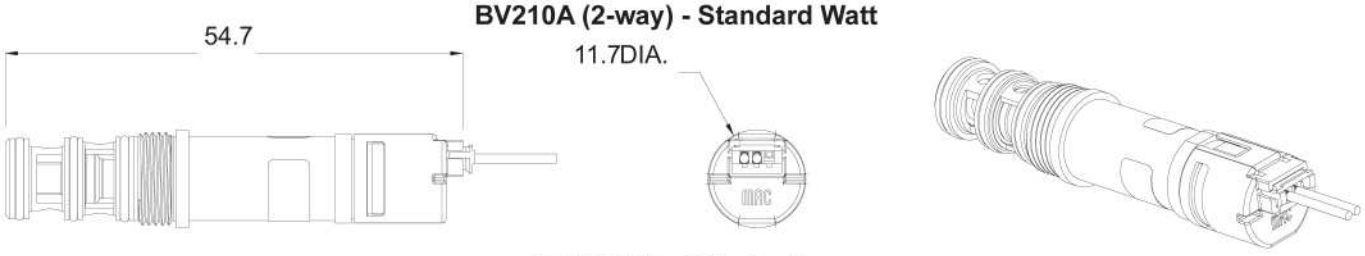
Technical Data

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
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow (at 6 bar ΔP=1bar):	Up to 0.08 Cv
Voltage range:	-15% to +10% of nominal voltage

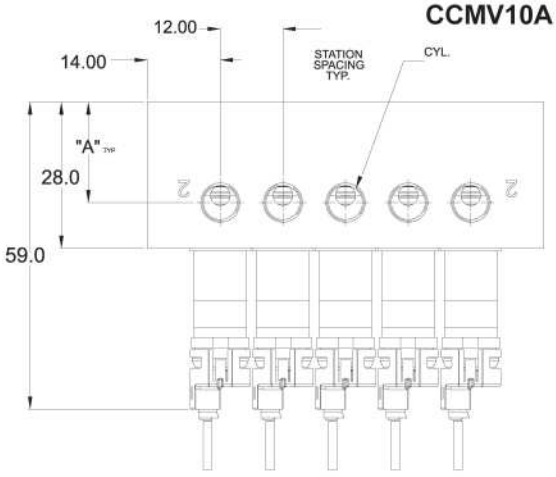
Tools: Manifold cavity step reamer: T-6960 • Insertion/removal socket: AT-1181 (Bit) AT-1185 (Bit Holder) AT-1184 (Handle)

Dimensions

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

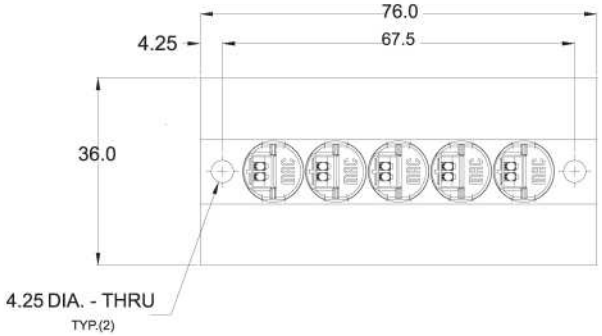


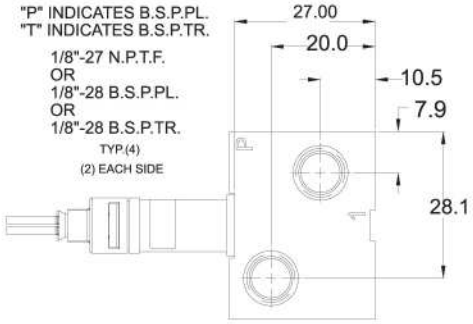
CCMV10A - Side Ports



BV210A
SIDE PORTS

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





MAC
BV Series

Bullet Valve®

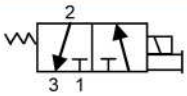
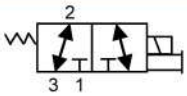
Function	Flow [max]	Manifold mounting	Series
3/2 NC, Universal	**Up to 0.09 Cv**	**Cartridge**	**BV310A**

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

VALVE

Type	3 Way N.C.	3 Way Universal
		
Cartridge (Standard)	BV310A-CC1-00-***xxxx-xxx***	BV310A-CD1-00-***xxxx-xxx***
Cartridge (Diaphragm)	BV310A-DC1-00-***xxxx-xxx***	———

SOLENOID OPERATOR

X XX X - X XX

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	††**HR** 24VDC (.75W) ††**HS** 12VDC (.75W) **HA** 24VDC (1.0W) **HF** 12VDC (1.0W) **HB** 24VDC (1.8W) **HG** 12VDC (1.8W) **HC** 24VDC (2.5W) **HH** 12VDC (2.5W) **HD** 24VDC (3.0W) **HJ** 12VDC (3.0W) **HE** 24VDC (4.0W) **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. diode & LED (no ground) **BC** **TE** Blocking & suppr. diode (no ground) **BE** **TG** LED (no ground) **BG** **TJ** MOV (no ground) **BJ** **TL** LED & MOV (no ground) **BL**

††Only available with Diaphragm type valve
* High wattage - high speed options - consult factory
** ERC wattage reduction options - consult factory

† Not available for flying leads cover

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 numbers.
* High wattage configurations require intermittent duty cycles.
** ERC - Energy Reduction Circuitry - Reduces the effective wattage at continuous duty.

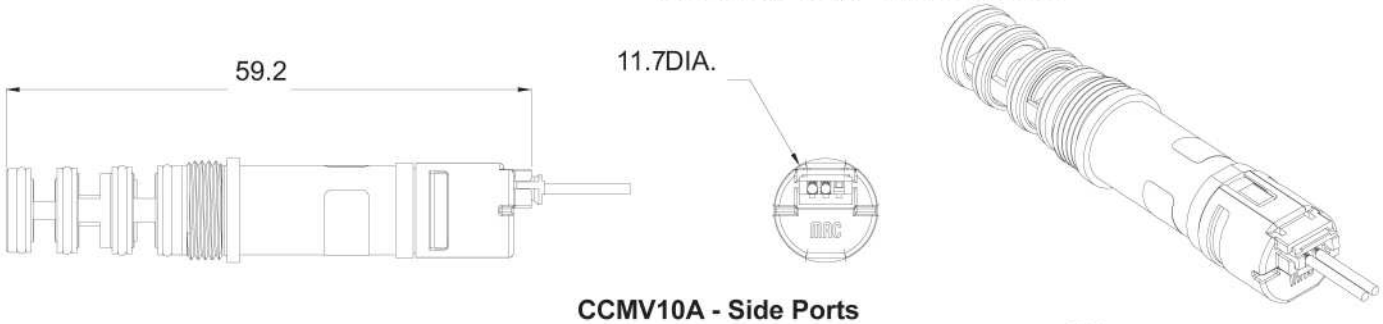
Technical Data

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
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow (at 6 bar ΔP=1bar):	Up to 0.09 Cv
Voltage range:	-15% to +10% of nominal voltage

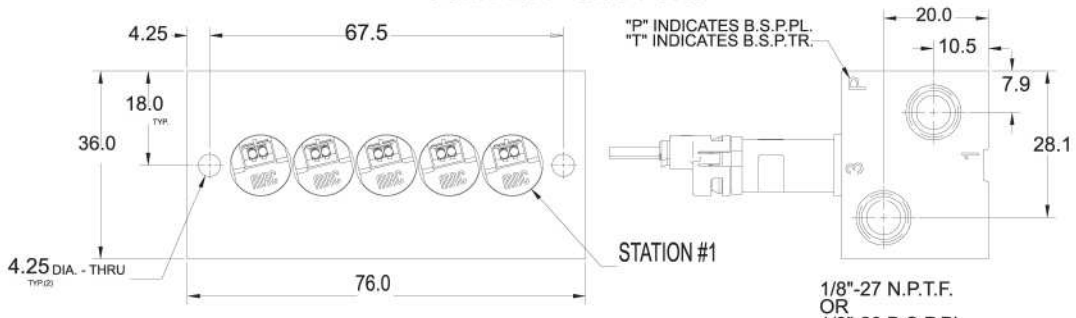
Tools: Manifold cavity step reamer: T-7396 • Insertion/removal socket: AT-1181 (Bit) AT-1185 (Bit Holder) AT-1184 (Handle)
Modifications: MOD L001 (Modified diaphragm valve for <1cc/Min leak rate)

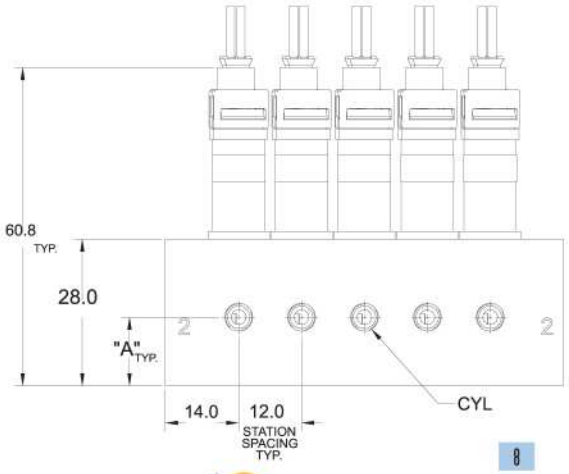
Dimensions

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



CCMV10A - Side Ports





CYL	DIMENSION "A"
#10-32	13.0
M5 X 0.8	13.0
M7 X 1.0	11.5

BV310A
SIDE PORTS

MAC
BV Series

Bullet Valve®

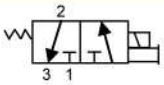
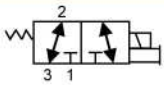
Function	Flow [max]	Manifold mounting	Series
3/2 NC, Universal	**Up to 0.08 Cv**	**Manifold mount - Non plug-in**	**BV310A**

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

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 / **BA** **TC** Blocking & suppr. diode & LED (no ground) / **BC** **TE** Blocking & suppr. diode (no ground) / **BE** **TG** LED (no ground) / **BG** **TJ** MOV (no ground) / **BJ** **TL** LED & MOV (no ground) / **BL**

† Not available for flying leads cover

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

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 numbers.

Options

BV310A- LC **1** -00-***xxxx-xxx***
Replace with “0” for no manual operator

* High wattage configurations require intermittent duty cycles
**ERC - Energy Reduction Circuitry - Reduces the effectiveness wattage at continuous duty

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 next page

BV Series

Technical Data

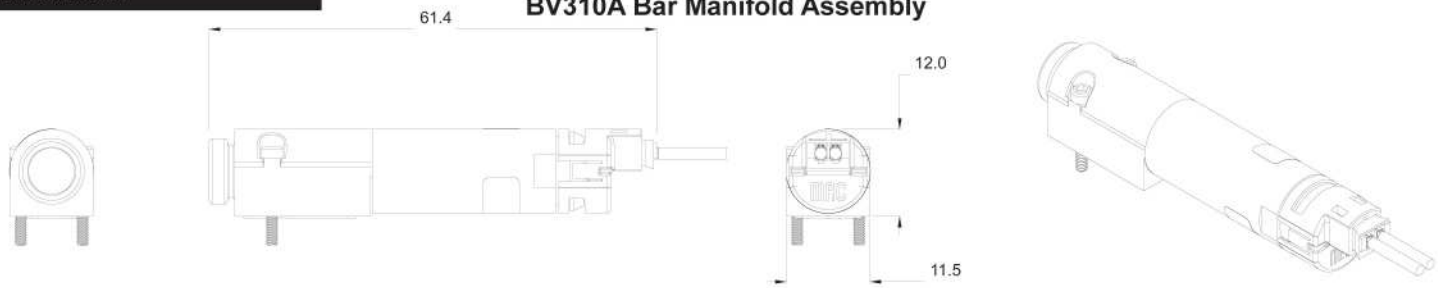
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 120 PSI
Lubrication:	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration:	40µ
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow (at 6 bar ΔP=1bar):	Up to 0.08 Cv
Voltage range:	-15% to +10% of nominal voltage

Spare parts:

- Pressure seal, body to base: 16985 • Mounting screw, body to base: 35166 - 2 pcs required
- Regulator for bar: PR44A-A0A***X*** ***X*** = **A** 0 to 100 PSI, **B** 0 to 60 PSI, **C** 0 to 40 PSI, **D** 0 to 15 PSI
- Blank Station Cover Plate: N-BV008

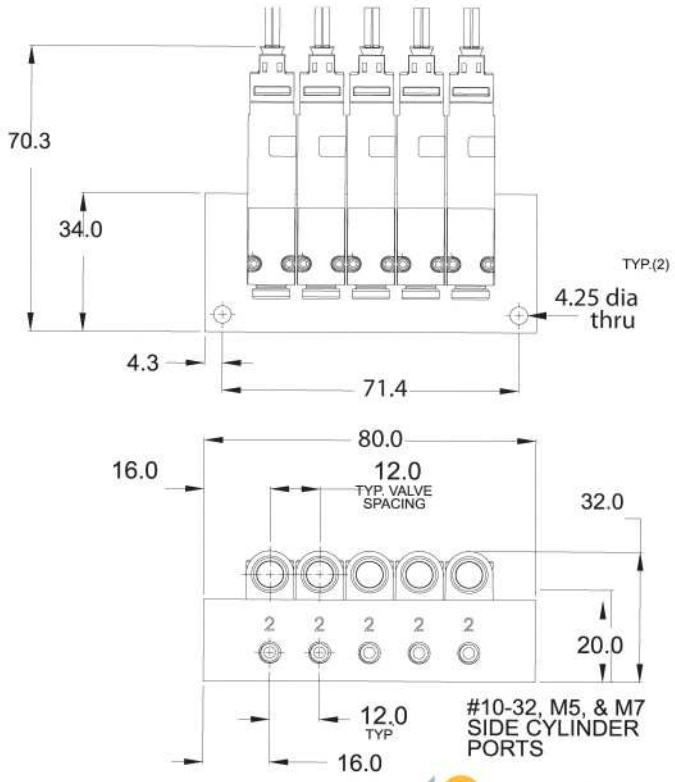
Dimensions

BV310A Bar Manifold Assembly

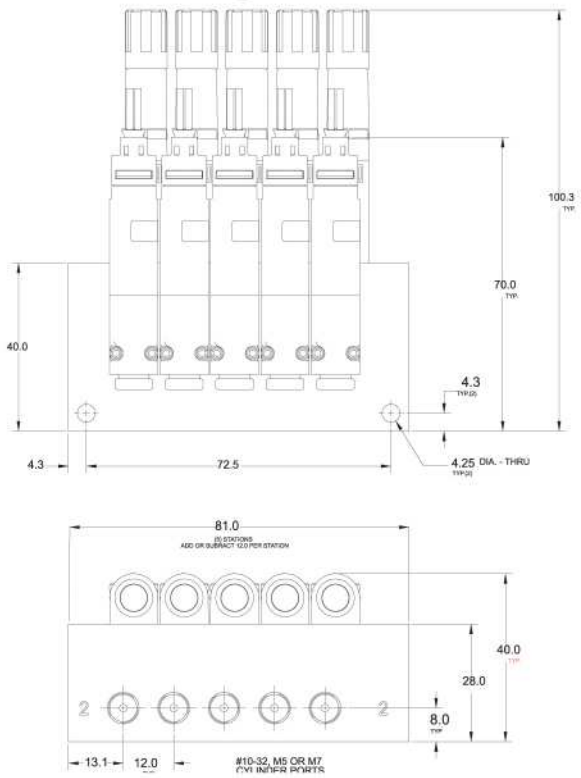


CBMV10A Circuit bar for BV310

Without regulator



With regulator



BV Series

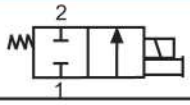
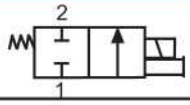
Function	Flow [max]	Manifold mounting	Series
2/2	**Up to 0.24 Cv**	**Cartridge**	**BV214A**

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

VALVE

Type	2-Way (standard)	2-Way (axial flow)
		
Cartridge	BV214A-CA1-00-**xxxx-xxx**	BV214A-CB0-00-**xxxx-xxx**

SOLENOID OPERATOR

X XX X - X XX

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	**CA** 24VDC (1.0W) **CB** 24VDC (1.8W) **CC** 24VDC (2.5W) **CD** 24VDC (3.0W) **CE** 24VDC (4.0W) **CF** 12VDC (1.0W) **CG** 12VDC (1.8W) **CH** 12VDC (2.5W) **CJ** 12VDC (3.0W) **CK** 12VDC (4.0W)	**0*** No lead wire **A** 18” **B** 24” **C** 36” **D** 48” **E** 72” **F** 96” **H** 144” * Not available for flying leads cover	**C** For Top Cover Option and Can w/ Outer Threads	**JST Connector** **Flying Leads** **TA** No ground wire **BA** **TC** Blocking & suppr. diode & LED (no ground) **BC** **TE** Blocking & suppr. diode (no ground) **BE** **TG** LED (no ground) **BG** **TJ** MOV (no ground) **BJ** **TL** LED & MOV (no ground) **BL** **MAC JAC Connector** † **GA** MAC JAC

CIRCUIT BAR

Bullet valve type	Cyl. port size	Spacing (mm)	Side cylinder port	Bottom cylinder port
Standard	**M7**	17	CCMV14A-00AAA-**xx**	CCMV14A-00BAA-**xx**
	1/8”	17	CCMV14A-00AAB-**xx**	CCMV14A-00BAB-**xx**
	5/32 tube recpt.	17	CCMV14A-00AAC-**xx**	CCMV14A-00BAC-**xx**
Axial flow	**M7**	17	-	CCMV14A-00BDA-**xx**
	1/8”	17	-	CCMV14A-00BDB-**xx**

xx = Number of stations

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

† Requires special spacing - - consult factory

Note: Common inlet & exhaust are 1/4” NPTF
For BSPPL or BSPTR threads consult factory

BV Series

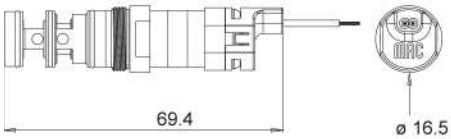
Technical Data

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
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow (at 6 bar, Δ P=1bar):	Up to 0.24 Cv (4.0 W)
Voltage range:	-15% to +10% of nominal voltage

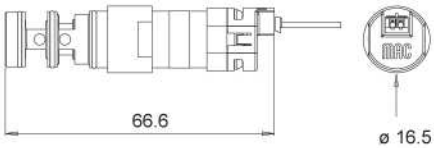
Tools: Manifold cavity step reamer: T-7331 • Insertion/removal socket: AT-1263 (Bit) AT-1185 (Bit Holder) AT-1264 (Handle)

Dimensions

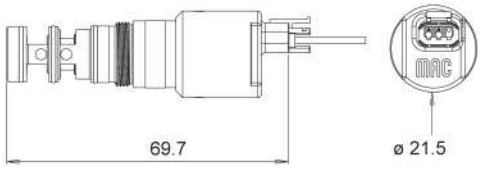
Flying leads



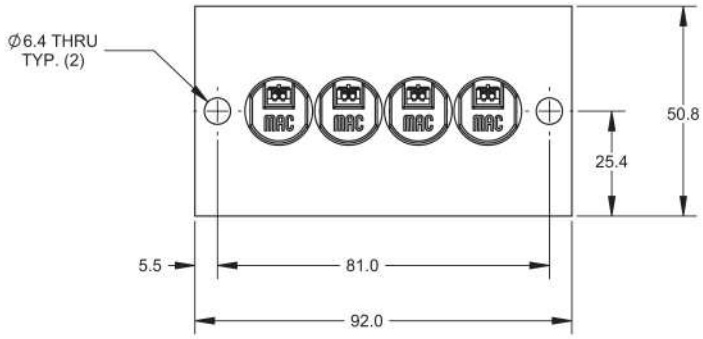
JST Connector

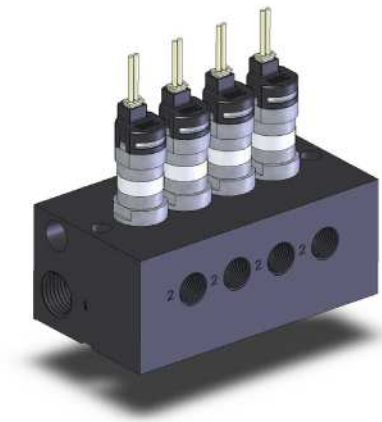


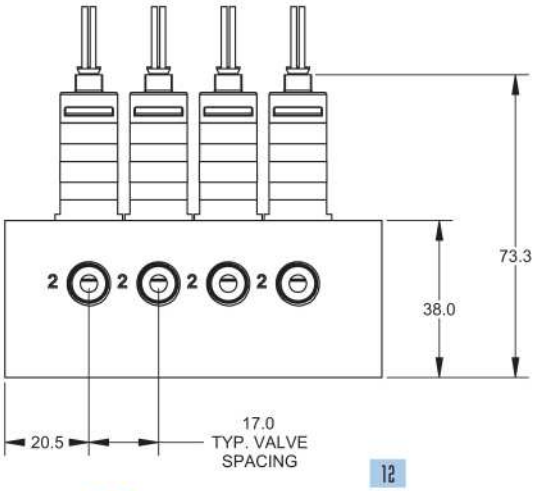
MAC Jac

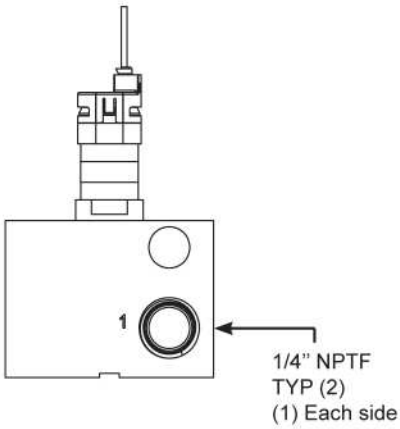


CCMV14A bar with BV214A valves









MAC
BV Series

Bullet Valve®

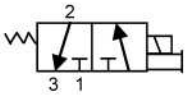
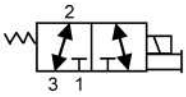
Function	Flow [max]	Manifold mounting	Series
3/2	**Up to 0.24 Cv**	**Cartridge**	**BV314A**

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

VALVE

Type	3-Way N.C.	3-Way universal valve
		
Cartridge	BV314A-CC1-00-**xxxx-xxx**	BV314A-CD1-00-**xxxx-xxx**

SOLENOID OPERATOR

X XX X - X XX

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	**CA** 24VDC (1.0W) **CB** 24VDC (1.8W) **CC** 24VDC (2.5W) **CD** 24VDC (3.0W) **CE** 24VDC (4.0W) **CF** 12VDC (1.0W) **CG** 12VDC (1.8W) **CH** 12VDC (2.5W) **CJ** 12VDC (3.0W) **CK** 12VDC (4.0W)	**0*** No lead wire **A** 18” **B** 24” **C** 36” **D** 48” **E** 72” **F** 96” **H** 144” * Not available for flying leads cover	**C** For Top Cover Option and Can w/ Outer Threads	**JST Connector** **Flying Leads** **TA** No ground wire **BA** **TC** Blocking & suppr. diode & LED (no ground) **BC** **TE** Blocking & suppr. diode (no ground) **BE** **TG** LED (no ground) **BG** **TJ** MOV (no ground) **BJ** **TL** LED & MOV (no ground) **BL** **MAC JAC Connector** †**GA** MAC JAC

CIRCUIT BAR

Cyl. port size	Spacing (mm)	Side cylinder port	Bottom cylinder port
M7	17	CCMV14A-00ABA-**xx**	CCMV14A-00BBA-**xx**
1/8”	17	CCMV14A-00ABB-**xx**	CCMV14A-00BBB-**xx**
5/32 tube receptacle	17	CCMV14A-00ABC-**xx**	CCMV14A-00BBC-**xx**

xx = Number of stations

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

†Requires special spacing - - consult factory

Note: Common inlet & exhaust are 1/4” NPTF
For BSPPL or BSPTR threads consult factory

BV Series

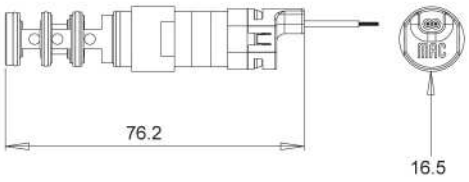
Technical Data

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
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow (at 6 bar, Δ P=1bar):	Up to 0.24 Cv (4.0 W)
Voltage range:	-15% to +10% of nominal voltage

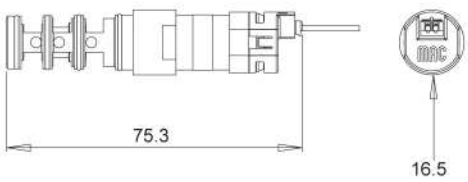
Tools: Manifold cavity step reamer: T-7321 • Insertion/removal socket: AT-1263 (Bit) AT-1185 (Bit Holder) AT-1264 (Handle)

Dimensions

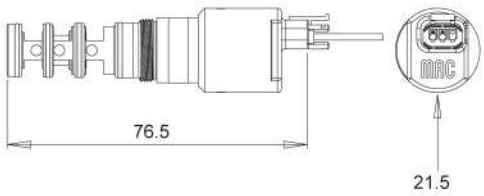
Flying leads



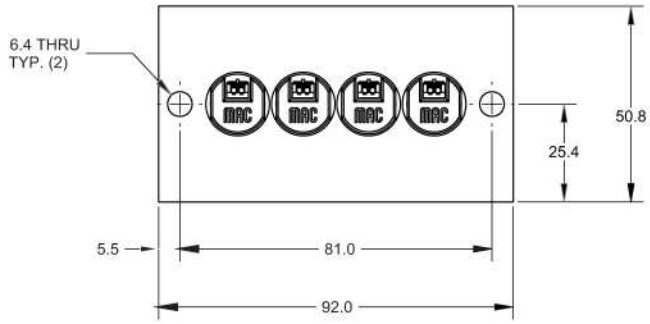
JST Connector

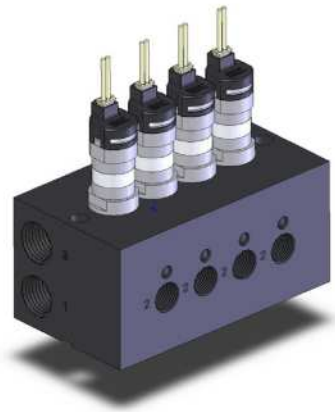


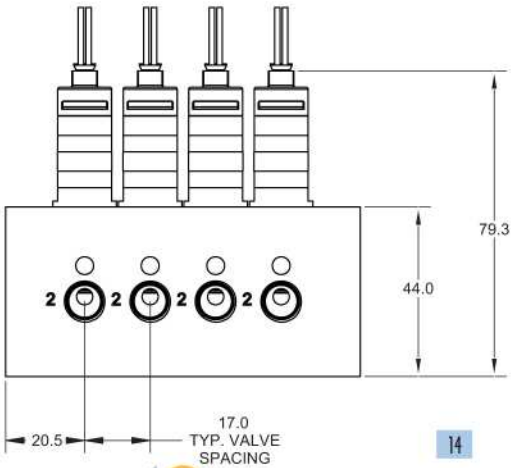
MAC Jac

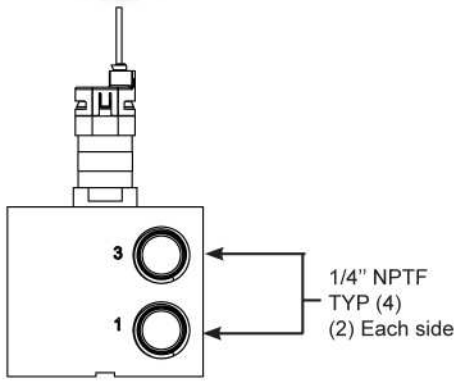


CCMV14A bar with BV314A valves









MAC
BV Series

Bullet Valve®

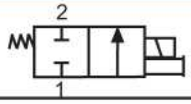
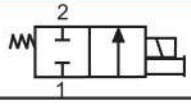
Function	Flow [max]	Manifold mounting	Series
2/2	**Up to 0.6 Cv**	**Cartridge**	**BV221A**

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

VALVE

Type	2-Way (standard)	2-Way (axial flow)
		
Cartridge	BV221A-CA1-00-**xxxx-xxx**	BV221A-CB0-00-**xxxx-xxx**

SOLENOID OPERATOR **X XX X - X XX**

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	**CA** 24VDC (1.0W) **CB** 24VDC (1.8W) **CC** 24VDC (2.5W) **CD** 24VDC (3.0W) **CE** 24VDC (4.0W) **CF** 12VDC (1.0W) **CG** 12VDC (1.8W) **CH** 12VDC (2.5W) **CJ** 12VDC (3.0W) **CK** 12VDC (4.0W)	**0*** No lead wire **A** 18” **B** 24” **C** 36” **D** 48” **E** 72” **F** 96” **H** 144” *Not available for flying leads cover Only option for Pico and M12 cover	**C** For Top Cover Option and Can w/ Outer Threads	

M12	JST	Pico	Flying Leads	
	TA		**BA**	No ground wire
RC	**TC**	**PC**	**BC**	Blocking & suppr. diode & LED (no ground)
RE	**TE**	**PE**	**BE**	Blocking & suppr. diode (no ground)
RG	**TG**	**PG**	**BG**	LED (no ground)
RJ	**TJ**	**PJ**	**BJ**	MOV (no ground)
RL	**TL**	**PL**	**BL**	LED & MOV (no ground)
RN		**PN**		Transfer Board
			GA	**MAC JAC Connector**

Note:
For CIRCUIT BAR ordering information please consult factory

Note: Pico covers PC-PL have a 3rd Pin which is a location pin

MAC
BV Series

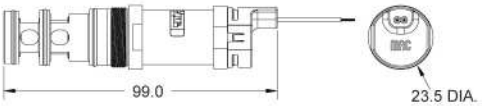
Bullet Valve®

Technical Data

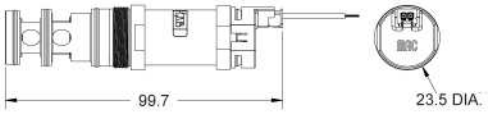
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 120 PSI
Lubrication:	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration:	40µ
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow:	Up to 0.60 Cv (4.0 W)
Voltage range:	-15% to +10% of nominal voltage

Dimensions

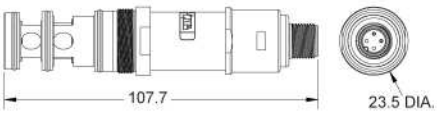
Flying leads



JST Connector



M12



BV221A valves

MAC
BV Series

Bullet Valve®

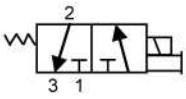
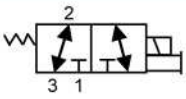
Function	Flow [max]	Manifold mounting	Series
3/2	Up to 0.6 Cv	Cartridge	BV321A

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

VALVE

Type	3-Way N.C.	3-Way universal valve
		
Cartridge	BV321A-CC1-00-**xxxx-xxx**	BV321A-CD1-00-**xxxx-xxx**

SOLENOID OPERATOR

XXXX - XXX

Solenoid	Voltage	Lead wire length	Solenoid can (round)	Solenoid cover
B Round	**CA** 24VDC (1.0W) **CB** 24VDC (1.8W) **CC** 24VDC (2.5W) **CD** 24VDC (3.0W) **CE** 24VDC (4.0W) **CF** 12VDC (1.0W) **CG** 12VDC (1.8W) **CH** 12VDC (2.5W) **CJ** 12VDC (3.0W) **CK** 12VDC (4.0W)	**0*** No lead wire **A** 18” **B** 24” **C** 36” **D** 48” **E** 72” **F** 96” **H** 144” *Not available for flying leads cover Only option for Pico and M12 cover	**C** For Top Cover Option and Can w/ Outer Threads	See table below

M12	JST	Pico	Flying Leads	
	TA		BA	No ground wire
RC	TC	PC	BC	Blocking & suppr. diode & LED(no ground)
RE	TE	PE	BE	Blocking & suppr. diode (no ground)
RG	TG	PG	BG	LED (no ground)
RJ	TJ	PJ	BJ	MOV (no ground)
RL	TL	PL	BL	LED & MOV (no ground)
RN		PN		Transfer Board

GA MAC JAC Connector

Note: Pico covers PC-PL have a 3rd Pin which is a location pin

CIRCUIT BAR

Cyl. port size	Spacing (mm)	Side cylinder port	Bottom cylinder port
1/8”	25	CCMV21A-00ABA-**xx**	CCMV21A-00BBA-**xx**
1/4”	25	CCMV21A-00ABB-**xx**	CCMV21A-00BBB-**xx**

xx = Number of stations

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

Note: Common inlet & exhaust are 3/8” NPTF
For BSPPL or BSPTR threads consult factory

MAC
BV Series

Bullet Valve®

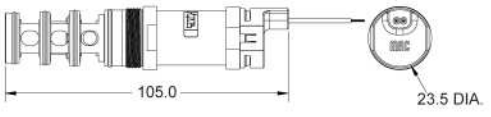
Technical Data

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
Temperature range:	0°F to 120°F (-18°C to +50°C)
Flow:	Up to 0.60 Cv (4.0 W)
Voltage range:	-15% to +10% of nominal voltage

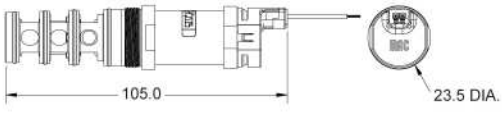
Tools: Manifold cavity step reamer: T-7573 • Insertion/removal socket: AT-1365 (Bit)

Dimensions

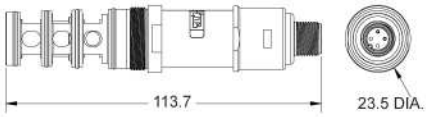
Flying leads



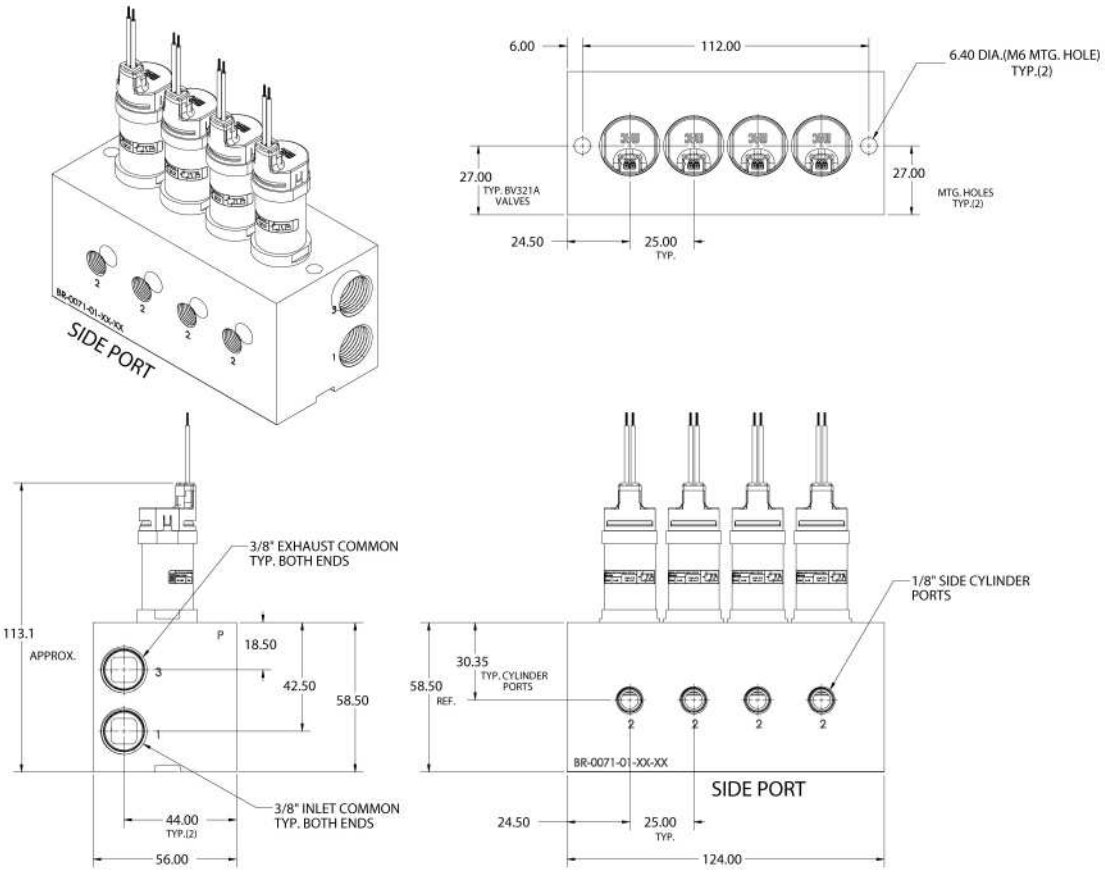
JST Connector



M12



CCMV21A bar with BV321A valves

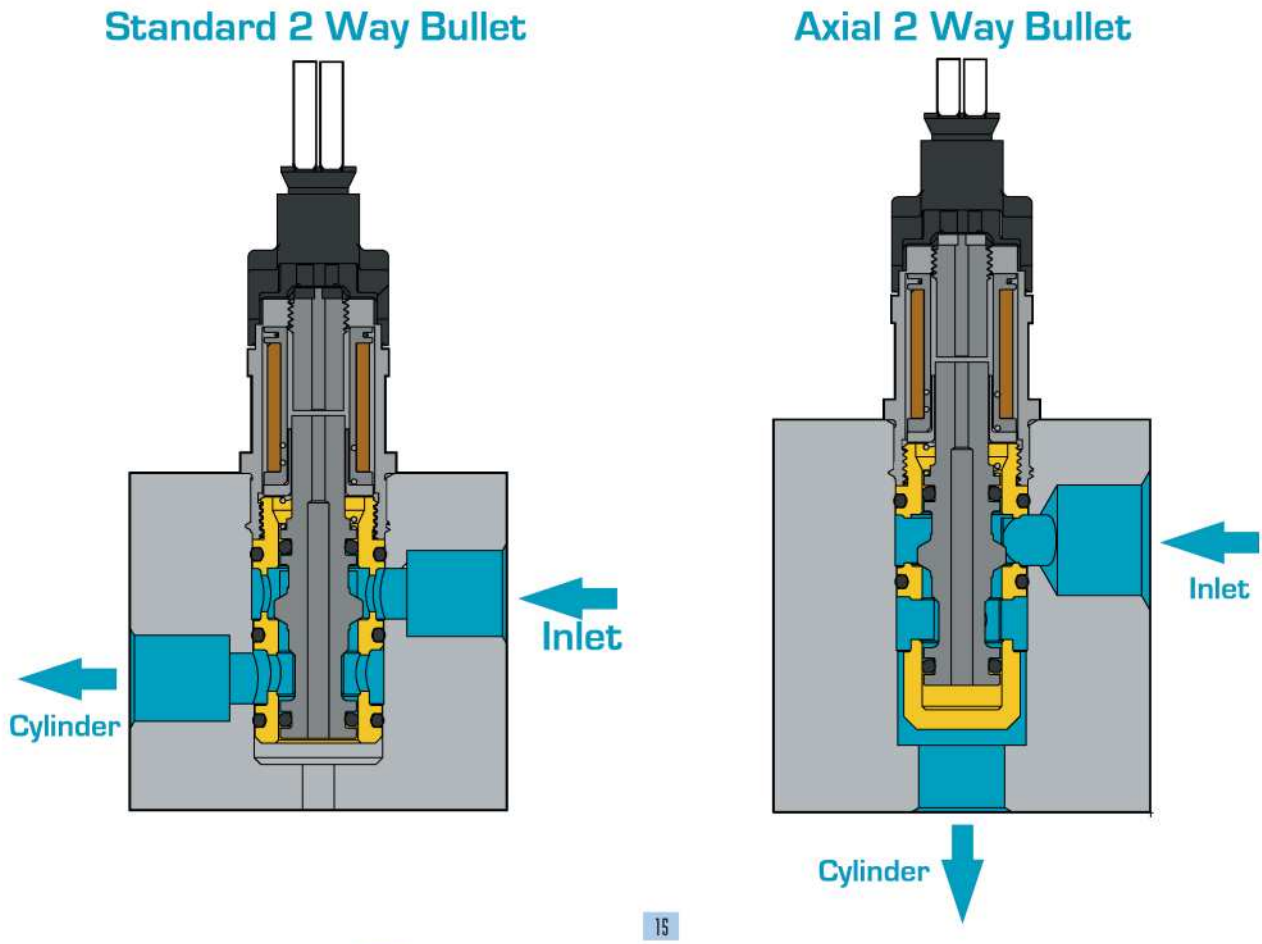


Cartridge Modifications

Our manufacturing process of the Bullet Valve® cartridge body enables flexibility with regards to offering potential modifications that meet your specific application needs. An example of such modifications is the "axial flow" cartridge body we are currently offering for the BV209, BV210 and BV214 series.

The "axial flow" cartridge enables the valve to flow air between the bottom of the valve body and manifold it is housed in – see figure below. This modification allows for a linear flow path out of the manifold producing measurably higher outlet pulse height (force) in blow off type of applications. We have currently used this modification for applications in the sorting industry with excellent results.

If you have an application that would benefit from utilizing the axial flow cartridge option or wish to discuss other potential cartridge modifications, please consult your local MAC distributor (MDN Associate). By understanding your application and valve requirements we can optimize the valve settings accordingly.



Vous avez l'idée, nous la concrétisons.
Wij verheugen ons op uw aanvraag.
We look forward to your application.

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