

MAC<sup>®</sup>

V A L V E S

CURRENT

Technology



Introduction		3
Section 1	Direct solenoid and solenoid pilot operated valves	9
Section 2	Remote air valves	181
Section 3	Mechanically and manually operated valves	267
Section 4	Bases according to ISO 5599	281
Section 5	Interchangeable sub-bases and manifolds	291
Section 6	Pressure regulators	301
Section 7	Intrinsically safe valves	337
Section 8	Options	355

## **Welcome to your brand new MAC VALVES catalog.**

Inside you will find more than 25 different valve series to meet the majority of industrial requirements.

They have been sorted and classified in such a way that you may easily find the required valve series.

For more than 50 years, MAC has based all new valve developments upon the specifications received from customers, both users and OEM's.

A lot of different modifications have been released for all fields of industry (automotive, aluminium, packaging, food, sorting, ...). Although they are not listed in this catalog, our technical sales staff will be pleased to provide all necessary information.

All our representatives have a "traveling lab demonstration" kit (TLD) to show you the specific design features of MAC Valves in terms of :

- speed
- reliability
- consistency
- repeatability

Feel free to ask for a personal demonstration, our team is at your disposal.

MAC Valves,  
Your Partner

## MAC Valves 18 month guarantee plus lifetime coil guarantee

The MAC Valves organization has established a reputation over many years for fulfilling the needs and requirements of the users of its products. All MAC Valves are quality products specifically designed and built for long and rugged service. Therefore, all valves appearing in this catalog are guaranteed for a period of eighteen months from the original date of shipment from our factory. In addition to this eighteen month Guarantee, MAC Valves, Inc. guarantees the electrical coils on every one of the valves listed in this catalog for life. **LIMITATION OF GUARANTEE:** This Guarantee is limited to the replacement or rebuilding of any valve which should fail to operate properly. Valves, under the MAC Guarantee, must be returned (with or without bases) transportation prepaid and received at our factory within the Guarantee period. They will be returned to the customer at the expense of MAC Valves, Inc., and will carry the same guarantee as provided under the Flat Rate Rebuild Program. **DISCLAIMER OF GUARANTEE:** No claims for labor, material, time, damage or transportation are allowable nor will any valve be replaced or rebuilt under this guarantee which has been damaged by the purchaser not in the normal course of its use and maintenance during the warranty period. The guarantee does not apply to loss or damage caused by fire, theft, riot, explosion, labor dispute, act of God, or other causes beyond the control of MAC Valves, Inc. MAC Valves, Inc. shall in no event be liable for remote, special or consequential damages under the MAC Guarantee, nor under any implied warranties, including the implied warranty of merchantability. The above Guarantee is our manner of extending the engineering and service resources of the MAC Valves, Inc. organization to assure our customer long, and continued satisfaction.

## The flat rate rebuild program

Valves no longer covered by the MAC Guarantee can be rebuilt under the Flat Rate Rebuild program. Our constant research and testing program is dedicated to extending the life of our valves and making them even more reliable under the most adverse operating conditions. Valves returned under this program are completely disassembled, inspected, rebuilt to current operating standards wherever possible, tested and returned within a few weeks for a nominal flat rate charge. All rebuilt valves carry for 90 days from date of shipment from our factory the same guarantee as provided for new valves.

## Pneumatic functions

All valves inside the MAC product range allow for multiple pneumatic functions.

Direct solenoid and solenoid pilot operated valves could be used as 2 ways, 3 ways (NO, NC) or 4 ways.

When plugging one orifice to achieve a 2 ways function (or 3 ways), it will not affect the valve operation.

- Direct solenoid valves 3 ways : universal

The following functions are available

- 3 ways NC
- 3 ways NO
- 2 ways NC
- 2 ways NO
- Selector
- Divertor

- Pilot operated valves 3 ways :

The following functions are available

- 3 ways NC
- 3 ways NO
- 2 ways NC
- 2 ways NO
- Selector : the highest pressure is connected to the IN port; the lowest pressure is connected to the EXH port. (Use external pilot when the highest pressure is less than 2 bar)
- Divertor (consult factory)

- Direct solenoid valves 4 ways :

The following functions are available

- 4 ways
- 3 ways NC
- 3 ways NO
- 2 ways NC
- 2 ways NO
- Divertor

- Pilot operated valves 4 & 5 ways :

The following functions are available

- 4 or 5 ways
- 3 ways NC
- 3 ways NO
- 2 ways NC
- 2 ways NO
- Selector (except 3 positions)
- Divertor (consult factory).

**EVERY VALVE FULLY TESTED PRIOR TO SHIPMENT**

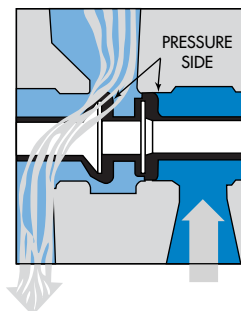
## SPOOLS/BODIES

MAC flow seals are bonded to an aluminum spool, machine ground to a very close tolerance, and chemically surface hardened. The bore of the bodies is finished to a close tolerance, work hardened and polished. The result of these processes on the spool and bore keeps friction to a minimum and provides wiping action thus assuring long, stick-free consistent operation and making the spools relatively unaffected by air line contaminants.

MAC spools are of a balanced design; therefore they are not affected by back pressure or restrictions in the exhaust, permitting 3-ways to be plugged for 2-way operation and 4-ways to be plugged for 3-way or 2-way operation.

Further, the use of two seals, as illustrated, one for the exhaust and one for inlet, provides for a short stroke and high flow in a small envelope size.

All valves utilize one piece aluminum bodies. On almost all Series valves, the bodies are die cast. The die casting technique used provides large, smooth and direct flow paths for low pressure drop.

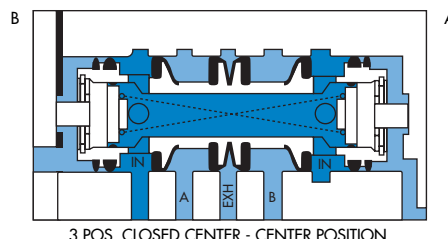


## PILOT SYSTEM

On most pilot operated valves a large checked accumulator, housed in the main valve body, supplies both pilots on double solenoid valves as well as the air/spring return on single solenoid pilot or single remote air pilot valves. The checked accumulator assures positive, consistent shifting in both directions even with inlet pressure fluctuations and/or restrictions, and even at very low minimum pilot pressures. On internal pilot models the accumulator is supplied from the main valve inlet and protected from inlet pressure fluctuations by a check valve. The check valve is designed to bleed off the accumulator when the main supply pressure is removed. On external pilot models, the accumulator is supplied from an external pilot port. Pilot operation ensures maximum energization shifting force. An air spring ensures maximum deenergization shifting force.

## 3-POSITION CENTERING

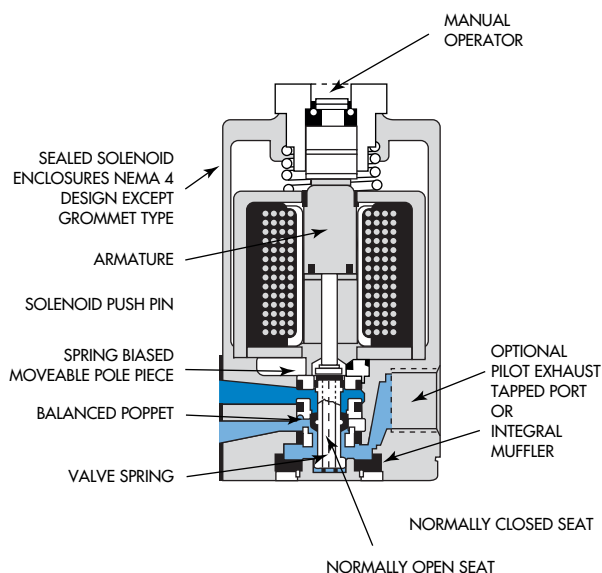
MAC 3-position solenoid and remote air pilot valves are centered by a patented spring centering device or patented combination spring and pressure assisted spool design which reduces side load potential and resultant wear, and assures fast, positive return of the main spool when the pilots are de-energized due to a high shifting force.



## SOLENOID PILOT VALVES

Most MAC valves in this catalog are pilot operated by a patented high flow, fast response Normally Closed Only version of the compact MAC 100 Series solenoid valve (shown below). Similarly on solenoid pilot 3-way valves, another version of the 100 or 200 series is used as the pilot. These patented burnout proof solenoid pilots provide extremely fast response times to an extent not equaled in other valves.

Because air pressure does the work in shifting the main spool, minimal energy is consumed by the solenoid with no limitation in size of the main valve. On 120/60 AC service the inrush current is down to .12 Amps. On DC service wattages are available down to 1.0 Watts across almost the entire product line. (The 82 Series is piloted by a version of the 35 Series. On DC service, wattages are available down to 1.8 watts.). Intrinsically safe valves are available for most series listed in this catalog. This option is for DC service only at 0.6 Watts.

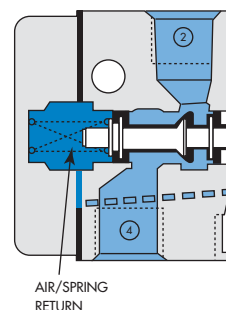


## VIRTUALLY—BURN-OUT PROOF MACSOLENOID®

The patented spring biased floating pole piece MACSOLENOID® used on all 3-ways and 4-ways in this catalog is independent and isolated from the valve body (100 Series shown above). When voltage is applied to the coil, the pole piece is held down by the bias spring so that the magnetic attraction between the pole piece and armature results in the armature moving down against the push pin, moving the poppet from the Normally Closed (N.C.) seat to the Normally Open (N.O.) seat. After the poppet has shifted completely, the pole piece then moves upward, compressing the bias spring, until the pole piece magnetically seals with the armature. If the poppet sticks and fails to move initially, preventing the armature from moving down, the pole piece is magnetically drawn upward, compressing the bias spring, allowing the pole piece and armature to magnetically seal and subjecting the valve to maximum shifting forces. Thus the two most common causes of solenoid valve failure—failure to shift when energized, and coil burnout on AC service—are practically eliminated. The bias spring also reduces de-energized response time since it is exerting a separation force (downward force on the pole piece) between the armature and pole piece.

## AIR /SPRING RETURN

Single solenoid pilot or single remote air pilot models contain a unique combination spring and air assisted differential return. Supplied from the accumulator, inlet or external pilot; it maximizes and balances the shifting forces for consistent operation and positive spool return.



## NON-LUBE SERVICE

All valves in this catalog can be operated with or without air line lubrication. This is made possible through the use of the unique solenoid pilot operator, the pilot system, the spool and bore design, close tolerances and MAC's prelubrication procedures. In either case, air line filters are recommended and will extend cycle life of the valves.

## COILS

MAC makes its own coils permitting flexibility in voltage requirements. If the voltage required is not listed with the valve Series desired or in the "options" section, consult the factory, we may be able to produce it. Two types of special coils are described below.

**LOW WATTAGE DC**—MAC provides optional low wattage DC solenoids for all the valves of this catalog down to 1.0 watts, (except for the 1300 Series which is 6.0 watts, and the 35 & 45 Series which is 1.8 watts). These low wattage options can significantly reduce power consumption, power supply capacity, control amplifier capacity and cost of all the above.

**CLASS F**—High temperature AC and DC coil option. Available on all AC and DC coils. On some high wattage coils listed in the catalog, Class F is required and is so noted. These higher wattage coils are specified as MOD CLSF (Class F Option). Higher wattage coils will provide extremely fast response times.

## ADD-A-UNIT MANIFOLDS

Pioneered by MAC, Add-A-Unit die cast manifold bodies and bases are available. The common inlet, exhaust, and on many models the electrical conduit channel, enables bodies and bases to be added as desired. A valve gang can contain both 2- and 3- position valves, as well as solenoid, remote air pilot and manual or mechanical valves. Sections of a gang or individual valves in a gang may be isolated permitting different pressures to be fed to either end of the gang.

## ELECTRICAL PLUG-IN CONNECTIONS

4-way plug-in models incorporate recessed, shrouded connectors in both body and base with an integral ground pin that makes connection first and breaks last. Plug-ins permit easy and fast replacement of the valve without disturbing either the electrical wiring or air plumbing.

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.**



### TLD

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



### PLD

Proportional Lab Demonstration measures critical proportional regulation characteristics - *Response Time, Accuracy, Hysteresis, Repeatability and Flow.*



### Animation

Animated Software shows inner workings of various Air Valves Designs - *Powerful educational tool for learning about how air valves function.*

## Other MAC VALVE literature:

DESCRIPTION	CATALOG NUMBER
CIRCUIT BAR CATALOG	999CBCA
PROPORTIONAL VALVE CATALOG	999PPCB
SERIAL INTERFACE PRODUCTS	9999SI
MACONNECT SYSTEM	CONSULT FACTORY
NEW TECHNOLOGY	999NTCB



## Section 1

### Direct solenoid and solenoid pilot operated valves





Function	Port size	Flow [Max]	Individual mounting				
			inline	inline hazardous location	sub-base non "plug-in"	sub-base "plug-in"	valve only
<b>3/2 - 2/2</b>	<b>1/8"</b>	<b>0.17 Cv</b>	P. 15				
<b>3/2 - 2/2</b>	<b># 10-32 - 1/8"</b>	<b>0.16 Cv</b>					
<b>3/2 - 2/2</b>	<b># 10-32 - 1/8"</b>	<b>0.10 Cv</b>					
<b>3/2 - 2/2</b>	<b>1/8" - 1/4"</b>	<b>0.18 Cv</b>	P. 25				
<b>3/2 - 2/2</b>	<b>1/8"</b>	<b>0.14 Cv</b>					
<b>3/2 - 2/2</b>	<b>1/8" - 1/4"</b>	<b>0.5 Cv</b>	P. 33	P. 35			
<b>3/2 - 2/2</b>	<b>1/4"</b>	<b>0.4 Cv</b>					
<b>3/2 - 2/2</b>	<b>1/4" - 3/8"</b>	<b>2.2 Cv</b>	P. 47				
<b>3/2 - 2/2</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.7 Cv</b>	P. 51				
<b>3/2 - 2/2</b>	<b>1/2" - 3/4" - 1"</b>	<b>17.4 Cv</b>	P. 55				
<b>3/2 - 2/2</b>	<b>1" - 1 1/4" - 1 1/2"</b>	<b>26.0 Cv</b>	P. 59				
<b>3/2 - 2/2</b>	<b>2" - 2 1/2"</b>	<b>60.0 Cv</b>	P. 63				
<b>4/2</b>	<b># 10-32 - 1/8"</b>	<b>0.15 Cv</b>	P. 67				
<b>4/2</b>	<b># 10-32 - 1/8"</b>	<b>0.13 Cv</b>			P. 69		
<b>4/2</b>	<b># 10-32 - 1/8"</b>	<b>0.20 Cv</b>					
<b>4/2</b>	<b># 10-32 - 1/8"</b>	<b>0.11 Cv</b>					
<b>4/2</b>	<b># 10-32 - 1/8" 5/32 Pressed-in tube receptacles</b>	<b>0.11 Cv</b>					
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>0.7 Cv</b>	P. 89				
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>0.8 Cv</b>					
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>1.2 Cv</b>	P. 95				
<b>4/2</b>	<b>1/8" - 1/4" - 3/8"</b>	<b>1.4 Cv</b>					
<b>4/2 - 4/3</b>	<b>1/8" - 1/4" - 3/8"</b>	<b>1.35 Cv</b>			P. 101	P. 103	
<b>4/2 - 4/3</b>	<b>1/4" - 3/8"</b>	<b>1.35 Cv</b>					
<b>4/2 - 4/3</b>	<b>1/4" - 3/8" - 1/2"</b>	<b>3.0 Cv</b>			P. 111	P. 113	
<b>4/2 - 4/3</b>	<b>3/8" - 1/2"</b>	<b>3.0 Cv</b>					
<b>4/2 - 4/3</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.1 Cv</b>			P. 121	P. 123	
<b>4/2 - 4/3</b>	<b>3/4" - 1"</b>	<b>9.6 Cv</b>			P. 131	P. 133	
<b>4/2 - 4/3</b>	<b>3/4" - 1" - 1 1/4"</b>	<b>9.6 Cv</b>					
<b>4/2 - 4/3</b>	<b>3/4" - 1" - 1 1/4" - 1 1/2"</b>	<b>15.9 Cv</b>				P. 141	
<b>5/2 - 5/3</b>	<b>1/4"</b>	<b>1.4 Cv</b>	P. 145				
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.4 Cv</b>					
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.6 Cv</b>					P. 159
<b>5/2 - 5/3</b>	<b>3/8" - 1/2"</b>	<b>3.0 Cv</b>					P. 163
<b>5/2 - 5/3</b>	<b>1/2" - 3/4"</b>	<b>6.3 Cv</b>					P. 167
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>2.5 Cv</b>					P. 171
<b>5/2 - 5/3</b>	<b>1/2" - 3/4" - 1"</b>	<b>7.0 Cv</b>					P. 175
<b>5/2 - 5/3</b>	<b>1" - 1 1/4"</b>	<b>11.2 Cv</b>					P. 179

## Manifold mounting

## Series

[illegible]

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



### Individual mounting

inline

### Manifold mounting

stacking

sub-base  
non "plug-in"

sub-base  
with pressure  
regulators

Series

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

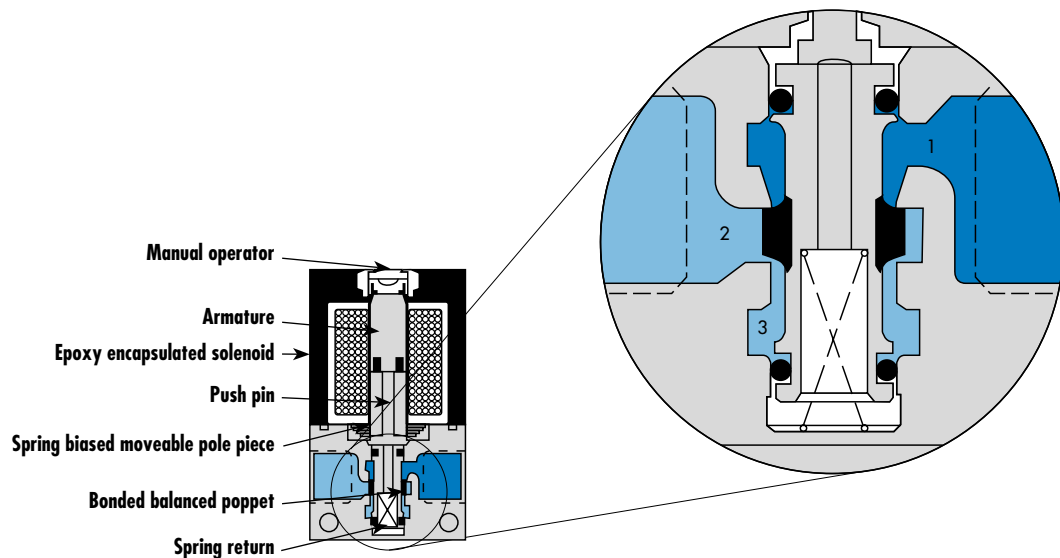
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



### 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, diverter, 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.

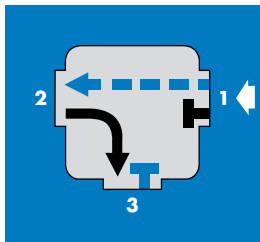
### VALVE CONFIGURATIONS AVAILABLE :

The 35 Series is a miniature 3 way or 2 way valve.

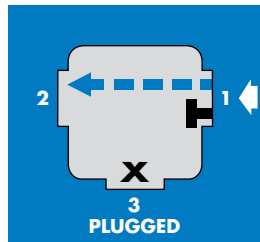
This valve provides extremely fast response, long life and high flow in a surprisingly small package.

- Individual, stacking body or manifold base.
- 3 way—Normally Open or Normally Closed.
- 2 way—Normally Open or Normally Closed.
- Optional Normally Closed Only Models.
- Selectors & Divertors.

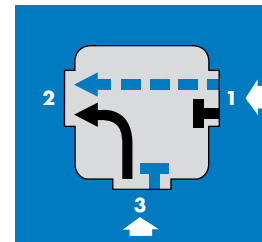
### PIPING CHART FOR INDIVIDUAL MODELS



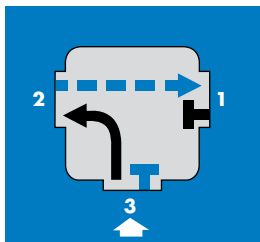
**3 Way  
Normally Closed**



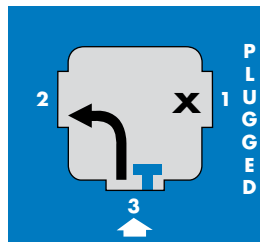
**2 Way  
Normally Closed**



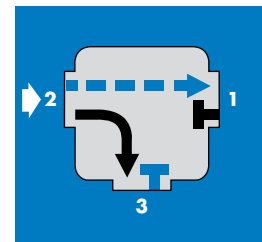
**Selector**



**3 Way  
Normally Open**



**2 Way  
Normally Open**



**Divertor**

Supply 

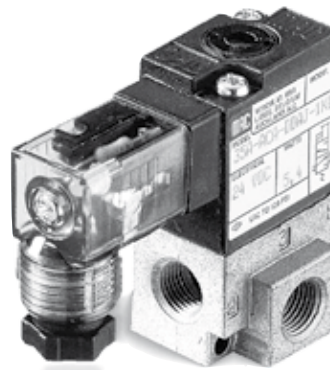
Operator De-Energized 

Operator Energized 

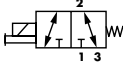
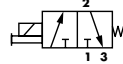
Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8"</b>	<b>0.17 C<sub>v</sub></b>	inline	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>1/8" NPTF</b>	35A-AAA-Dxxx-xxx	35A-AAB-Dxxx-xxx

## SOLENOID OPERATOR ►

D **XX X- X XX**\*

XX Voltage	X Wire length	X Manual operator	XX
<b>AA</b> 120/60, 110/50	<b>A</b> 18" (Flying leads)	<b>1</b> Non-locking	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking	<b>KD</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>JB</b> Rectangular connector
<b>FB</b> 24 VDC (1.8 W)			<b>JD</b> Rectangular connector with light
<b>DA</b> 24 VDC (5.4 W)			<b>BA</b> Flying leads
<b>DF</b> 24 VDC (12.7 W)			

\* Other options available, see page 361.

## OPTIONS

35A-CAX-Dxxx-xxx

- with (2) # 10-32 ports in backside of 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 :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, $\Delta P=1\text{bar}$ ) :	1.8 W : 0.08 C <sub>v</sub> , 5.4 W : 0.15 C <sub>v</sub>		
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 :

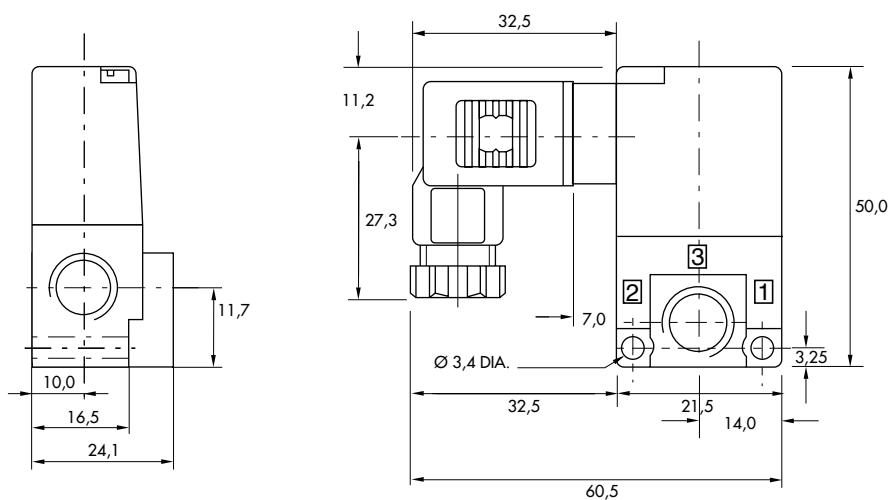
- Solenoid operator (power  $\geq 5.4\text{ W}$ ) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402.

Options :

- BSPP threads. • High flow up to 0.25 C<sub>v</sub> according to wattage and high flow mod.

# DIMENSIONS

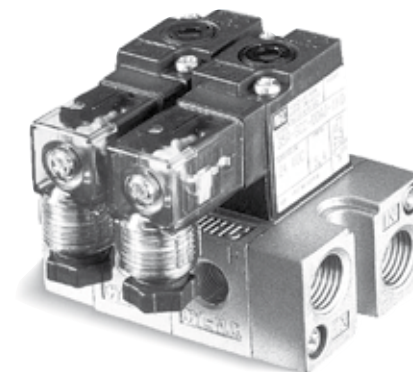
Dimensions shown are metric (mm)





Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b># 10-32, 1/8"</b>	<b>0.16 C<sub>v</sub></b>	stacking	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	NC only valve	NO only valve
		
<b>1/8" NPTF</b>	35A-SAC-Dxxx-xxx	35A-SAD-Dxxx-xxx
<b># 10-32 UNF</b>	35A-SBC-Dxxx-xxx	35A-SBD-Dxxx-xxx

## SOLENOID OPERATOR ►

D **XX X- X XX**\*

XX Voltage	X Wire length	X Manual operator	XX
<b>AA</b> 120/60, 110/50	<b>A</b> 18" (Flying leads)	<b>1</b> Non-locking	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking	<b>KD</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>BA</b> Flying leads
<b>FB</b> 24 VDC (1.8 W)			
<b>DA</b> 24 VDC (5.4 W)			
<b>DF</b> 24 VDC (12.7 W)			

\* Other options available, see page 361.

End plate kit required (Port size : 1/4") : M-35001-01  
Note : upon request, manifolds are mounted at the factory.

## OPTIONS

35A-TXX-Dxxx-xxx

— Bottom Inlet



### 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, $\Delta P=1\text{bar}$ ) :	1.8 W : 0.12 C <sub>v</sub> , 5.4 to 12.7 W : 0.16 C <sub>v</sub>		
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 :

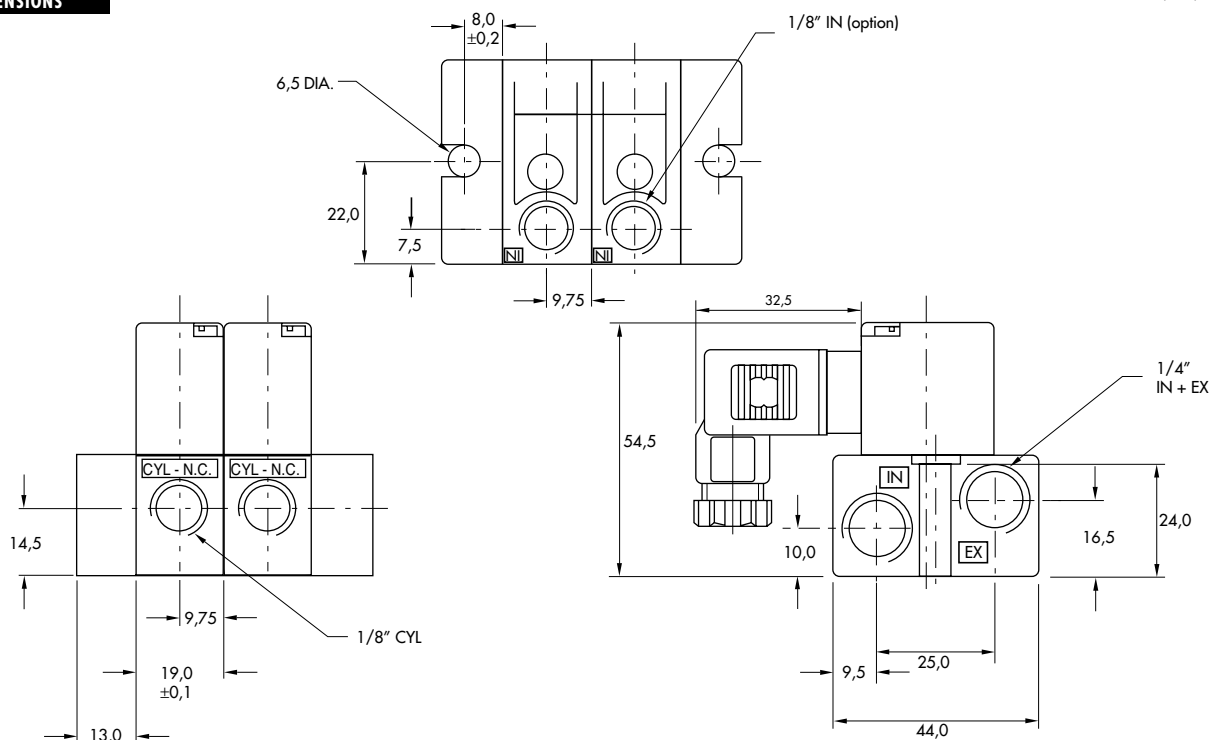
- Solenoid operator (power  $\geq 5.4\text{ W}$ ) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Pressure seal (between valves) : 16433.
- Tie-rod (x2) : 19813. • Inlet isolator : N-35002. • Exhaust isolator : N-35003. • Inlet & Exhaust isolator : N-35001.

#### Options :

- BSPP threads. • High flow up to 0.25 C<sub>v</sub>, according to wattage and high flow mod.

### DIMENSIONS

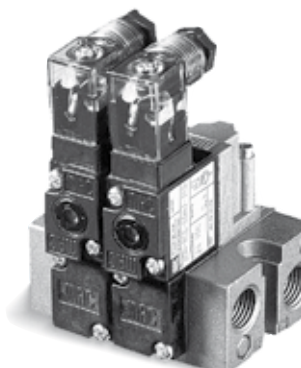
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b># 10-32, 1/8"</b>	<b>0.10 C<sub>v</sub></b>	sub-base non "plug-in"	

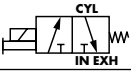

## OPERATIONAL BENEFITS

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.

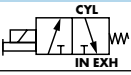



## HOW TO ORDER

### SIDE CYLINDER PORTS

Port size	Norm. closed Manifold base	Norm. open Manifold base
		
<b>Valve less base (universal)</b>	35A-B00-Dxxx-xxx	35A-B00-Dxxx-xxx
<b># 10-32 UNF base</b>	35A-BBE-Dxxx-xxx	35A-BBF-Dxxx-xxx
<b>1/8" NPTF base</b>	35A-BAE-Dxxx-xxx	35A-BAF-Dxxx-xxx

### BOTTOM CYLINDER PORTS

Port size	Norm. closed Manifold base	Norm. open Manifold base
		
<b>Valve less base (universal)</b>	35A-B00-Dxxx-xxx	35A-B00-Dxxx-xxx
<b># 10-32 UNF base</b>	35A-BGE-Dxxx-xxx	35A-BGF-Dxxx-xxx
<b>1/8" NPTF base</b>	35A-BFE-Dxxx-xxx	35A-BFF-Dxxx-xxx

### SOLENOID OPERATOR ►

D <b>XX X- X XX</b> *			
XX Voltage	X Wire length	X Manual operator	XX
<b>AA</b> 120/60, 110/50	<b>A</b> 18" (Flying leads)	<b>1</b> Non-locking	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking	<b>KD</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>BA</b> Flying leads
<b>FB</b> 24 VDC (1.8 W)			
<b>DA</b> 24 VDC (5.4 W)			
<b>DF</b> 24 VDC (12.7 W)			

\* Other options available, see page 361.

End plate kit required (Port size : 1/4") : M-35003-01

Note : upon request, manifolds are mounted at the factory.

## OPTIONS

35A-EXX-Dxxx-xxx

- N.C. only valve

35A-FXX-Dxxx-xxx

- universal w/gage port

35A-QXX

- no valve body (base only)

### 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, $\Delta P=1\text{bar}$ ) :	1.8 W : 0.09 C <sub>v</sub> , 5.4 to 12.7 W : 0.1 C <sub>v</sub>		
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 :

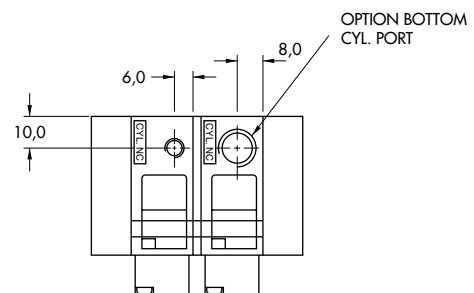
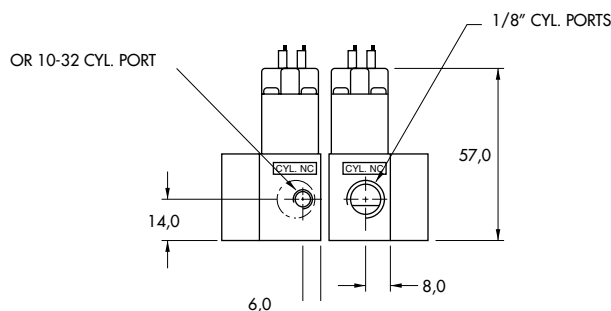
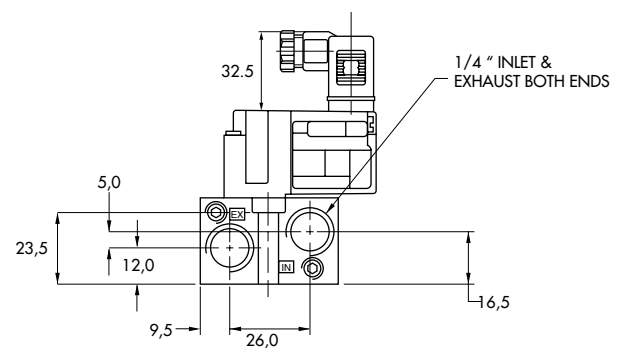
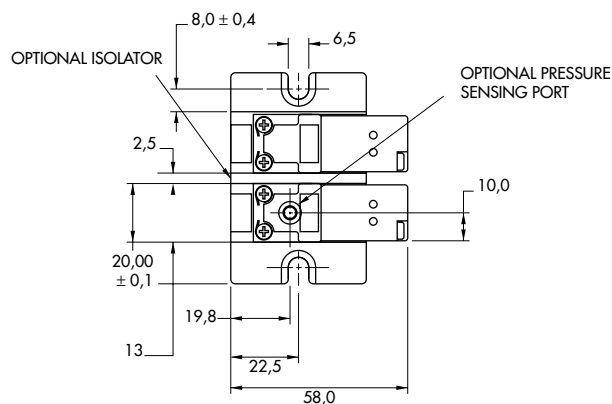
- Solenoid operator (power  $\geq 5.4$  W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Pressure seal (between valve and base) : 16447.
- Pressure seal (between bases) : 16461. • Tie-rod (x2) : 19753. • Inlet isolator : N-35007. • Exhaust isolator : N-35008.
- Inlet & Exhaust isolator : N-35006.

Options :

- BSPP threads. • High flow up to 0.18 C<sub>v</sub>, according to wattage and high flow mod.

### DIMENSIONS

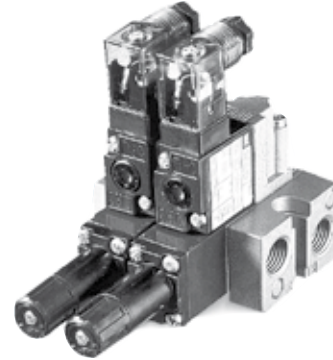
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b># 10-32, 1/8"</b>	<b>0.10 C<sub>v</sub></b>	sub-base with pressure regulators	

## 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.



35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3


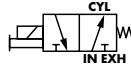
MAC 125A

MAC 250A


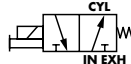
MAC 500A

## HOW TO ORDER

### SIDE CYLINDER PORTS

Port size	Norm. closed Manifold base	Norm. open Manifold base
		
<b>Valve less base (universal)</b>	35A-B00-Dxxx-xxx	35A-B00-Dxxx-xxx
<b># 10-32 UNF base</b>	35A-BBJ-Dxxx-xxx	35A-BBK-Dxxx-xxx
<b>1/8" NPTF base</b>	35A-BAJ-Dxxx-xxx	35A-BAK-Dxxx-xxx

### BOTTOM CYLINDER PORTS

Port size	Norm. closed Manifold base	Norm. open Manifold base
		
<b>Valve less base (universal)</b>	35A-B00-Dxxx-xxx	35A-B00-Dxxx-xxx
<b># 10-32 UNF base</b>	35A-BGJ-Dxxx-xxx	35A-BGK-Dxxx-xxx
<b>1/8" NPTF base</b>	35A-BFJ-Dxxx-xxx	35A-BFK-Dxxx-xxx

### SOLENOID OPERATOR ➤

D **XX X- X XX\***

XX Voltage	X Wire length	X Manual operator	XX
<b>AA</b> 120/60, 110/50	<b>A</b> 18" (Flying leads)	<b>1</b> Non-locking	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking	<b>KD</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>BA</b> Flying leads
<b>FB</b> 24 VDC (1.8 W)			
<b>DA</b> 24 VDC (5.4 W)			
<b>DF</b> 24 VDC (12.7 W)			

\* Other options available, see page 361.

End plate kit required (Port size : 1/4") : M-35003-01

Note : upon request, manifolds are mounted at the factory.

## OPTIONS

35A-EXX-Dxxx-xxx

- N.C. only valve

35A-FXX-Dxxx-xxx

- universal w/gage port

35A-QXX

- no valve body (base w/regulator)

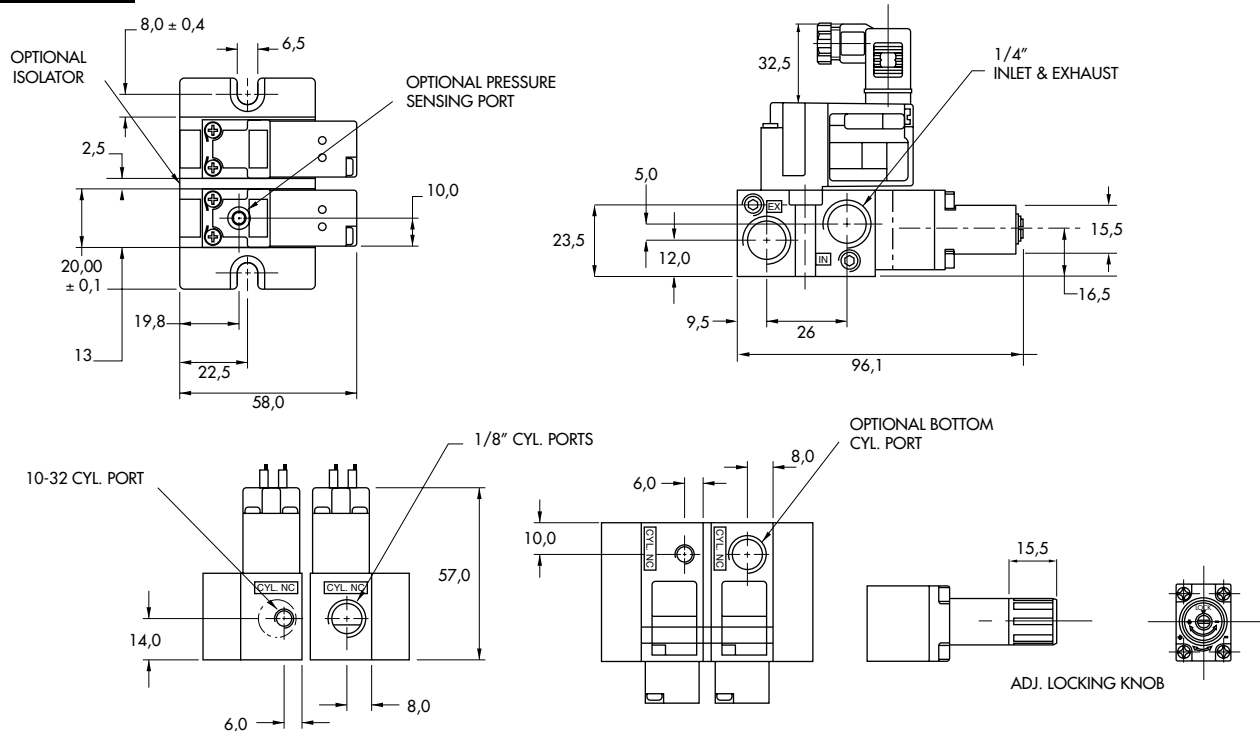
### TECHNICAL DATA

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 <sub>v</sub> , 5.4 to 12.7 W : 0.1 C <sub>v</sub>		
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. • Pressure seal (between valve and base) : 16447.
  - Pressure seal (between bases) : 16461. • Tie-rod (x2) : 19753. • Inlet isolator : N-35007. • Exhaust isolator : N-35008.
  - Inlet & Exhaust isolator : N-35006. • Pressure regulator : 35A-00M (ADJ, KNOB) - 35A-00L (SLOTTED STEM).
- Options :
- BSPP threads. • High flow up to 0.18 C<sub>v</sub>, according to wattage and high flow mod.

### DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Series

inline

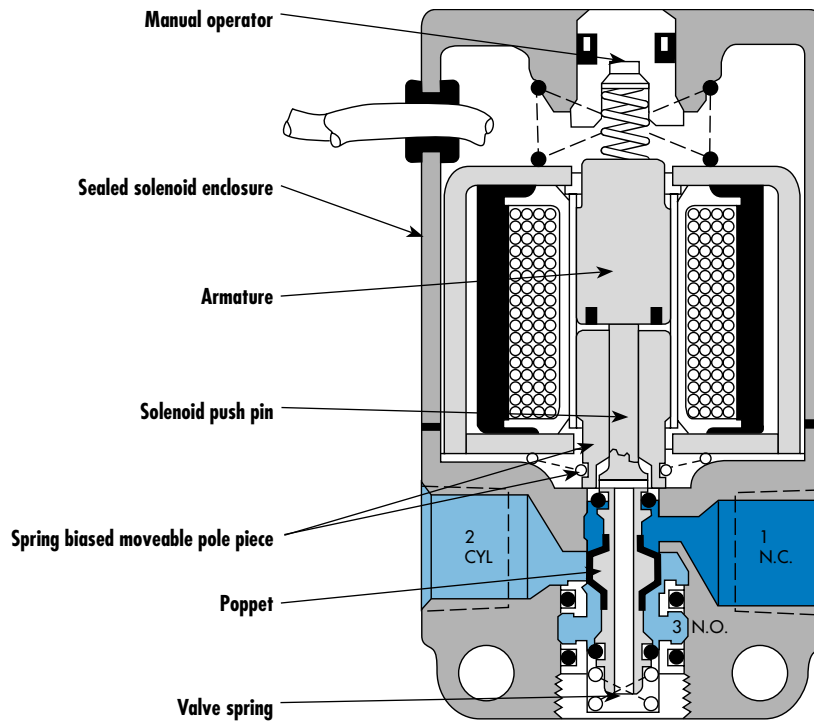
Manifold mounting

35

stacking

sub-base  
non "plug-in"

100



200

55

56

57

58

59

45

700

900

82

**SERIES FEATURES**

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

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

## APPLICATION CONVERSION PROCEDURE:

### INDIVIDUAL MODELS

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

### STACKING BODY MODELS

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

### MANIFOLD BASE MODELS

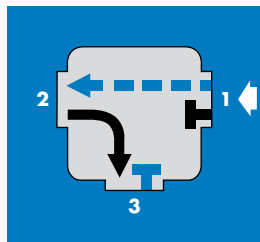
The interchangeable function plate between the valve bodies and base permits selection for 2- or 3-way, Normally Closed or Normally Open operation. On 3-way applications, one

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

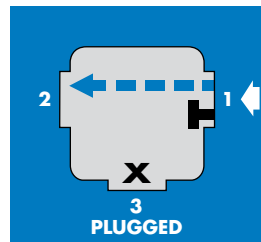
### N.C. ONLY MODELS

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

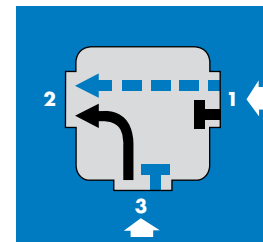
## PIPING CHART FOR INDIVIDUAL MODELS



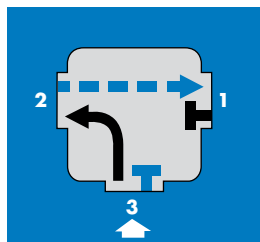
**3 Way  
Normally Closed**



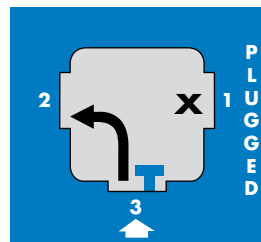
**2 Way  
Normally Closed**



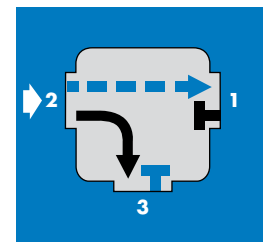
**Selector**



**3 Way  
Normally Open**



**2 Way  
Normally Open**



**Divertor**



Operator De-Energized →

Operator Energized - - - - - →

Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8" - 1/4"</b>	<b>0.18 C<sub>v</sub></b>	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.



35

100

200

55

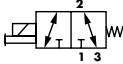
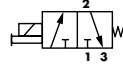
56

57

58

59

## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>1/8" NPTF</b>	111B- <b>XXYYZZ</b>	161B- <b>XXYYZZ</b>
<b>1/4" NPTF</b>	113B- <b>XXYYZZ</b>	163B- <b>XXYYZZ</b>

45

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		<b>CA</b> Conduit 1/2" NPS

700

900

82

\* Other options available, see page 357.

## Notes:

### CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

Individual inline valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1.

### NORMALLY CLOSED ONLY MODELS

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

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



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

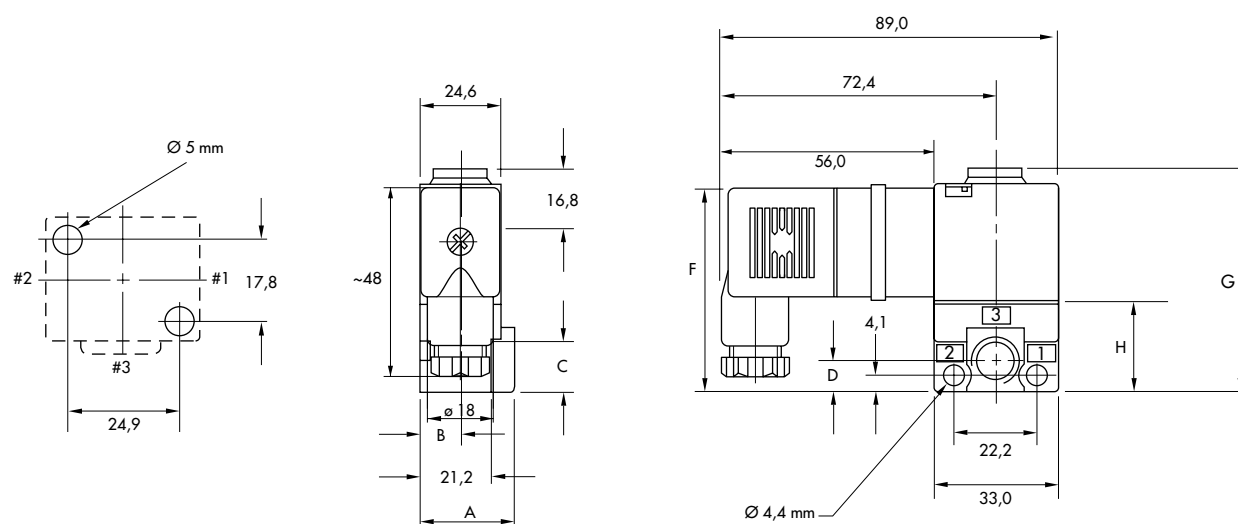
Spare parts :

- Solenoid operator (power  $\geq 4$  W) : D1-XXAA, cover mounting screws 32184 and seal 16234.

Options :                      • BSPP threads.

## DIMENSIONS

Dimensions shown are metric (mm)



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

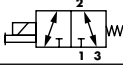
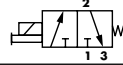
Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8" - 1/4"</b>	<b>0.18 C<sub>v</sub></b>	stacking	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>1/8" NPTF</b>	181B- <b>XXYYZZ</b>	184B- <b>XXYYZZ</b>
<b>1/4" NPTF</b>	183B- <b>XXYYZZ</b>	185B- <b>XXYYZZ</b>

## SOLENOID OPERATOR ➤

<b>XX Y ZZ*</b>		
<b>XX Voltage</b>	<b>Y Manual operator</b>	<b>ZZ Electrical connection</b>
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>BA</b> Flying leads (18")
<b>59</b> 24 VDC (2.5 W)		<b>MB</b> Common conduit 1" NPS
<b>87</b> 24 VDC (17.1 W)		
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

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

## Notes:

### CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

In the case of stacking valves a reversible plate, complete with indicator, is placed between each valve body assembly. This determines whether the valve is N.C. or N.O.

### NORMALLY CLOSED ONLY MODELS

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

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

## TECHNICAL DATA

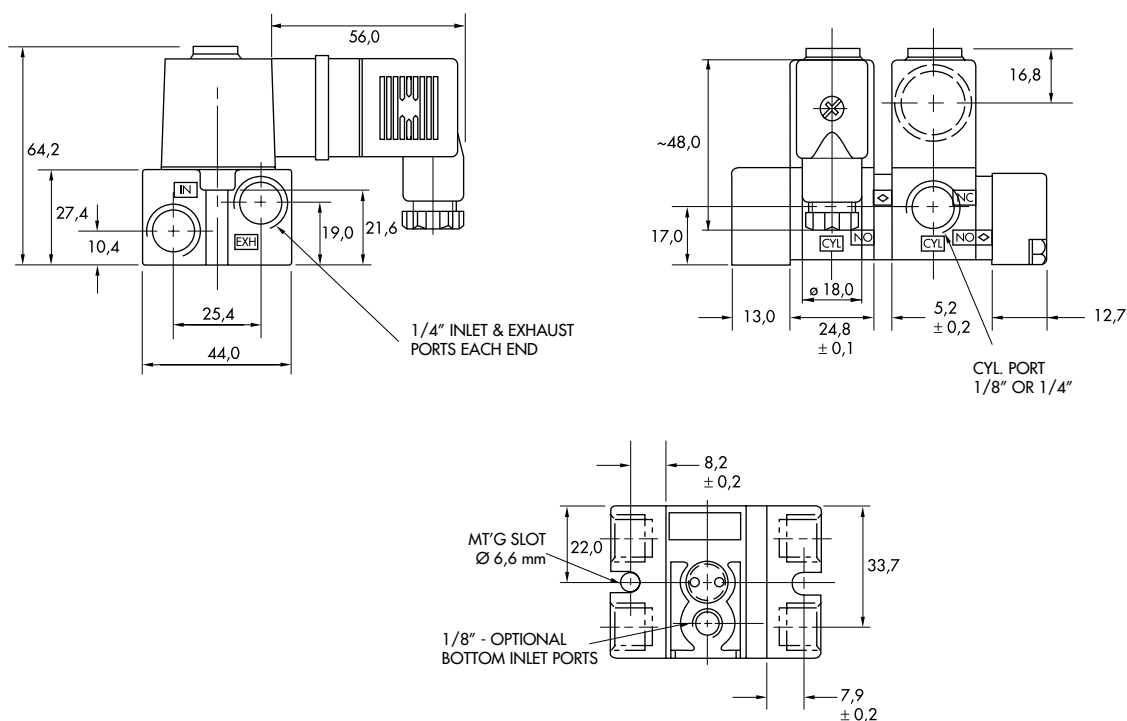
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.18 C <sub>v</sub>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

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

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

## DIMENSIONS

Dimensions shown are metric (mm)



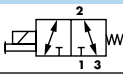
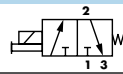
Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8"</b>	<b>0.14 C<sub>v</sub></b>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>Valve less base</b>	130B- <b>XXYYZZ</b>	170B- <b>XXYYZZ</b>
<b>1/8" base NPTF</b>	132B- <b>XXYYZZ</b>	172B- <b>XXYYZZ</b>

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>BA</b> Flying leads (18")
<b>59</b> 24 VDC (2.5 W)		<b>MA</b> Common conduit 1" NPS
<b>87</b> 24 VDC (17.1 W)		<b>RA</b> Conduit 3/8" NPS
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

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

## OPTIONS

12XB-**XXYYZZ**

2-way N.C.

14XB-**XXYYZZ**

2-way N.O.

102

(Base only)

## Notes:

### CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

For manifold base mounted valves a plate is provided between the valve and the base. Three plates are available; a reversible plate for 3 Way valves (N.C. & N.O.), one plate for 2 Way N.C. and one for 2 Way N.O. Appropriate plates, determined by the valve model number, are supplied automatically with the valve.

### NORMALLY CLOSED ONLY MODELS

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

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200

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700

900

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6300

6500

6600

1300

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ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

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

## Spare parts :

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

## Options :

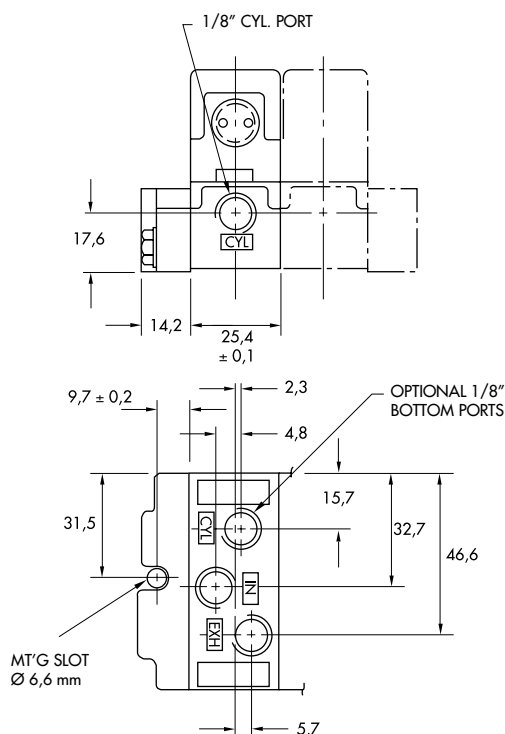
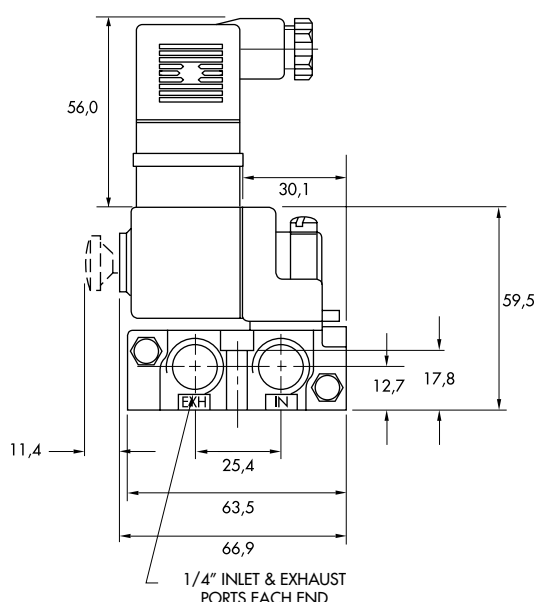
- BSPP threads. • Isolation of inlet : Mod. 313P. • Isolation of exhaust : Mod. 313E. • Additional bottom inlet : Mod. 0210.
- Bottom cyl. port : Mod. 0009. • All bottom & side ports : Mod. 0004.

## Note :

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

# DIMENSIONS

Dimensions shown are metric (mm)



### Individual mounting

inline	inline hazardous location	
--------	---------------------------	--

Series

### Manifold mounting

sub-base non "plug-in"	sub-base with pressure regulators	sub-base hazardous location	
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ISO 1

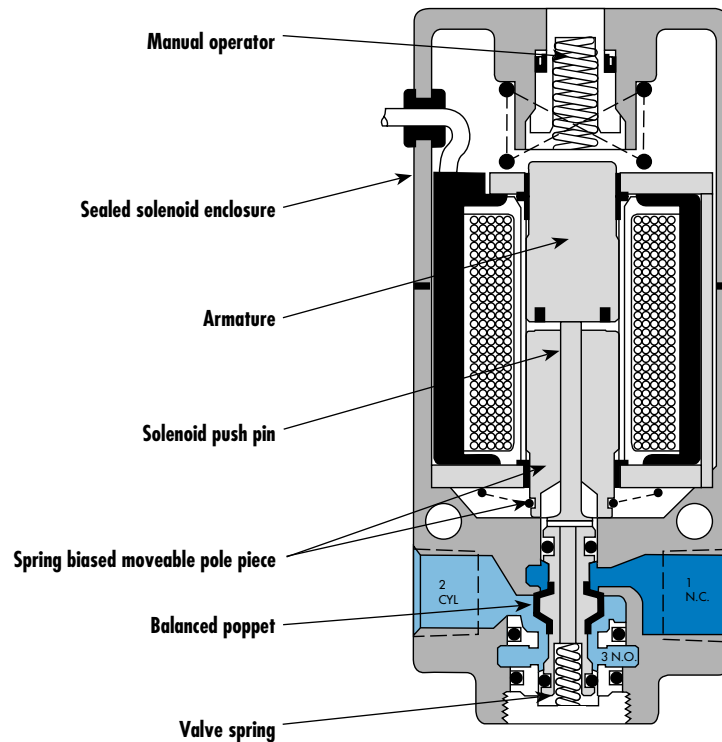
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



### SERIES FEATURES

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Six valve functions with one Inline valve and four valve functions with one Manifold valve.
- A triple rated coil for 120/60, 110/50 or 24 VDC (6 Watt).
- Inline & add-a-unit manifold capability.
- Use on lube or non-lube service.
- Extremely rapid response and cycle rate.
- Various types of manual operators and electrical enclosures.
- Extremely long service life.
- Optional low wattage DC solenoids down to 1 watt.

## APPLICATION CONVERSION PROCEDURE:

### INDIVIDUAL MODELS

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

### MANIFOLD MODELS

The interchangeable function plate between the valve body and base permits selection for 2- or 3-way, Normally Closed or Normally Open operation, instead of through piping as shown below in the Inlines. On 3-way applications, one function plate is used for both N.C. and N.O. When "3-C" is visible on the plate, the function will be N.C. When "3-O" is visible, the function is N.O. On 2-way applications, a separate plate is used and like the 3-way plate is marked "2-C" for N.C. and "2-O" on the other side for N.O. The 2-way plates block the exhaust at the valve, permitting the mixing in a stack of

3-ways and 2-ways. Changes within a stack from one function to another can be made without disturbing the plumbing.

### SPECIAL APPLICATIONS:

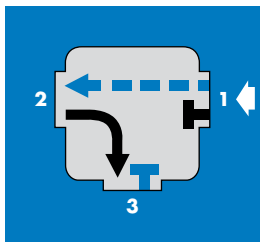
#### N.C. ONLY MODELS

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

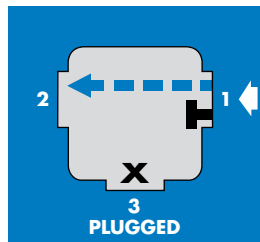
#### EXPLOSION PROOF MODELS

These models are designed to meet C.S.A. standards for Division 1, Class I, Groups B, C, D and Class II, Groups E, F and G (NEMA equivalent to Class I is NEMA 7; Class II is NEMA 9). Explosion proof models are available in either inline or manifold versions but only with the no operator ("O") manual operator.

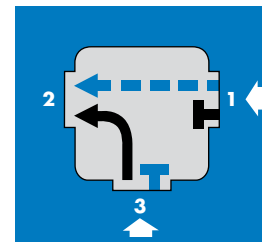
### PIPING CHART FOR INDIVIDUAL MODELS



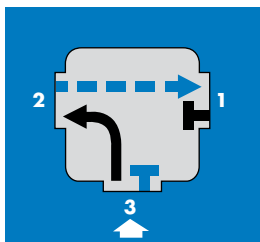
**3 Way  
Normally Closed**



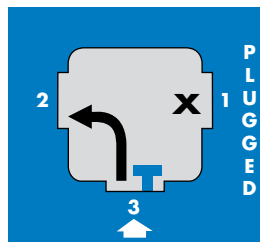
**2 Way  
Normally Closed**



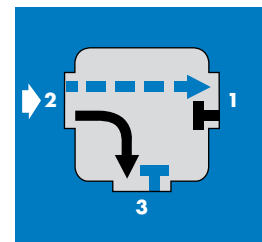
**Selector**



**3 Way  
Normally Open**



**2 Way  
Normally Open**



**Divertor**



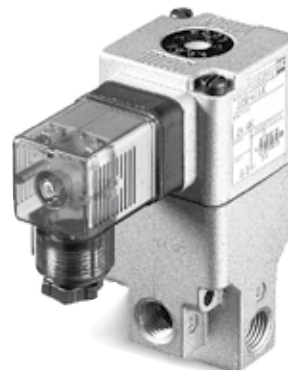
Operator De-Energized →

Operator Energized - - - - - →

Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8" - 1/4"</b>	<b>0.5 C<sub>v</sub></b>	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.



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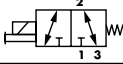
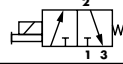
56

57

58

59

## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>1/8" NPTF</b>	224B- <b>XXYYZZ</b>	274B- <b>XXYYZZ</b>
<b>1/4" NPTF</b>	225B- <b>XXYYZZ</b>	275B- <b>XXYYZZ</b>

45

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50, 24 VDC (6.0 W)	<b>1</b> Non-locking	<b>JA</b> Square connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JC</b> Square connector with light
<b>22</b> 24/60, 24/50		<b>BA</b> Flying leads (18")
<b>52</b> 24 VDC (2.5 W)		<b>CA</b> Conduit 1/2" NPS
<b>78</b> 24 VDC (24.0 W)		
<b>61</b> 24 VDC (8.5 W)		

700

900

82

\* Other options available, see page 357.

## Notes:

### CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

Individual inline valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1.

### NORMALLY CLOSED ONLY MODELS

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

6300

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6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



## TECHNICAL DATA

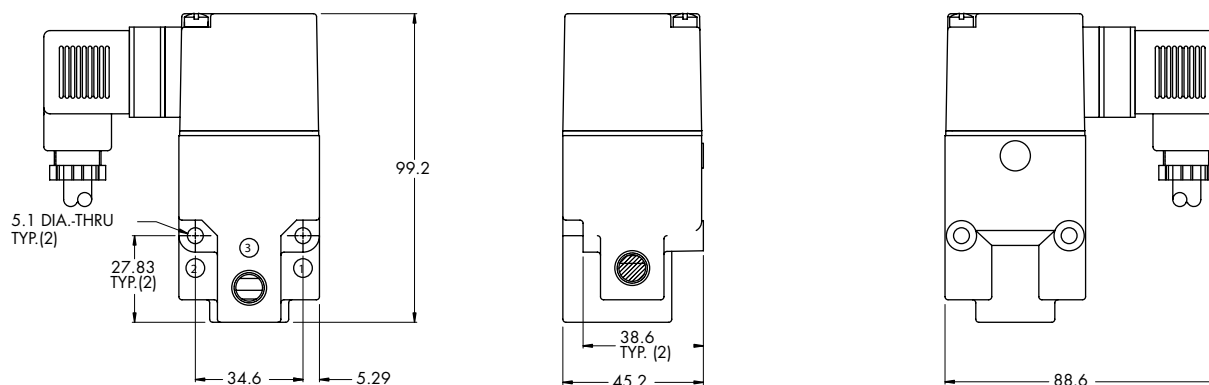
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.5 C <sub>v</sub>		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W		
Response times :	24 VDC (8.5 W)	Energize : 15 ms	De-energize : 5 ms
	120/60	Energize : 3-8 ms	De-energize : 3-13 ms

Spare parts : • Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.

Options : • BSPP threads.

## DIMENSIONS

Dimensions shown are metric (mm)



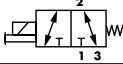
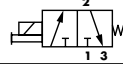
Function	Port size	Flow (Max)	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8" - 1/4"</b>	<b>0.5 C<sub>v</sub></b>	inline hazardous location	

## 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. Burn-out proof solenoid on AC service.



## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>1/8" NPTF</b>	224B-XX0EA	274B-XX0EA
<b>1/4" NPTF</b>	225B-XX0EA	275B-XX0EA

## SOLENOID OPERATOR ➤

**XX**

XX	Voltage
11	120/60, 110/50, 24 VDC (6.0 W)
12	240/60, 220/50
22	24/60, 24/50
50	24 VDC (6.0 W)
55	12 VDC (6.0 W)
60	12 VDC (9.5 W)
61	24 VDC (8.5 W)

## Notes:

The special version of the 200 Series designed for hazardous locations has been approved by CSA for Class I, Groups B, C & D; Class II, Groups E, F & G. Maximum rated fluid and ambient temperature is 40°C; maximum pressure is 150 p.s.i. Approval is limited to certain common AC & DC voltages which are those designated in the table above.

These valves are supplied without manual operators. This version of the 200 Series can be supplied on the standard individual inline or the manifold valve body assemblies. It can also be supplied as a pilot for the 57, 58 and 59 Series (with special adapter plate # M-00012).

## CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

Individual inline valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1.

## NORMALLY CLOSED ONLY MODELS

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

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6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

#### TECHNICAL DATA

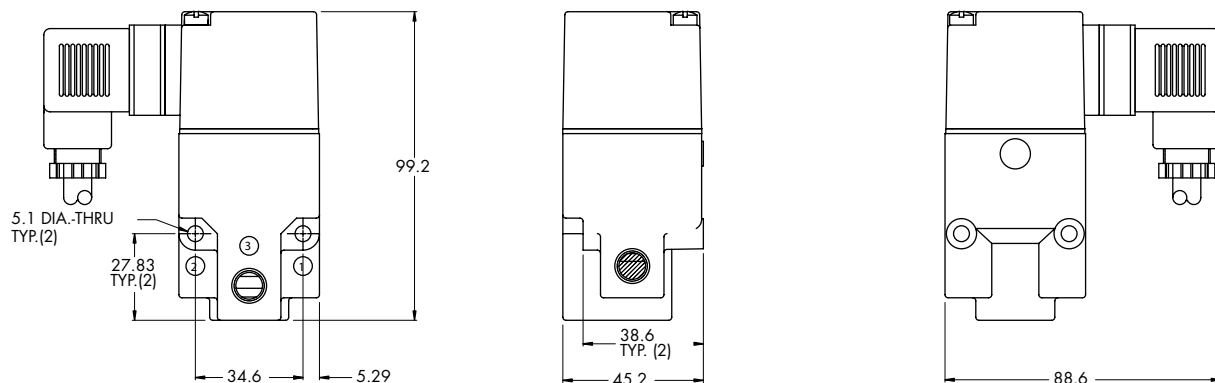
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.5 C <sub>v</sub>		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W		
Response times :	24 VDC (8.5 W)	Energize : 15 ms	De-energize : 5 ms
	120/60	Energize : 3-8 ms	De-energize : 3-13 ms

Spare parts : • Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.

Options : • BSPP threads.

#### DIMENSIONS

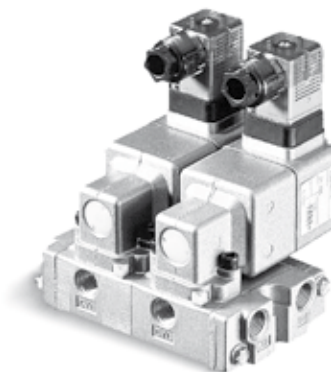
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8" - 1/4"</b>	<b>0.5 C<sub>v</sub></b>	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.



35

100

200

55



56

57

58

59

## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>Valve less base</b>	250B- <b>XXYYZZ</b>	280B- <b>XXYYZZ</b>
<b>1/8" base NPTF</b>	256B- <b>XXYYZZ</b>	286B- <b>XXYYZZ</b>
<b>1/4" base NPTF</b>	257B- <b>XXYYZZ</b>	287B- <b>XXYYZZ</b>

45

## SOLENOID OPERATOR ►

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50, 24 VDC (6.0 W)	<b>1</b> Non-locking	<b>JC</b> Square connector with light
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JA</b> Square connector
<b>22</b> 24/60, 24/50		<b>BA</b> Flying leads (18")
<b>52</b> 24 VDC (2.5 W)		<b>CA</b> Conduit 1/2" NPS
<b>78</b> 24 VDC (24.0 W)		
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

End plate kit required (Port size : 1/4") : A2-5003-01.

## OPTIONS

26XB- <b>XXYYZZ</b>	206	207
- universal 2-way	(Base only - 1/8")	(Base only - 1/4")

## CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

For manifold base mounted valves a plate is provided between the valve and the base. Three plates are available; a reversible plate for 3 Way valves (N.C. & N.O.), one plate for 2 Way N.C. and one for 2 Way N.O. Appropriate plates, determined by the valve model number, are supplied automatically with the valve.

## NORMALLY CLOSED ONLY MODELS

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

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.5 C <sub>v</sub>		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W		
Response times :	24 VDC (8.5 W)	Energize : 15 ms	De-energize : 5 ms
	120/60	Energize : 3-8 ms	De-energize : 3-13 ms

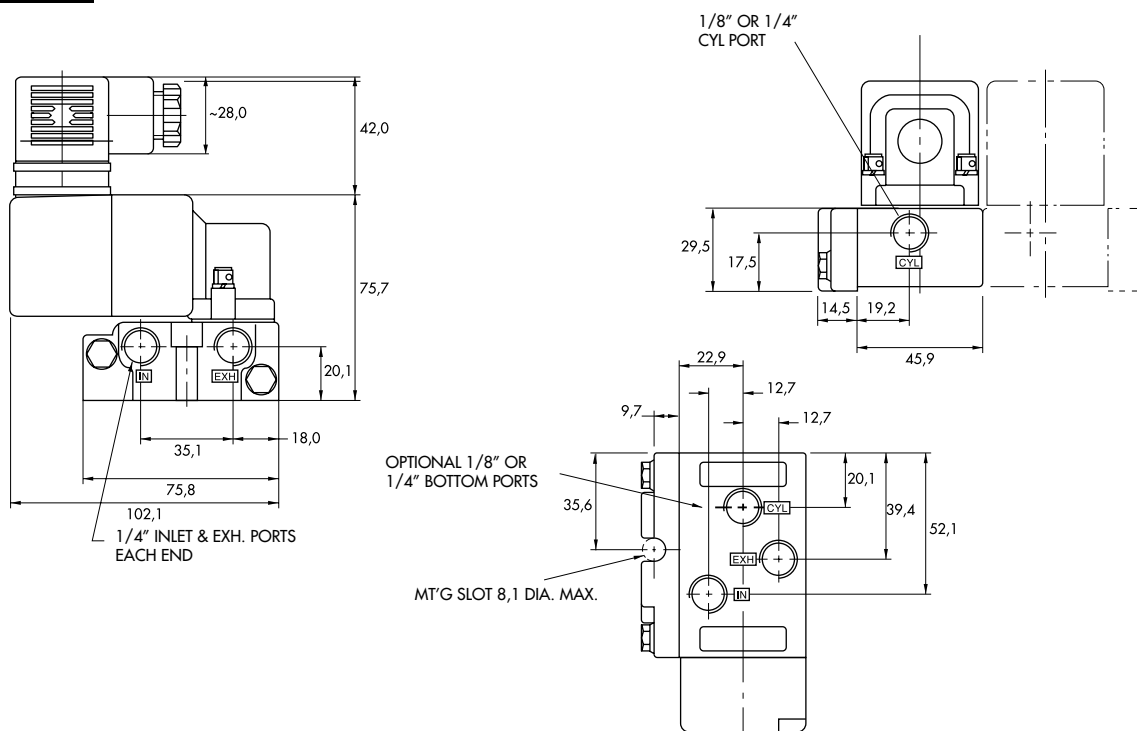
Spare parts :      • Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.  
                              • Function plate : A2-7005. • Seal between bases : B5-5010. • Tie-rod (x2) : B4-9004.

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

Note :                • Specify Mod. number after valve model number (i.e. 257B-111BA Mod. 0210)

## DIMENSIONS

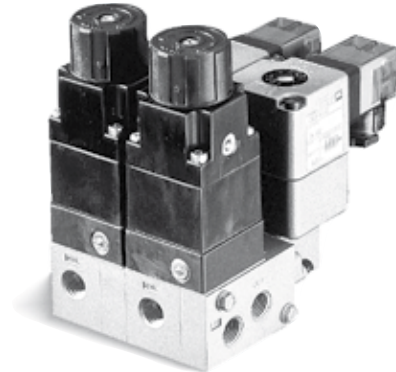
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/4"</b>	<b>0.4 C<sub>v</sub></b>	sub-base with pressure regulators	

## 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.
7. Individual pressure control to each cylinder port.



35

100

200

55



56

57

58

59

## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>Valve less base</b>	250B- <b>XXYYZZ</b>	280B- <b>XXYYZZ</b>
<b>1/4" base NPTF</b>	252B- <b>XXYYZZ</b>	282B- <b>XXYYZZ</b>

45

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50, 24 VDC (6.0 W)	<b>1</b> Non-locking	<b>JA</b> Square connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JC</b> Square connector with light
<b>22</b> 24/60, 24/50		<b>BA</b> Flying leads (18")
<b>52</b> 24 VDC (2.5 W)		<b>CA</b> Conduit 1/2" NPS
<b>78</b> 24 VDC (24.0 W)		
<b>61</b> 24 VDC (8.5 W)		

700

900

82

\* Other options available, see page 357.

Manifold fastening kit required : N-02003

## MODEL

- 252B-** 3-Way N.C. or N.O.  
**262B-** 2-Way N.C. or N.O.  
**282B-** 3-Way N.C. only

## INDIVIDUAL PRESSURE CONTROL TO EACH CYLINDER PORT

In this version the common inlet pressure supplies each individual valve in the stack. This common pressure passes through a relieving type regulator mounted on the same base as the valve and is supplied through the function plate to the Normally Closed or Normally Open poppet position. Through use of the appropriate function plate on the 200 Series basic valve, the operation can be Normally Closed Or Normally Open, 3-way or 2-way except for 282B models which are Normally Closed only. The exhaust ("out") port is common. Operation of the valves then opens or closes the cylinder port (See schematic diagram next page).

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

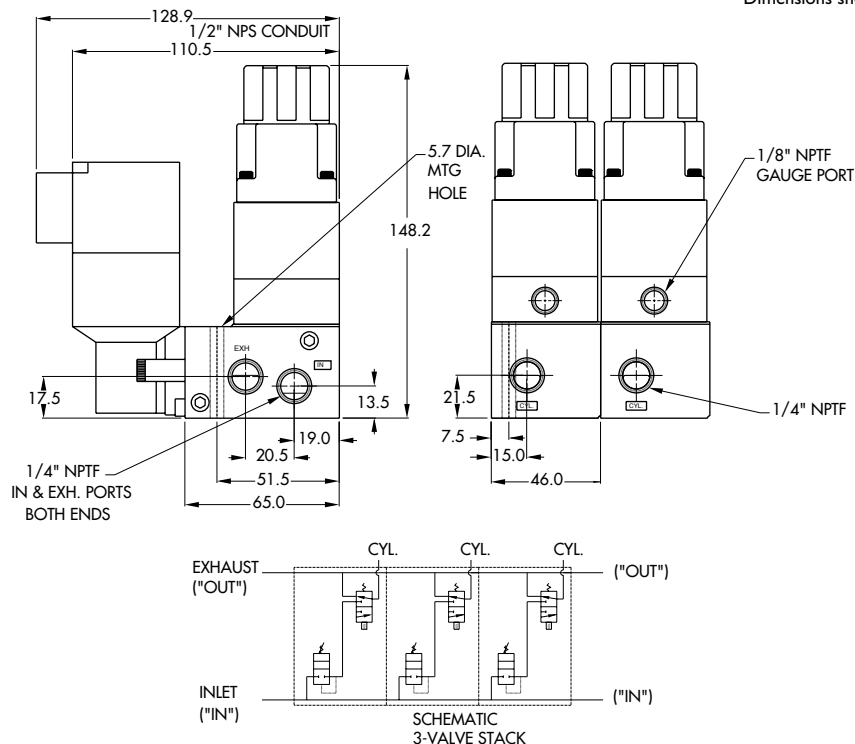
### TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.4 C <sub>v</sub>		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W		
Response times :	24 VDC (8.5 W)	Energize : 15 ms	De-energize : 5 ms
	120/60	Energize : 3-8 ms	De-energize : 3-13 ms

- Spare parts :
- Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.
  - Function plate : A2-7005. • Seal between bases (x2) : 17016-01. • Tie-rod (x2) : B4-9004. • Pressure regulator : PR02A-A0AA.
- Options :
- BSPP threads. • Explosion-proof model. • Isolation of inlet and/or exhaust.
  - Mod. PR80 (0-80 pressure range), Mod PR30 (0-30 pressure range)

### DIMENSIONS

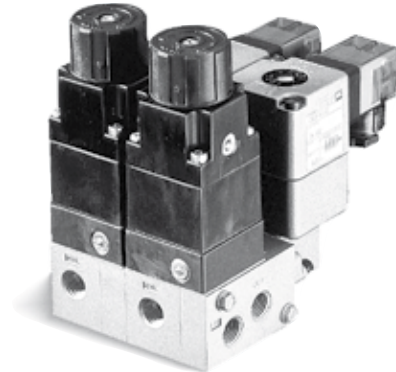
Dimensions shown are metric (mm)



Function	Inlet & outlet port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/4"</b>	<b>0.4 C<sub>v</sub></b>	sub-base with pressure regulators	

## 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.
7. Selected pressure control to a single outlet.



35

100

200

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56

57

58

59

## HOW TO ORDER

Port size	NC only valve
	
Valve	251B-XXYYZZ

## SOLENOID OPERATOR ►

**XX Y ZZ\***

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50, 24 VDC (6.0 W)	1	Non-locking	JA	Square connector
12	240/60, 220/50	2	Locking	JC	Square connector with light
22	24/60, 24/50			BA	Flying leads (18")
52	24 VDC (2.5 W)			CA	Conduit 1/2" NPS
78	24 VDC (24.0 W)				
61	24 VDC (8.5 W)				

\* Other options available, see page 357.

Manifold fastening kit required : N-02003

## MODEL

**251B-**  
3-Way Normally Closed

## SELECTED PRESSURE CONTROL TO A SINGLE OUTLET

This version permits the alternate selection of any of the regulated pressures in the stack to one common outlet. With all valves de-energized the regulated pressure supplied to the Normally Open pressure port passes through the valves and out the corresponding port at the other end of the stack (Common Outlet Port). Pressure supplied to the common inlet port is regulated at each valve and blocked by the poppet of each valve. When a valve is shifted in the stack the Normally Open pressure is blocked and the regulated normally closed pressure of that valve is open to the common outlet. If two valves are energized at the same time the pressure at the common outlet would be that of the energized valve nearest the outlet. If the normally open pressure port is not used it is open to exhaust from the common outlet. The individual cylinder port in each base is non-operative. (See schematic diagram next page).

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700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



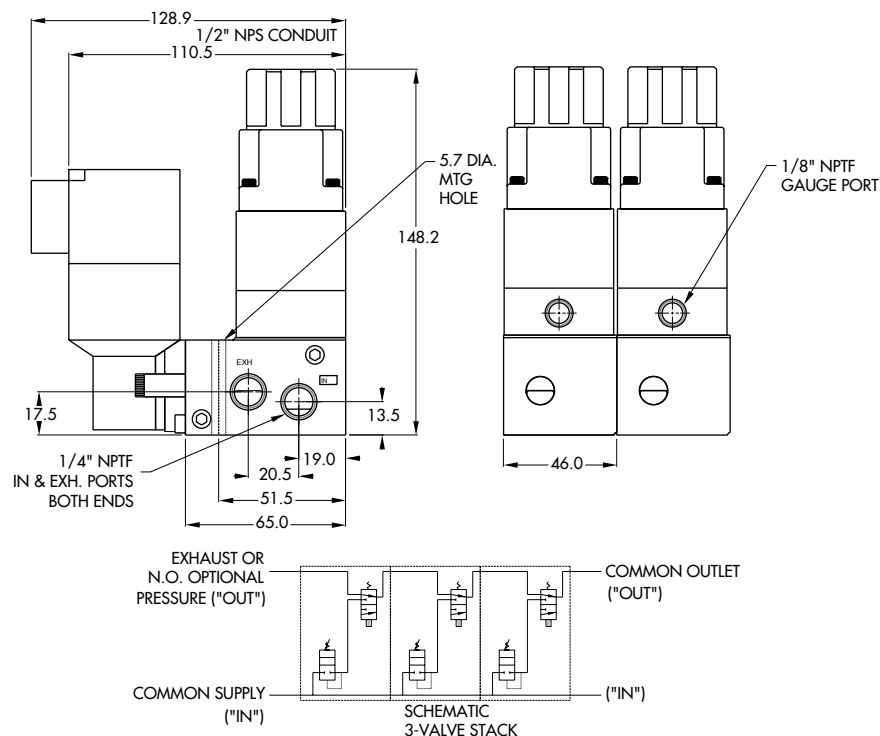
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.4 C <sub>v</sub>		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W		
Response times :	24 VDC (8.5 W)	Energize : 15 ms	De-energize : 5 ms
	120/60	Energize : 3-8 ms	De-energize : 3-13 ms

- Spare parts :
- Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.
  - Function plate : A2-7005. • Seal between bases (x2) : 17016-01. • Tie-rod (x2) : B4-9004. • Pressure regulator : PR02A-A0AA.
- Options :
- BSPP threads. • Explosion-proof model. • Isolation of inlet and/or exhaust.
  - Mod. PR80 (0-80 pressure range), Mod PR30 (0-30 pressure range)

## DIMENSIONS

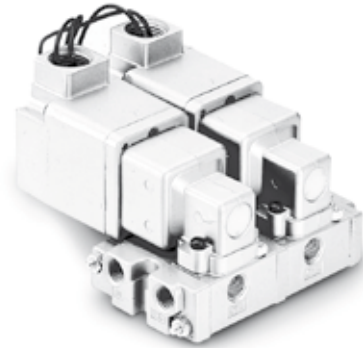
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8" - 1/4"</b>	<b>0.5 C<sub>v</sub></b>	sub-base hazardous location	

## 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. Burn-out proof solenoid on AC service.



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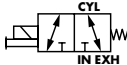
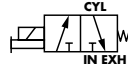
56

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59

## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>Valve less base</b>	250B-XX0EA	280B-XX0EA
<b>1/8" base NPTF</b>	258B-XX0EA	288B-XX0EA
<b>1/4" base NPTF</b>	259B-XX0EA	289B-XX0EA

45

## SOLENOID OPERATOR ➤

XX

XX	Voltage
11	120/60, 110/50, 24 VDC (6.0 W)
12	240/60, 220/50
22	24/60, 24/50
50	24 VDC (6.0 W)
55	12 VDC (6.0 W)
60	12 VDC (9.5 W)
61	24 VDC (8.5 W)

700

900

82

End plate kit required (Port size : 1/4") : A2-5003-01.

## OPTIONS

26XB-XX0EA	208	209
- universal 2-way	(Base only - 1/8")	(Base only - 1/4")

## Notes:

The special version of the 200 Series designed for hazardous locations has been approved by CSA for Class I, Groups B, C & D; Class II, Groups E, F & G. Maximum rated fluid and ambient temperature is 40°C; maximum pressure is 150 p.s.i.

Approval is limited to certain common AC & DC voltages which are those designated in the table above.

These valves are supplied without manual operators. This version of the 200 Series can be supplied on the standard individual inline or the manifold valve body assemblies. It can also be supplied as a pilot for the 57, 58 and 59 Series (with special adapter plate # M-00012).

## CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

For manifold base mounted valves a plate is provided between the valve and the base. Three plates are available; a reversible plate for 3 Way valves (N.C. & N.O.), one plate for 2 Way N.C and one for 2 Way N.O. Appropriate plates, determined by the valve model number, are supplied automatically with the valve.

## NORMALLY CLOSED ONLY MODELS

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

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

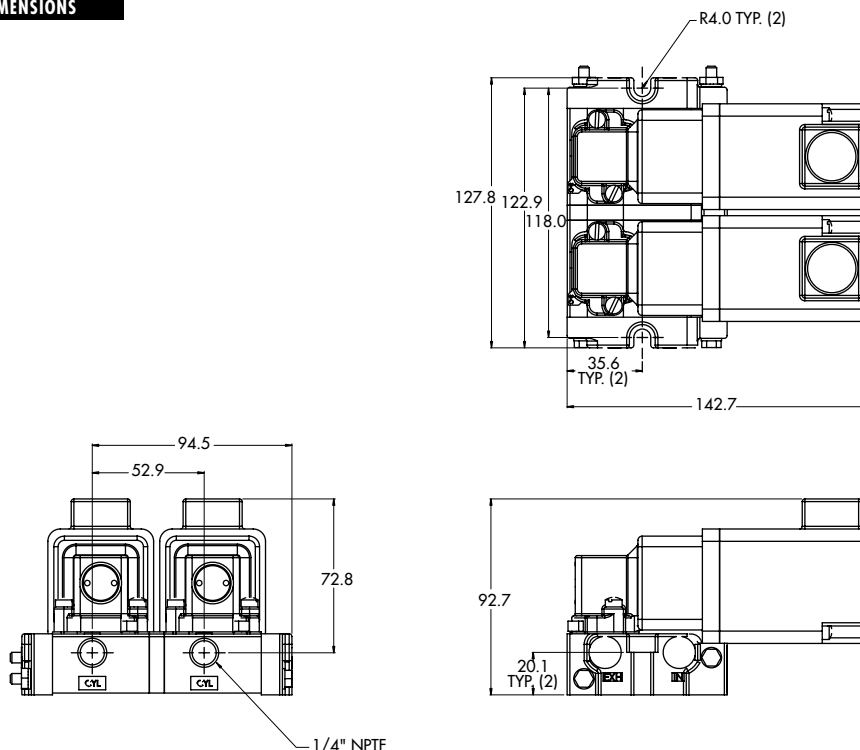
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C to 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.5 C <sub>v</sub>		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W		
Response times :	24 VDC (8.5 W)	Energize : 15 ms	De-energize : 5 ms
	120/60	Energize : 3-8 ms	De-energize : 3-13 ms

Spare parts :      • Solenoid operator (power ≥ 6 W) : D4-XXAAC-0EA. • Function plate : A2-7005. • Seal between bases : B5-5010.  
• Tie-rod (x2) : 19598.

Options :      • BSPP threads. • Isolation of inlet : Mod. 313P. • Isolation of exhaust : Mod. 313E.  
• Additional bottom inlet : Mod 0210.

# DIMENSIONS

Dimensions shown are metric (mm)



### Individual mounting

inline

Series

35

100

200

**55**

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

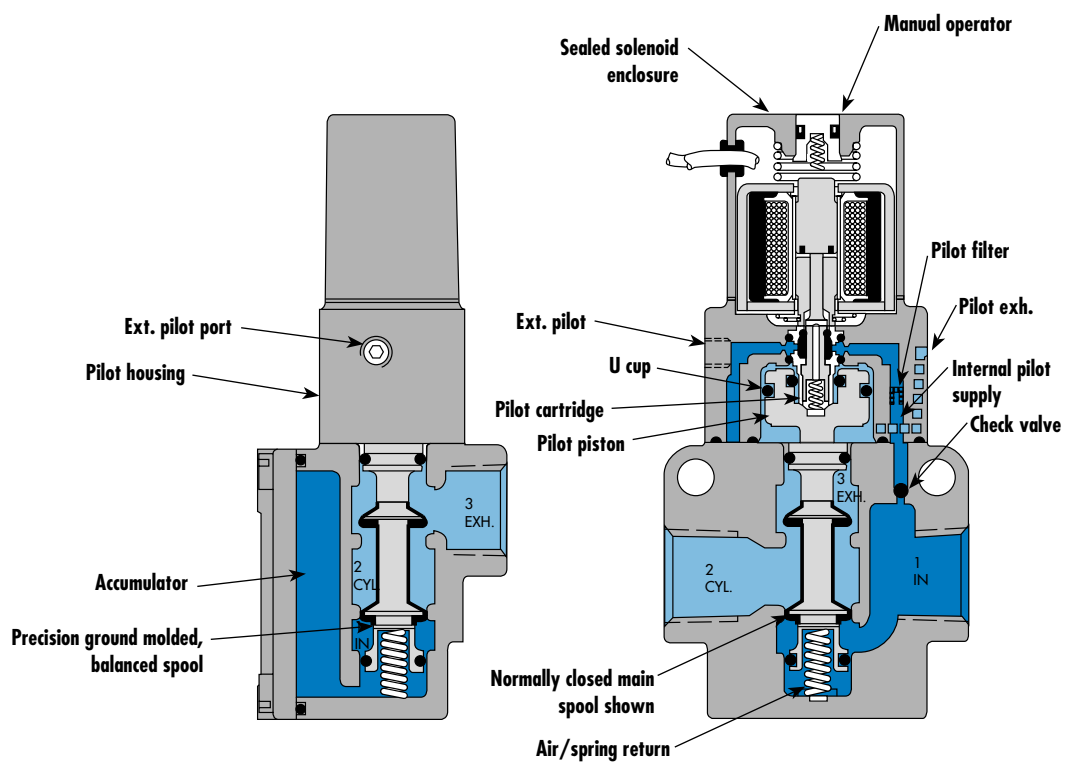
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



### SERIES FEATURES

- The patented MACSOLENOID<sup>®</sup> with its non-burn out feature on AC service.
- Balanced spool unaffected by back pressure in the exhaust or by inlet restrictions.  
May be plugged for 2-way operation.
- A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.
- Use on lube or non-lube service.
- Extremely rapid response and cycle rate.
- Various types of manual operators and solenoid enclosures.
- Optional low wattage DC solenoids down to 1 watt.

#### VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging a port) Normally Open or Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 30 PSI main valve pressures on solenoid or 25 on remote air operated models. Manual and mechanical operators available.

#### SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

These air versions feature:

- A large checked accumulator for air/spring return.
- Balanced spool unaffected by back pressure in the exhaust or by inlet restrictions. May be plugged for 2-way operation.
- Use on lube or non-lube service.

#### SERIES FEATURES-REMOTE AIR PILOT, PILOT OPERATED VALVES

These special air versions have the same features as the remote air pilot operated models, but additionally feature:

- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 30 to 150 PSI, regardless of main valve pressure.
- A manual operator and position indicator standard.

#### SPECIAL APPLICATIONS:

- **VACUUM APPLICATIONS:** Connect the vacuum source to port #3 with port #1 open to atmosphere, and use external pilot on solenoid pilot operated models. On remote air pilot models, use **-RE**.
- **SELECTOR APPLICATIONS:** Pipe higher pressure to port #1 and lower pressure to port #3.
- **INTERNAL PILOT:** Use for main valve pressure of 30 to 150 PSI on all models. Includes ball check in the body and an M5x0.8 plug installed in the external pilot port.
- **EXTERNAL PILOT:** An external pilot supply is required when main valve pressures are lower than 30 psi on solenoid pilot or 25 psi on remote air pilot operated models. To convert from internal to external pilot on solenoid models simply rotate pilot housing 180 degrees and connect external pilot source. (Use either M5 or #10-32 fitting.) On remote air pilot models, specify **-RE**.

Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/4" - 3/8"</b>	<b>2.2 C<sub>v</sub></b>	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.



35

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200

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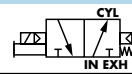
56

57

58

59

## HOW TO ORDER

Port size	Pilot air	NC valve	NO valve
			
<b>1/4" NPTF</b>	Internal	55B-11-PI- <b>XXYYZZ</b>	55B-21-PI- <b>XXYYZZ</b>
<b>3/8" NPTF</b>		55B-12-PI- <b>XXYYZZ</b>	55B-22-PI- <b>XXYYZZ</b>
<b>1/4" NPTF</b>	External	55B-11-PE- <b>XXYYZZ</b>	55B-21-PE- <b>XXYYZZ</b>
<b>3/8" NPTF</b>		55B-12-PE- <b>XXYYZZ</b>	55B-22-PE- <b>XXYYZZ</b>

45

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
<b>11</b>	120/60, 110/50	<b>1</b>	Non-locking	<b>JB</b>	Rectangular connector
<b>12</b>	240/60, 220/50	<b>2</b>	Locking	<b>JD</b>	Rectangular connector with light
<b>22</b>	24/60, 24/50			<b>JA</b>	Square connector
<b>59</b>	24 VDC (2.5 W)			<b>JC</b>	Square connector with light
<b>87</b>	24 VDC (17.1 W)			<b>BA</b>	Flying leads (18")
<b>61</b>	24 VDC (8.5 W)			<b>CA</b>	Conduit 1/2" NPS

\* Other options available, see page 357.

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

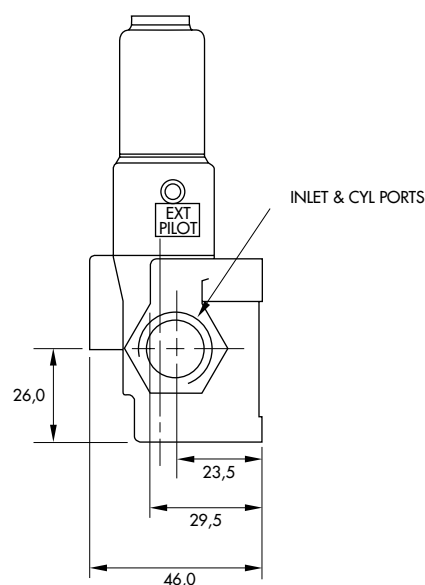
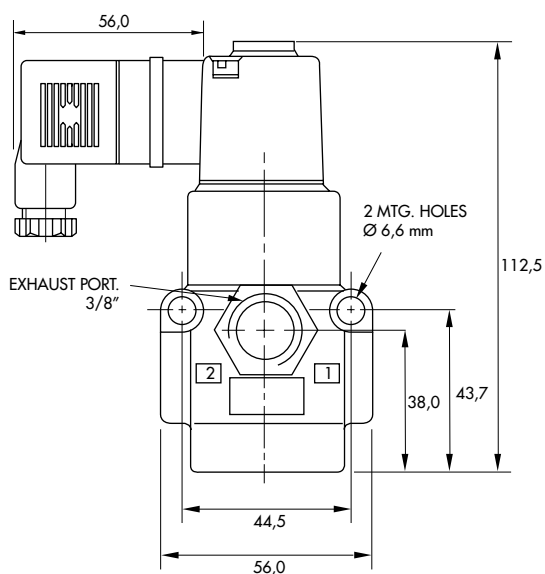
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 30 to 150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	30 to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	Norm. Closed : 1/4" (1.4 C <sub>v</sub> ), 3/8" (1.6 C <sub>v</sub> ), Norm. Open : 1/4" (1.8 C <sub>v</sub> ), 3/8" (2.2 C <sub>v</sub> )		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17 W		
Response times :	24 VDC (8.5 W)	Energize : 9 ms	De-energize : 4.8 ms
	120/60	Energize : 5-11 ms	De-energize : 5-11 ms

Spare parts :      • Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.  
                              • Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363. • Check valve : 70061.

Options :      • BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



### Individual mounting

inline

Series

35

100

200

55

**56**

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

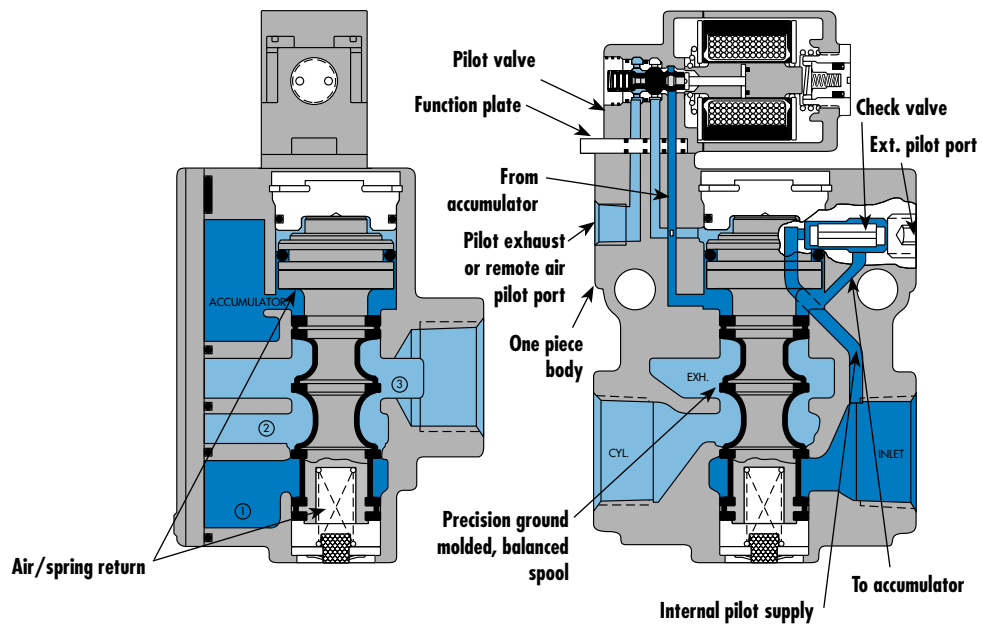
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



### SERIES FEATURES

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Seven valve functions in one valve.
- Balanced spool unaffected by back pressure in the exhaust or by inlet restrictions.  
May be plugged for 2-way operation.
- A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.
- Use on lube or non-lube service.
- Various types of manual operators and solenoid enclosures.
- Optional low wattage DC solenoids down to 1 watt.



### VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging a port) Normally Open or Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 25 PSI main valve pressures on solenoid or remote air models.
- Manual and mechanical operators available.

### SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

- A large checked accumulator for air/spring return.
- Balanced spool unaffected by back pressure in the exhaust or by inlet restrictions. May be plugged for 2-way operation.
- Use on lube or non-lube service.
- Optional remote air pilot, pilot operated models available when application requires a pilot signal below the main valve pressure.

### APPLICATION CONVERSION PROCEDURE

The balanced spool design and the unique N.C. and N.O. pilot valve function plate on solenoid models facilitate using the same valve for 7 different functions.

The 7 functions are as follows:

- 3-way Normally Closed-All 3 main valve ports utilized and function plate placed with "3N.C." (3-way N.C.) visible.
- 3-way Normally Open-All 3 main valve ports utilized and function plate placed with "3N.O." (3-way N.O.) visible.

- 2-way Normally Closed-Same as 3-way N.C. but also plug port #3.
- 2-way Normally Open-Same as 3-way N.O. but also plug port #3.
- Selector-Pipe higher pressure to port #1 and lower pressure port #3.
- Internal Pilot-Utilized for main valve pressures of 25-150 PSI. Includes a check rod in the body and a 1/8" pipe plug installed in the External Pilot port.
- External Pilot-An External Pilot supply is required when main valve pressures are lower than 25 PSI. If converting from an Internal Pilot model, remove the 1/8" pipe plug and check rod from the External Pilot port and install a 1/16" pipe plug in the check rod hole and pipe an external supply greater than 25 PSI to the External Pilot port. For vacuum service, make the vacuum connection to the port #3 and leave port #1 open to atmosphere or pressure port #1 for vacuum/pressure selector applications.

### N.C.-N.O. OPERATIONS:

#### SOLENOID MODELS:

With the pilot valve available either N.C. or N.O., simply by inverting the function plate, maximum flexibility is available in solenoid pilot operated models by using the N.C. main spool and installing the function plate for either N.C. or N.O. operation. Where an N.C. pilot function is desired with a N.O. main valve operation, a N.O. main spool option is available.

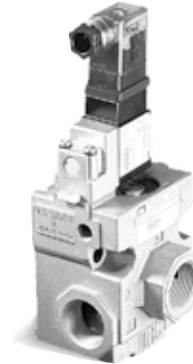
#### REMOTE AIR MODELS:

On remote air pilot operated models, N.C. and N.O. main spools are both available so that a N.C. pilot signal can always be used.




Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.7 C<sub>v</sub></b>	inline	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	Pilot air	NO only valve		
		NC pilot - NC spool	NO pilot - NC spool	NC pilot - NO spool
				
<b>3/8" NPTF</b>	Internal	56C-12- <b>XXYZZ</b>	56C-22- <b>XXYZZ</b>	56C-62- <b>XXYZZ</b>
<b>1/2" NPTF</b>		56C-13- <b>XXYZZ</b>	56C-23- <b>XXYZZ</b>	56C-63- <b>XXYZZ</b>
<b>3/4" NPTF</b>		56C-17- <b>XXYZZ</b>	56C-27- <b>XXYZZ</b>	56C-67- <b>XXYZZ</b>
<b>3/8" NPTF</b>	External	56C-32- <b>XXYZZ</b>	56C-42- <b>XXYZZ</b>	56C-72- <b>XXYZZ</b>
<b>1/2" NPTF</b>		56C-33- <b>XXYZZ</b>	56C-43- <b>XXYZZ</b>	56C-73- <b>XXYZZ</b>
<b>3/4" NPTF</b>		56C-37- <b>XXYZZ</b>	56C-47- <b>XXYZZ</b>	56C-77- <b>XXYZZ</b>

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
<b>11</b>	120/60, 110/50	<b>1</b>	Non-locking	<b>JB</b>	Rectangular connector
<b>12</b>	240/60, 220/50	<b>2</b>	Locking	<b>JD</b>	Rectangular connector with light
<b>22</b>	24/60, 24/50			<b>JA</b>	Square connector
<b>59</b>	24 VDC (2.5 W)			<b>JC</b>	Square connector with light
<b>87</b>	24 VDC (17.1 W)			<b>BA</b>	Flying leads (18")
<b>61</b>	24 VDC (8.5 W)			<b>CA</b>	Conduit 1/2" NPS

\* Other options available, see page 357.

## TECHNICAL DATA

<b>Fluid :</b>	Compressed air, vacuum, inert gases		
<b>Pressure range :</b>	Internal pilot : 25 to 150 PSI External pilot : vacuum to 150 PSI		
<b>Pilot pressure :</b>	25 to 150 PSI		
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)		
<b>Filtration :</b>	40 µ		
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)		
<b>Flow (at 6 bar, ΔP=1bar) :</b>	Norm. Closed : 3/8" (4.4 C <sub>v</sub> ), 1/2" (5.0 C <sub>v</sub> ), 3/4" (5.4 C <sub>v</sub> ), Norm. Open : 3/8" (4.6 C <sub>v</sub> ), 1/2" (5.1 C <sub>v</sub> ), 3/4" (5.7 C <sub>v</sub> )		
<b>Coil :</b>	General purpose class A, continuous duty, encapsulated		
<b>Voltage range :</b>	-15% to +10% of nominal voltage		
<b>Protection :</b>	Consult factory		
<b>Power :</b>	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17 W		
<b>Response times :</b>	24 VDC (8.5 W)	Energize : 11 ms	De-energize : 10,8ms
	120/60	Energize : 7-12 ms	De-energize : 9-14 ms

Spare parts :

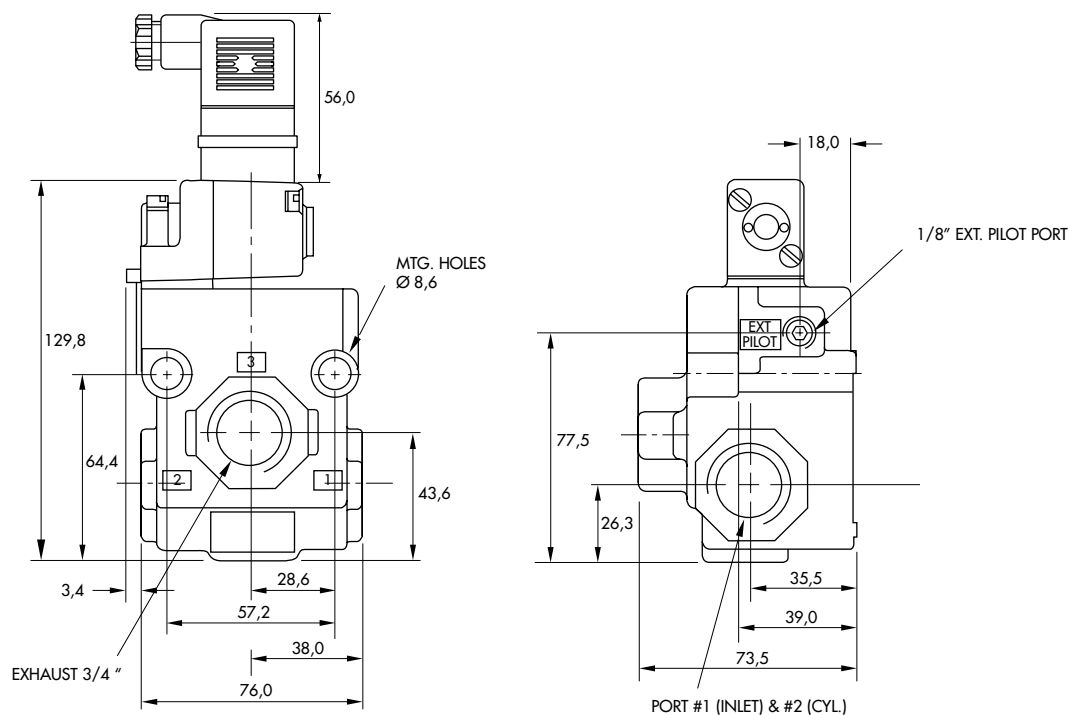
- Solenoid operator (power  $\geq 4$  W) : D1-XXAA, cover mounting screws 32184 and seal 16234.
- Pilot valve : 130B-XXYZZ, including function plate A2-7009. • Pilot mounting screws kit : N-56002.
- Check valve : 70063.

Options :

- BSPP threads.

## DIMENSIONS

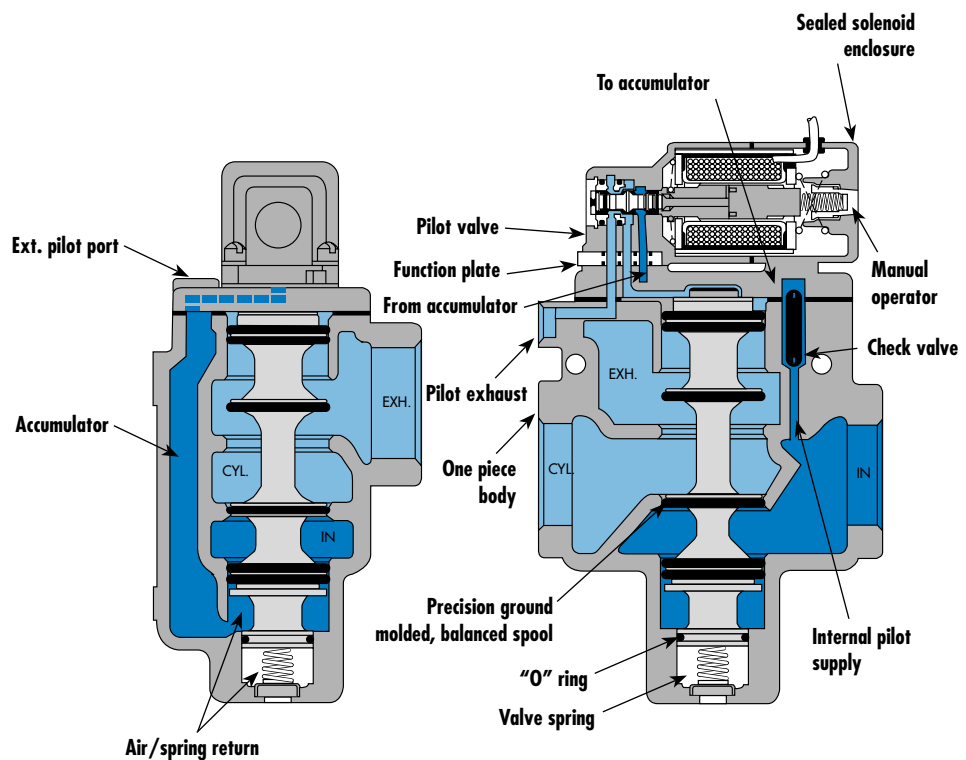
Dimensions shown are metric (mm)



### Individual mounting

inline

Series



### SERIES FEATURES

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Seven valve functions in one valve.
- Balanced spool unaffected by back pressure in the exhaust.
- A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.
- A triple rated coil for 120/60, 110/50 or 24 VDC (6 Watt).
- Use on lube or non-lube service.
- Various types of manual operators and solenoid enclosures.
- Optional low wattage DC coils down to 1 watt.
- Optional explosion proof models designed to meet CSA standards for Class I, Groups B, C, D and Class II, Groups E, F and G. (NEMA equivalent of Class I is NEMA 7; Class II is NEMA 9).

35

100

200

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56

57

58

59

45

700

900

82

6300

6500

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1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

### VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging Exhaust port), Normally Open or Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 25 PSI main valve pressures on solenoid models.
- Manual and mechanical operators available.

### SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

- A large checked accumulator for air/spring return.
- Balanced spool unaffected by back pressure in the exhaust and may be plugged for 2-way operation.
- Use on lube or non-lube service.

### APPLICATION CONVERSION PROCEDURE

The balanced spool design and the unique N.C. and N.O. pilot valve function plate on solenoid models facilitate using the same valve for 7 different functions.

The 7 functions are as follows:

- 3-way Normally Closed-All 3 main valve ports utilized and function plate placed with "3-C" (3-way N.C.) visible.
- 3-way Normally Open-All 3 main valve ports utilized and function plate placed with "3-O" (3-way N.O.) visible.
- 2-way Normally Closed-Same as 3-way N.C. but also plug the Exhaust port.

- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 25-150 PSI. Includes a check rod in the body and a 1/4" pipe plug installed in the External Pilot port.
- External Pilot-An External Pilot supply is required when main valve pressures are lower than 25 PSI. If converting from an Internal Pilot model, remove the 1/4" pipe plug and check rod from the External Pilot port and install a 1/8" pipe plug in the check rod hole and pipe an external supply greater than 25 PSI to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

### N.C.-N.O. OPERATIONS:

#### SOLENOID MODELS:

With the pilot valve available either N.C. or N.O., simply by inverting the function plate, maximum flexibility is available in solenoid pilot operated models by using the N.C. main spool and installing the function plate for either N.C. or N.O. operation. Where an N.C. pilot function is desired with a N.O. main valve operation, a N.O. main spool option is available.

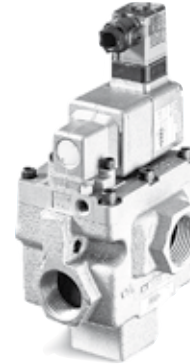
#### REMOTE AIR MODELS:

On remote air pilot operated models, N.C. and N.O. main spools are both available so that a N.C. pilot signal can always be used.

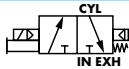

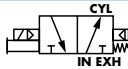
Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/2" - 3/4" - 1"</b>	<b>17.4 C<sub>v</sub></b>	inline	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	Pilot air	NC only valve NC pilot - NC spool	NO only valve NO pilot - NC spool	NC pilot - NO spool
				
<b>1/2" NPTF</b>	Internal	57D-11- <b>XXYZZ</b>	57D-21- <b>XXYZZ</b>	57D-61- <b>XXYZZ</b>
<b>3/4" NPTF</b>		57D-12- <b>XXYZZ</b>	57D-22- <b>XXYZZ</b>	57D-62- <b>XXYZZ</b>
<b>1" NPTF</b>		57D-13- <b>XXYZZ</b>	57D-23- <b>XXYZZ</b>	57D-63- <b>XXYZZ</b>
<b>1/2" NPTF</b>	External	57D-31- <b>XXYZZ</b>	57D-41- <b>XXYZZ</b>	57D-71- <b>XXYZZ</b>
<b>3/4" NPTF</b>		57D-32- <b>XXYZZ</b>	57D-42- <b>XXYZZ</b>	57D-72- <b>XXYZZ</b>
<b>1" NPTF</b>		57D-33- <b>XXYZZ</b>	57D-43- <b>XXYZZ</b>	57D-73- <b>XXYZZ</b>

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
<b>11</b>	120/60, 110/50, 24 VDC (6.0 W)	<b>0</b>	No operator	<b>JA</b>	Square connector
<b>12</b>	240/60, 220/50	<b>1</b>	Non-locking	<b>JC</b>	Square connector with light
<b>22</b>	24/60, 24/50	<b>2</b>	Locking	<b>BA</b>	Flying leads (18")
<b>52</b>	24 VDC (2.5 W)			<b>CA</b>	Conduit 1/2" NPS
<b>78</b>	24 VDC (24.0 W)			<b>EA</b>	Hazardous location
<b>61</b>	24 VDC (8.5 W)				

\* Other options available, see page 357.

Note : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.

# TECHNICAL DATA

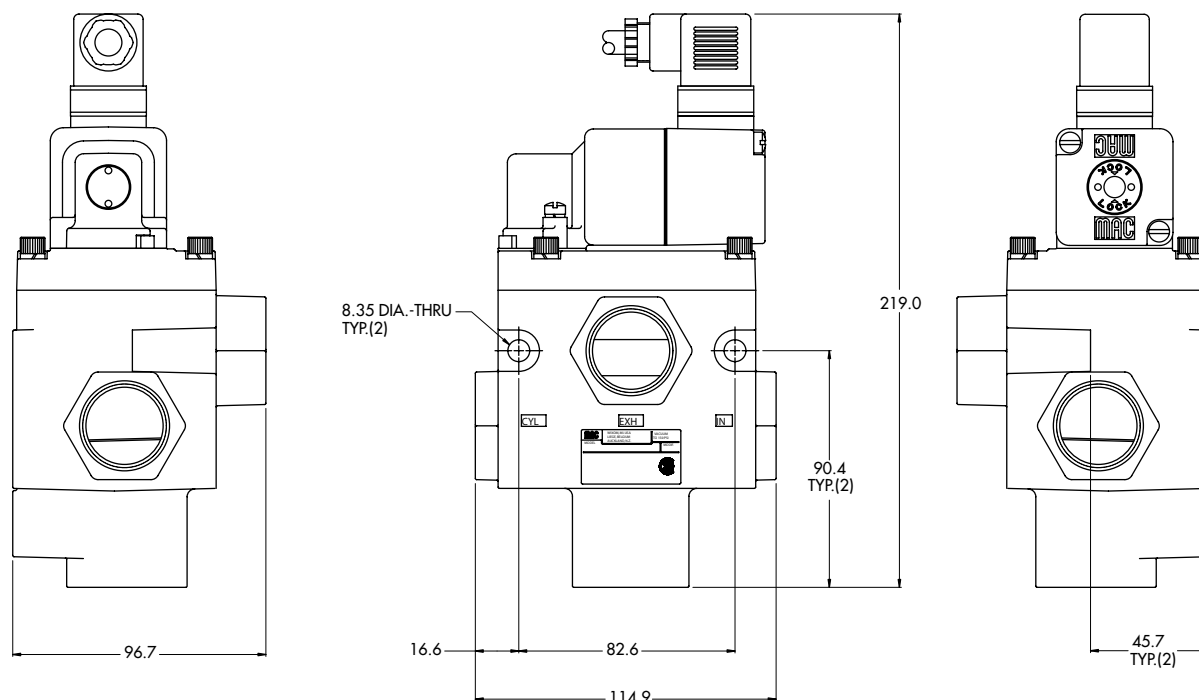
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 25 to 150 PSI External pilot : vacuum to 150 PSI
Pilot pressure :	25 to 150 PSI (Not to exceed main valve pressure by more than 50 PSI)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	Norm. Closed : 1/2" (9.0 C <sub>v</sub> ), 3/4" (12.7 C <sub>v</sub> ), 1" (15.9 C <sub>v</sub> ), Norm. Open : 1/2" (10.0 C <sub>v</sub> ), 3/4" (13.7 C <sub>v</sub> ), 1" (17.4 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W
Response times :	24 VDC (8.5 W)      Energize : 23 ms      De-energize : 13ms 120/60      Energize : 9-16 ms      De-energize : 11-22 ms

Spare parts :      • Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.  
• Pilot valve : 250B-XXYZZ, including mounting screws 32203 and function plate A2-7005. • Check valve : 70019.

Options :      • BSPP threads.

# DIMENSIONS

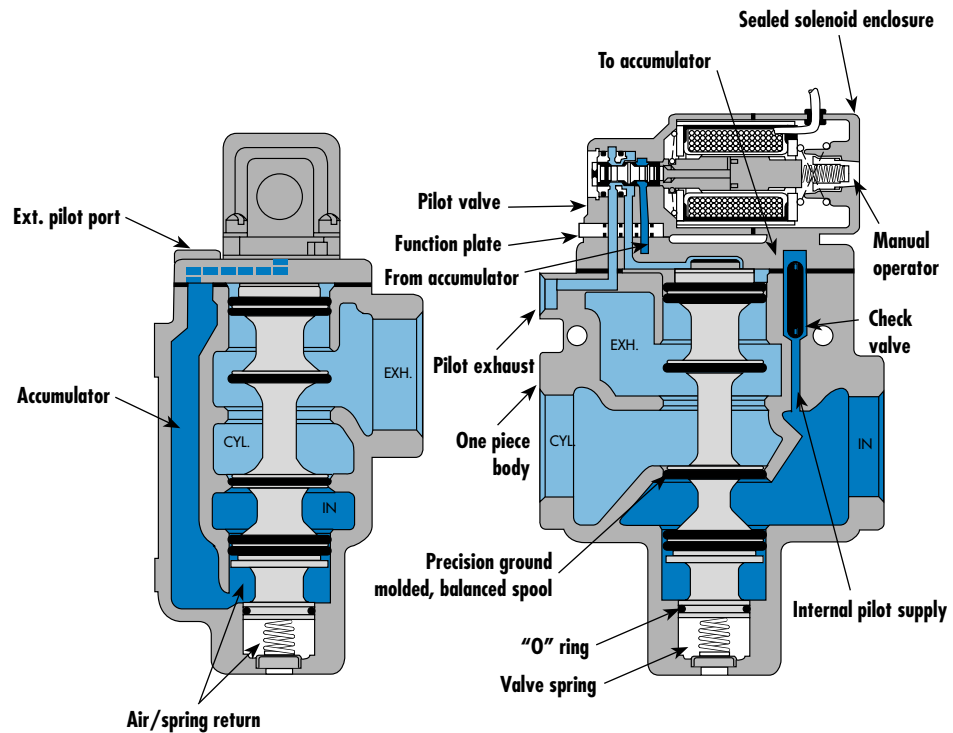
Dimensions shown are metric (mm)



### Individual mounting

inline

Series



### SERIES FEATURES

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Seven valve functions in one valve.
- Balanced spool unaffected by back pressure in the exhaust.
- A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.
- A triple rated coil for 120/60, 110/50 or 24 VDC (6 Watt).
- Use on lube or non-lube service.
- Various types of manual operators and solenoid enclosures.
- Optional low wattage DC coils down to 1 watt.
- Optional explosion proof models designed to meet CSA standards for Class I, Groups B, C, D and Class II, Groups E, F and G. (NEMA equivalent of Class I is NEMA 7; Class II is NEMA 9).

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700

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6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



### VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging Exhaust port), Normally Open & Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 25 PSI main valve pressures on solenoid models.

### SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

- A large checked accumulator for air/spring return.
- Balanced spool unaffected by back pressure in the exhaust and may be plugged for 2-way operation.
- Use on lube or non-lube service.

### APPLICATION CONVERSION PROCEDURE

The balanced spool design and the unique N.C. and N.O. pilot valve function plate on solenoid models facilitate using the same valve for 7 different functions.

The 7 functions are as follows:

- 3-way Normally Closed-All 3 main valve ports utilized and function plate placed with "3-C" (3-way N.C.) visible.
- 3-way Normally Open-All 3 main valve ports utilized and function plate placed with "3-O" (3-way N.O.) visible.
- 2-way Normally Closed-Same as 3-way N.C. but also plug the Exhaust port.

- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 25-150 PSI. Includes a check rod in the body and a 1/4" pipe plug installed in the External Pilot port.
- External Pilot-An External Pilot supply is required when main valve pressures are lower than 25 PSI. If converting from an Internal Pilot model, remove the 1/4" pipe plug and check rod from the External Pilot port and install a 1/8" pipe plug in the check rod hole and pipe an external supply greater than 25 PSI to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

### N.C.-N.O. OPERATIONS:

#### SOLENOID MODELS:

With the pilot valve available either N.C. or N.O., simply by inverting the function plate, maximum flexibility is available in solenoid pilot operated models by using the N.C. main spool and installing the function plate for either N.C. or N.O. operation. Where an N.C. pilot function is desired with a N.O. main valve operation, a N.O. main spool option is available.

#### REMOTE AIR MODELS:

On remote air pilot operated models, N.C. and N.O. main spools are both available so that a N.C. pilot signal can always be used.

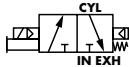


Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1" - 1 1/4" - 1 1/2"</b>	<b>26.0 C<sub>v</sub></b>	inline	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	Pilot air	NO only valve		
		NC pilot - NC spool	NO pilot - NC spool	NC pilot - NO spool
				
<b>1" NPTF</b>	Internal	58D-11- <b>XXYZZ</b>	58D-21- <b>XXYZZ</b>	58D-61- <b>XXYZZ</b>
<b>1 1/4" NPTF</b>		58D-12- <b>XXYZZ</b>	58D-22- <b>XXYZZ</b>	58D-62- <b>XXYZZ</b>
<b>1 1/2" NPTF</b>		58D-13- <b>XXYZZ</b>	58D-23- <b>XXYZZ</b>	58D-63- <b>XXYZZ</b>
<b>1" NPTF</b>	External	58D-31- <b>XXYZZ</b>	58D-41- <b>XXYZZ</b>	58D-71- <b>XXYZZ</b>
<b>1 1/4" NPTF</b>		58D-32- <b>XXYZZ</b>	58D-42- <b>XXYZZ</b>	58D-72- <b>XXYZZ</b>
<b>1 1/2" NPTF</b>		58D-33- <b>XXYZZ</b>	58D-43- <b>XXYZZ</b>	58D-73- <b>XXYZZ</b>

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
<b>11</b>	120/60, 110/50, 24 VDC (6.0 W)	<b>0</b>	No operator	<b>JA</b>	Square connector
<b>12</b>	240/60, 220/50	<b>1</b>	Non-locking	<b>JC</b>	Square connector with light
<b>22</b>	24/60, 24/50	<b>2</b>	Locking	<b>BA</b>	Flying leads (18")
<b>52</b>	24 VDC (2.5 W)			<b>CA</b>	Conduit 1/2" NPS
<b>78</b>	24 VDC (24.0 W)			<b>EA</b>	Hazardous location
<b>61</b>	24 VDC (8.5 W)				

\* Other options available, see page 357.

Note : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 25 to 150 PSI External pilot : vacuum to 150 PSI
Pilot pressure :	25 to 150 PSI (Not to exceed main valve pressure by more than 50 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) :	Norm. Closed : 1" (18.7 C <sub>v</sub> ), 1 1/4" (23.0 C <sub>v</sub> ), 1 1/2" (24.9 C <sub>v</sub> ), Norm. Open : 1" (20.8 C <sub>v</sub> ), 1 1/4" (23.8 C <sub>v</sub> ), 1 1/2" (26.0 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W
Response times :	24 VDC (8.5 W)      Energize : 25 ms      De-energize : 18ms 120/60      Energize : 10-17 ms      De-energize : 17-22 ms

## Spare parts :

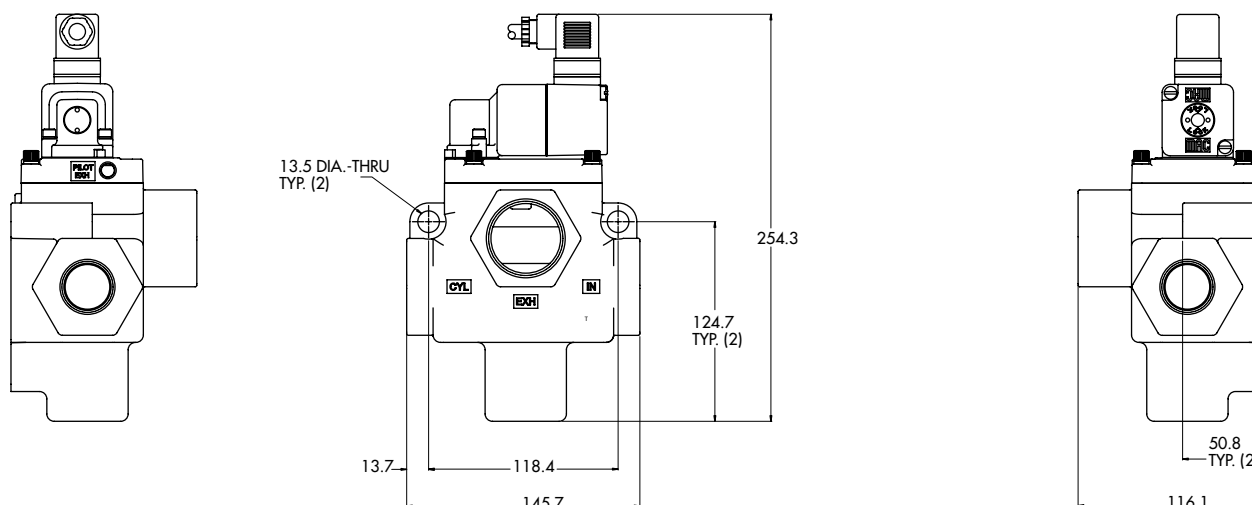
- Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.
- Pilot valve : 250B-XXYZZ, including mounting screws 32203 and function plate A2-7005. • Check valve : 70019.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



### Individual mounting

inline

Series

35

100

200

55

56

57

58

59

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700

900

82

6300

6500

6600

1300

800

ISO 1

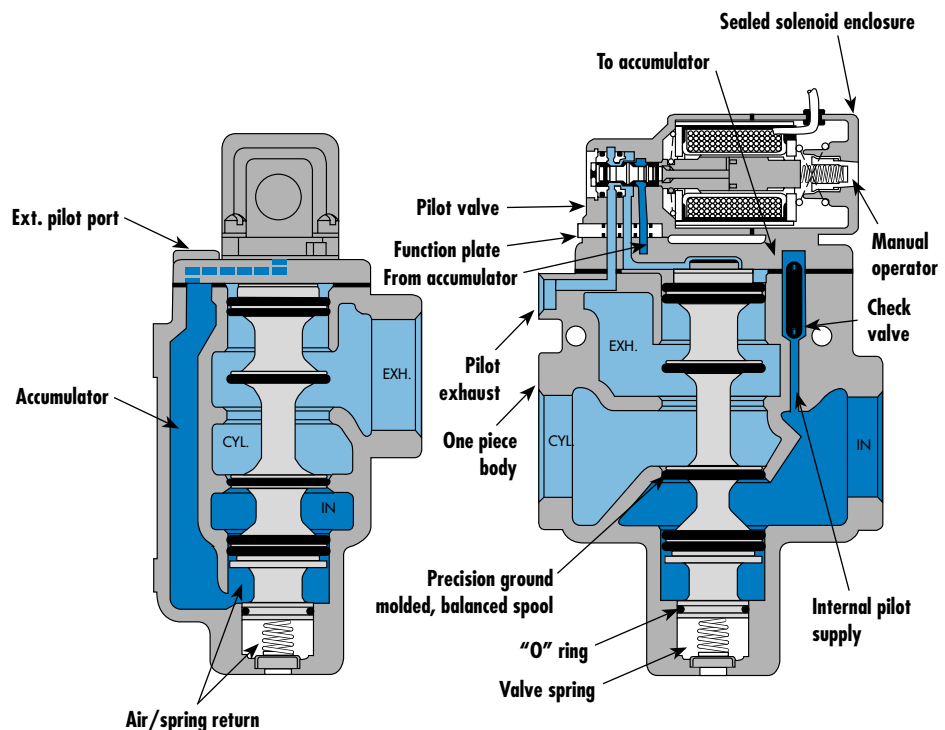
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



### SERIES FEATURES

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Seven valve functions in one valve.
- Balanced spool unaffected by back pressure in the exhaust.
- A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.
- A triple rated coil for 120/60, 110/50 or 24 VDC (6 Watt).
- Use on lube or non-lube service.
- Various types of manual operators and solenoid enclosures.
- Optional low wattage DC coils down to 1 watt.
- Optional explosion proof models designed to meet CSA standards for Class I, Groups B, C, D and Class II, Groups E, F and G. (NEMA equivalent of Class I is NEMA 7; Class II is NEMA 9).

### VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open (solenoid) or Normally Closed (solenoid or remote air).
- 2-Way (by plugging Exhaust port), Normally Open (solenoid) & Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 25 PSI main valve pressures on solenoid models.

### SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

- A large checked accumulator for air/spring return.
- Balanced spool unaffected by back pressure in the exhaust and may be plugged for 2-way operation.
- Use on lube or non-lube service.

### APPLICATION CONVERSION PROCEDURE

The balanced spool design and the unique N.C. and N.O. pilot valve function plate on solenoid models facilitate using the same valve for 7 different functions.

The 7 functions are as follows:

- 3-way Normally Closed-All 3 main valve ports utilized and function plate placed with "3-C" (3-way N.C.) visible.
- 3-way Normally Open-All 3 main valve ports utilized and function plate placed with "3-O" (3-way N.O.) visible.

- 2-way Normally Closed-Same as 3-way N.C. but also plug the Exhaust port.
- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 25-150 PSI. Includes a check rod in the body and a 1/8" pipe plug installed in the External Pilot port.
- External Pilot-An External Pilot supply is required when main valve pressures are lower than 25 PSI. If converting from an Internal Pilot model, remove the 1/8" pipe plug from the External Pilot and remove adapter plate. Remove check rod from the body and install an 1/8" pipe plug in the check rod hole and pipe an external supply greater than 25 PSI to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

### N.C.-N.O. OPERATIONS:

#### SOLENOID MODELS:

With the pilot valve available either N.C. or N.O., simply by inverting the function plate, and using the N.C. main spool, N.C or NO main valve functions are achieved.

#### REMOTE AIR MODELS:

On remote air pilot operated models, N.O. pilot signal must be used for a N.C. main valve function.

Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>2" - 2 1/2"</b>	<b>60.0 C<sub>v</sub></b>	inline	

**OPERATIONAL BENEFITS**

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



**HOW TO ORDER**

Port size	Pilot air	NC only valve NC pilot - NC spool	NO only valve NO pilot - NC spool
<b>2" NPTF</b>	Internal	59B-12- <b>XXYYZZ</b>	59B-22- <b>XXYYZZ</b>
<b>2 1/2" NPTF</b>	Internal	59B-13- <b>XXYYZZ</b>	59B-23- <b>XXYYZZ</b>
<b>2" NPTF</b>	External	59B-32- <b>XXYYZZ</b>	59B-42- <b>XXYYZZ</b>
<b>2 1/2" NPTF</b>	External	59B-33- <b>XXYYZZ</b>	59B-43- <b>XXYYZZ</b>

**SOLENOID OPERATOR ➤**

<b>XX Y ZZ*</b>		
<b>XX Voltage</b>	<b>Y Manual operator</b>	<b>ZZ Electrical connection</b>
<b>11</b> 120/60, 110/50, 24 VDC (6.0 W)	<b>0</b> No operator	<b>JA</b> Square connector
<b>12</b> 240/60, 220/50	<b>1</b> Non-locking	<b>JC</b> Square connector with light
<b>22</b> 24/60, 24/50	<b>2</b> Locking	<b>BA</b> Flying leads (18")
<b>52</b> 24 VDC (2.5 W)		<b>CA</b> Conduit 1/2" NPS
<b>78</b> 24 VDC (24.0 W)		<b>EA</b> Hazardous location
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

Note : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.

## TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 25 to 150 PSI External pilot : vacuum to 150 PSI
Pilot pressure :	25 to 150 PSI (Not to exceed main valve pressure by more than 50 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) :	2" (55.0 C <sub>v</sub> ), 2 1/2" C <sub>v</sub> (60.0 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 33 VA      Holding : 19.7 VA = 1 to 24 W
Response times :	24 VDC (8.5 W)      Energize : 38 ms      De-energize : 25ms 120/60      Energize : 35-45 ms      De-energize : 25-34 ms

### Spare parts :

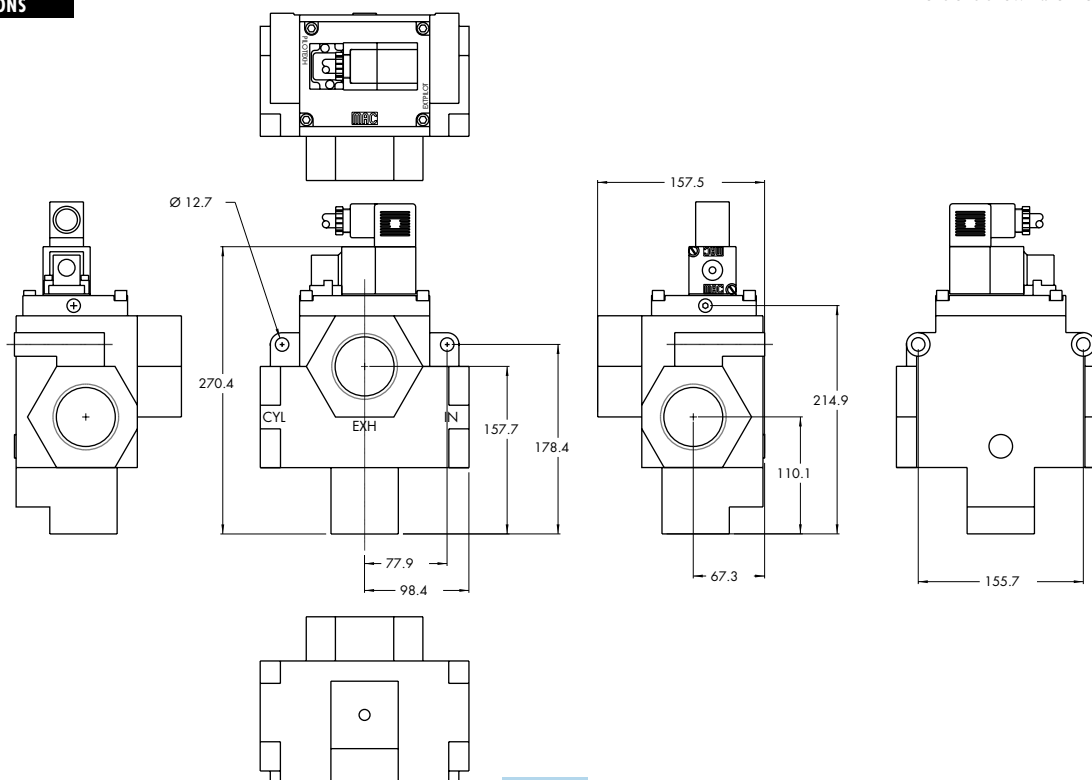
- Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.
- Pilot valve : 250B-XXYZZ, including mounting screws 32203 and function plate A2-7005. • Check valve : 70019.

### Options :

- BSPP threads.

## DIMENSIONS

Dimensions shown are metric (mm)



### Individual mounting

inline	sub-base non "plug-in"	
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Series

### Manifold mounting

stacking	sub-base non "plug-in"	sub-base with pressure regulators	sub-base with pressure regulators and flow controls	
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ISO 1

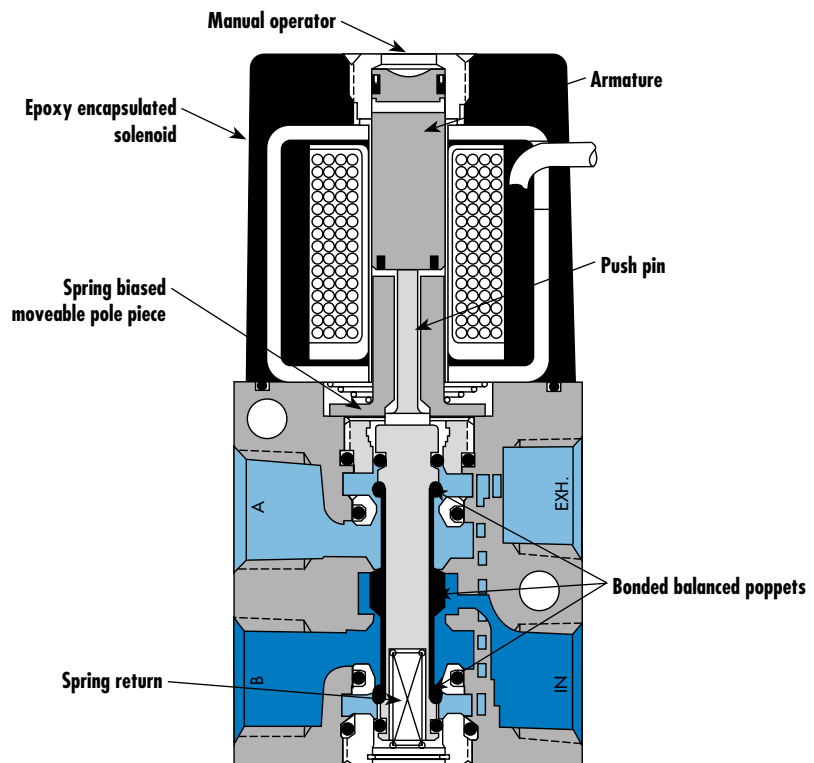
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



### 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 piping. 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.

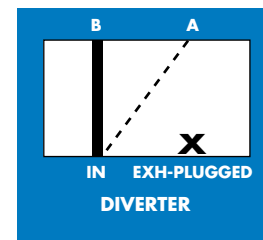
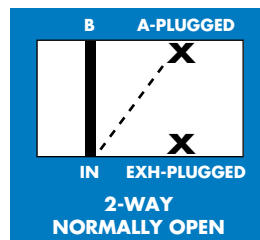
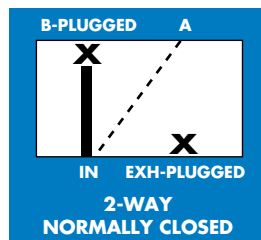
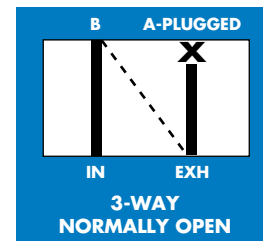
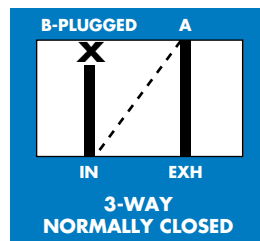
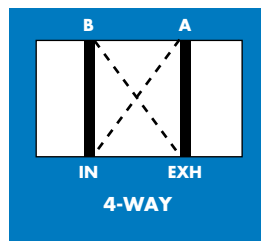


### VALVE CONFIGURATIONS AVAILABLE

- 2-position single and double solenoid or remote air.
- Single pressure (4 or 5 ports)
- Individual, stacking and manifold base mounted models.
- Integral individual exhaust flow controls with common exhaust port.
- Integral regulators and flow controls on manifolds.

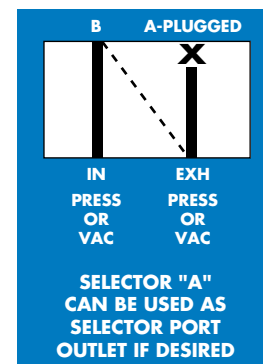
### SPECIAL APPLICATIONS :

The balanced poppet design facilitates using the same valve for many functions and can be used for pressure, vacuum or plugged without the necessity of changing any parts. Piping suggestions are shown in the chart below.



Operator De-Energized —————

Operator Energized - - - - -




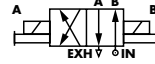
Function	Port size	Flow [Max]	Individual mounting	Series
4/2	#10-32 - 1/8"	0.15 C <sub>v</sub>	inline	

## OPERATIONAL BENEFITS

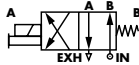
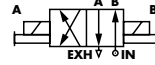
1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



## HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
		
1/8" NPTF	45A-AA1-Dxxx-xxx	45A-GA1-Dxxx-xxx
# 10-32 UNF	45A-AB1-Dxxx-xxx	45A-GB1-Dxxx-xxx

## WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
		
1/8" NPTF	45A-AA2-Dxxx-xxx	45A-GA2-Dxxx-xxx
# 10-32 UNF	45A-AB2-Dxxx-xxx	45A-GB2-Dxxx-xxx

## SOLENOID OPERATOR ➤

D **XX X- X XX**\*

XX Voltage	X Wire length	X Manual operator	XX
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
AC 24/60, 24/50			JB Rectangular connector
FB 24 VDC (1.8 W)			JD Rectangular connector with light
DA 24 VDC (5.4 W)			BA Flying leads
DF 24 VDC (12.7 W)			

\* Other options available, see page 361.

## BOTTOM PORT OPTIONS (O'RING MOUNT)

45A-XXX-D xxx-xxx

- D-Sgl. oper. - All ports
- F-Sgl. oper. - "A" & "B" ports
- H-Dbl. oper. - All ports
- J-Dbl. oper. - "A" & "B" ports

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# 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 <sub>v</sub> ), 5.4 W : (0.15 C <sub>v</sub> )		
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 :

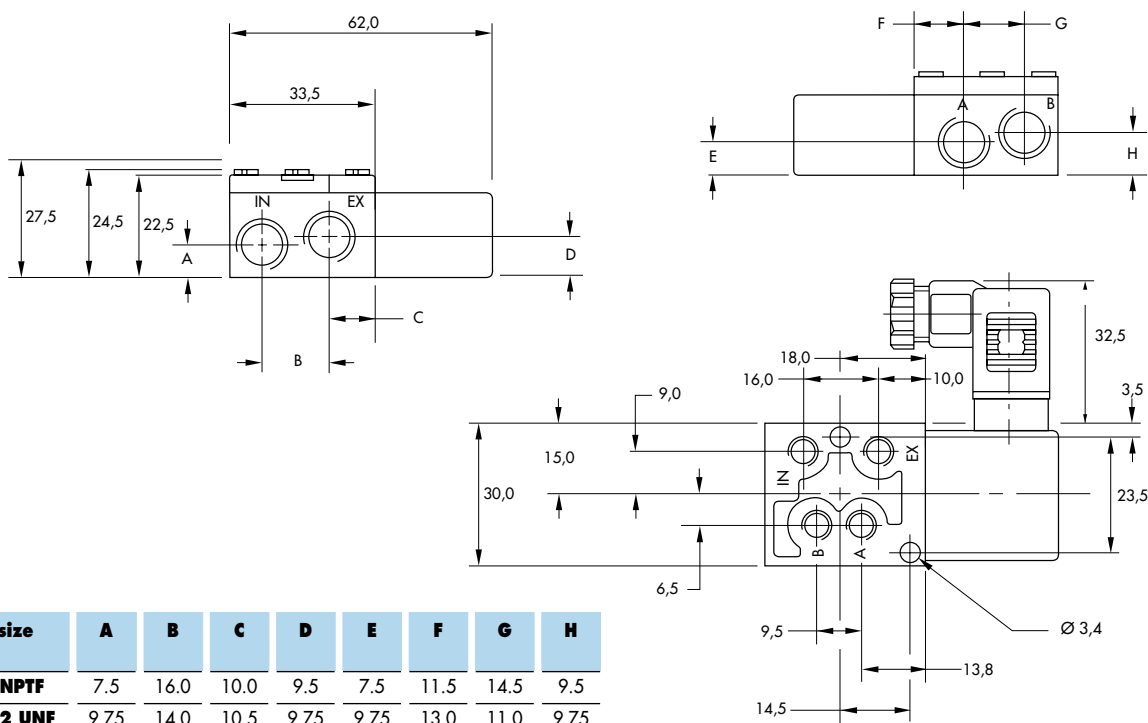
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Valve cover plate with flow controls : N-45002.

## Options :

- BSPP threads. • High flow up to 0.23 C<sub>v</sub> 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)

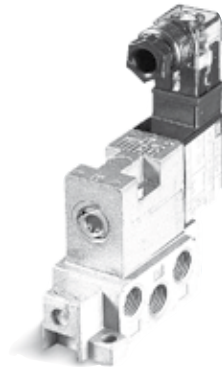


Port size	A	B	C	D	E	F	G	H
1/8" NPTF	7.5	16.0	10.0	9.5	7.5	11.5	14.5	9.5
# 10-32 UNF	9.75	14.0	10.5	9.75	9.75	13.0	11.0	9.75

Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2</b>	<b>#10-32 - 1/8"</b>	<b>0.13 C<sub>v</sub></b>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

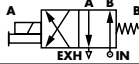
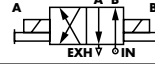
1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



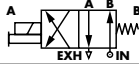

35  
100  
200  
55  
56  
57  
58  
59

45

## HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
<b>Valve less base</b>	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
<b>1/8" NPTF base</b>	45A-LAA-Dxxx-xxx	45A-NAA-Dxxx-xxx
<b>#10-32 UNF base</b>	45A-LBA-Dxxx-xxx	45A-NBA-Dxxx-xxx

## WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
<b>Valve less base</b>	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
<b>1/8" NPTF base</b>	45A-LAB-Dxxx-xxx	45A-NAB-Dxxx-xxx
<b>#10-32 UNF base</b>	45A-LBB-Dxxx-xxx	45A-NBB-Dxxx-xxx

700  
900  
82

## SOLENOID OPERATOR ►

D **XX X- X XX\***

XX Voltage	X Wire length	X Manual operator	XX
<b>AA</b> 120/60, 110/50	<b>A</b> 18" (Flying leads)	<b>1</b> Non-locking	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking	<b>KD</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>BA</b> Flying leads
<b>FB</b> 24 VDC (1.8 W)			
<b>DA</b> 24 VDC (5.4 W)			
<b>DF</b> 24 VDC (12.7 W)			

\* Other options available, see page 361.

## OPTIONS

45A-LAA-D xxx-xxx

— Substitute "J" for 1/8" bottom cylinder ports

6300  
6500  
6600  
1300  
800  
ISO 1  
ISO 2  
ISO 3  
MAC 125A  
MAC 250A  
MAC 500A

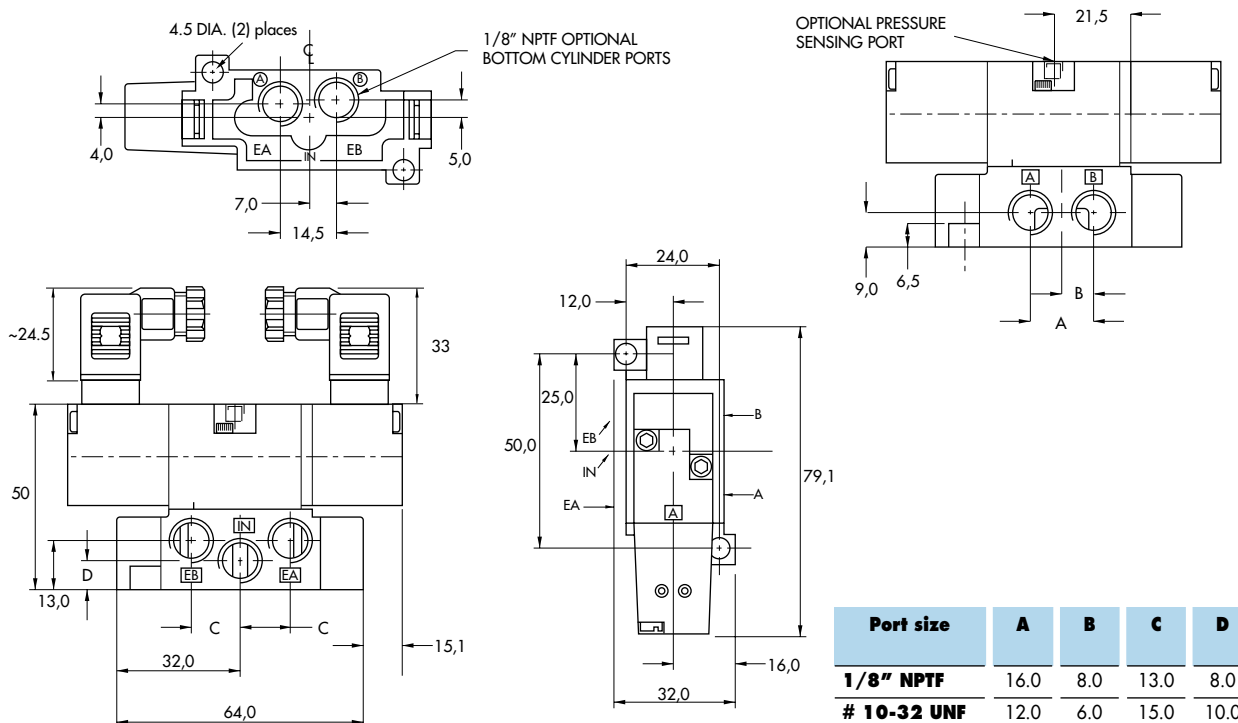
# TECHNICAL DATA

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, $\Delta P=1$ bar) :	1.8 W : (0.11 C <sub>v</sub> ), 5.4 W : (0.13 C <sub>v</sub> )		
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  $\geq 5.4$  W) : DXXX-XXX, including mounting screws 35013.
  - Seal (between solenoid and valve body) : 16402. • Seal between base and valve : 16453. • Flow control : N-45018.
- Options :
- BSPP threads. • High flow up to 0.20 C<sub>v</sub> according to wattage and high flow mod.

# DIMENSIONS

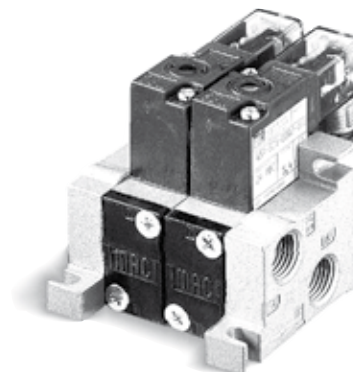
Dimensions shown are metric (mm)



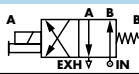

Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2</b>	<b># 10-32 - 1/8"</b>	<b>0.20 C<sub>v</sub></b>	stacking	

## OPERATIONAL BENEFITS

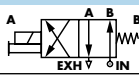
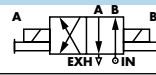
1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



## HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
<b>1/8" NPTF</b>	45A-SA1-Dxxx-xxx	45A-TA1-Dxxx-xxx
<b># 10-32 UNF</b>	45A-SB1-Dxxx-xxx	45A-TB1-Dxxx-xxx

## WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator
		
<b>1/8" NPTF</b>	45A-SA2-Dxxx-xxx	45A-TA2-Dxxx-xxx
<b># 10-32 UNF</b>	45A-SB2-Dxxx-xxx	45A-TB2-Dxxx-xxx

## SOLENOID OPERATOR ➤

D **XX X- X XX**

XX Voltage	X Wire length	X Manual operator	XX
<b>AA</b> 120/60, 110/50	<b>A</b> 18" (Flying leads)	<b>1</b> Non-locking	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking	<b>KB</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>BA</b> Flying leads
<b>FB</b> 24 VDC (1.8 W)			
<b>DA</b> 24 VDC (5.4 W)			
<b>DF</b> 24 VDC (12.7 W)			

\* Other options available, see page 361.

End plate kit required (Port size 1/4" NPTF) : M-45001-01.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# 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 : (0.14 C <sub>v</sub> ), 5.4 W : (0.2 C <sub>v</sub> )		
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 :

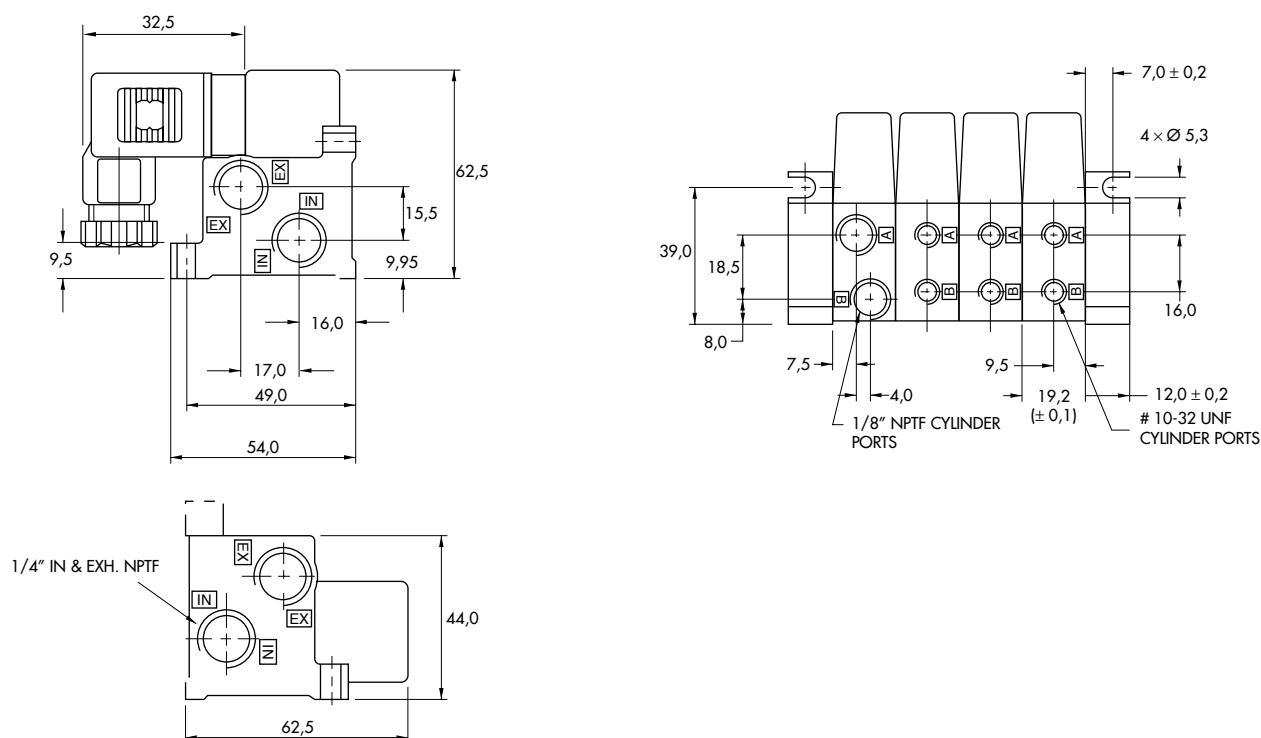
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Seal between valves : 16422. • Tie-rod (x2) : 19813.
- Valve cover plate with flow controls : N-45004.
- Inlet & exhaust isolator : N-45005. Inlet isolator : N-45006. Exhaust isolator : N-45007

## Options :

- BSPP threads. • High flow up to 0.3 C<sub>v</sub> according to wattage and high flow mod.

# DIMENSIONS

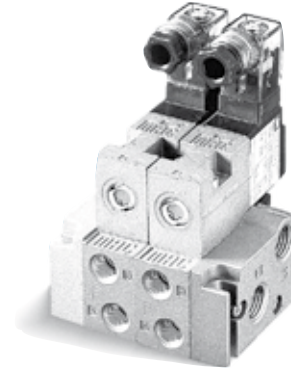
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2</b>	<b># 10-32 - 1/8"</b>	<b>0.11 C<sub>v</sub></b>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

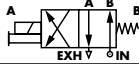
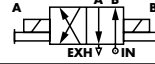
1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



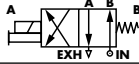

35  
100  
200  
55  
56  
57  
58  
59

45

## HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
		
<b>Valve less base</b>	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
<b>1/8" NPTF base</b>	45A-LAC-Dxxx-xxx	45A-NAC-Dxxx-xxx
<b># 10-32 UNF base</b>	45A-LBC-Dxxx-xxx	45A-NBC-Dxxx-xxx

## WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
		
<b>Valve less base</b>	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
<b>1/8" NPTF base</b>	45A-LAD-Dxxx-xxx	45A-NAD-Dxxx-xxx
<b># 10-32 UNF base</b>	45A-LBD-Dxxx-xxx	45A-NBD-Dxxx-xxx

700  
900  
82

## SOLENOID OPERATOR ➤

D **XX X- X XX\***

XX Voltage	X Wire length	X Manual operator	XX
<b>AA</b> 120/60, 110/50	<b>A</b> 18" (Flying leads)	<b>1</b> Non-locking	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking	<b>KD</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>BA</b> Flying leads
<b>FB</b> 24 VDC (1.8 W)			
<b>DA</b> 24 VDC (5.4 W)			
<b>DF</b> 24 VDC (12.7 W)			

\* Other options available, see page 361.

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

6300  
6500  
6600  
1300  
800  
ISO 1  
ISO 2  
ISO 3  
MAC 125A  
MAC 250A  
MAC 500A



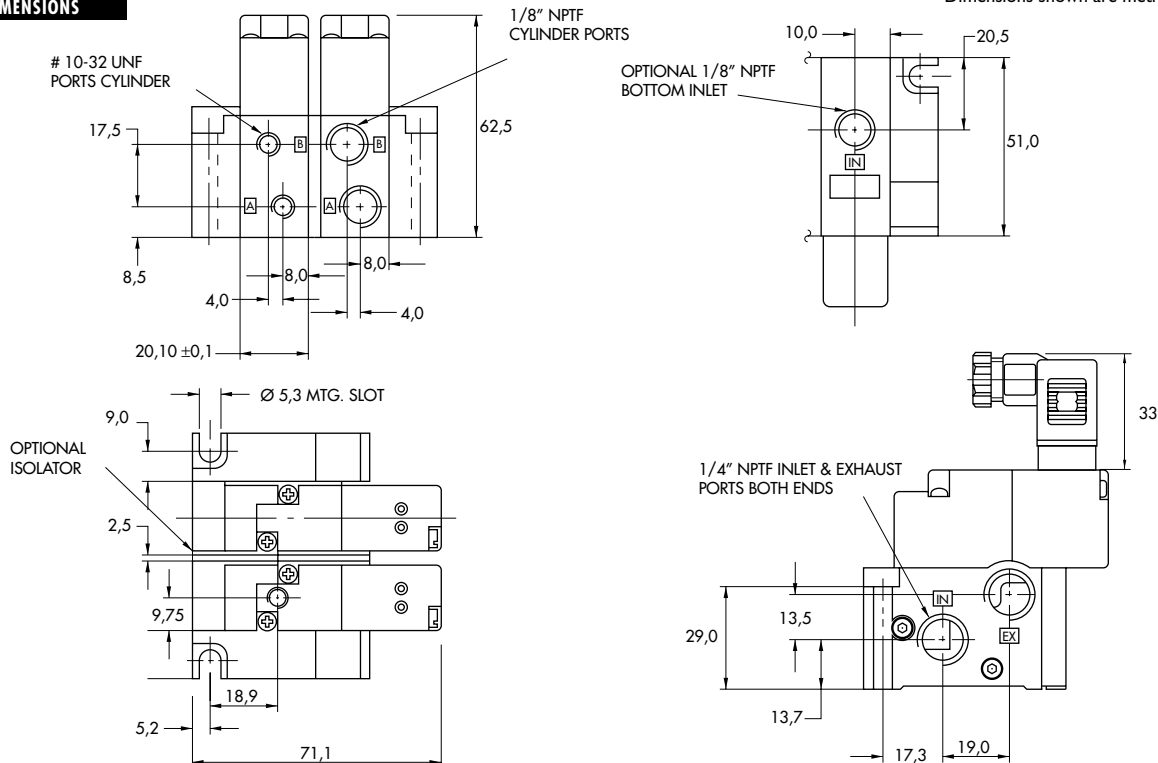
### TECHNICAL DATA

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 <sub>v</sub> ), 5.4 W : (0.11 C <sub>v</sub> )		
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<sub>v</sub> according to wattage and high flow Mod. • Bottom inlet : specify Mod. 0210.

### DIMENSIONS

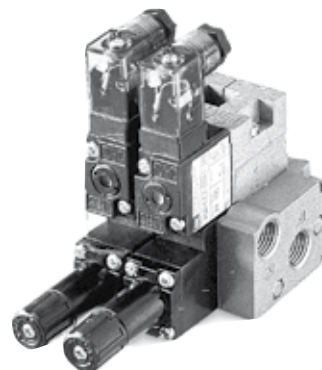
Dimensions shown are metric (mm)



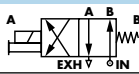

Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	# 10-32 - 1/8"	0.11 C <sub>v</sub>	sub-base with pressure regulators	

## 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-Dxxx-xxx	45A-N00-Dxxx-xxx
1/8" NPTF base	45A-LAJ-Dxxx-xxx	45A-NAJ-Dxxx-xxx
# 10-32 UNF base	45A-LBJ-Dxxx-xxx	45A-NBJ-Dxxx-xxx

## SOLENOID OPERATOR ►

D **XX X- X XX**\*

XX Voltage	X Wire length	X Manual operator	XX
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
AC 24/60, 24/50			BA Flying leads
FB 24 VDC (1.8 W)			
DA 24 VDC (5.4 W)			
DF 24 VDC (12.7 W)			

\* Other options available, see page 361.

End plate kit required (Port size 1/4" NPTF) : M-45008-01.  
Options (with gauge port) : Single operator : replace L by M.  
Double operator : replace N by P.

## REGULATOR OPTIONS

45A-XXJ-D xxx-xxx ("J" is for Adj. knob)  
— Replace with "E" for slotted stem  
— Replace with "G" for locking slotted stem

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

### 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 <sub>v</sub> ), 5.4 W : (0.11 C <sub>v</sub> )		
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 :

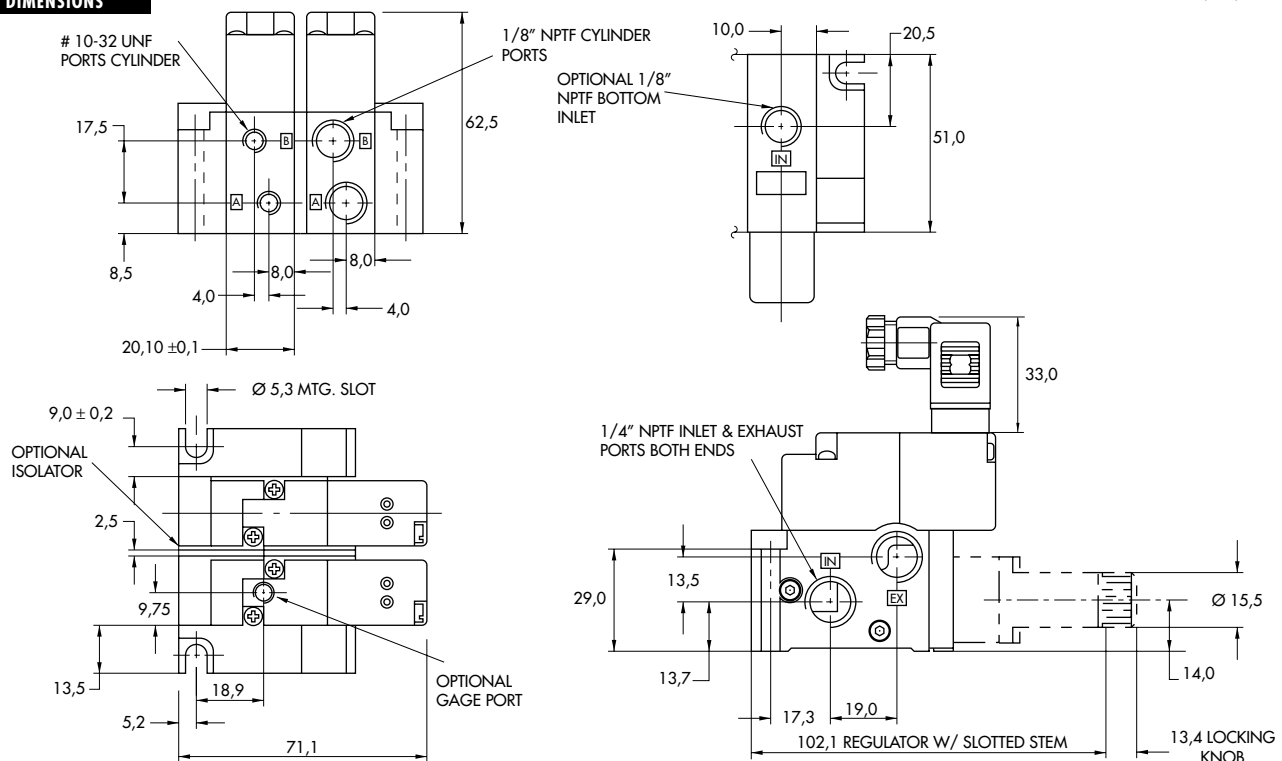
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Seal between base and valve : 16453. • Seal between bases : 16455.
- Tie-rod (x2) : 19753. • Pressure regulator : 45A-00R (Adj. Knob), 45A-00L (Slotted Stem), 45A-00M (Locking Slotted Stem).
- Inlet & exhaust isolator : N-45008. • Inlet isolator : N-45009. • Exhaust isolator : N-45010.

Options :

- BSPP threads. • High flow up to 0.18 C<sub>v</sub> according to wattage and high flow mod. • Bottom inlet : specify Mod. 0210.

### DIMENSIONS

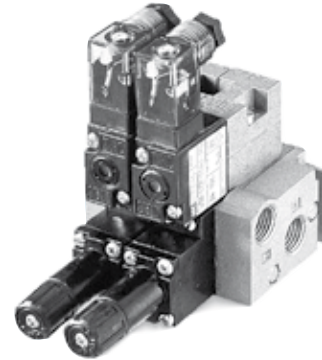
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2</b>	<b># 10-32 - 1/8"</b>	<b>0.11 C<sub>v</sub></b>	sub-base with pressure regulators and flow controls	


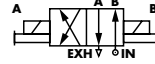
## OPERATIONAL BENEFITS

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.



35  
100  
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## HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
<b>Valve less base</b>	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
<b>1/8" NPTF base</b>	45A-LAK-Dxxx-xxx	45A-NAK-Dxxx-xxx
<b># 10-32 UNF base</b>	45A-LBK-Dxxx-xxx	45A-NBK-Dxxx-xxx

45

## SOLENOID OPERATOR ➤

D **XX X- X XX\***

XX Voltage	X Wire length	X Manual operator	XX
<b>AA</b> 120/60, 110/50	<b>A</b> 18" (Flying leads)	<b>1</b> Non-locking	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking	<b>KD</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>BA</b> Flying leads
<b>FB</b> 24 VDC (1.8 W)			
<b>DA</b> 24 VDC (5.4 W)			
<b>DF</b> 24 VDC (12.7 W)			

\* Other options available, see page 361.

End plate kit required (Port size 1/4" NPTF) : M-45008-01.  
Options (with gauge port) : Single operator : replace L by M  
Double operator : replace N by P.

## REGULATOR AND F.C. OPTIONS

45A-XXK-D xxx-xxx ("K" option is for Adj. knob and F.C.)  
— Replace with "F" for slotted stem and F.C.  
— Replace with "H" for locking slotted stem and F.C.

700  
900  
82  
6300  
6500  
6600  
1300  
800  
ISO 1  
ISO 2  
ISO 3  
MAC 125A  
MAC 250A  
MAC 500A

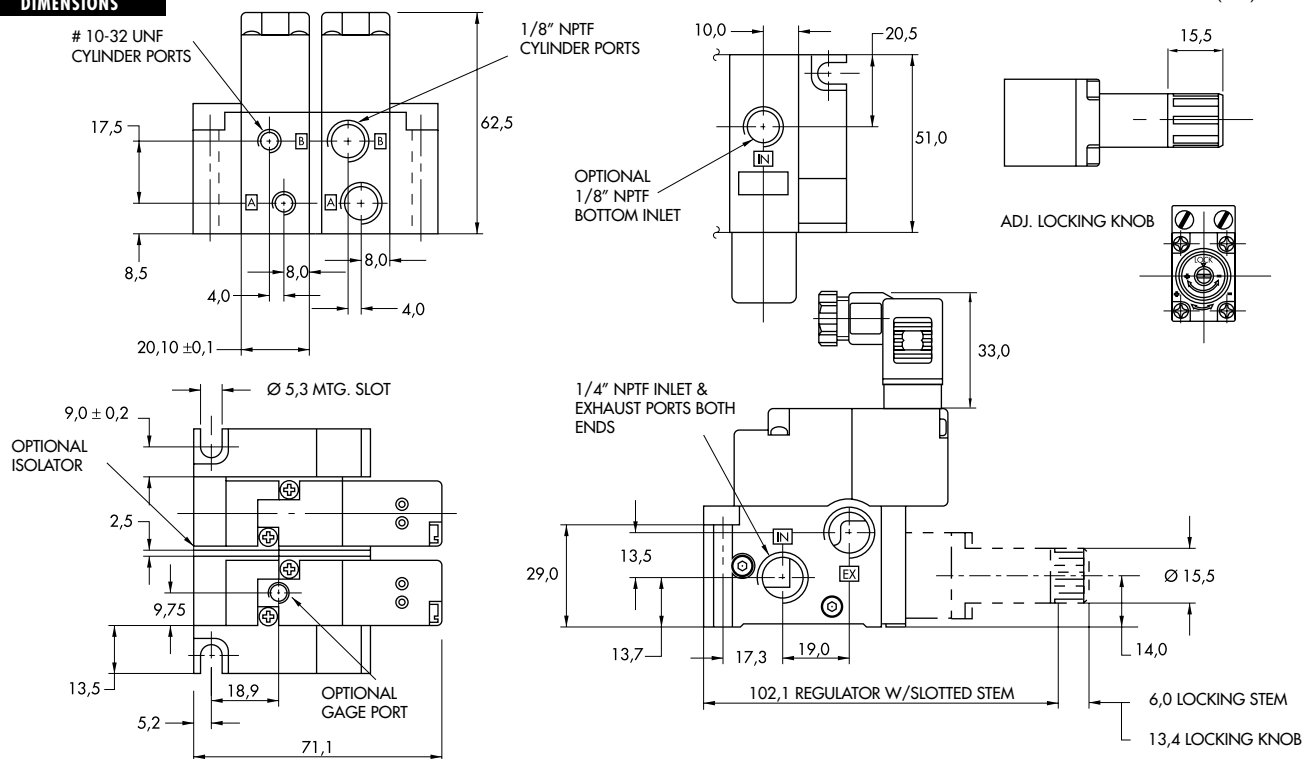
### TECHNICAL DATA

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 <sub>v</sub> ), 5.4 W : (0.11 C <sub>v</sub> )		
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. • Pressure regulator with flow controls : 45A-00N (Slotted Stem), 45A-00P (Locking Slotted Stem), 45A-00S (Adj. Knob). • Inlet & exhaust isolator : N-45008. • Inlet isolator : N-45009. • Exhaust isolator : N-45010.
- Options :
- BSPP threads. • High flow up to 0.18 C<sub>v</sub> according to wattage and high flow Mod. • Bottom inlet : specify Mod. 0210.

### DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	# 10-32 - 1/8" 5/32 Pressed-intube receptacles	0.11 C <sub>v</sub>	Manifold base plug-in	

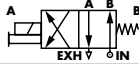

## OPERATIONAL BENEFITS

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.



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## HOW TO ORDER

Port size	Single operator	Double operator
		
Valve less base	45A-L00-00-DxxJ-xxx	45A-N00-00-DxxJ-xxx
1/8" NPTF base	45A-LSA-AC-DxxJ-xxx	45A-NSA-BL-DxxJ-xxx
# 10-32 UNF base	45A-LSD-AC-DxxJ-xxx	45A-NSD-BL-DxxJ-xxx
5/32 Pressed-in tube receptacles	45A-LSF-AC-DxxJ-xxx	45A-NSF-BL-DxxJ-xxx

Note: Double operator valves are only available with bottom cylinder ports.

## SOLENOID OPERATOR ➤

D **XX** J-**X** **XX**\*

XX Voltage	X Manual operator	XX Electrical connection
AA 120/60, 110/50	0 No operator	FM Plug-in
AB 240/60, 220/50	1 Non-locking	FN Plug-in with diode
DA 24 VDC (5.4W)	2 Locking	FP Plug-in with M.O.V.
FA 12 VDC (1.8W)		
FB 24 VDC (1.8W)		
FE 12 VDC (2.4W)		
FF 24 VDC (2.4W)		

\* Other options available, see page 361.

## OPTIONS

45A-LSA-AC-DxxJ-xxx

- C Side cylinder ports - Single operator only
- L Bottom cylinder ports - Single or double operator
- O Base only - no valve
- L Single solenoid - Base mount body
- M Single solenoid - Base mount body with gage port
- N Double solenoid - Base mount body
- P Double solenoid - Base mount body with gage port

Example: base only: 45A-OSA-AC (1/8" NPTF wired for single operator)  
End plate kit required : M-45028-01

45

700

900

82

6300

6500

6600

1300

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ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

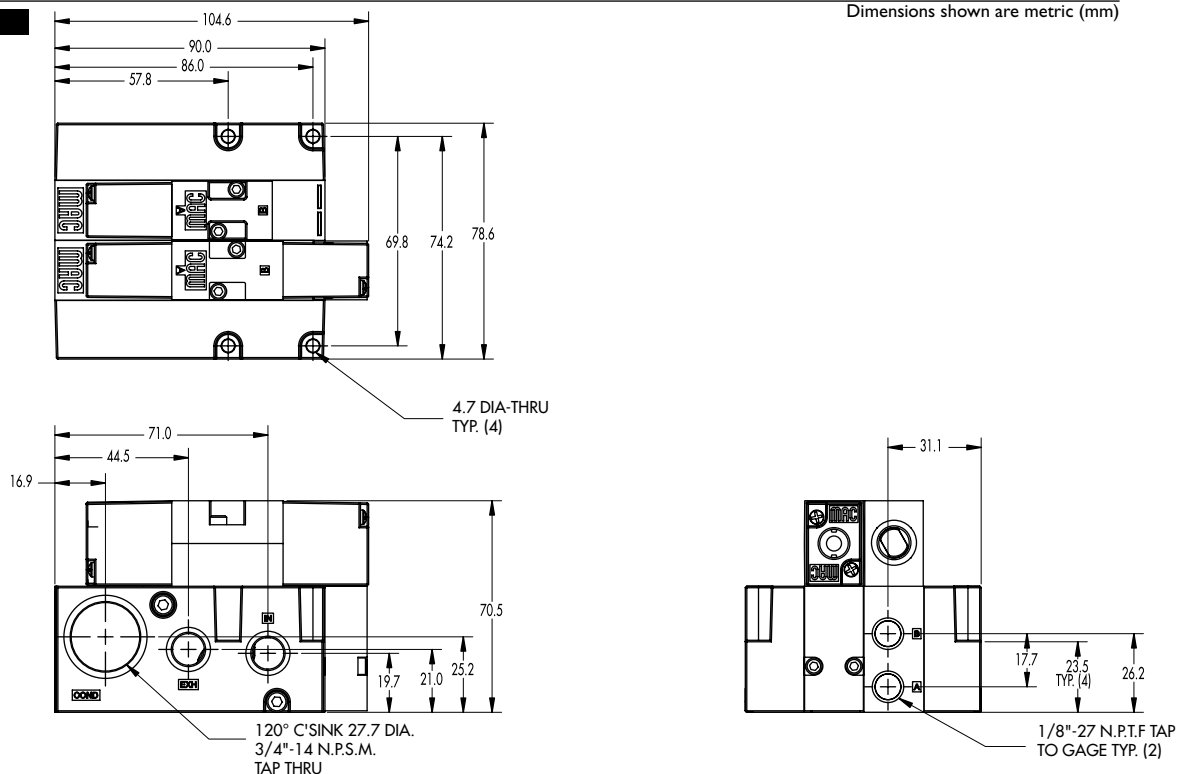
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1.8 W : (0.09 C <sub>v</sub> ), 5.4 W : (0.11 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power : 120 VAC : DC	~ Inrush : 10.9 VA      Holding : 7.7 VA = 1.8 to 12.7 W

Spare parts :      • Inlet isolator : 28477   • Exhaust isolator : 28476  
                              • Tie rod (x2): 79244   • Seal between bases: 16762   • Seal between valve & base: 16453

Options :      • BSPP threads

## DIMENSIONS

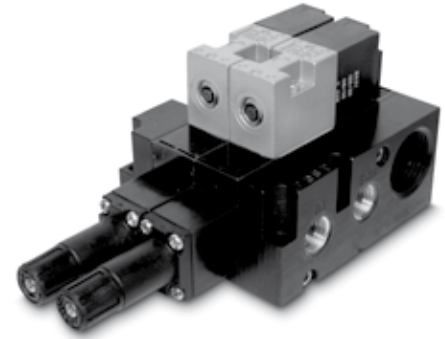
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	# 10-32 - 1/8" 5/32 Pressed-intube receptacles	0.11 C <sub>v</sub>	Manifold base plug-in with pressure regulators	

## OPERATIONAL BENEFITS

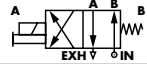
1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



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## HOW TO ORDER

Port size	Single operator
	
Valve less base	45A-L00-00-DxxJ-xxx
1/8" NPTF base	45A-LSA-AJ-DxxJ-xxx
# 10-32 UNF base	45A-LSD-AJ-DxxJ-xxx
5/32 Pressed-in tube receptacles	45A-LSF-AJ-DxxJ-xxx

## SOLENOID OPERATOR ►

D **xx** J-**x** **xx**\*

xx Voltage	x Manual operator	xx Electrical connection
AA 120/60, 110/50	0 No operator	FM Plug-in
AB 240/60, 220/50	1 Non-locking	FN Plug-in with diode
DA 24 VDC (5.4W)	2 Locking	FP Plug-in with M.O.V.
FA 12 VDC (1.8W)		
FB 24 VDC (1.8W)		
FE 12 VDC (2.4W)		
FF 24 VDC (2.4W)		

\* Other options available, see page 361.

Note : Bottom cylinder ports only with the regulator option.

## OPTIONS

45A-LSA-AJ-DxxJ-xxx

- J Regulator with adjusting knob
- E Regulator with slotted stem
- G Regulator with locking slotted stem

- O Base only – no valve
- L Single solenoid - Base mount body
- M Single solenoid - Base mount body with gage port

Example: base only with regulator: 45A-OSA-AJ  
End plate kit required : M-45028-01

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1300

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ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



# TECHNICAL DATA

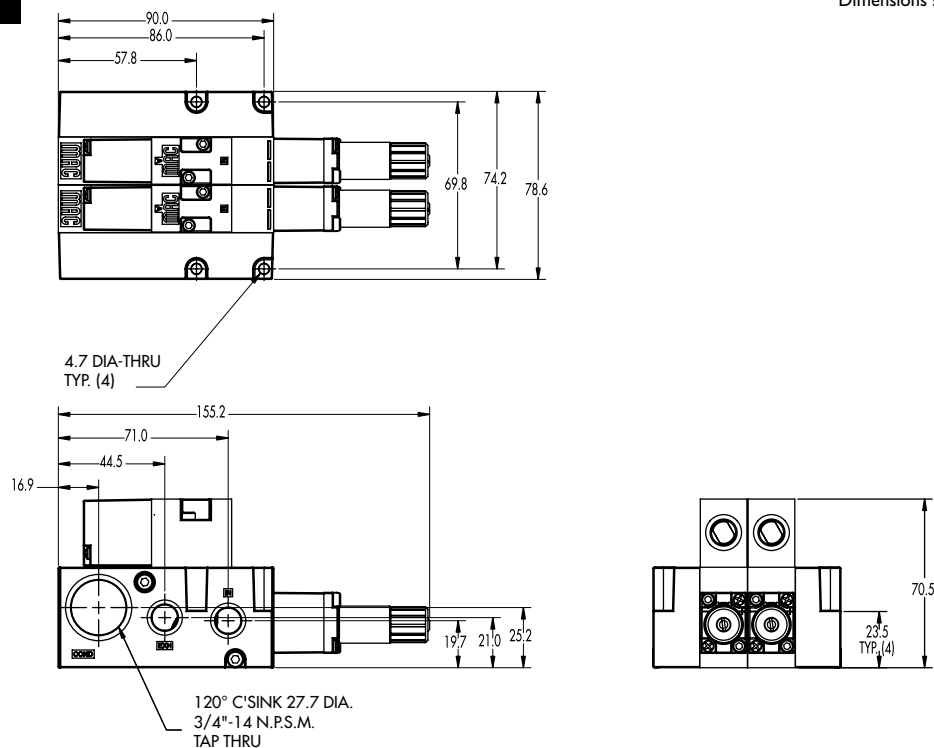
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1.8 W : (0.09 C <sub>v</sub> ), 5.4 W : (0.11 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power : 120 VAC : DC	~ Inrush : 10.9 VA      Holding : 7.7 VA = 1.8 to 12.7 W

Spare parts :      • Inlet isolator : 28477   • Exhaust isolator : 28476  
                              • Tie rod (x2): 79244   • Seal between bases: 16762   • Seal between valve & base: 16453

Options :      • BSPP threads

# DIMENSIONS

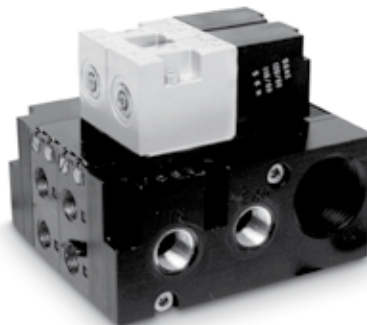
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	# 10-32 - 1/8" 5/32 Pressed-intube receptacles	0.11 C <sub>v</sub>	Manifold base plug-in with flow controls	

## 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.



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1300

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ISO 1

ISO 2

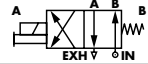
ISO 3

MAC 125A

MAC 250A

MAC 500A

## HOW TO ORDER

Port size	Single operator
	
Valve less base	45A-L00-00-DxxJ-xxx
1/8" NPTF base	45A-LSA-AD-DxxJ-xxx
# 10-32 UNF base	45A-LSD-AD-DxxJ-xxx
5/32 Pressed-in tube receptacles	45A-LSF-AD-DxxJ-xxx

## SOLENOID OPERATOR ►

DxxJ-xxx\*

XX Voltage	X Manual operator	XX Electrical connection
AA 120/60, 110/50	0 No operator	FM Plug-in
AB 240/60, 220/50	1 Non-locking	FN Plug-in with diode
DA 24 VDC (5.4W)	2 Locking	FP Plug-in with M.O.V.
FA 12 VDC (1.8W)		
FB 24 VDC (1.8W)		
FE 12 VDC (2.4W)		
FF 24 VDC (2.4W)		

\* Other options available, see page 361.

## OPTIONS

45A-LSA-AD-DxxJ-xxx

- D Side cylinder ports with flow controls
- M Bottom cylinder ports with flow controls
- O Base only – no valve
- L Single solenoid - Base mount body
- M Single solenoid - Base mount body with gage port

Example: Base only with flow controls: 45A-OSA-AD  
End plate kit required : M-45028-01

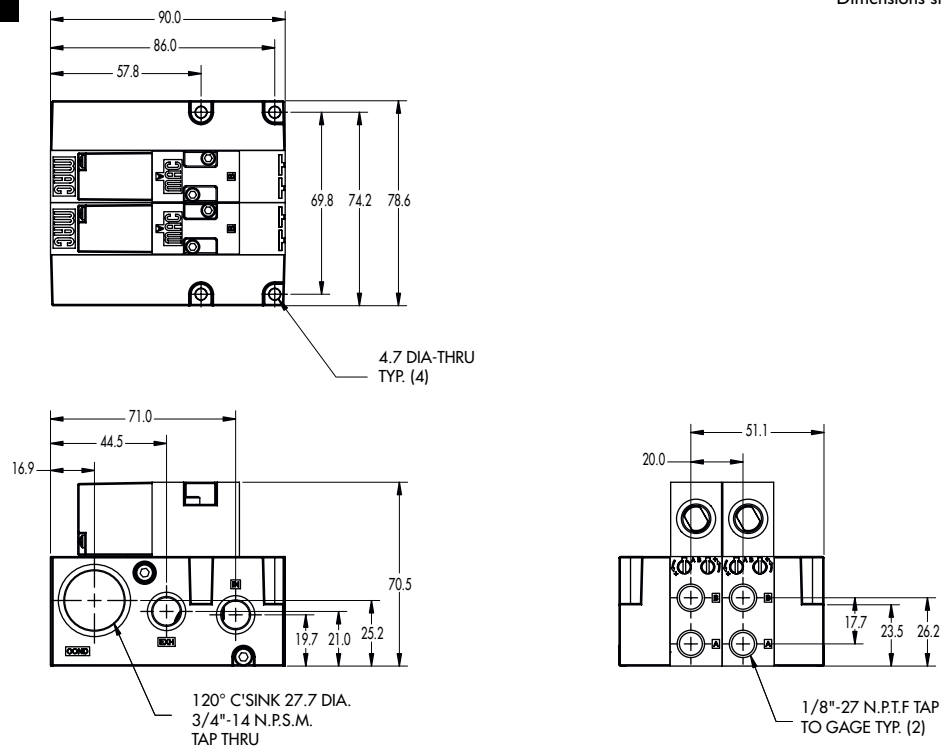
# TECHNICAL DATA

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 <sub>v</sub> ), 5.4 W : (0.11 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power : 120 VAC : DC	~ Inrush : 10.9 VA      Holding : 7.7 VA = 1.8 to 12.7 W

- Spare parts :
- Inlet isolator : 28477 • Exhaust isolator : 28476
  - Tie rod (x2): 79244 • Seal between bases: 16762 • Seal between valve & base: 16453
- Options :
- BSPP threads

# DIMENSIONS

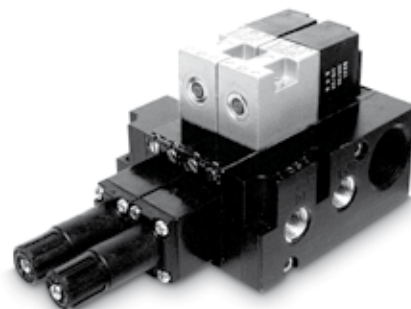
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	# 10-32 - 1/8" 5/32 Pressed-in tube receptacles	0.11 C <sub>v</sub>	Manifold base plug-in with regulator & flow controls	

## 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.



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700

900

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6300

6500

6600

1300

800

ISO 1

ISO 2

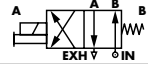
ISO 3

MAC 125A

MAC 250A

MAC 500A

## HOW TO ORDER

Port size	Single operator
	
Valve less base	45A-L00-00-DxxJ-xxx
1/8" NPTF base	45A-LSA-AK-DxxJ-xxx
# 10-32 UNF base	45A-LSD-AK-DxxJ-xxx
5/32 Pressed-in tube receptacles	45A-LSF-AK-DxxJ-xxx

## SOLENOID OPERATOR ►

DxxJ-xxx\*

XX Voltage	X Manual operator	XX Electrical connection
AA 120/60, 110/50	0 No operator	FM Plug-in
AB 240/60, 220/50	1 Non-locking	FN Plug-in with diode
DA 24 VDC (5.4W)	2 Locking	FP Plug-in with M.O.V.
FA 12 VDC (1.8W)		
FB 24 VDC (1.8W)		
FE 12 VDC (2.4W)		
FF 24 VDC (2.4W)		

\* Other options available, see page 361.

Note : Bottom cylinder ports only available with the regulator & flow controls option.

## OPTIONS

45A-LSA-AK-DxxJ-xxx

- K Regulator with adjusting knob & flow controls
- F Regulator with slotted stem & flow controls
- H Regulator with locking slotted stem & flow controls

- O Base only – no valve
- L Single solenoid - Base mount body
- M Single solenoid - Base mount body with gage port

Example: Base only with regulator and flow controls: 45A-OSA-AK  
End plate kit required : M-45028-01

# TECHNICAL DATA

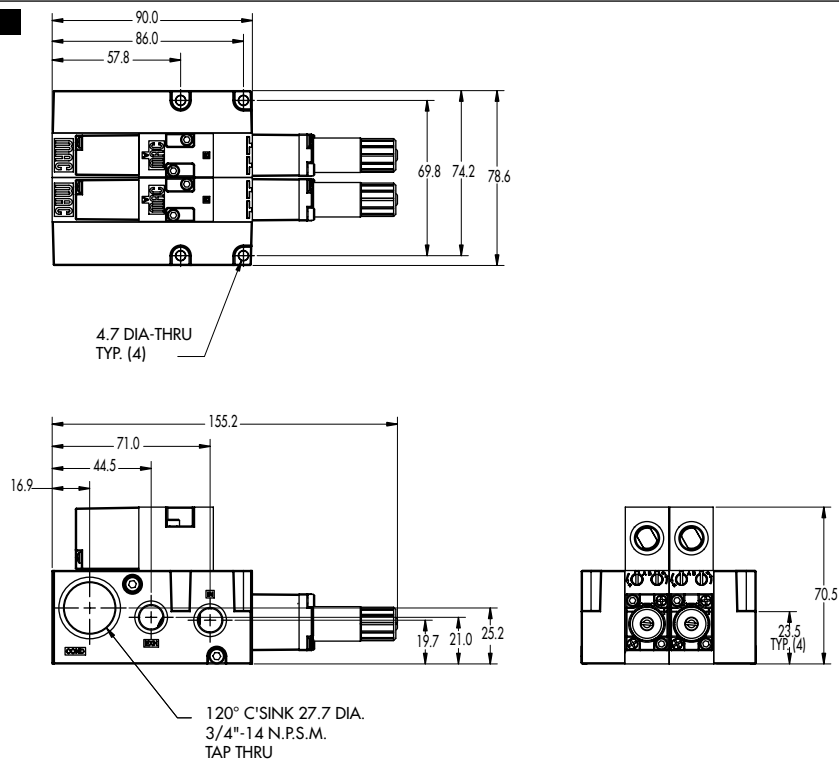
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1.8 W : (0.09 C <sub>v</sub> ), 5.4 W : (0.11 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power : 120 VAC : DC	~ Inrush : 10.9 VA      Holding : 7.7 VA = 1.8 to 12.7 W

Spare parts :      • Inlet isolator : 28477   • Exhaust isolator : 28476  
                              • Tie rod (x2): 79244   • Seal between bases: 16762   • Seal between valve & base: 16453

Options :      • BSPP threads

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

inline

Series

Manifold mounting

stacking

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

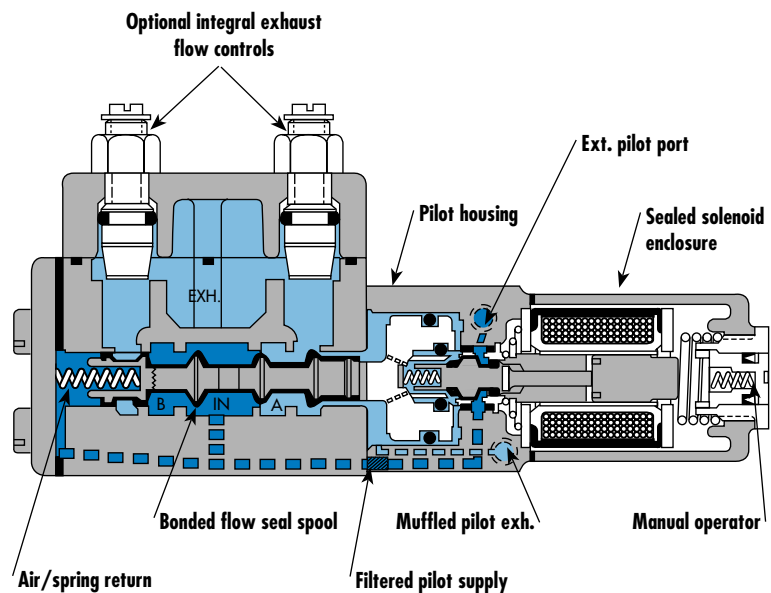
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



**SERIES FEATURES**

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Air/spring return for consistent shifting on single solenoid internal pilot valves.
- Use on lube or non-lube service.
- Optional integral adjustable exhaust flow controls with a single common exhaust port.
- Optional low wattage DC solenoids down to 1 watt.
- Various types of manual operators and solenoid enclosures.

### VALVE CONFIGURATIONS AVAILABLE

The 700Series is a compact 4-way valve with a Cv of up to .8. This series provides fast response, long life and high flow not commonly found in this size valve.

- 2-Pos., single or double operator (solenoid or remote air).
- Individual body or stacking body (2 common ports).
- Integral adjustable exhaust flow control models.
- Internal pilot or external pilot for vacuum to 20 psi main valve pressures.
- Manual and mechanical operators available.

### SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

- Air/spring return for consistent shifting on single remote air valves for main valve pressures of 20 psi or more.
- Optional integral adjustable exhaust flow controls.

### SERIES FEATURES-REMOTE AIR PILOT, PILOT OPERATED VALVES

These special air versions have the same features as the remote air pilot operated models, but additionally feature:

- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 20-150 PSI, regardless of main valve pressure.
- A manual operator/position indicator.

### SPECIAL APPLICATIONS:

On all models, energizing the operator nearest the "A" port supplies pressure to cylinder port "A" and energizing the operator nearest the "B" port supplies pressure to cylinder port "B". For the following special applications additional considerations are required.

- **INTERNAL PILOT**-Utilized for main valve pressures equal to or greater than minimum pilot pressures. Pilot supply is fed to both the pilot valves and the air/spring return from the inlet.
- **EXTERNAL PILOT**-Required for all solenoid pilot operated models when main valve pressures are below 20 PSI on single operator or 10 PSI on double operator models. Single operators require MOD 158-heavy duty spring. Pipe using either an M5x0.8 or a #10-32 UNF fitting to the external pilot port. To convert from internal to external pilot, simply rotate pilot housing 180° and install heavy duty spring.
- **VACUUM APPLICATIONS**-Use external pilot models only, without flow controls and connect vacuum source to the exhaust port and leave the inlet open to atmosphere.
- **SELECTOR APPLICATIONS**-Use models without flow controls, connect the higher pressure to the inlet port and lower pressure to the exhaust port.

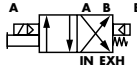
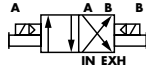
Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>0.7 C<sub>v</sub></b>	inline	

## OPERATIONAL BENEFITS

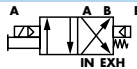
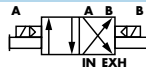
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return force thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.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

Port size	Pilot air	Single operator	Double operator
			
<b>1/8" NPTF</b>	Internal	711C-11-PI- <b>XXYZZ</b>	721C-11-PI- <b>XXYZZ</b>
<b>1/4" NPTF</b>	Internal	711C-12-PI- <b>XXYZZ</b>	721C-12-PI- <b>XXYZZ</b>
<b>1/8" NPTF</b>	External	711C-11-PE- <b>XXYZZ</b>	721C-11-PE- <b>XXYZZ</b>
<b>1/4" NPTF</b>	External	711C-12-PE- <b>XXYZZ</b>	721C-12-PE- <b>XXYZZ</b>

## HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Pilot air	Single operator	Double operator
			
<b>1/8" NPTF</b>	Internal	712C-11-PI- <b>XXYZZ</b>	722C-11-PI- <b>XXYZZ</b>
<b>1/4" NPTF</b>	Internal	712C-12-PI- <b>XXYZZ</b>	722C-12-PI- <b>XXYZZ</b>
<b>1/8" NPTF</b>	External	712C-11-PE- <b>XXYZZ</b>	722C-11-PE- <b>XXYZZ</b>
<b>1/4" NPTF</b>	External	712C-12-PE- <b>XXYZZ</b>	722C-12-PE- <b>XXYZZ</b>

## SOLENOID OPERATOR ►

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/50, 24/60		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		<b>CA</b> Conduit 1/2" NPS

\* Other options available, see page 357.

## OPTIONS

7XXC-XX-PX-**XXYZZ**

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

35

100

200

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59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator : 20 to 150 PSI      double operator : 10 to 150 PSI External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator : 20 to 150 PSI      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 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" : (0.6 C <sub>v</sub> ), 1/4" : (0.7 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W
Response times :	24 VDC (8.5 W)      Energize : 6.4 ms      De-energize : 8.5ms 120/60      Energize : 4-10 ms      De-energize : 7-13 ms

## Spare parts :

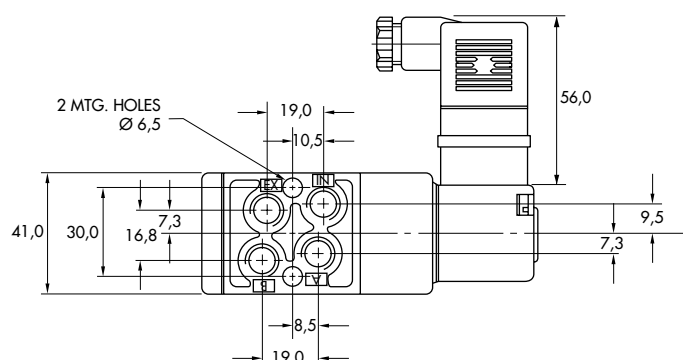
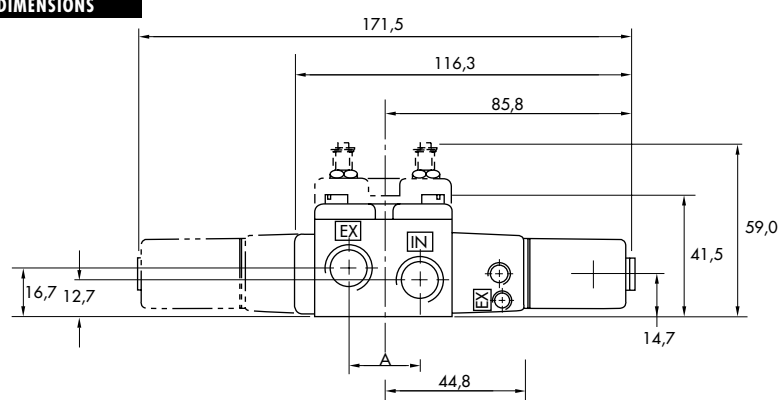
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363.
- Valve cover plate with integral flow controls : N-07002.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



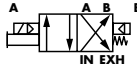
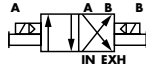
Port size	A
1/8" NPTF	21.0
1/4" NPTF	24.0

Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>0.8 C<sub>v</sub></b>	stacking	

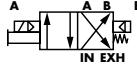
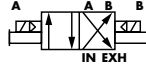
## OPERATIONAL BENEFITS

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

Port size	Pilot air	Single operator	Double operator
			
<b>1/8" NPTF</b>	Internal	713C-11-PI- <b>XXYYZZ</b>	723C-11-PI- <b>XXYYZZ</b>
<b>1/4" NPTF</b>		713C-12-PI- <b>XXYYZZ</b>	723C-12-PI- <b>XXYYZZ</b>

## HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Pilot air	Single operator	Double operator
			
<b>1/8" NPTF</b>	Internal	714C-11-PI- <b>XXYYZZ</b>	724C-11-PI- <b>XXYYZZ</b>
<b>1/4" NPTF</b>		714C-12-PI- <b>XXYYZZ</b>	724C-12-PI- <b>XXYYZZ</b>

## SOLENOID OPERATOR ►

**XX Y ZZ\***

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
<b>11</b>	120/60, 110/50	<b>1</b>	Non-locking	<b>JB</b>	Rectangular connector
<b>12</b>	240/60, 220/50	<b>2</b>	Locking	<b>JD</b>	Rectangular connector with light
<b>22</b>	24/50, 24/60			<b>JA</b>	Square connector
<b>59</b>	24 VDC (2.5 W)			<b>JC</b>	Square connector with light
<b>87</b>	24 VDC (17.1 W)			<b>BA</b>	Flying leads (18")
<b>61</b>	24 VDC (8.5 W)			<b>CA</b>	Conduit 1/2" NPS

\* Other options available, see page 357.

End plate kit required (Port size 1/4") : M-07001-01-01 (internal pilot).  
M-07001-02-01 (external pilot).

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator : 20 to 150 PSI      double operator : 10 to 150 PSI External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator : 20 to 150 PSI      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 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" : (0.7 C <sub>v</sub> ), 1/4" : (0.8 C <sub>v</sub> )
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W
Response times :	24 VDC (8.5 W)      Energize : 6.4 ms      De-energize : 8.5 ms 120/60      Energize : 4-10 ms      De-energize : 7-13 ms

## Spare parts :

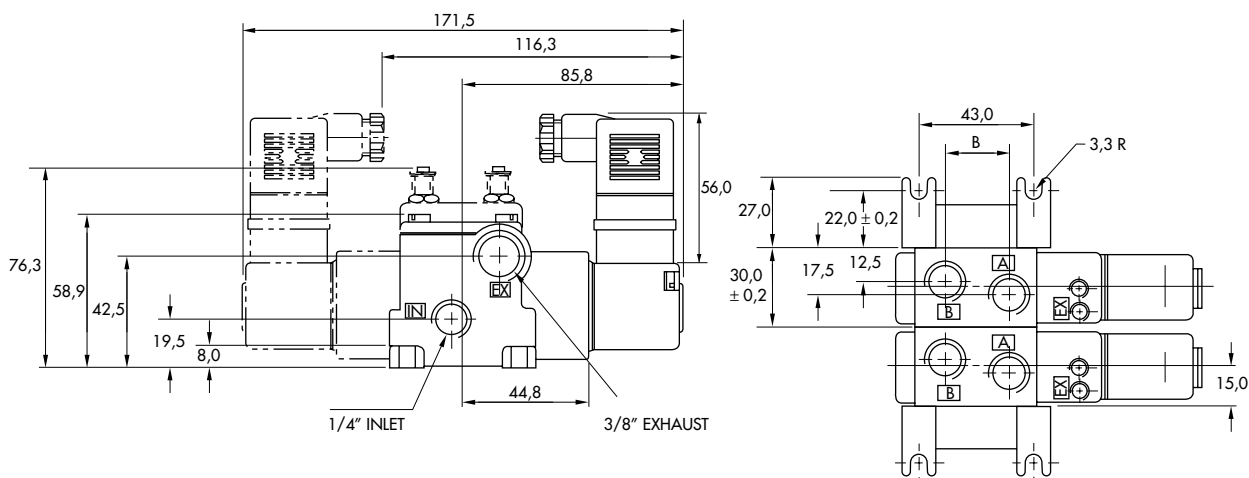
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363.
- Valve cover plate with integral flow controls : N-07004. • Inlet & exhaust isolator : N-07005. • Inlet isolator : N-07006.
- Exhaust isolator : N-07007.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Port size	B
1/8" NPTF	21.0
1/4" NPTF	24.0

Individual mounting

inline

Series

Manifold mounting

stacking

35

100

200

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56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

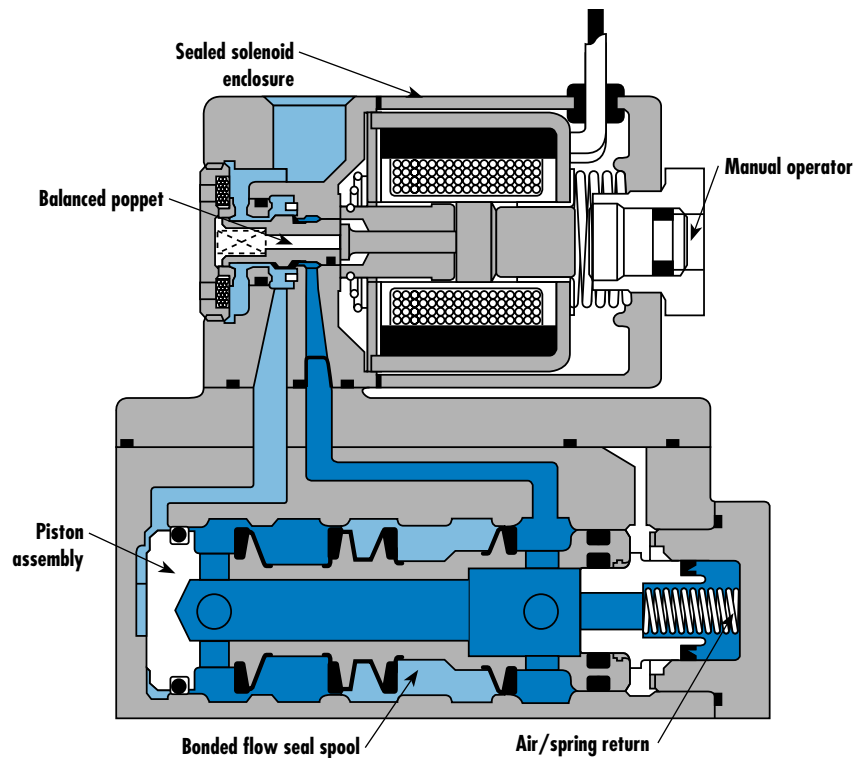
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



**SERIES FEATURES**

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Air/spring return on single solenoid valves.
- Use for lube or non-lube service.
- Optional low wattage DC solenoids down to 1 watt.
- Various types of manual operators and electrical enclosures.



### VALVE CONFIGURATIONS AVAILABLE

The 900 Series is a small Inline 4-way valve with a Cv of up to 1.4. This series provides fast response, long life and high flow not commonly found in this size valve.

- 2-Pos., single or double operator (solenoid or remote air).
- Individual body or stacking body models.
- Manual and mechanical operators available

### SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

- Air/spring return on single remote air valves
- Use for lube or non-lube service.
- Optional remote air pilot, pilot operated models available when application requires a pilot signal below the main valve pressure.

### SPECIAL APPLICATIONS:

On all models, energizing the "A" operator (solenoid or remote air) supplies pressure to cylinder port "A" and energizing the "B" operator supplies pressure to cylinder port "B". For the following special applications, additional piping considerations are required.

**VACUUM APPLICATIONS** (remote Air Models Only)-Connect the vacuum source to the Exhaust port and leave the Inlet open to atmosphere. Also specify MOD 158 which provides a heavy duty spring in lieu of air/spring.

**SELECTOR APPLICATIONS**-When using as a selector valve, connect the higher pressure to the Inlet port and the lower pressure to the Exhaust port. On solenoid models, the Inlet pressure must be a minimum of 25 PSI on singles or 10 PSI on doubles.

Function	Port size	Flow [Max]	Individual mounting	Series
4/2	1/8" - 1/4"	1.2 C <sub>v</sub>	inline	

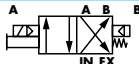
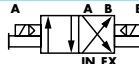
#### OPERATIONAL BENEFITS

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



35  
100  
200  
55  
56  
57  
58  
59

#### HOW TO ORDER

Port size	Single operator	Double operator
		
1/8" NPTF	911B-PM- <b>XXYYZZ</b>	921B-PM- <b>XXYYZZ</b>
1/4" NPTF	912B-PM- <b>XXYYZZ</b>	922B-PM- <b>XXYYZZ</b>

45

#### SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	JB Rectangular connector
12 240/60, 220/50	2 Locking	JD Rectangular connector with light
22 24/50, 24/60		JA Square connector
59 24 VDC (2.5 W)		JC Square connector with light
87 24 VDC (17.1 W)		BA Flying leads (18")
61 24 VDC (8.5 W)		CA Conduit 1/2" NPS

\* Other options available, see page 357.

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

## TECHNICAL DATA

<b>Fluid :</b>	Compressed air, vacuum, inert gases		
<b>Pressure range :</b>	Single operator : 25 to 150 PSI      Double operator : 10 to 150 PSI		
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
<b>Filtration :</b>	40 µ		
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)		
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1/8" : (0.8 C <sub>v</sub> ), 1/4" : (1.2 C <sub>v</sub> )		
<b>Coil :</b>	General purpose class A, continuous duty, encapsulated		
<b>Voltage range :</b>	-15% to +10% of nominal voltage		
<b>Protection :</b>	Consult factory		
<b>Power :</b>	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
<b>Response times :</b>	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-10 ms	De-energize : 8-15 ms

Spare parts :

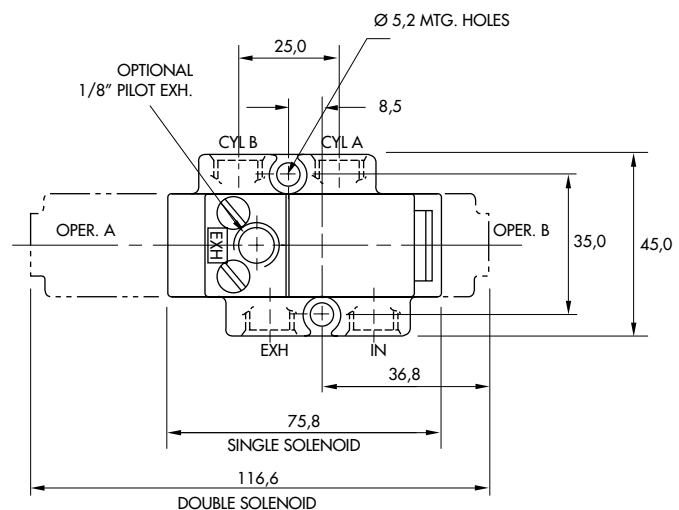
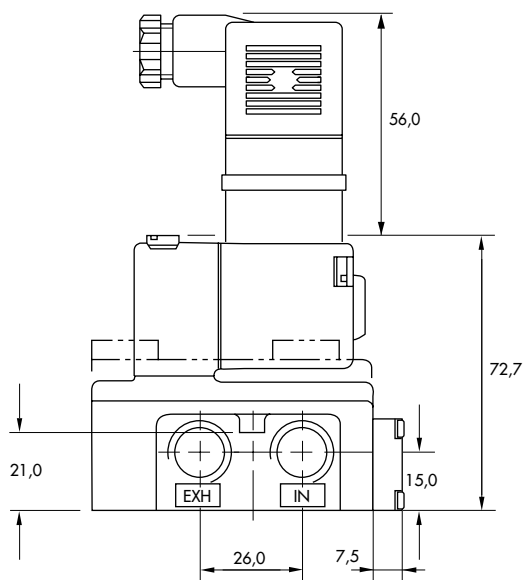
- Solenoid operator (power  $\geq 4$  W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw pilot to main valve : 35219.

Options :

- BSPP threads.

## DIMENSIONS

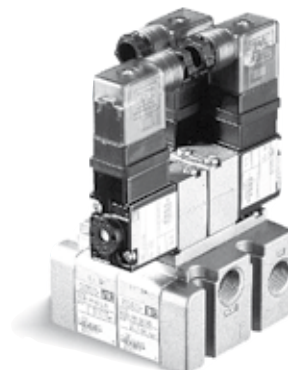
Dimensions shown are metric (mm)



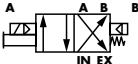
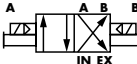
Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2</b>	<b>1/8" - 1/4" - 3/8"</b>	<b>1.4 C<sub>v</sub></b>	stacking	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	Single operator	Double operator
		
<b>1/8" NPTF</b>	913B-PM- <b>XXYYZZ</b>	923B-PM- <b>XXYYZZ</b>
<b>1/4" NPTF</b>	914B-PM- <b>XXYYZZ</b>	924B-PM- <b>XXYYZZ</b>
<b>3/8" NPTF</b>	919B-PM- <b>XXYYZZ</b>	N/A

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/50, 24/60		<b>BA</b> Flying leads (18")
<b>59</b> 24 VDC (2.5 W)		<b>MA</b> Common conduit 1" NPS
<b>87</b> 24 VDC (17.1 W)		<b>RA</b> Conduit 3/8" NPS
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

End plate kit required (Port size : 3/8") : M-09001-01.  
"MA" option also requires end plate kit : M-01002-01.

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6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



## TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Single operator : 25 to 150 PSI      Double operator : 10 to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 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" : (1.2 C <sub>v</sub> ), 1/4" : (1.4 C <sub>v</sub> ), 3/8" : (1.4 C <sub>v</sub> )		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-10 ms	De-energize : 8-15 ms

## Spare parts :

- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16367. • Mounting screw pilot to main valve : 35208.
- Pressure seal between valves : 16358. • Tie-rod (x2) : 19615. • Inlet & exhaust isolator : N-09002. • Inlet isolator : N-09004.A.
- Exhaust isolator : N-09003.

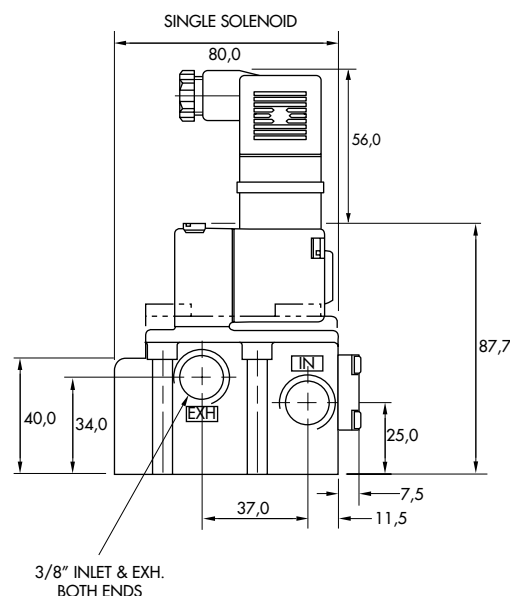
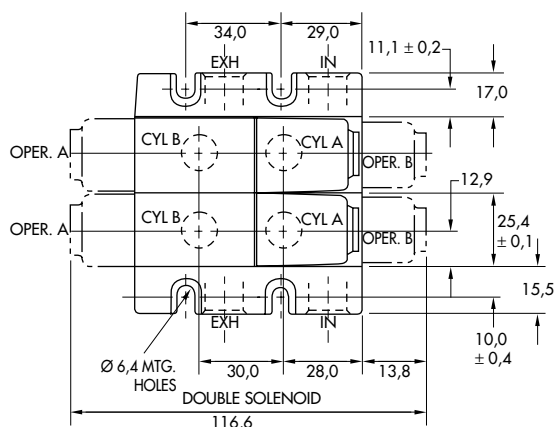
## Options :

- BSPP threads.

7,5

## DIMENSIONS

Dimensions shown are metric (mm)



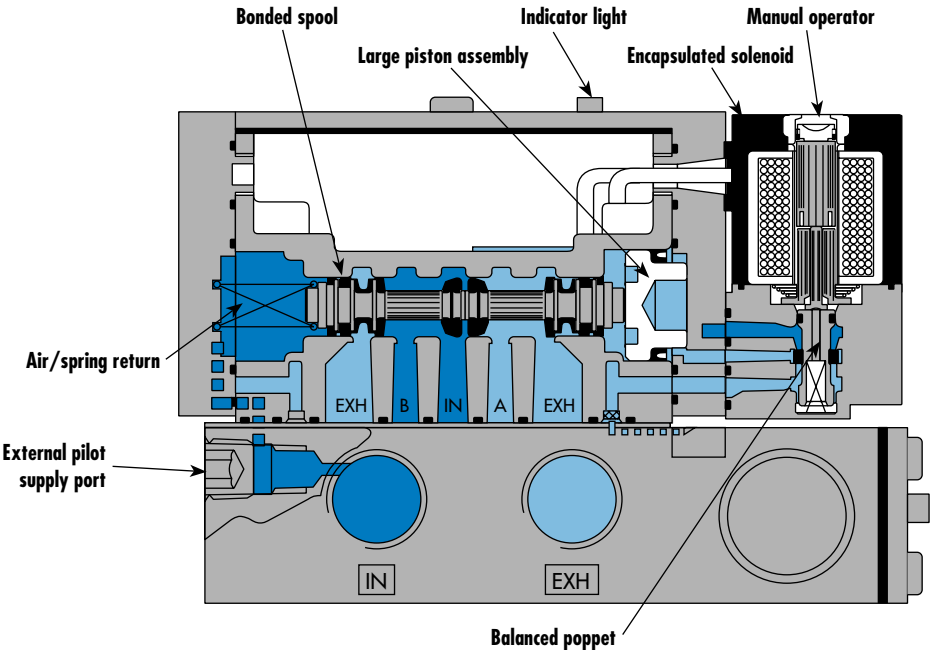
Individual mounting

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

Series

Manifold mounting

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



SERIES FEATURES

- Unique patented MACSOLENOID® for fastest possible response times.
- Balanced poppet pilot valve for high flow, precise repeatability, and consistent operation.
- Large spool piston for maximum shifting force even at minimum operating pressure.
- Air/spring return for consistent shifting on single solenoid models.
- MAC spool and bore combination for wiping away contamination, eliminating sticking, and use on non-lube service.
- Patented virtually burn-out proof AC solenoid.
- Plug-in design of valves, bases, flow controls, and regulators for modular assembly and ease of maintenance.
- Optional low wattage DC solenoids down to 1.8 watts.
- Indicator lights in valve body or base and non-plug-in models available.
- Very high flow in a very compact package.

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6300

6500

6600

1300

800

ISO 1

ISO 2

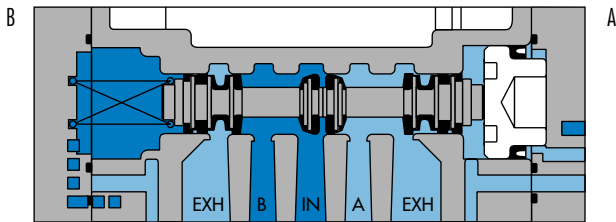
ISO 3

MAC 125A

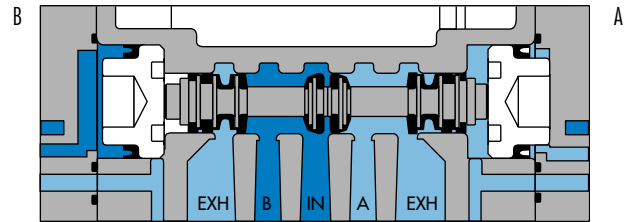
MAC 250A

MAC 500A

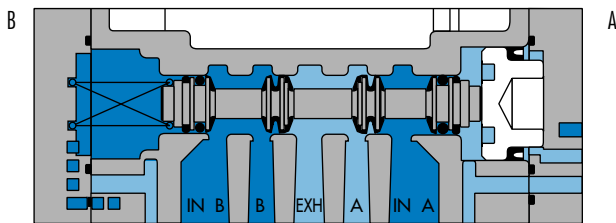
## SPOOL CONFIGURATIONS



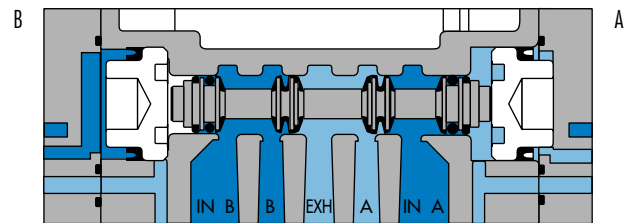
SINGLE OPERATOR  
SINGLE INLET - DUAL EXHAUST  
SHOWN WITH "B" OPERATOR ENERGIZED



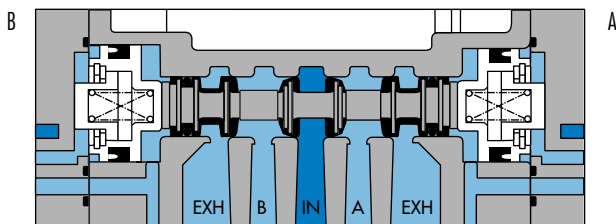
DOUBLE OPERATOR  
SINGLE INLET - DUAL EXHAUST  
SHOWN WITH "B" OPERATOR ENERGIZED



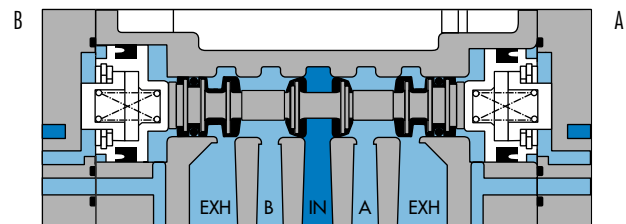
SINGLE OPERATOR  
DUAL INLET - SINGLE EXHAUST  
SHOWN WITH "B" OPERATOR ENERGIZED



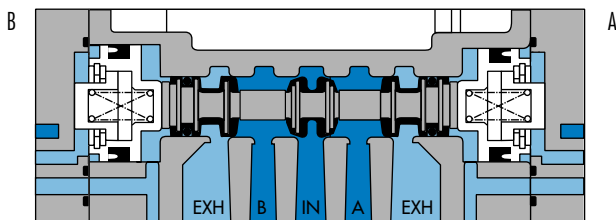
DOUBLE OPERATOR  
DUAL INLET - SINGLE EXHAUST  
SHOWN WITH "B" OPERATOR ENERGIZED



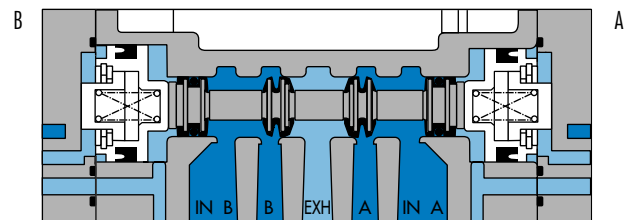
3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER



3 POSITION SINGLE PRESSURE  
PRESSURE CENTER

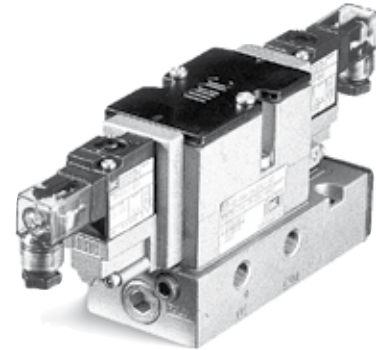


3 POSITION DUAL PRESSURE  
PRESSURE CENTER

Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>1/8" - 1/4" - 3/8"</b>	<b>1.35 C<sub>v</sub></b>	sub-base non "plug-in"	

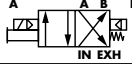
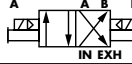



## OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. 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.



35  
100  
200  
55  
56  
57  
58  
59

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
<b>Valve less base</b>		82A-AB-000-TM-Dxxx-xxx	82A-BB-000-TM-Dxxx-xxx	82A-EB-000-TM-Dxxx-xxx	82A-FB-000-TM-Dxxx-xxx	82A-GB-000-TM-Dxxx-xxx
<b>sub-base</b>	Internal	82A-AB-AAA-TM-Dxxx-xxx	82A-BB-AAA-TM-Dxxx-xxx	82A-EB-AAA-TM-Dxxx-xxx	82A-FB-AAA-TM-Dxxx-xxx	82A-GB-AAA-TM-Dxxx-xxx
<b>1/8" NPTF</b>	External	82A-AB-AAD-TM-Dxxx-xxx	82A-BB-AAD-TM-Dxxx-xxx	82A-EB-AAD-TM-Dxxx-xxx	82A-FB-AAD-TM-Dxxx-xxx	82A-GB-AAD-TM-Dxxx-xxx
<b>sub-base</b>	Internal	82A-AB-BAA-TM-Dxxx-xxx	82A-BB-BAA-TM-Dxxx-xxx	82A-EB-BAA-TM-Dxxx-xxx	82A-FB-BAA-TM-Dxxx-xxx	82A-GB-BAA-TM-Dxxx-xxx
<b>1/4" NPTF</b>	External	82A-AB-BAD-TM-Dxxx-xxx	82A-BB-BAD-TM-Dxxx-xxx	82A-EB-BAD-TM-Dxxx-xxx	82A-FB-BAD-TM-Dxxx-xxx	82A-GB-BAD-TM-Dxxx-xxx
<b>sub-base</b>	Internal	82A-AB-CAA-TM-Dxxx-xxx	82A-BB-CAA-TM-Dxxx-xxx	82A-EB-CAA-TM-Dxxx-xxx	82A-FB-CAA-TM-Dxxx-xxx	82A-GB-CAA-TM-Dxxx-xxx
<b>3/8" NPTF</b>	External	82A-AB-CAD-TM-Dxxx-xxx	82A-BB-CAD-TM-Dxxx-xxx	82A-EB-CAD-TM-Dxxx-xxx	82A-FB-CAD-TM-Dxxx-xxx	82A-GB-CAD-TM-Dxxx-xxx

45  
700  
900

## SOLENOID OPERATOR ►

D **XX X- X XX**\*

XX	Voltage	X	Wire length	X	Manual operator	XX	
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
AC	24/60, 24/50					JB	Rectangular connector
FB	24 VDC (1.8 W)					JD	Rectangular connector with light
DA	24 VDC (5.4 W)					BA	Flying leads
DF	24 VDC (12.7 W)						

Note : KD connector shown in photo.

\* Other options available, see page 361.

## OPTIONS

82A-AB-000-TM-Dxxx-xxx

- For dual pressure valves, replace A by C, B by D, E by M, F by L, G by H.  
(Requires sandwich regulator, see pressure regulator section.)

82A-AB-000-TM-Dxxx-xxx

- TP (Piped pilot exhaust)
- For pilot exhaust out main exhaust, replace B by E. Also, TM pilot body is replaced by TU pilot body.  
- Main exhaust cannot be restricted. Available only on single pressure valves.

82A-XX-BAA-TM-Dxxx-xxx

- Replace A by B for bottom ports (1/8" or 1/4" only)
- Replace A by C for side and bottom ports (1/8" or 1/4" only)

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

### TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 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" : (0.9 C <sub>v</sub> ), 1/4" : (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
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 : 9 ms	De-energize : 6 ms
	120/60	Energize : 5-12 ms	De-energize : 6-13 ms

#### Spare parts :

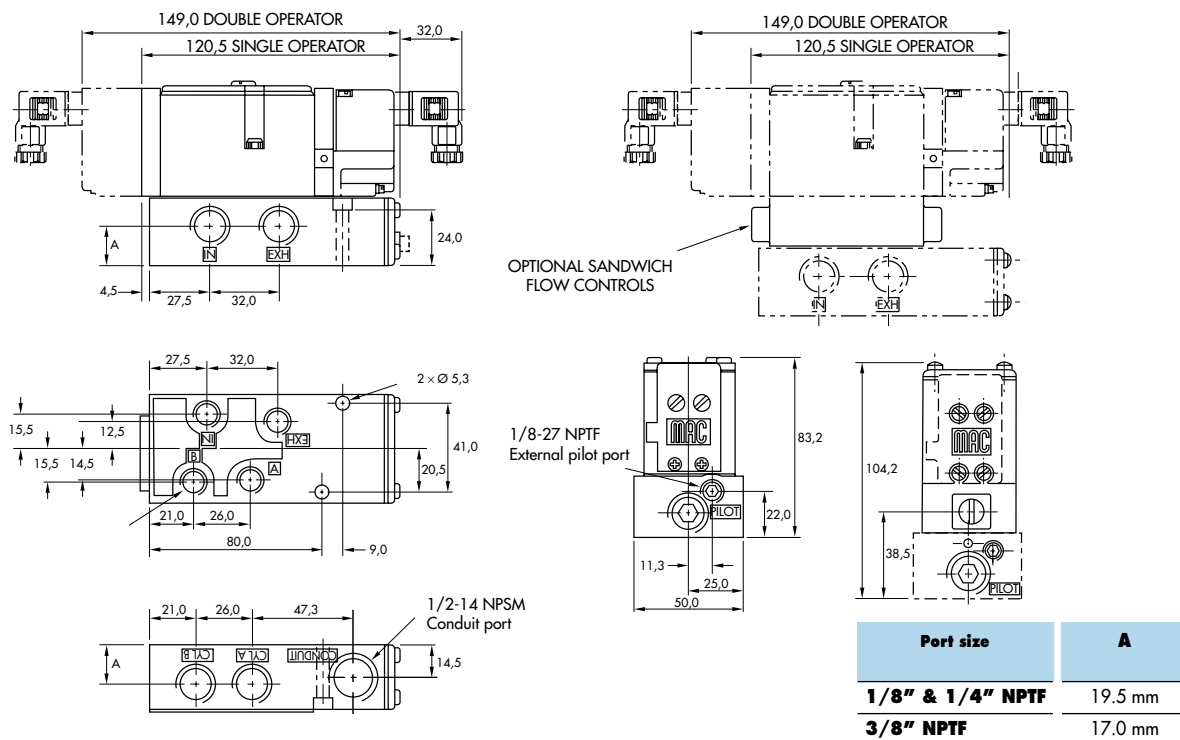
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXX-XXX, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base (x2) : 35211.

#### Options :

- BSPP threads. • Flow controls (Part N° : FC82A-BA) • Explosion-proof model.

### DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	1/8" - 1/4" - 3/8"	1.35 C <sub>v</sub>	sub-base "plug-in"	

## OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. 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.



35

100

200

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56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>		82A-AA-000-TM-DxxP-xDA	82A-BA-000-TM-DxxP-xDA	82A-EA-000-TM-DxxP-xDA	82A-FA-000-TM-DxxP-xDA	82A-GA-000-TM-DxxP-xDA
<b>sub-base</b>	Internal	82A-AA-AAA-TM-DxxP-xDA	82A-BA-AAA-TM-DxxP-xDA	82A-EA-AAA-TM-DxxP-xDA	82A-FA-AAA-TM-DxxP-xDA	82A-GA-AAA-TM-DxxP-xDA
<b>1/8" NPTF</b>	External	82A-AA-AAD-TM-DxxP-xDA	82A-BA-AAD-TM-DxxP-xDA	82A-EA-AAD-TM-DxxP-xDA	82A-FA-AAD-TM-DxxP-xDA	82A-GA-AAD-TM-DxxP-xDA
<b>sub-base</b>	Internal	82A-AA-BAA-TM-DxxP-xDA	82A-BA-BAA-TM-DxxP-xDA	82A-EA-BAA-TM-DxxP-xDA	82A-FA-BAA-TM-DxxP-xDA	82A-GA-BAA-TM-DxxP-xDA
<b>1/4" NPTF</b>	External	82A-AA-BAD-TM-DxxP-xDA	82A-BA-BAD-TM-DxxP-xDA	82A-EA-BAD-TM-DxxP-xDA	82A-FA-BAD-TM-DxxP-xDA	82A-GA-BAD-TM-DxxP-xDA
<b>sub-base</b>	Internal	82A-AA-CAA-TM-DxxP-xDA	82A-BA-CAA-TM-DxxP-xDA	82A-EA-CAA-TM-DxxP-xDA	82A-FA-CAA-TM-DxxP-xDA	82A-GA-CAA-TM-DxxP-xDA
<b>3/8" NPTF</b>	External	82A-AA-CAD-TM-DxxP-xDA	82A-BA-CAD-TM-DxxP-xDA	82A-EA-CAD-TM-DxxP-xDA	82A-FA-CAD-TM-DxxP-xDA	82A-GA-CAD-TM-DxxP-xDA

## SOLENOID OPERATOR ➤

D xx P- x DA\*

xx	Voltage	x	Manual operator
AA	120/60, 110/50	1	Non-locking
AB	240/60, 220/50	2	Locking
AC	24/60, 24/50		
FB	24 VDC (1.8 W)		
DA	24 VDC (5.4 W)		
DF	24 VDC (12.7 W)		

\* Other options available, see page 361.

## OPTIONS

82A-AA-000-TM-DxxP-xDA

- For light in body replace A by C.
- For pilot exhaust out main exhaust replace A by D. For light replace A by F. Use TU pilot body for pilot exhaust to main exhaust, main exhaust cannot be restricted (NO flow controls) available with single pressure valve only. TU replaces TM.
- For piped pilot exhaust replace TM by TP.
- For dual pressure valves, replace A by C, B by D, E by M, F by L, G by H. (Requires sandwich regulator - see pressure regulator section)

82A-AA-BAA-TM-DxxP-xDA

- Replace A by B for bottom ports (1/8" or 1/4" only)
- Replace A by C for side and bottom ports (1/8" or 1/4" only)

### TECHNICAL DATA

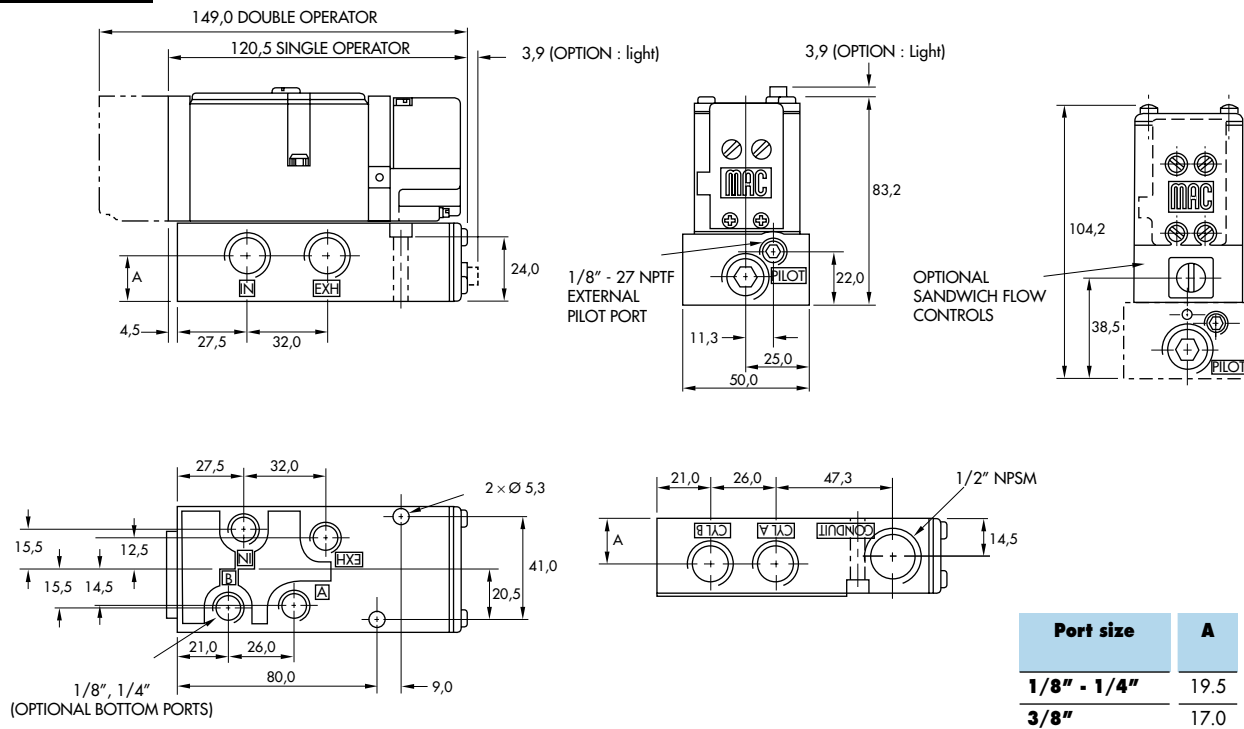
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 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" : (0.9 C <sub>v</sub> ), 1/4" (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
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 : 9 ms	De-energize : 6 ms
	120/60	Energize : 5-12 ms	De-energize : 6-13 ms

Spare parts : • Solenoid operator (power ≥ 5.4 W) : DXXP-XDA, including mounting screws 35013. • Seal between solenoid and pilot body : 16402.  
• Pilot valve : TM-DXXP-XDA, including seal 16447. • Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.  
• Mounting screw valve to base (x2) : 35211.

Options : • BSPP threads. • Flow controls (Part N°. FC82A-AA) • Explosion-proof model. • Lights in base.

### DIMENSIONS

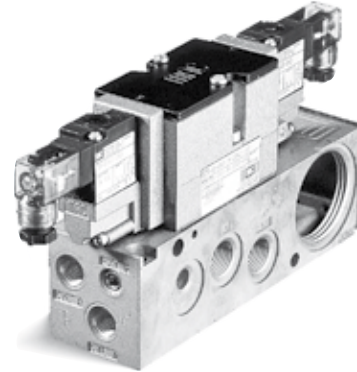
Dimensions shown are metric (mm)




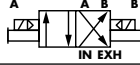

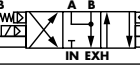

Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	1/4" - 3/8"	1.35 C <sub>v</sub>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. 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

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
<b>Valve less base</b>		82A-AB-000-TM-Dxxx-xxx	82A-BB-000-TM-Dxxx-xxx	82A-EB-000-TM-Dxxx-xxx	82A-FB-000-TM-Dxxx-xxx	82A-GB-000-TM-Dxxx-xxx
<b>sub-base</b>	Internal	82A-AB-BKA-TM-Dxxx-xxx	82A-BB-BKA-TM-Dxxx-xxx	82A-EB-BKA-TM-Dxxx-xxx	82A-FB-BKA-TM-Dxxx-xxx	82A-GB-BKA-TM-Dxxx-xxx
<b>1/4" NPTF</b>	External	82A-AB-BKD-TM-Dxxx-xxx	82A-BB-BKD-TM-Dxxx-xxx	82A-EB-BKD-TM-Dxxx-xxx	82A-FB-BKD-TM-Dxxx-xxx	82A-GB-BKD-TM-Dxxx-xxx
<b>sub-base</b>	Internal	82A-AB-CKA-TM-Dxxx-xxx	82A-BB-CKA-TM-Dxxx-xxx	82A-EB-CKA-TM-Dxxx-xxx	82A-FB-CKA-TM-Dxxx-xxx	82A-GB-CKA-TM-Dxxx-xxx
<b>3/8" NPTF</b>	External	82A-AB-CKD-TM-Dxxx-xxx	82A-BB-CKD-TM-Dxxx-xxx	82A-EB-CKD-TM-Dxxx-xxx	82A-FB-CKD-TM-Dxxx-xxx	82A-GB-CKD-TM-Dxxx-xxx

## SOLENOID OPERATOR ➤

XX Voltage	X Wire length	X Manual operator	XX
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
AC 24/60, 24/50			JB Rectangular connector
FB 24 VDC (1.8 W)			JD Rectangular connector with light
DA 24 VDC (5.4 W)			BA Flying leads
DF 24 VDC (12.7 W)			

\* Other options available, see page 361.

Note : KD connector shown in photo.

## OPTIONS

### 82A-AB-000-TM-Dxxx-xxx

- For pilot exhaust out main exhaust replace B by E. Also, TM pilot body is replaced by TU pilot body. Main exhaust cannot be restricted (No flow controls) available with single pressure valve only.
- For piped pilot exhaust replace TM by TP.
- For dual pressure valves, replace A by C, B by D, E by M, F by L, G by H. (Requires sandwich regulator - see pressure regulator section)

### 82A-XX-BKA-TM-Dxxx-xxx

- Replace K by L for bottom cyl. ports
- Replace K by M for bottom inlet port
- Replace K by N for bottom inlet and cyl. ports
- Replace K by P for bottom and end cyl. ports
- Replace K by R for bottom and end cyl. ports w/bottom inlet
- Replace K by S for selector base with side ports



### TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
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 : 9 ms	De-energize : 6 ms
	120/60	Energize : 5-12 ms	De-energize : 6-13 ms

#### Spare parts :

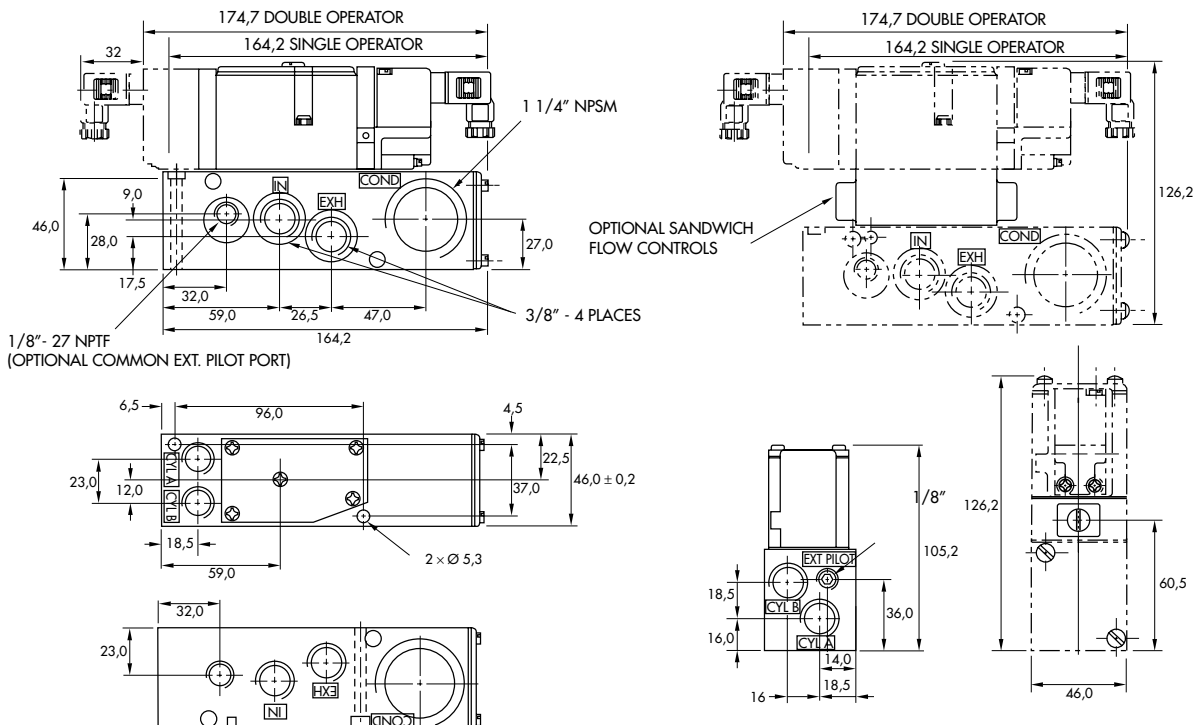
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXX-XXX, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base (x2) : 35211. • Tie-rod (x2) : 19731. • Fastening kit : N-82005-01.

#### Options :

- BSPP threads. • Flow controls (Part N°: FC82A-BA) • Explosion-proof model.

### DIMENSIONS

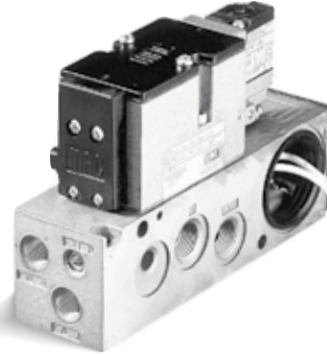
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>1/4" - 3/8"</b>	<b>1.35 C<sub>v</sub></b>	sub-base "plug-in"	

## OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. 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.



35  
100  
200  
55  
56  
57  
58  
59

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>		82A-AA-000-TM-DxxP-xDA	82A-BA-000-TM-DxxP-xDA	82A-EA-000-TM-DxxP-xDA	82A-FA-000-TM-DxxP-xDA	82A-GA-000-TM-DxxP-xDA
<b>sub-base</b>	Internal	82A-AA-BKA-TM-DxxP-xDA	82A-BA-BKA-TM-DxxP-xDA	82A-EA-BKA-TM-DxxP-xDA	82A-FA-BKA-TM-DxxP-xDA	82A-GA-BKA-TM-DxxP-xDA
<b>1/4" NPTF</b>	External	82A-AA-BKD-TM-DxxP-xDA	82A-BA-BKD-TM-DxxP-xDA	82A-EA-BKD-TM-DxxP-xDA	82A-FA-BKD-TM-DxxP-xDA	82A-GA-BKD-TM-DxxP-xDA
<b>sub-base</b>	Internal	82A-AA-CKA-TM-DxxP-xDA	82A-BA-CKA-TM-DxxP-xDA	82A-EA-CKA-TM-DxxP-xDA	82A-FA-CKA-TM-DxxP-xDA	82A-GA-CKA-TM-DxxP-xDA
<b>3/8" NPTF</b>	External	82A-AA-CKD-TM-DxxP-xDA	82A-BA-CKD-TM-DxxP-xDA	82A-EA-CKD-TM-DxxP-xDA	82A-FA-CKD-TM-DxxP-xDA	82A-GA-CKD-TM-DxxP-xDA

45

## SOLENOID OPERATOR ►

D **XX** P- **X** DA\*

<b>XX</b>	<b>Voltage</b>
<b>AA</b>	120/60, 110/50
<b>AB</b>	240/60, 220/50
<b>AC</b>	24/60, 24/50
<b>FB</b>	24 VDC (1.8 W)
<b>DA</b>	24 VDC (5.4 W)
<b>DF</b>	24 VDC (12.7 W)

<b>X</b>	<b>Manual operator</b>
<b>1</b>	Non-locking
<b>2</b>	Locking

700

900

82

\* Other options available, see page 361.

## OPTIONS

### 82A-AA-000-TM-DxxP-xDA

- For light in body replace A by C.
- For pilot exhaust out main exhaust replace A by D. For light replace A by F. Use TU pilot body for pilot exhaust to main exhaust, main exhaust cannot be restricted (No flow controls) available with single pressure valve only. TU replaces TM.
- For piped pilot exhaust replace TM by TP.
- For dual pressure valves, replace A by C, B by D, E by M, F by L, G by H. (Requires sandwich regulator - see pressure regulator section)

### 82A-XX-BKA-TM-DxxP-xDA

- Replace K by L for bottom cyl. ports
- Replace K by M for bottom inlet port
- Replace K by N for bottom inlet and cyl. ports
- Replace K by P for bottom and end cyl. ports
- Replace K by R for bottom and end cyl. ports w/bottom inlet
- Replace K by S for selector base with side ports

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

### TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
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 : 9 ms	De-energize : 6 ms
	120/60	Energize : 5-12 ms	De-energize : 6-13 ms

#### Spare parts :

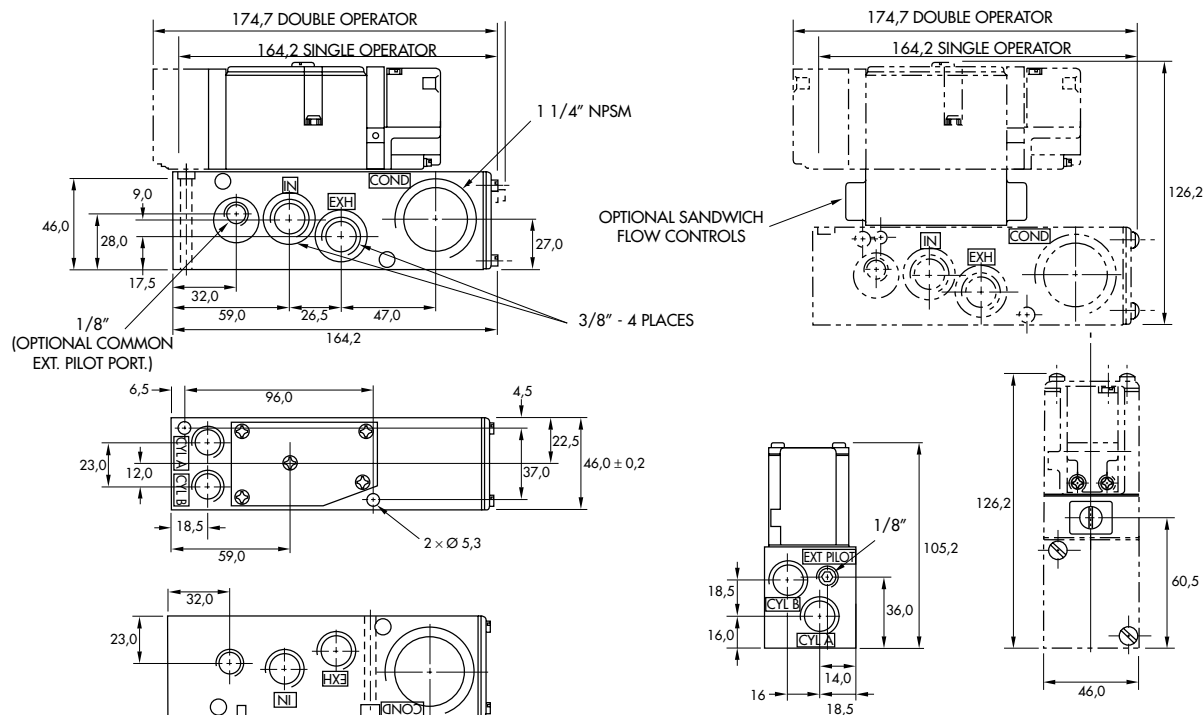
- Solenoid operator (power ≥ 5.4 W) : DXXP-XDA, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXP-XDA, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base (x2) : 35211. • Tie-rod (x2) : 19731. • Fastening kit : N-82005-01.

#### Options :

- BSPP threads. • Flow controls (Part N° FC82A-AA) • Explosion-proof model. • Lights in base.

### DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

sub-base non "plug-in"	sub-base "plug-in"	
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Series

Manifold mounting

sub-base non "plug-in"	sub-base "plug-in"	
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35

100

200

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82

**6300**

6500

6600

1300

800

ISO 1

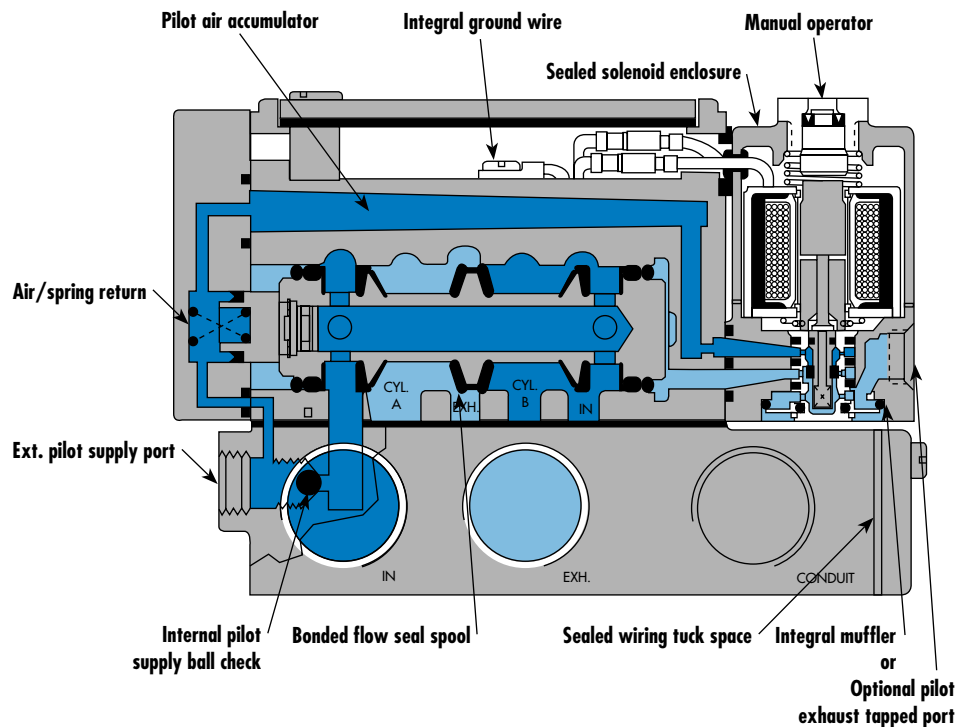
ISO 2

ISO 3

MAC 125A

MAC 250A

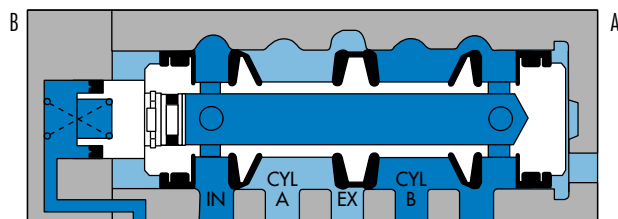
MAC 500A



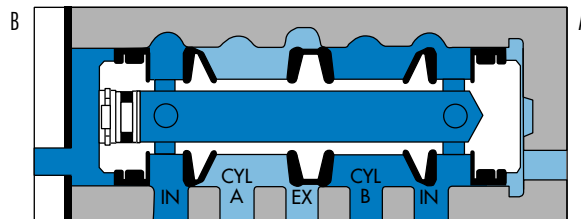
**SERIES FEATURES**

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- A large checked accumulator for consistent shifting on single and double solenoid models.
- A plug-in design that provides for internal or external pilot with or without lights and all electrical and air plumbing in the base — the valve portion is the same.
- Non-lubricated or lubricated service.
- Optional low wattage DC solenoids down to 1 watt.
- Optional indicator lights, and various types of manual operators.
- Non plug-in or external plug-in models are available.

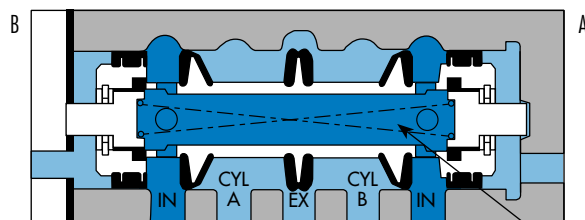
## SPOOL CONFIGURATIONS



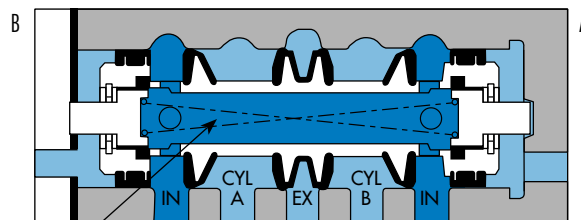
2 POS. SINGLE OPERATOR SPRING RETURN  
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR  
B ACTUATED SHOWN



3 POS. OPEN CENTER  
CENTER POSITION SHOWN



3 POS. CLOSED CENTER  
CENTER POSITION SHOWN

AIR/SPRING  
CENTERING

## VALVE CONFIGURATIONS AVAILABLE

The versatile 6300 Series provides high flow, extremely fast response, and long life in a compact package and is available in the following configurations:

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure.
- Dual pressure on manifolds with sandwich regulators.
- Individual base or add-a-unit manifold base.
- Internal pilot or for Vacuum to 25 PSI main valve pressures, external pilot.
- Manual and mechanical operators available.
- All models available with sandwich regulators (Except remote air pilot).

## REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

- A large checked accumulator for air/spring return on single remote air models.
- Non-lubricated or lubricated service.
- All piping connections, including the remote air pilot supply, in the base.

## REMOTE AIR PILOT, PILOT OPERATED VALVES

These special air versions have the same features as the remote air pilot operated models, but additionally feature:

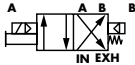
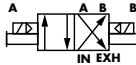


- A manual operator and indicator.
  - Ability to use a pilot signal pressure different from the main valve pressure.
- Pilot signal can be from 20 to 150 PSIG, regardless of main valve pressure.

Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>1/4" - 3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
					
<b>Valve less base</b>		6312D-000-PM- <b>XXYYZZ</b>	6322D-000-PM- <b>XXYYZZ</b>	6332D-000-PM- <b>XXYYZZ</b>	6342D-000-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6312D-131-PM- <b>XXYYZZ</b>	6322D-131-PM- <b>XXYYZZ</b>	6332D-131-PM- <b>XXYYZZ</b>	6342D-131-PM- <b>XXYYZZ</b>
<b>1/4" NPTF</b>	External	6312D-141-PM- <b>XXYYZZ</b>	6322D-141-PM- <b>XXYYZZ</b>	6332D-141-PM- <b>XXYYZZ</b>	6342D-141-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6312D-231-PM- <b>XXYYZZ</b>	6322D-231-PM- <b>XXYYZZ</b>	6332D-231-PM- <b>XXYYZZ</b>	6342D-231-PM- <b>XXYYZZ</b>
<b>3/8" NPTF</b>	External	6312D-241-PM- <b>XXYYZZ</b>	6322D-241-PM- <b>XXYYZZ</b>	6332D-241-PM- <b>XXYYZZ</b>	6342D-241-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6312D-331-PM- <b>XXYYZZ</b>	6322D-331-PM- <b>XXYYZZ</b>	6332D-331-PM- <b>XXYYZZ</b>	6342D-331-PM- <b>XXYYZZ</b>
<b>1/2" NPTF</b>	External	6312D-341-PM- <b>XXYYZZ</b>	6322D-341-PM- <b>XXYYZZ</b>	6332D-341-PM- <b>XXYYZZ</b>	6342D-341-PM- <b>XXYYZZ</b>

Note : Above codes shown are for side ports.

## SOLENOID OPERATOR ►

SOLENOID OPERATOR ➤

XX

Y

ZZ\*

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

\* Other options available, see page 357.

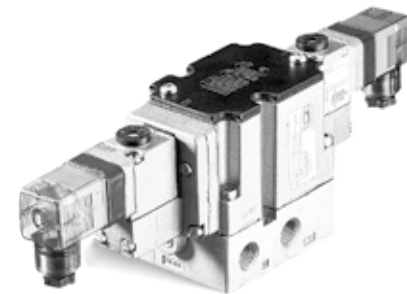
## OPTIONS

6312D-XXX-PM-**XXYYZZ**

- For piped pilot exhaust replace M by P.
- For bottom cylinder ports (excluding 1/2"), replace by 4.
- For dual pressure valves (see page 293 for use with sandwich regulators), replace by 5.

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.

2. To order bases without the valve, choose the base from the above table, then add 6300D as a prefix. Example 6300D-131.



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6300

6500

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1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI                      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" (2.0 C <sub>v</sub> ), 3/8" : (2.6 C <sub>v</sub> ), 1/2" (3.0 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA              Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 4-13 ms	De-energize : 10-17 ms

## Spare parts :

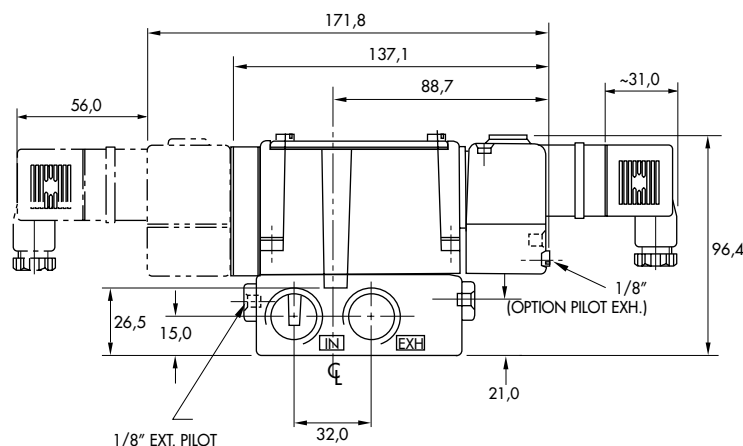
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16298.
- Mounting screw valve to base (x4) : 35303.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)

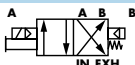
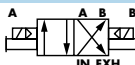

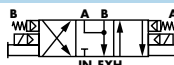


Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>1/4" - 3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>	sub-base "plug-in"	

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
					
<b>Valve less base</b>		6311D-000-PM- <b>XXY</b> DA	6321D-000-PM- <b>XXY</b> DA	6331D-000-PM- <b>XXY</b> DA	6341D-000-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6311D-111-PM- <b>XXY</b> DA	6321D-111-PM- <b>XXY</b> DA	6331D-111-PM- <b>XXY</b> DA	6341D-111-PM- <b>XXY</b> DA
<b>1/4" NPTF</b>	External	6311D-121-PM- <b>XXY</b> DA	6321D-121-PM- <b>XXY</b> DA	6331D-121-PM- <b>XXY</b> DA	6341D-121-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6311D-211-PM- <b>XXY</b> DA	6321D-211-PM- <b>XXY</b> DA	6331D-211-PM- <b>XXY</b> DA	6341D-211-PM- <b>XXY</b> DA
<b>3/8" NPTF</b>	External	6311D-221-PM- <b>XXY</b> DA	6321D-221-PM- <b>XXY</b> DA	6331D-221-PM- <b>XXY</b> DA	6341D-221-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6311D-311-PM- <b>XXY</b> DA	6321D-311-PM- <b>XXY</b> DA	6331D-311-PM- <b>XXY</b> DA	6341D-311-PM- <b>XXY</b> DA
<b>1/2" NPTF</b>	External	6311D-321-PM- <b>XXY</b> DA	6321D-321-PM- <b>XXY</b> DA	6331D-321-PM- <b>XXY</b> DA	6341D-321-PM- <b>XXY</b> DA

Note : Above codes shown are for side ports without lights.

## SOLENOID OPERATOR ➤

**XX Y DA\***

XX	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

\* Other options available, see page 357.

## OPTIONS

6311D-XXX-PM-**XXY**DA

- For piped pilot exhaust replace M by P.
- For bottom ports (excluding 1/2"), replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
- For side ports with lights on base, replace by 2 (sgl. light), by 3 (dbl. light).
- For lights on valve body, replace by 3.
- For dual pressure valves with lights on valve body (see page 293 for use with sandwich regulators), replace by 6.

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.

2. To order bases without the valve, choose the base from the above table, then add 6300D as a prefix. Example 6300D-111.



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6300

6500

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1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" (2.0 C <sub>v</sub> ), 3/8" : (2.6 C <sub>v</sub> ), 1/2" (3.0 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 4-13 ms	De-energize : 10-17 ms

## Spare parts :

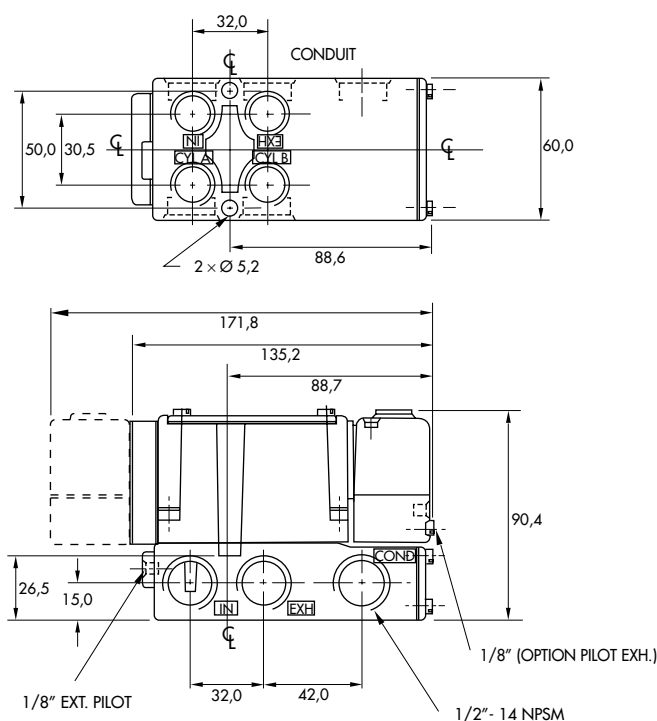
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16298.
- Mounting screw valve to base (x4) : 35303.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)

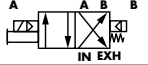
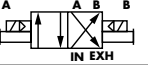
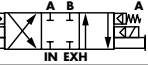
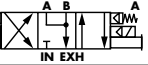
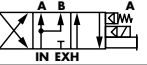


Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
<b>Valve less base</b>		6312D-000-PM- <b>XXYYZZ</b>	6322D-000-PM- <b>XXYYZZ</b>	6332D-000-PM- <b>XXYYZZ</b>	6342D-000-PM- <b>XXYYZZ</b>	6352D-000-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6312D-531-PM- <b>XXYYZZ</b>	6322D-531-PM- <b>XXYYZZ</b>	6332D-531-PM- <b>XXYYZZ</b>	6342D-531-PM- <b>XXYYZZ</b>	6352D-531-PM- <b>XXYYZZ</b>
<b>3/8" NPTF</b>	External	6312D-541-PM- <b>XXYYZZ</b>	6322D-541-PM- <b>XXYYZZ</b>	6332D-541-PM- <b>XXYYZZ</b>	6342D-541-PM- <b>XXYYZZ</b>	6352D-541-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6312D-631-PM- <b>XXYYZZ</b>	6322D-631-PM- <b>XXYYZZ</b>	6332D-631-PM- <b>XXYYZZ</b>	6342D-631-PM- <b>XXYYZZ</b>	6352D-631-PM- <b>XXYYZZ</b>
<b>1/2" NPTF</b>	External	6312D-641-PM- <b>XXYYZZ</b>	6322D-641-PM- <b>XXYYZZ</b>	6332D-641-PM- <b>XXYYZZ</b>	6342D-641-PM- <b>XXYYZZ</b>	6352D-641-PM- <b>XXYYZZ</b>

Note : Above codes shown are for side cylinder ports.

## SOLENOID OPERATOR ➤

<b>XX Y ZZ*</b>		
<b>XX Voltage</b>	<b>Y Manual operator</b>	<b>ZZ Electrical connection</b>
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

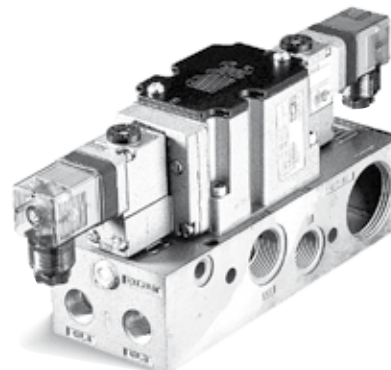
## OPTIONS

6312D-XXX-PM-**XXYYZZ**

- For piped pilot exhaust replace M by P.
- For bottom cylinder ports, replace by 4.
- For bottom and side cylinder ports, replace by 7.
- For dual pressure valves (see page 293 for use with sandwich regulators), replace by 5.

**MODIFICATIONS - MOD 0210** Bottom inlet port in addition to side inlet port - **TO ORDER** : 6312D-531-PM-111JA **MOD 0210**

- Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.  
 2. To order manifolds without the valve, choose the manifold from the above table, then add 6300D as a prefix. Example 6300D-631.  
 3. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.  
 4. Manifolds for solenoid and remote air operated valves must be ganged separately.



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1300

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ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (2.6 C <sub>v</sub> ), 1/2" (3.0 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 4-13 ms	De-energize : 10-17 ms

## Spare parts :

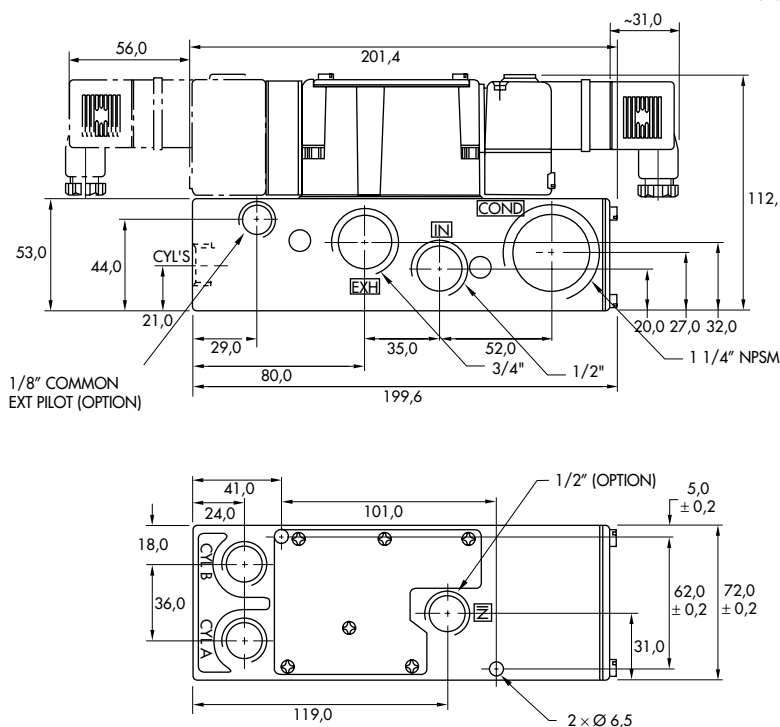
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XYZZ, including seal 16337. • Pressure seal between valve and base : 16396.
- Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624. • Fastening kit : N-63002-01
- Inlet isolator : 32839. • Exhaust isolator : 28309. • Blank station cover plate : M-63014.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)

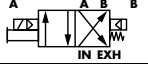
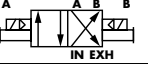
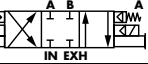
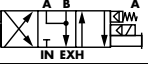
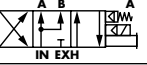


Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>	sub-base "plug-in"	

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
<b>Valve less base</b>		6311D-000-PM- <b>XXY</b> DA	6321D-000-PM- <b>XXY</b> DA	6331D-000-PM- <b>XXY</b> DA	6341D-000-PM- <b>XXY</b> DA	6351D-000-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6311D-511-PM- <b>XXY</b> DA	6321D-511-PM- <b>XXY</b> DA	6331D-511-PM- <b>XXY</b> DA	6341D-511-PM- <b>XXY</b> DA	6351D-511-PM- <b>XXY</b> DA
<b>3/8" NPTF</b>	External	6311D-521-PM- <b>XXY</b> DA	6321D-521-PM- <b>XXY</b> DA	6331D-521-PM- <b>XXY</b> DA	6341D-521-PM- <b>XXY</b> DA	6351D-521-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6311D-611-PM- <b>XXY</b> DA	6321D-611-PM- <b>XXY</b> DA	6331D-611-PM- <b>XXY</b> DA	6341D-611-PM- <b>XXY</b> DA	6351D-611-PM- <b>XXY</b> DA
<b>1/2" NPTF</b>	External	6311D-621-PM- <b>XXY</b> DA	6321D-621-PM- <b>XXY</b> DA	6331D-621-PM- <b>XXY</b> DA	6341D-621-PM- <b>XXY</b> DA	6351D-621-PM- <b>XXY</b> DA

Note : Above codes shown are for side cylinder ports without lights.

## SOLENOID OPERATOR ➤

**XX Y DA**

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

Y	Manual operator
1	Non-locking
2	Locking

\* Other options available, see page 357.

## OPTIONS

6311D-XXX-PM-**XXY**DA

- For piped pilot exhaust replace M by P.
- For bottom cylinder ports, replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
- For side cylinder ports with light, replace by 2 (sgl. light), by 3 (dbl. light).
- For bottom and side cylinder ports, replace by 7 (no light), by 8 (sgl. light), by 9 (dbl. light).
- For lights on valve body, replace by 3.
- For dual pressure valves with lights on valve body (see page 293 for use with sandwich regulators), replace by 6.

**MODIFICATIONS - MOD 0210** Bottom inlet port in addition to side inlet port - **TO ORDER** : 6311D-511-PM-111DA **MOD 0210**

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
  2. To order manifolds without the valve, choose the manifold from the above table, then add 6300D as a prefix. Example 6300D-511.
  3. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
  4. Manifolds for solenoid and remote air operated valves must be ganged separately.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (2.6 C <sub>v</sub> ), 1/2" (3.0 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 4-13 ms	De-energize : 10-17 ms

## Spare parts :

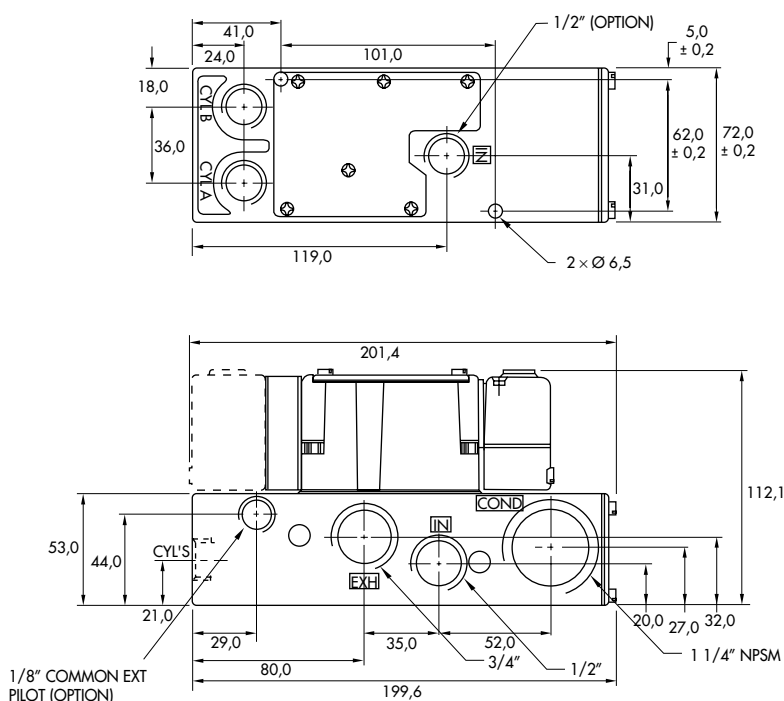
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16396.
- Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624. • Fastening kit : N-63002-01
- Inlet isolator : 32839. • Exhaust isolator : 28309. • Blank station cover plate : M-63014.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

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

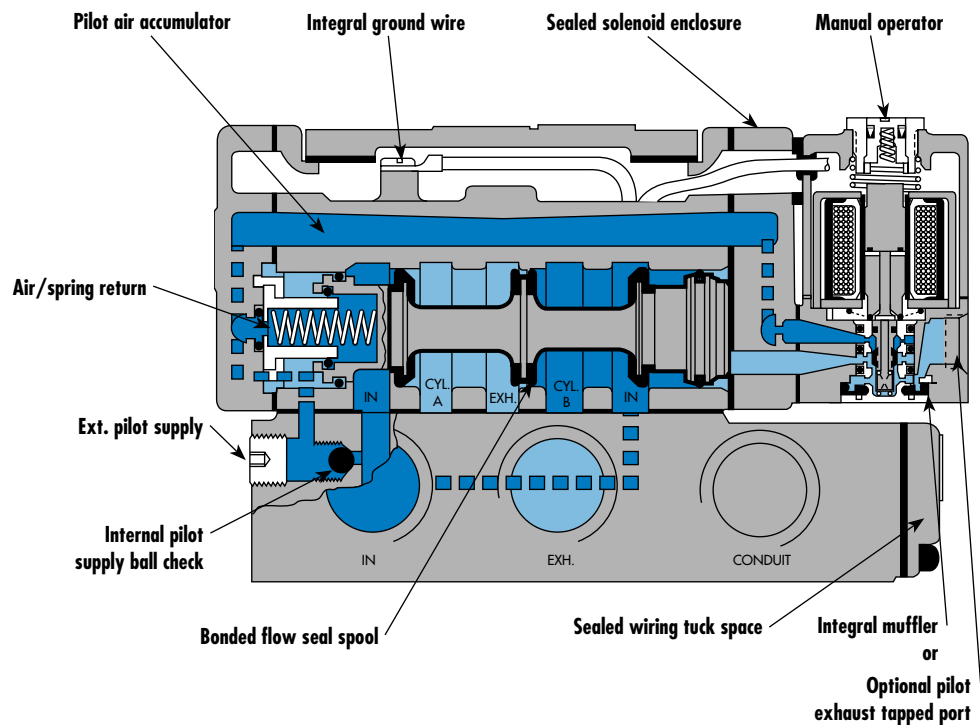
Series

Manifold mounting

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

35

100



200

55

56

57

58

59

45

700

900

82

**SERIES FEATURES**

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- A large checked accumulator for consistent shifting on single and double solenoid models.
- A plug-in design that provides for internal or external pilot with or without lights and all electrical and air plumbing in the base — the valve portion is the same.
- Non-lubricated or lubricated service.
- Optional low wattage DC solenoids down to 1 watt.
- Optional indicator lights, and various types of manual operators.
- Non plug-in or external plug-in models are available.

6300

**6500**

6600

1300

800

ISO 1

ISO 2

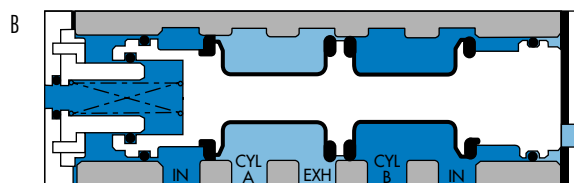
ISO 3

MAC 125A

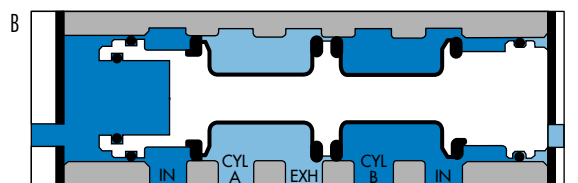
MAC 250A

MAC 500A

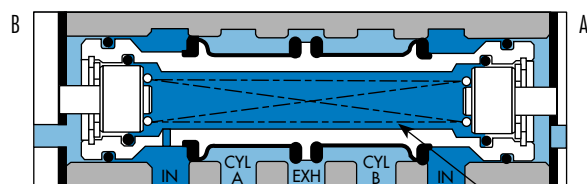
## SPOOL CONFIGURATIONS



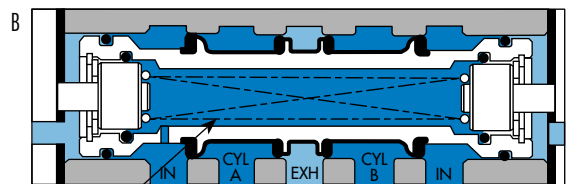
2 POS. SINGLE OPERATOR SPRING RETURN  
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR  
B ACTUATED SHOWN

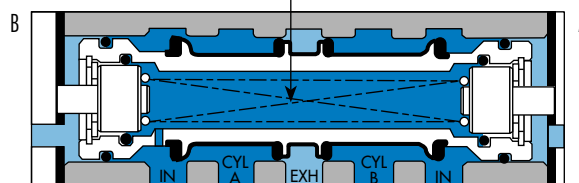


3 POS. OPEN CENTER  
CENTER POSITION SHOWN



3 POS. CLOSED CENTER  
CENTER POSITION SHOWN

AIR/SPRING  
CENTERING



3 POS. PRESSURE CENTER  
CENTER POSITION SHOWN

## VALVE CONFIGURATIONS AVAILABLE

The versatile 6500 Series provides high flow, extremely fast response, and long life in a compact package and is available in the following configurations:

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure or dual pressure.
- Individual base or add-a-unit manifold base.
- Internal pilot or for Vacuum to 25 PSI main valve pressures, external pilot.
- Manual and mechanical operators available.

## REMOTE AIR PILOT OPERATED VALVES

- A large checked accumulator for air/spring return on single remote air models.
- All piping connections, including the remote air pilot supply, in the base.
- Non-lubricated or lubricated service.

## REMOTE AIR PILOT, PILOT OPERATED VALVES

These special air versions have the same features as the remote air pilot operated models, but additionally feature:

- A manual operator and indicator.
- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 20 to 150 PSIG, regardless of main valve pressure.

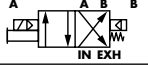
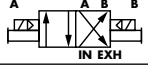

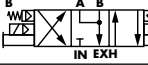

**ALL MODELS AVAILABLE WITH SANDWICH TYPE REGULATORS**

Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.1 C<sub>v</sub></b>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
<b>Valve less base</b>		6512B-000-PM- <b>XXYYZZ</b>	6522B-000-PM- <b>XXYYZZ</b>	6532B-000-PM- <b>XXYYZZ</b>	6542B-000-PM- <b>XXYYZZ</b>	6552B-000-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6512B-131-PM- <b>XXYYZZ</b>	6522B-131-PM- <b>XXYYZZ</b>	6532B-131-PM- <b>XXYYZZ</b>	6542B-131-PM- <b>XXYYZZ</b>	6552B-131-PM- <b>XXYYZZ</b>
<b>3/8" NPTF</b>	External	6512B-141-PM- <b>XXYYZZ</b>	6522B-141-PM- <b>XXYYZZ</b>	6532B-141-PM- <b>XXYYZZ</b>	6542B-141-PM- <b>XXYYZZ</b>	6552B-141-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6512B-231-PM- <b>XXYYZZ</b>	6522B-231-PM- <b>XXYYZZ</b>	6532B-231-PM- <b>XXYYZZ</b>	6542B-231-PM- <b>XXYYZZ</b>	6552B-231-PM- <b>XXYYZZ</b>
<b>1/2" NPTF</b>	External	6512B-241-PM- <b>XXYYZZ</b>	6522B-241-PM- <b>XXYYZZ</b>	6532B-241-PM- <b>XXYYZZ</b>	6542B-241-PM- <b>XXYYZZ</b>	6552B-241-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6512B-331-PM- <b>XXYYZZ</b>	6522B-331-PM- <b>XXYYZZ</b>	6532B-331-PM- <b>XXYYZZ</b>	6542B-331-PM- <b>XXYYZZ</b>	6552B-331-PM- <b>XXYYZZ</b>
<b>3/4" NPTF</b>	External	6512B-341-PM- <b>XXYYZZ</b>	6522B-341-PM- <b>XXYYZZ</b>	6532B-341-PM- <b>XXYYZZ</b>	6542B-341-PM- <b>XXYYZZ</b>	6552B-341-PM- <b>XXYYZZ</b>

Note : Above codes shown are for side ports.

## SOLENOID OPERATOR ►

SOLENOID OPERATOR ➤

XX

Y

ZZ\*

XX

Voltage

11

120/60, 110/50

12

240/60, 220/50

22

24/60, 24/50

59

24 VDC (2.5 W)

87

24 VDC (17.1 W)

61

24 VDC (8.5 W)

Y

Manual operator

1

Non-locking

2

Locking

ZZ

Electrical connection

JB

Rectangular connector

JD

Rectangular connector with light

JA

Square connector

JC

Square connector with light

BA

Flying leads (18")

\* Other options available, see page 357.

## OPTIONS

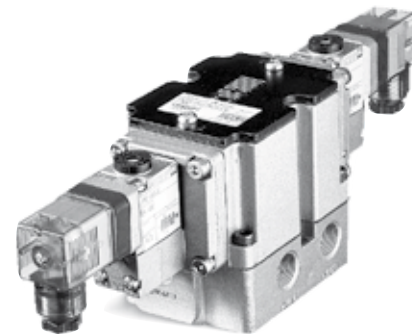
6512B-XXX-PM-**XXYYZZ**

- For piped pilot exhaust replace M by P.
- For dual pressure valve, replace by 4.

## MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0002</b>	Bottom inlet, exh. & cyl. ports (no side ports)	Available on individual base 3/8" & 1/2" only
<b>0004</b>	Full side porting and additional bottom inlet, exh. & cyl. ports	Available on individual base 3/8" only

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
  2. Bottom ports : Refer to modification table.
  3. To order bases without the valve, choose the base from the above table, then add 6500B as a prefix. Example 6500B-131.





# TECHNICAL DATA

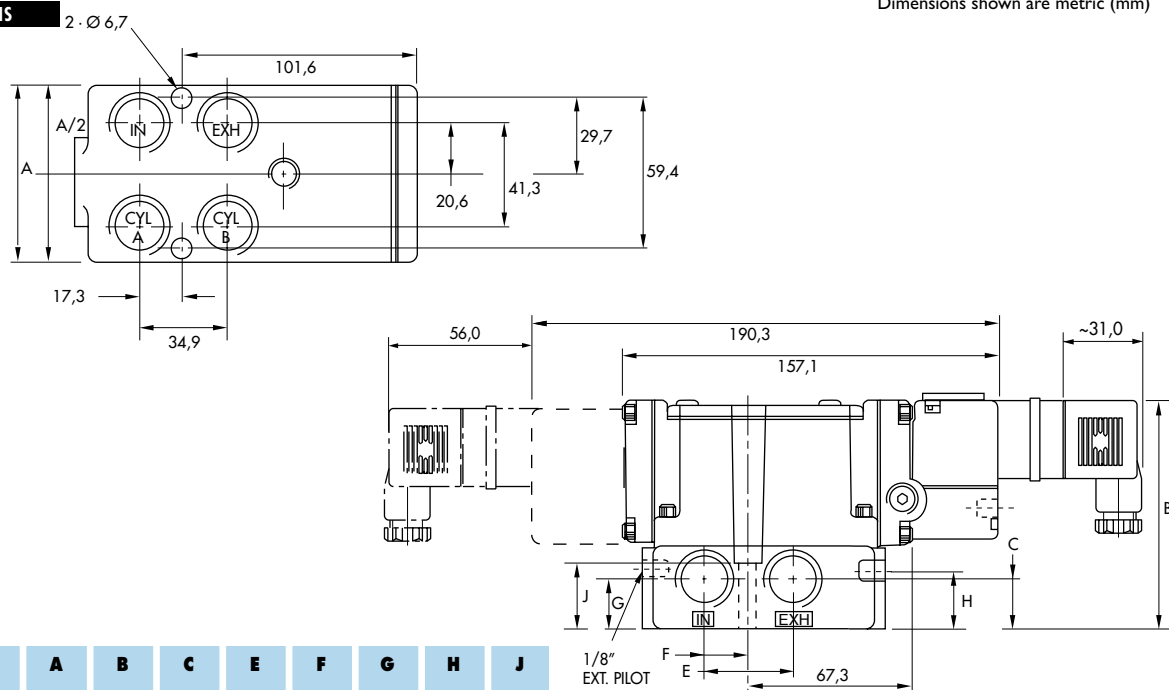
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (4.5 C <sub>v</sub> ), 1/2" : (5.0 C <sub>v</sub> ), 3/4" : (5.1 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 12 ms	De-energize : 12 ms
	120/60	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts : Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.  
 • Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16246.  
 • Mounting screw valve to base (x4) : 32201.

Options : • BSPP threads.

## DIMENSIONS

Dimensions shown are metric (mm)



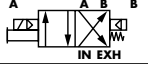
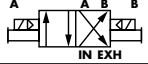



Port size	A	B	C	E	F	G	H	J
<b>3/8" - 1/2"</b>	69.6	97.4	18.3	36.0	17.9	19.0	23.6	25.4
<b>3/4"</b>	94.5	109.3	17.3	40.1	19.2	20.8	35.9	36.6

Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.1 C<sub>v</sub></b>	sub-base "plug-in"	

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
<b>Valve less base</b>		6511B-000-PM- <b>XXY</b> DA	6521B-000-PM- <b>XXY</b> DA	6531B-000-PM- <b>XXY</b> DA	6541B-000-PM- <b>XXY</b> DA	6551B-000-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6511B-111-PM- <b>XXY</b> DA	6521B-111-PM- <b>XXY</b> DA	6531B-111-PM- <b>XXY</b> DA	6541B-111-PM- <b>XXY</b> DA	6551B-111-PM- <b>XXY</b> DA
<b>3/8" NPTF</b>	External	6511B-121-PM- <b>XXY</b> DA	6521B-121-PM- <b>XXY</b> DA	6531B-121-PM- <b>XXY</b> DA	6541B-121-PM- <b>XXY</b> DA	6551B-121-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6511B-211-PM- <b>XXY</b> DA	6521B-211-PM- <b>XXY</b> DA	6531B-211-PM- <b>XXY</b> DA	6541B-211-PM- <b>XXY</b> DA	6551B-211-PM- <b>XXY</b> DA
<b>1/2" NPTF</b>	External	6511B-221-PM- <b>XXY</b> DA	6521B-221-PM- <b>XXY</b> DA	6531B-221-PM- <b>XXY</b> DA	6541B-221-PM- <b>XXY</b> DA	6551B-221-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6511B-311-PM- <b>XXY</b> DA	6521B-311-PM- <b>XXY</b> DA	6531B-311-PM- <b>XXY</b> DA	6541B-311-PM- <b>XXY</b> DA	6551B-311-PM- <b>XXY</b> DA
<b>3/4" NPTF</b>	External	6511B-321-PM- <b>XXY</b> DA	6521B-321-PM- <b>XXY</b> DA	6531B-321-PM- <b>XXY</b> DA	6541B-321-PM- <b>XXY</b> DA	6551B-321-PM- <b>XXY</b> DA

Note : Above codes shown are for side ports without lights.

## SOLENOID OPERATOR ➤

**XX Y DA\***

XX	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

\* Other options available, see page 357.

## OPTIONS

6511B-XXX-PM-**XXY**DA

- For piped pilot exhaust replace M by P.
- For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
- For lights on base, replace by 2 (sgl. light), by 3 (dbl. light).
- For lights on valve body, replace by 3.

## MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0002</b>	Bottom inlet, exh. & cyl. ports (no side ports)	Available on individual base 3/8" & 1/2" only
<b>0004</b>	Full side porting and additional bottom inlet, exh. & cyl. ports	Available on individual base 3/8" only

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
  2. Bottom ports : Refer to modification table.
  3. To order bases without the valve, choose the base from the above table, then add 6500B as a prefix. Example 6500B-111.

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

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (4.5 C <sub>v</sub> ), 1/2" : (5.0 C <sub>v</sub> ), 3/4" : (5.1 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 12 ms	De-energize : 12 ms
	120/60	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

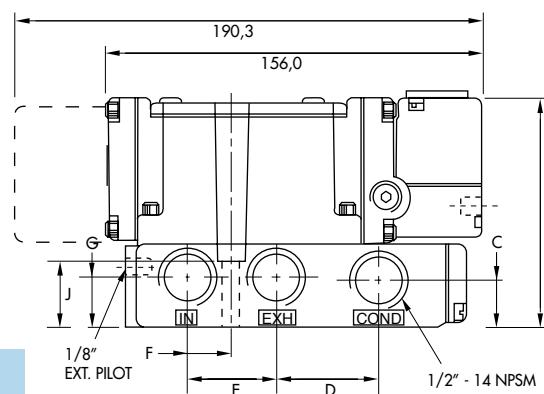
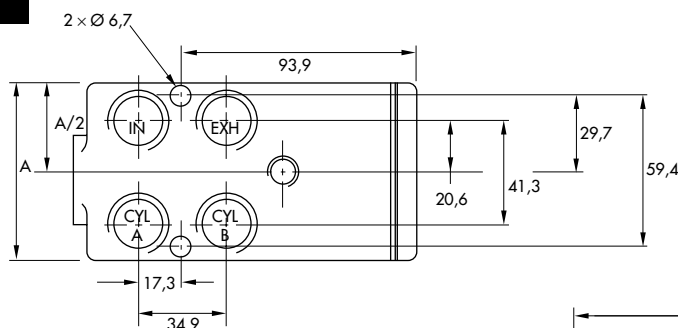
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201.

Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Port size	A	B	C	D	E	F	G	H	J
<b>3/8" - 1/2"</b>	69.6	97.4	18.3	40.6	36.0	17.9	19.0	23.6	25.4
<b>3/4"</b>	94.5	109.3	17.3	46.7	40.1	19.2	20.8	35.9	36.6

Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.1 C<sub>v</sub></b>	sub-base non "plug-in"	

#### OPERATIONAL BENEFITS

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

#### HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>		6512B-000-PM- <b>XXYYZZ</b>	6522B-000-PM- <b>XXYYZZ</b>	6532B-000-PM- <b>XXYYZZ</b>	6542B-000-PM- <b>XXYYZZ</b>	6552B-000-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6512B-431-PM- <b>XXYYZZ</b>	6522B-431-PM- <b>XXYYZZ</b>	6532B-431-PM- <b>XXYYZZ</b>	6542B-431-PM- <b>XXYYZZ</b>	6552B-431-PM- <b>XXYYZZ</b>
<b>3/8" NPTF</b>	External	6512B-441-PM- <b>XXYYZZ</b>	6522B-441-PM- <b>XXYYZZ</b>	6532B-441-PM- <b>XXYYZZ</b>	6542B-441-PM- <b>XXYYZZ</b>	6552B-441-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6512B-531-PM- <b>XXYYZZ</b>	6522B-531-PM- <b>XXYYZZ</b>	6532B-531-PM- <b>XXYYZZ</b>	6542B-531-PM- <b>XXYYZZ</b>	6552B-531-PM- <b>XXYYZZ</b>
<b>1/2" NPTF</b>	External	6512B-541-PM- <b>XXYYZZ</b>	6522B-541-PM- <b>XXYYZZ</b>	6532B-541-PM- <b>XXYYZZ</b>	6542B-541-PM- <b>XXYYZZ</b>	6552B-541-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6512B-631-PM- <b>XXYYZZ</b>	6522B-631-PM- <b>XXYYZZ</b>	6532B-631-PM- <b>XXYYZZ</b>	6542B-631-PM- <b>XXYYZZ</b>	6552B-631-PM- <b>XXYYZZ</b>
<b>3/4" NPTF</b>	External	6512B-641-PM- <b>XXYYZZ</b>	6522B-641-PM- <b>XXYYZZ</b>	6532B-641-PM- <b>XXYYZZ</b>	6542B-641-PM- <b>XXYYZZ</b>	6552B-641-PM- <b>XXYYZZ</b>

Note : Above codes shown are for side cylinder ports.

#### SOLENOID OPERATOR ►

SOLENOID OPERATOR ▶

XX Y ZZ\*

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

\* Other options available, see page 357.

#### OPTIONS

6512B-XXX-PM-**XXYYZZ**

- For piped pilot exhaust replace M by P.
- For dual pressure valve, replace by 4.

#### MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0112</b>	Side inlet & exhaust with bottom cyl. ports (No end cyl. ports)	Available on all manifold models
<b>0210</b>	Porting as ordered in model number plus an additional bottom inlet	Available on all manifold models
<b>0364</b>	Sgl. pressure — side inlet & exh. and additional bottom inlet with bottom cyl. ports (No end cyl. ports) DUAL PRESSURE — Same as sgl. pressure except with two bottom inlets.	Available on all manifold models

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
  2. Bottom ports : Refer to modification table.
  3. To order manifolds without the valve, choose the manifold from the above table, then add 6500B as a prefix. Example 6500B-431.

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100

200

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58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI                      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (4.5 C <sub>v</sub> ), 1/2" : (5.0 C <sub>v</sub> ), 3/4" : (5.1 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA              Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 12 ms	De-energize : 12 ms
	120/60	Energize : 9-14 ms	De-energize : 11-18 ms

## Spare parts :

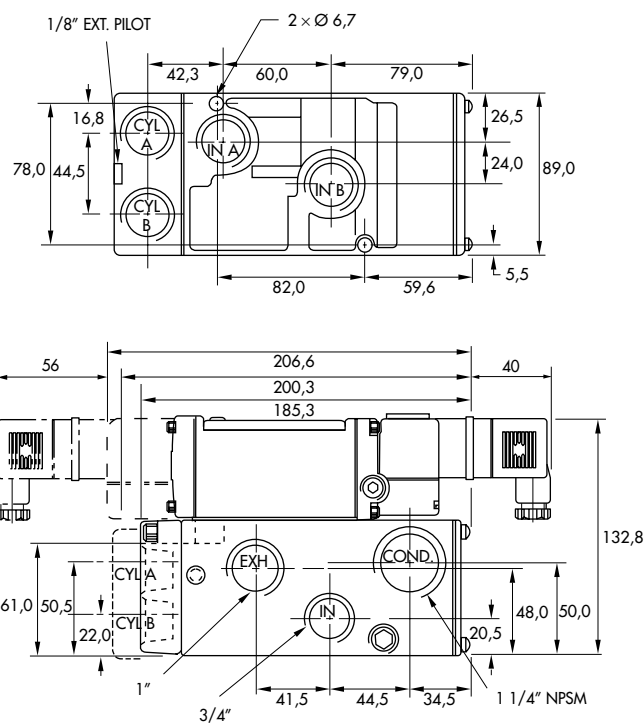
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01
- Inlet isolator : 28309. • Exhaust isolator : 28310. • Blank station cover plate : N-65009.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.1 C<sub>v</sub></b>	sub-base "plug-in"	

#### OPERATIONAL BENEFITS

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

#### HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>		6511B-000-PM- <b>XXY</b> DA	6521B-000-PM- <b>XXY</b> DA	6531B-000-PM- <b>XXY</b> DA	6541B-000-PM- <b>XXY</b> DA	6551B-000-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6511B-411-PM- <b>XXY</b> DA	6521B-411-PM- <b>XXY</b> DA	6531B-411-PM- <b>XXY</b> DA	6541B-411-PM- <b>XXY</b> DA	6551B-411-PM- <b>XXY</b> DA
<b>3/8" NPTF</b>	External	6511B-421-PM- <b>XXY</b> DA	6521B-421-PM- <b>XXY</b> DA	6531B-421-PM- <b>XXY</b> DA	6541B-421-PM- <b>XXY</b> DA	6551B-421-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6511B-511-PM- <b>XXY</b> DA	6521B-511-PM- <b>XXY</b> DA	6531B-511-PM- <b>XXY</b> DA	6541B-511-PM- <b>XXY</b> DA	6551B-511-PM- <b>XXY</b> DA
<b>1/2" NPTF</b>	External	6511B-521-PM- <b>XXY</b> DA	6521B-521-PM- <b>XXY</b> DA	6531B-521-PM- <b>XXY</b> DA	6541B-521-PM- <b>XXY</b> DA	6551B-521-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6511B-611-PM- <b>XXY</b> DA	6521B-611-PM- <b>XXY</b> DA	6531B-611-PM- <b>XXY</b> DA	6541B-611-PM- <b>XXY</b> DA	6551B-611-PM- <b>XXY</b> DA
<b>3/4" NPTF</b>	External	6511B-621-PM- <b>XXY</b> DA	6521B-621-PM- <b>XXY</b> DA	6531B-621-PM- <b>XXY</b> DA	6541B-621-PM- <b>XXY</b> DA	6551B-621-PM- <b>XXY</b> DA

Note : Above codes shown are for side cylinder ports without lights.

#### SOLENOID OPERATOR ➤

**XX Y DA\***

<b>XX Voltage</b>	<b>Y Manual operator</b>
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking
<b>12</b> 240/60, 220/50	<b>2</b> Locking
<b>22</b> 24/60, 24/50	
<b>59</b> 24 VDC (2.5 W)	
<b>87</b> 24 VDC (17.1 W)	
<b>61</b> 24 VDC (8.5 W)	

\* Other options available, see page 357.

#### OPTIONS

6511B-XXX-PM-**XXY**DA

- For piped pilot exhaust replace M by P.
- For lights on valve body, replace by 3.
- For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
- For lights on manifold, replace by 2 (sgl. light), by 3 (dbl. light).

#### MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0112</b>	Side inlet & exhaust with bottom cyl. ports (No end cyl. ports)	Available on all manifold models
<b>0210</b>	Porting as ordered in model number plus an additional bottom inlet	Available on all manifold models
<b>0364</b>	Sgl. pressure — side inlet & exh. and additional bottom inlet with bottom cyl. ports (No end cyl. ports) DUAL PRESSURE — Same as sgl. pressure except with two bottom inlets.	Available on all manifold models

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
  2. Bottom ports : Refer to modification table.
  3. To order manifolds without the valve, choose the manifold from the above table, then add 6500B as a prefix. Example 6500B-411.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

## TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (4.5 C <sub>v</sub> ), 1/2" : (5.0 C <sub>v</sub> ), 3/4" : (5.1 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 12 ms	De-energize : 12 ms
	120/60	Energize : 9-14 ms	De-energize : 11-18 ms

## Spare parts :

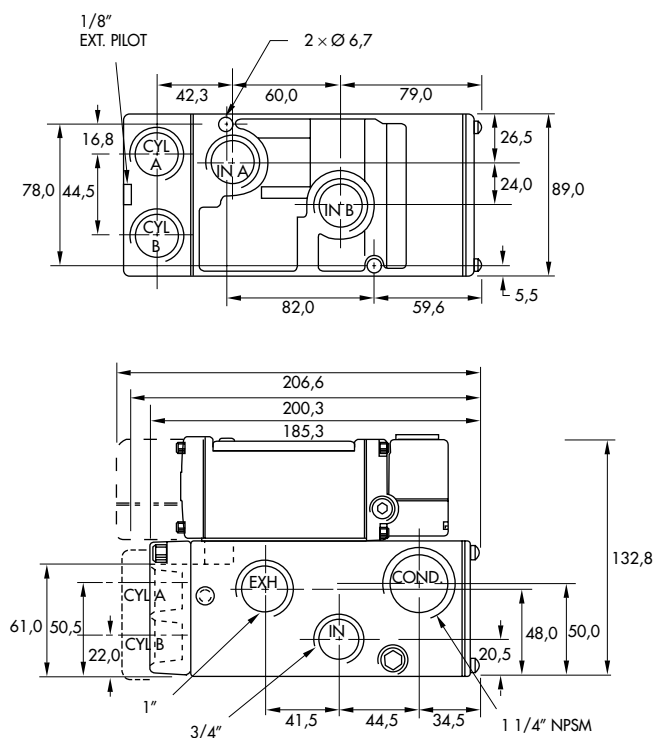
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01
- Inlet isolator : 28309. • Exhaust isolator : 28310. • Blank station cover plate : N-65009.

## Options :

- BSPP threads.

## DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

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

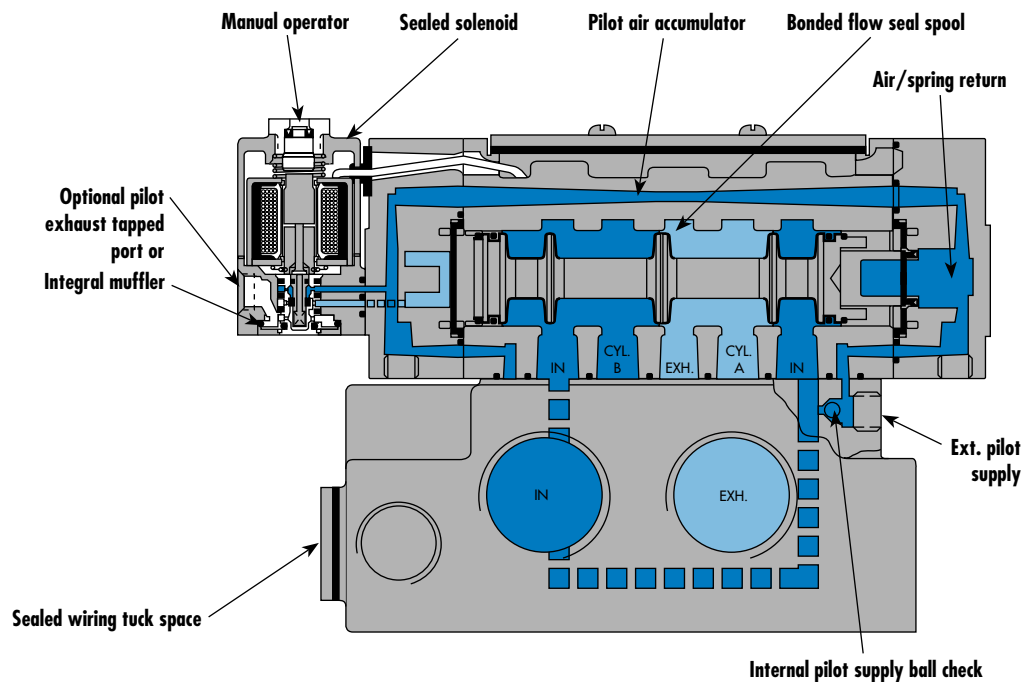
Series

Manifold mounting

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

35

100



200

55

56

57

58

59

45

700

900

82

6300

6500

**6600**

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

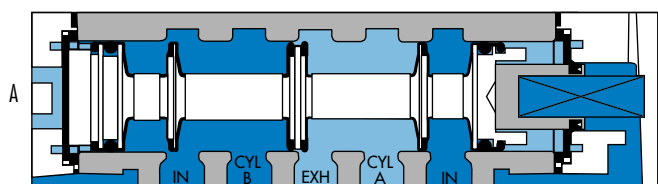
MAC 500A

**SERIES FEATURES**

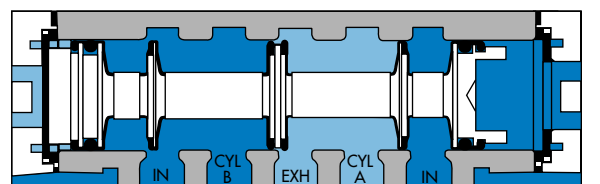
- The patented MACSOLENOID® with its non-burn out feature on AC service.
- A large checked accumulator for consistent shifting on single and double solenoid models.
- A plug-in design that provides for internal or external pilot with or without lights and all electrical and air plumbing in the base.
- Non-lubricated or lubricated service.
- Optional low wattage DC solenoids down to 1 watt.
- Optional indicator lights, and various types of manual operators.
- Non plug-in or external plug-in models are available.



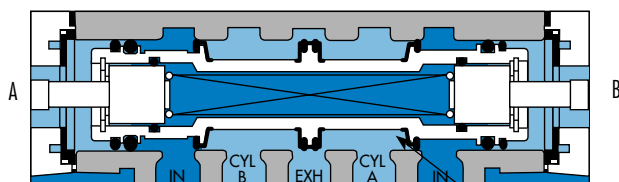
## SPOOL CONFIGURATIONS



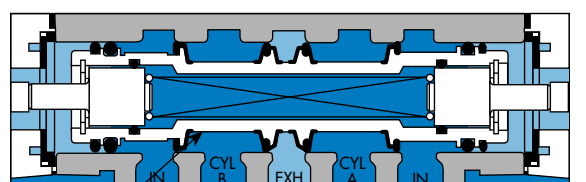
2 POS. SINGLE OPERATOR SPRING RETURN  
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR  
B ACTUATED SHOWN

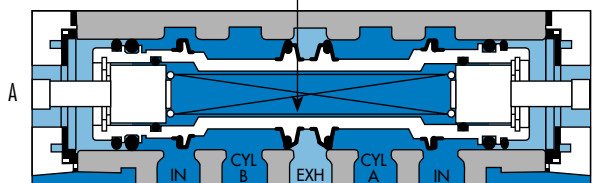


3 POS. OPEN CENTER  
CENTER POSITION SHOWN



3 POS. CLOSED CENTER  
CENTER POSITION SHOWN

PATENTED  
AIR/SPRING  
CENTERING



3 POS. PRESSURE CENTER  
CENTER POSITION SHOWN

## VALVE CONFIGURATIONS AVAILABLE

The versatile 6600 Series provides high flow, extremely fast response, and long life in a compact package and is available in the following configurations:

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure or dual pressure.
- Individual base.
- Internal pilot or for Vacuum to 25 PSI main valve pressures, external pilot.
- Manual and mechanical operators available.

## REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

- A large checked accumulator for air/spring return on single remote air models.
- All piping connections, including the remote air pilot supply, in the base.
- Non-lubricated or lubricated service.

## REMOTE AIR PILOT, PILOT OPERATED VALVES

These special air versions have the same features as the remote air pilot operated models, but additionally feature:

- A manual operator and indicator.
- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 20 to 150 PSIG, regardless of main valve pressure.

Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>3/4" - 1"</b>	<b>9.6 C<sub>v</sub></b>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>		6612A-000-PM- <b>XXYYZZ</b>	6622A-000-PM- <b>XXYYZZ</b>	6632A-000-PM- <b>XXYYZZ</b>	6642A-000-PM- <b>XXYYZZ</b>	6652A-000-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6612A-231-PM- <b>XXYYZZ</b>	6622A-231-PM- <b>XXYYZZ</b>	6632A-231-PM- <b>XXYYZZ</b>	6642A-231-PM- <b>XXYYZZ</b>	6652A-231-PM- <b>XXYYZZ</b>
<b>3/4" NPTF</b>	External	6612A-241-PM- <b>XXYYZZ</b>	6622A-241-PM- <b>XXYYZZ</b>	6632A-241-PM- <b>XXYYZZ</b>	6642A-241-PM- <b>XXYYZZ</b>	6652A-241-PM- <b>XXYYZZ</b>
<b>sub-base</b>	Internal	6612A-331-PM- <b>XXYYZZ</b>	6622A-331-PM- <b>XXYYZZ</b>	6632A-331-PM- <b>XXYYZZ</b>	6642A-331-PM- <b>XXYYZZ</b>	6652A-331-PM- <b>XXYYZZ</b>
<b>1" NPTF</b>	External	6612A-341-PM- <b>XXYYZZ</b>	6622A-341-PM- <b>XXYYZZ</b>	6632A-341-PM- <b>XXYYZZ</b>	6642A-341-PM- <b>XXYYZZ</b>	6652A-341-PM- <b>XXYYZZ</b>

Note : Above codes shown are for side ports.

## SOLENOID OPERATOR ➤

<b>XX Voltage</b>	<b>YY Manual operator</b>	<b>ZZ Electrical connection</b>
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

## OPTIONS

6612A-XXX-PM-**XXYYZZ**

- For piped pilot exhaust replace M by P.
- For dual pressure valve, replace by 4.

## MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0002</b>	Bottom inlet, exh. & cyl ports (side ports plugged)	3/4" individual base
<b>0004</b>	Full side porting and additional. Bottom inlet, exh. & cyl ports	3/4" individual base
<b>0112</b>	Side inlet & exhaust with bottom cyl. ports (side cyl. ports plugged)	3/4" individual base

**TO ORDER** - Add the appropriate modification number after the valve number;

**EXAMPLE** : 6612A-231-PM-111JA **MOD 0002**

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.

2. Bottom ports : Refer to modification table.

3. To order bases without the valve, choose the base from the above table, then add 6600A as a prefix. Example 6600A-231.

4. 2 position and 3 position valve bodies are not interchangeable.

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100

200

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57

58

59

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700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI                      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (9.0 C <sub>v</sub> ), 1" : (9.6 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA            Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

## Spare parts :

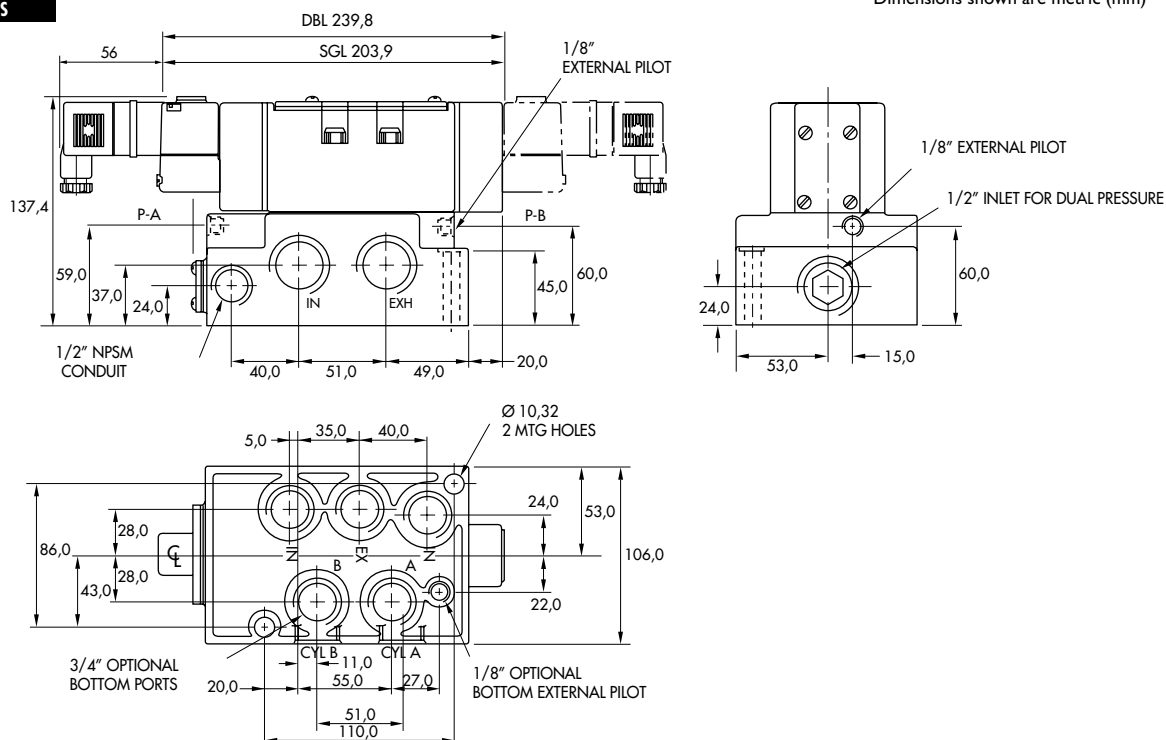
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XYZZ, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>3/4" - 1"</b>	<b>9.6 C<sub>v</sub></b>	sub-base "plug-in"	

#### OPERATIONAL BENEFITS

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

#### HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>		6611A-000-PM-XXYDA	6621A-000-PM-XXYDA	6631A-000-PM-XXYDA	6641A-000-PM-XXYDA	6651A-000-PM-XXYDA
<b>sub-base</b>	Internal	6611A-211-PM-XXYDA	6621A-211-PM-XXYDA	6631A-211-PM-XXYDA	6641A-211-PM-XXYDA	6651A-211-PM-XXYDA
<b>3/4" NPTF</b>	External	6611A-221-PM-XXYDA	6621A-221-PM-XXYDA	6631A-221-PM-XXYDA	6641A-221-PM-XXYDA	6651A-221-PM-XXYDA
<b>sub-base</b>	Internal	6611A-311-PM-XXYDA	6621A-311-PM-XXYDA	6631A-311-PM-XXYDA	6641A-311-PM-XXYDA	6651A-311-PM-XXYDA
<b>1" NPTF</b>	External	6611A-321-PM-XXYDA	6621A-321-PM-XXYDA	6631A-321-PM-XXYDA	6641A-321-PM-XXYDA	6651A-321-PM-XXYDA

Note : Above codes shown are for side ports without lights.

#### SOLENOID OPERATOR ➤

**XX Y DA\***

XX	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

\* Other options available, see page 357.

#### OPTIONS

6611A-XXX-PM-XXYDA

- For piped pilot exhaust replace M by P.
- For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
- For lights on base, replace by 2 (sgl. light), by 3 (dbl. light).
- For lights on valve body, replace by 3.

#### MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0002</b>	Bottom inlet, exh. & cyl ports (side ports plugged)	3/4" individual base
<b>0004</b>	Full side porting and additional bottom inlet, exh. & cyl ports	3/4" individual base
<b>0112</b>	Side inlet & exhaust with bottom cyl. ports (side cyl.ports plugged)	3/4" individual base

**TO ORDER** - Add the appropriate modification number after the valve number;

**EXAMPLE** : 6611A-211-PM-111DA **MOD 0002**

- Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
2. Bottom ports : Refer to modification table.
3. To order bases without the valve, choose the base from the above table, then add 6600A as a prefix. Example 6600A-211.
4. 2 position and 3 position valve bodies are not interchangeable.

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (9.0 C <sub>v</sub> ), 1" : (9.6 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

## Spare parts :

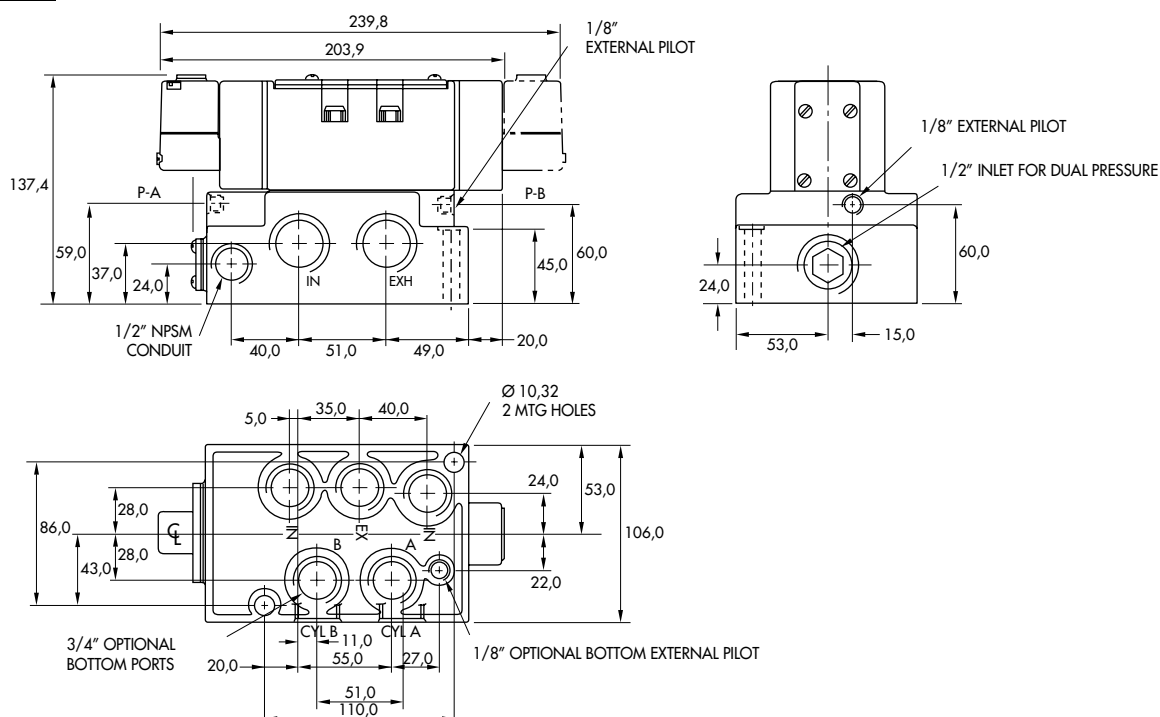
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)

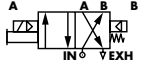
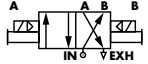
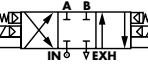
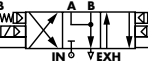



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>3/4" - 1" - 1 1/4"</b>	<b>9.6 C<sub>v</sub></b>	sub-base non "plug-in"	

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
<b>Valve less base</b>		6612A-000-PM-XXYYZZ	6622A-000-PM-XXYYZZ	6632A-000-PM-XXYYZZ	6642A-000-PM-XXYYZZ	6652A-000-PM-XXYYZZ
<b>sub-base</b>	Internal	6612A-431-PM-XXYYZZ	6622A-431-PM-XXYYZZ	6632A-431-PM-XXYYZZ	6642A-431-PM-XXYYZZ	6652A-431-PM-XXYYZZ
<b>3/4" NPTF</b>	External	6612A-441-PM-XXYYZZ	6622A-441-PM-XXYYZZ	6632A-441-PM-XXYYZZ	6642A-441-PM-XXYYZZ	6652A-441-PM-XXYYZZ
<b>sub-base</b>	Internal	6612A-531-PM-XXYYZZ	6622A-531-PM-XXYYZZ	6632A-531-PM-XXYYZZ	6642A-531-PM-XXYYZZ	6652A-531-PM-XXYYZZ
<b>1" NPTF</b>	External	6612A-541-PM-XXYYZZ	6622A-541-PM-XXYYZZ	6632A-541-PM-XXYYZZ	6642A-541-PM-XXYYZZ	6652A-541-PM-XXYYZZ
<b>sub-base</b>	Internal	6612A-631-PM-XXYYZZ	6622A-631-PM-XXYYZZ	6632A-631-PM-XXYYZZ	6642A-631-PM-XXYYZZ	6652A-631-PM-XXYYZZ
<b>1 1/4" NPTF</b>	External	6612A-641-PM-XXYYZZ	6622A-641-PM-XXYYZZ	6632A-641-PM-XXYYZZ	6642A-641-PM-XXYYZZ	6652A-641-PM-XXYYZZ

Note : Above codes shown are for side ports.

## SOLENOID OPERATOR ➤

XX Y ZZ\*

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

## OPTIONS

6612A-XXX-PM-XXYYDA

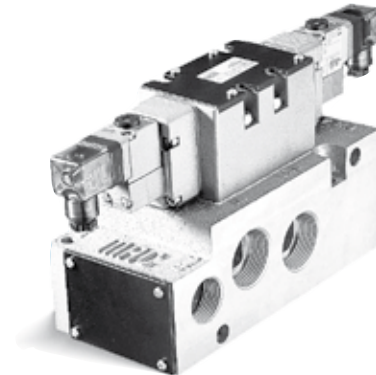
- For piped pilot exhaust replace M by P.
- For dual pressure valve, replace by 4.

## MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0210</b>	1 1/4" Bottom inlet	Manifold base
<b>0364</b>	1 1/4" Bottom inlet, 3/4" or 1" Bottom cyl.	Manifold base
<b>0112</b>	Side inlet & exhaust with bottom cyl. ports (side cyl. ports plugged)	1" Manifold base

**TO ORDER** - Add the appropriate modification number after the valve number;

**EXAMPLE** : 6612A-431-PM-111JA **MOD 0364**



Note : Photo shown with JC connector.

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.

2. Bottom ports : Refer to modification table.

3. To order manifolds without the valve, choose the manifold from the above table, then add 6600A as a prefix. Example 6600A-431.

4. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.

5. 2 position and 3 position valve bodies are not interchangeable.

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (9.0 C <sub>v</sub> ), 1" : (9.6 C <sub>v</sub> ), 1 1/4" : (9.6 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

## Spare parts :

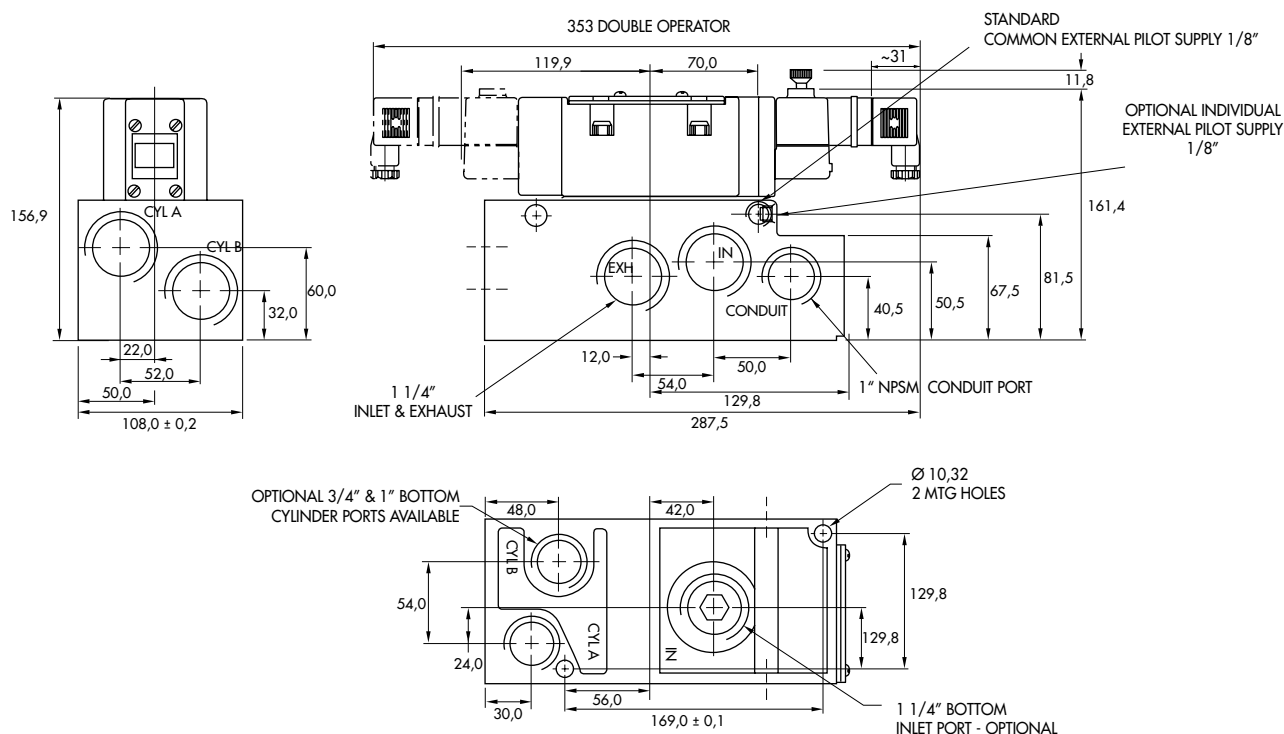
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416. • Tie-rod (x2) : 19789. • Fastening kit : N-66002-01.
- Inlet & exhaust isolator : 28367.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>3/4" - 1" - 1 1/4"</b>	<b>9.6 C<sub>v</sub></b>	sub-base "plug-in"	

#### OPERATIONAL BENEFITS

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

#### HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>		6611A-000-PM- <b>XXY</b> DA	6621A-000-PM- <b>XXY</b> DA	6631A-000-PM- <b>XXY</b> DA	6641A-000-PM- <b>XXY</b> DA	6651A-000-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6611A-411-PM- <b>XXY</b> DA	6621A-411-PM- <b>XXY</b> DA	6631A-411-PM- <b>XXY</b> DA	6641A-411-PM- <b>XXY</b> DA	6651A-411-PM- <b>XXY</b> DA
<b>3/4" NPTF</b>	External	6611A-421-PM- <b>XXY</b> DA	6621A-421-PM- <b>XXY</b> DA	6631A-421-PM- <b>XXY</b> DA	6641A-421-PM- <b>XXY</b> DA	6651A-421-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6611A-511-PM- <b>XXY</b> DA	6621A-511-PM- <b>XXY</b> DA	6631A-511-PM- <b>XXY</b> DA	6641A-511-PM- <b>XXY</b> DA	6651A-511-PM- <b>XXY</b> DA
<b>1" NPTF</b>	External	6611A-521-PM- <b>XXY</b> DA	6621A-521-PM- <b>XXY</b> DA	6631A-521-PM- <b>XXY</b> DA	6641A-521-PM- <b>XXY</b> DA	6651A-521-PM- <b>XXY</b> DA
<b>sub-base</b>	Internal	6611A-611-PM- <b>XXY</b> DA	6621A-611-PM- <b>XXY</b> DA	6631A-611-PM- <b>XXY</b> DA	6641A-611-PM- <b>XXY</b> DA	6651A-611-PM- <b>XXY</b> DA
<b>1 1/4" NPTF</b>	External	6611A-621-PM- <b>XXY</b> DA	6621A-621-PM- <b>XXY</b> DA	6631A-621-PM- <b>XXY</b> DA	6641A-621-PM- <b>XXY</b> DA	6651A-621-PM- <b>XXY</b> DA

Note : Above codes shown are for side cylinder ports without lights.

#### SOLENOID OPERATOR ►

<b>XX Y DA*</b>	
<b>XX Voltage</b>	<b>Y Manual operator</b>
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking
<b>12</b> 240/60, 220/50	<b>2</b> Locking
<b>22</b> 24/60, 24/50	
<b>59</b> 24 VDC (2.5 W)	
<b>87</b> 24 VDC (17.1 W)	
<b>61</b> 24 VDC (8.5 W)	

\* Other options available, see page 357.

#### OPTIONS

6611A-XXX-PM-**XXY**DA

- For piped pilot exhaust replace M by P.
- For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
- For lights on manifold, replace by 2 (sgl. light), by 3 (dbl. light).

#### MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0210</b>	1 1/4" Bottom inlet	Manifold base
<b>0364</b>	1 1/4" Bottom inlet, 3/4" or 1" Bottom cyl.	Manifold base
<b>0112</b>	Side inlet & exhaust with bottom cyl. ports (side cyl. ports plugged)	1" Manifold base

**TO ORDER** - Add the appropriate modification number after the valve number;

**EXAMPLE** : 6611A-411-PM-111DA **MOD 0364**

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
  2. Bottom ports : Refer to modification table.
  3. To order manifolds without the valve, choose the manifold from the above table, then add 6600A as a prefix. Example 6600A-411.
  4. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
  5. 2 position and 3 position valve bodies are not interchangeable.

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



# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (9.0 C <sub>v</sub> ), 1" : (9.6 C <sub>v</sub> ), 1 1/4" : (9.6 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

## Spare parts :

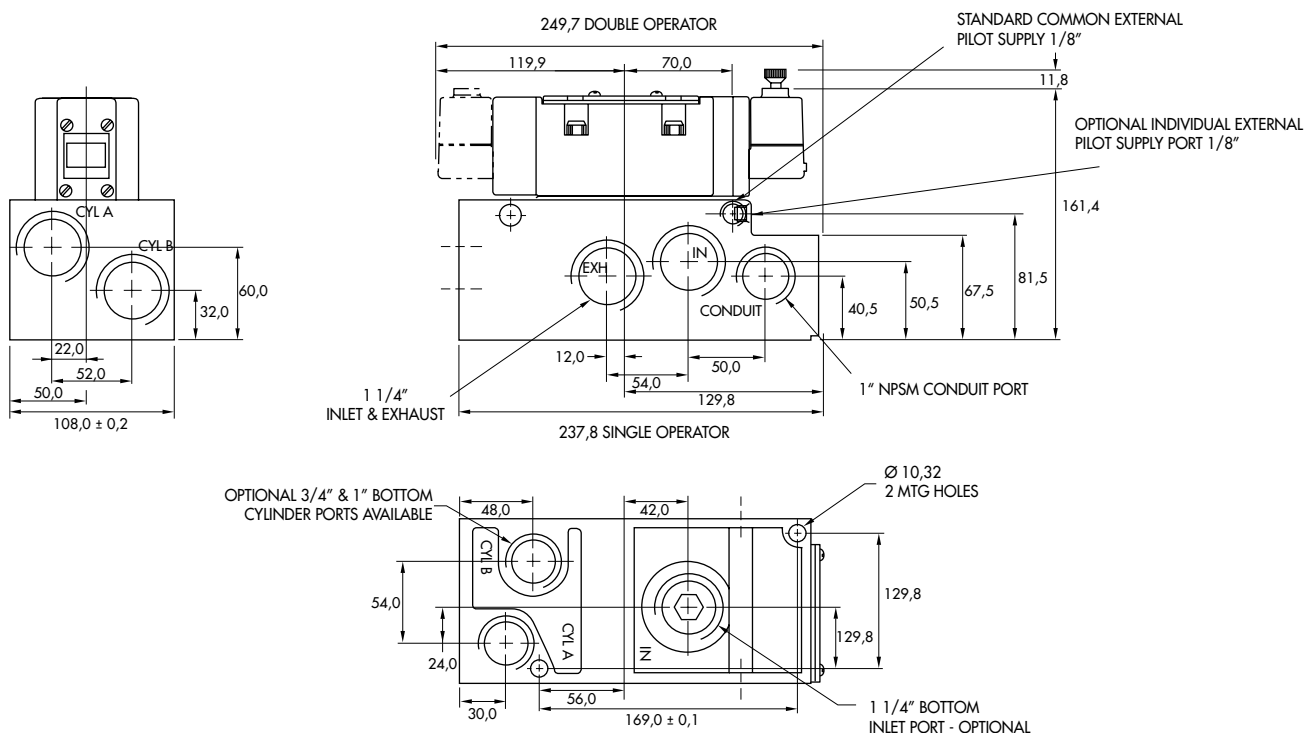
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416. • Tie-rod (x2) : 19789. • Fastening kit : N-66002-01.
- Inlet & exhaust isolator : 28367.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

sub-base  
"plug-in"

Series

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

**1300**

800

ISO 1

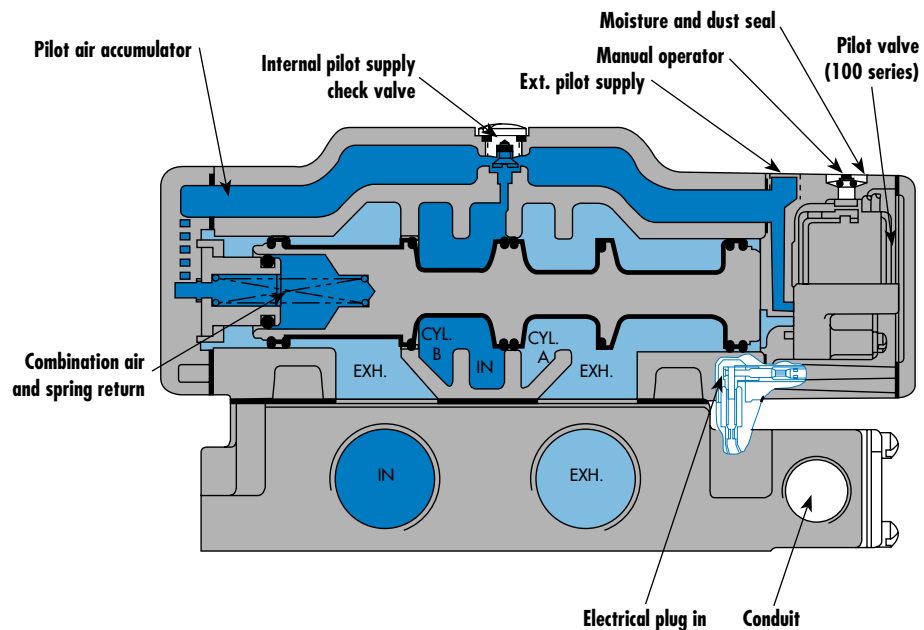
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



**SERIES FEATURES**

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- A large checked accumulator for consistent shifting on single and double solenoid models.
- A plug-in design that provides for internal or external pilot with or without lights and all electrical in the base.
- Non-lubricated or lubricated service.
- Optional indicator lights, and various types of manual operators.

### SOLENOID PILOT

The solenoid pilot utilized on the 1300 Series is the extremely fast and reliable, spring biased MAC 100 Series three-way manifold valve which features a high flow balanced poppet. The patented spring biased floating pole piece MACSOLENOID® of the 100 Series practically eliminates the two most common causes of solenoid valve failures: coil burnout on AC service and failure to shift. The versatility of the 100 Series permits either internal or external pilot supply. The solenoid housing incorporates a 1/8" NPTF pilot exhaust connection which can be either muffled or piped away and the external pilot supply connection.

### MAIN VALVE

The main valve contains a MAC all bonded, lightweight one-piece aluminium spool. All spool seals are permanently bonded, precision ground and chemically surface hardened to provide long, stick-free operation. These valves with their pressure balanced design are not affected by restrictions or back pressure in the exhaust and can be plugged for use as three-way valves. The one-piece silicon aluminium body used with any of these valves incorporates an integral accumulator.

### ACCUMULATOR

A large accumulator housed in the main valve body supplies both pilots on double solenoid valves as well as the air assisted spring return on single solenoid pilot or single

remote air pilot operated valves. Internally piloted, the accumulator is protected from inlet pressure fluctuations in the main valve by a check valve. The check valve is designed to bleed off the accumulator when the main supply pressure is removed. For external pilot supply operations, the check valve is reversed, blocking the internal pilot supply to the accumulator. The accumulator is then supplied through the external supply connection.

### DIFFERENTIAL RETURN

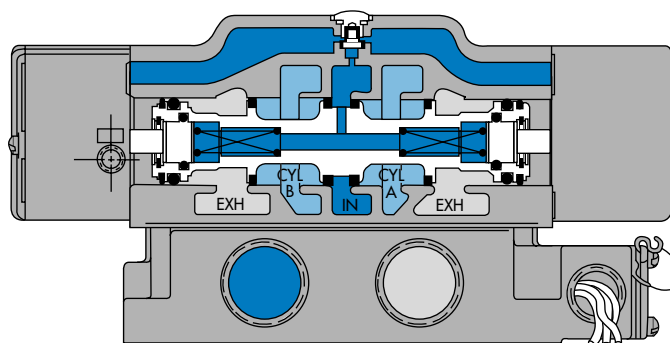
Single solenoid pilot or single air pilot operated models contain a combination spring and air assisted differential return. Supplied from the accumulator it balances the shifting forces for consistent operation and positive spool return.

### BASES

The 4-port aluminium base design simplifies piping and enables the use of a single muffler or piped exhaust. They are provided with an integral electrical wiring space, sealed with a convenient access cover. The access cover also houses the optional indicator lights, available in voltages of 120/60, 110/50 or 240/60, 220/50 or 24 VDC in either single or double lights.

### 3-POSITION VALVES

The 1300 Series solenoid pilot 3-position valves, are centered by MAC's exclusive combination spring and pressure assisted spool design. The combination spring and air assist assures fast, positive return of the main spool when the pilots are de-energized. Available in external or internal pilot supply models, with either a closed center spool (all ports blocked) or open center spool (inlet blocked, cylinder ports open to exhaust).



3-POSITION DOUBLE  
SOLENOID CLOSED CENTER

Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>3/4" - 1" - 1 1/4" - 1 1/2"</b>	<b>15.9 C<sub>v</sub></b>	sub-base "plug-in"	

#### OPERATIONAL BENEFITS

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

#### HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
<b>Valve less base</b>	1301G-XXYD-XX	1303G-XXYD-XX	1307G-XXYD-XX	1308G-XXYD-XX
<b>Sub base 3/4" NPTF</b>	1321G-XXYD-XX	1323G-XXYD-XX	1327G-XXYD-XX	1328G-XXYD-XX
<b>Sub base 1" NPTF</b>	1331G-XXYD-XX	1333G-XXYD-XX	1337G-XXYD-XX	1338G-XXYD-XX
<b>Sub base 1 1/4" NPTF</b>	1351G-XXYD-XX	1353G-XXYD-XX	1357G-XXYD-XX	1358G-XXYD-XX
<b>Sub base 1 1/2" NPTF</b>	1361G-XXYD-XX	1363G-XXYD-XX	1367G-XXYD-XX	1368G-XXYD-XX

#### SOLENOID OPERATOR ➤

XX Voltage	Y Manual operator	X Pilot air	X Indicator light
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>1</b> Internal	<b>5</b> With light in base
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>2</b> External	
<b>22</b> 24/60, 24/50			
<b>59</b> 24 VDC (2.5 W)			
<b>87</b> 24 VDC (17.1 W)			
<b>61</b> 24 VDC (8.5 W)			

\* Other options available, see page 357.

Bases	
10952-0005	3/4" BASE ASS'Y - SGL (NPTF)
10952-0006	3/4" BASE ASS'Y - DBL (NPTF)
10952-XX05	3/4" BASE ASS'Y - SGL - W/LIGHT (NPTF)
10952-XX06	3/4" BASE ASS'Y - DBL - W/LIGHT (NPTF)
10953-0005	1" BASE ASS'Y - SGL (NPTF)
10953-0006	1" BASE ASS'Y - DBL (NPTF)
10953-XX05	1" BASE ASS'Y - SGL - W/LIGHT (NPTF)
10953-XX06	1" BASE ASS'Y - DBL - W/LIGHT (NPTF)
10954-0005	1 1/4" BASE ASS'Y - SGL (NPTF)
10954-0006	1 1/4" BASE ASS'Y - DBL (NPTF)
10954-XX05	1 1/4" BASE ASS'Y - SGL - W/LIGHT (NPTF)
10954-XX06	1 1/4" BASE ASS'Y - DBL - W/LIGHT (NPTF)
10955-0005	1 1/2" BASE ASS'Y - SGL (NPTF)
10955-0006	1 1/2" BASE ASS'Y - DBL (NPTF)
10955-XX05	1 1/2" BASE ASS'Y - SGL - W/LIGHT (NPTF)
10955-XX06	1 1/2" BASE ASS'Y - DBL - W/LIGHT (NPTF)

#### Light options

XX =	11 - 110V-120V
	12 - 220V-240V
	61 - 24V-28V

**BOTTOM PORTS** available only on 3/4" valves

For bottom ports only specify **MOD 0002**

For side and bottom ports specify **MOD 0004**

**EXAMPLE** : 1321G-111D-1 **MOD 0002**

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# **TECHNICAL DATA**

<b>Fluid :</b>	Compressed air, vacuum, inert gases		
<b>Pressure range :</b>	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
<b>Pilot pressure :</b>	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
<b>Filtration :</b>	40 µ		
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)		
<b>Flow (at 6 bar, ΔP=1bar) :</b>	3/4" : (11.5 C <sub>v</sub> ), 1" : (13.7 C <sub>v</sub> ), 1 1/4" : (15.4 C <sub>v</sub> ), 1 1/2" : (15.9 C <sub>v</sub> )		
<b>Coil :</b>	Epoxy encapsulated - class A wires - Continuous duty		
<b>Voltage range :</b>	-15% to +10% of nominal voltage		
<b>Protection :</b>	Consult factory		
<b>Power :</b>	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
<b>Response times :</b>	24 VDC (8.5 W)	Energize : 20 ms	De-energize : 28 ms
	120/60	Energize : 17-23 ms	De-energize : 29-35 ms

## Spare parts :

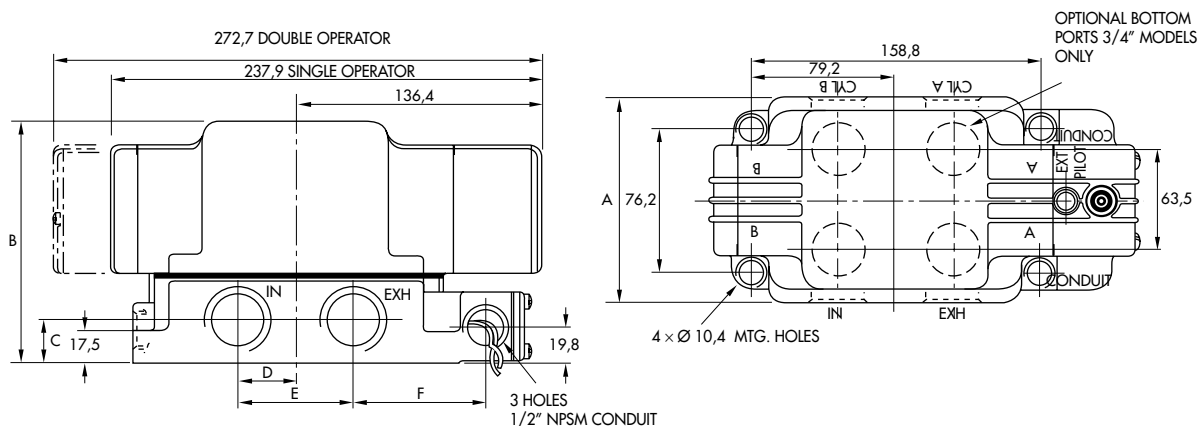
- Solenoid operator (power ≥ 4 W) : D1-XXBD.
- Pressure seal between valve and base : 16083.
- Pilot valve : 150B-XXBD, including mounting screws 32180 and adaptor plate N-03001.
- Mounting screw valve to base (x4) : 32396.

## Options :

- BSPP threads.
- Lights in base.

# **DIMENSIONS**

Dimensions shown are metric (mm)



Port size	A	B	C	D	E	F
<b>3/4", 1" NPTF</b>	111.3	132.4	23.8	31.7	63.5	71.4
<b>1 1/4" NPTF</b>	114.3	148.3	30.2	38.1	76.2	65.0
<b>1 1/2" NPTF</b>				35.0	69.9	68.0

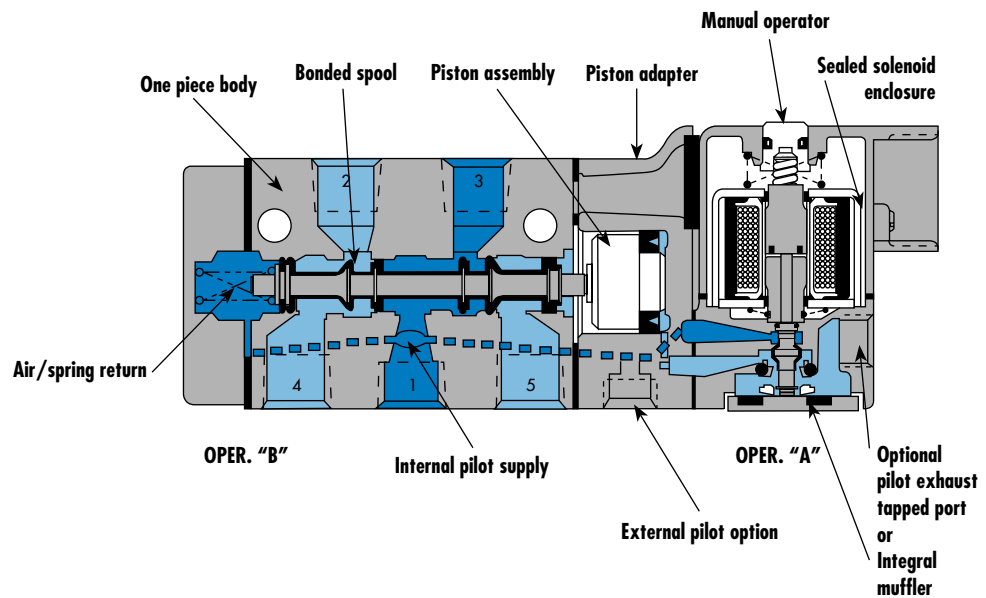
Individual mounting

inline

Series

Manifold mounting

stacking body with 1 common port (inlet)	stacking body with 3 common ports (inlet & exhausts)	stacking body with 3 common ports and integral F.C.	stacking body with 3 common ports with common conduit	stacking body with 3 common ports with C. C. & integral exh. F. C.
--	--	---	---	--



SERIES FEATURES

- The patented MACSOLENOID® with its non-burn out feature on AC service.
- Air/spring return on single solenoid valves.
- Use for lube or non-lube service.
- Optional common conduit stacking valve with integral wiring space and indicator lights
- Optional integral individual exhaust flow controls.
- Optional low wattage DC solenoids down to 1 watt.
- Various types of manual operators and solenoid enclosures.

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700

900

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6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

### SPECIAL APPLICATIONS :

On all single pressure models, energizing the operator closest to port #5 supplies pressure to cylinder port "2" and energizing the operator closest to port #4 supplies pressure to cylinder port "3". For the following special applications, additional piping considerations are required.

### EXTERNAL PILOT APPLICATIONS :

An External Pilot is only required when the main valve pressure is less than 20 PSIG on single solenoid or 10 PSIG on double solenoid valves in 2-position models, or less than 20 PSIG on 3-position double solenoid models. Also an External Pilot is required when main valve pressure is in excess of 150 PSIG.

**INDIVIDUAL VALVES:** The External Pilot supply is connected to the External Pilot port in the piston adapter. The valve must be an External Pilot model.

**STACKING VALVES:** The External Pilot supply is connected to the External Pilot ports in the end plates. The valve is the same valve for either Internal or External Pilot. The end plate must be the external pilot type.

### DUAL PRESSURE (TWO INLET) APPLICATIONS :

When two pressures are required within a valve, a Dual Pressure (Inlet) model must be used. Additionally the following must be adhered to:

**INDIVIDUAL VALVES:** If both pressures are below the minimum, use an External Pilot supply as described above for Individual valves and connect the two pressures to ports #4 and #5. Otherwise, use an Internal Pilot model and connect the higher pressure to port #5 and the lower pressure to port #4.

**STACKING VALVES:** Use an External Pilot Manifold End Plate Kit, as described above for Stacking Valves and connect the two pressures to the Exhaust ports in the end plate.

### MULTIPLE PRESSURES TO A STACK :

By isolating, different pressures can be supplied to each end of a stack to provide two pressures. If more than two pressures are required, a Dual Inlet Pressure Block can be installed providing 2 more inlet pressures to a stack. With the use of 1 or more of these Pressure Blocks, a stack can have virtually unlimited inlet pressures.

### VACUUM APPLICATIONS :

Use an External Pilot model as described under "External Pilot Applications", (Individual valve or Stacking).

For single pressure, dual exhaust type valve ports #4 & #5 (Exhausts) should be connected to the vacuum supply and port #1 (Inlet) to atmosphere.

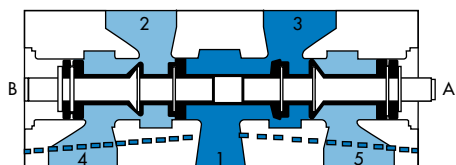
For dual pressure, single exhaust type valves, vacuum should be connected to port #1 (Inlet) and ports #4 & #5 (Exhausts) to atmosphere.

### SELECTOR APPLICATIONS :

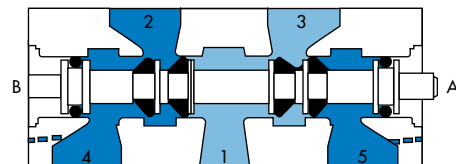
Use an External Pilot model as described above, if both pressures are below the minimum pilot pressure; otherwise use an Internal Pilot model. In either case, use a single pressure model and connect the higher pressure to port #1 (Inlet) and the lower pressure to port #4 (Exhaust) if using cylinder port #2 or to port #5 (Exhaust) if using cylinder port #3.

### SPOOL CONFIGURATIONS

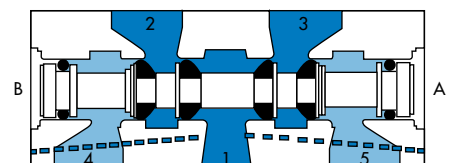
2-POSITION SGL. PRESSURE (SPOOL #12184)  
B ACTUATED SHOWN



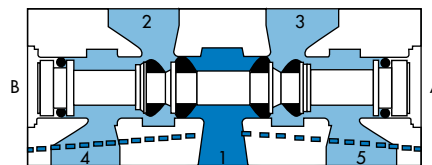
2-POSITION DUAL PRESSURE  
(SPOOL ASSY.#10266) B ACTUATED SHOWN



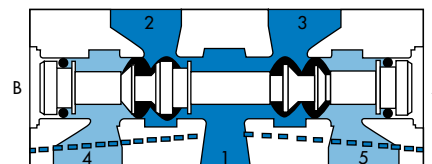
3-POSITION SGL. PRESS. CLOSED CENTER  
(SPOOL ASSY. #S-00004) CENTER POSITION SHOWN



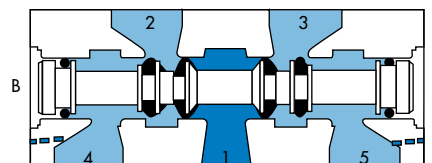
3-POSITION SGL. PRESS. OPEN CENTER  
(SPOOL ASSY.#S-00003) CENTER POSITION SHOWN



3-POSITION SGL. PRESS. PRESSURE CENTER  
(SPOOL ASSY. #S-08003) CENTER POSITION SHOWN



3-POSITION DUAL PRESS. PRESSURE CENTER  
(SPOOL ASSY. #S-08002) CENTER POSITION SHOWN



Function	Port size	Flow [Max]	Individual mounting	Series
<b>5/2 - 5/3</b>	<b>1/4"</b>	<b>1.4 C<sub>v</sub></b>	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 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

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
<b>1/4" NPTF</b>	Internal	811C-PM- <b>XXYYZZ</b> -152	821C-PM- <b>XXYYZZ</b> -152	825C-PM- <b>XXYYZZ</b> -552	825C-PM- <b>XXYYZZ</b> -652	825C-PM- <b>XXYYZZ</b> -852
	External	812C-PM- <b>XXYYZZ</b> -112	822C-PM- <b>XXYYZZ</b> -112	826C-PM- <b>XXYYZZ</b> -512	826C-PM- <b>XXYYZZ</b> -612	826C-PM- <b>XXYYZZ</b> -812

#### SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		<b>CA</b> Conduit 1/2" NPS

\* Other options available, see page 357.

**MODIFICATIONS - N° 0358** - 3/8" inlet and cylinder ports, exhaust ports 1/4"

**MODIFICATIONS - N° 1080** - NAMUR interface.

Add mod. N° after valve part n°. - **EXAMPLE** : 811C-PM-111CA-152 Mod. 0358.

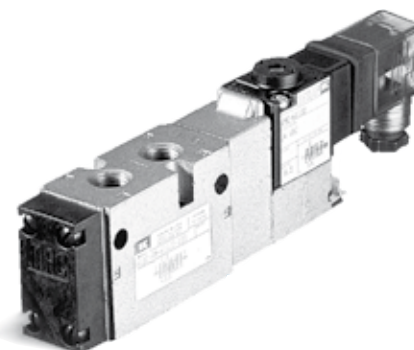
#### OPTIONS

811C-PM-111CA-152

- For 2 position dual pressure : replace by 2.

825C-PM-111CA-852

- For 3 position dual pressure, pressure center : replace by 7.



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1300

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ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C <sub>v</sub> )		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

## Spare parts :

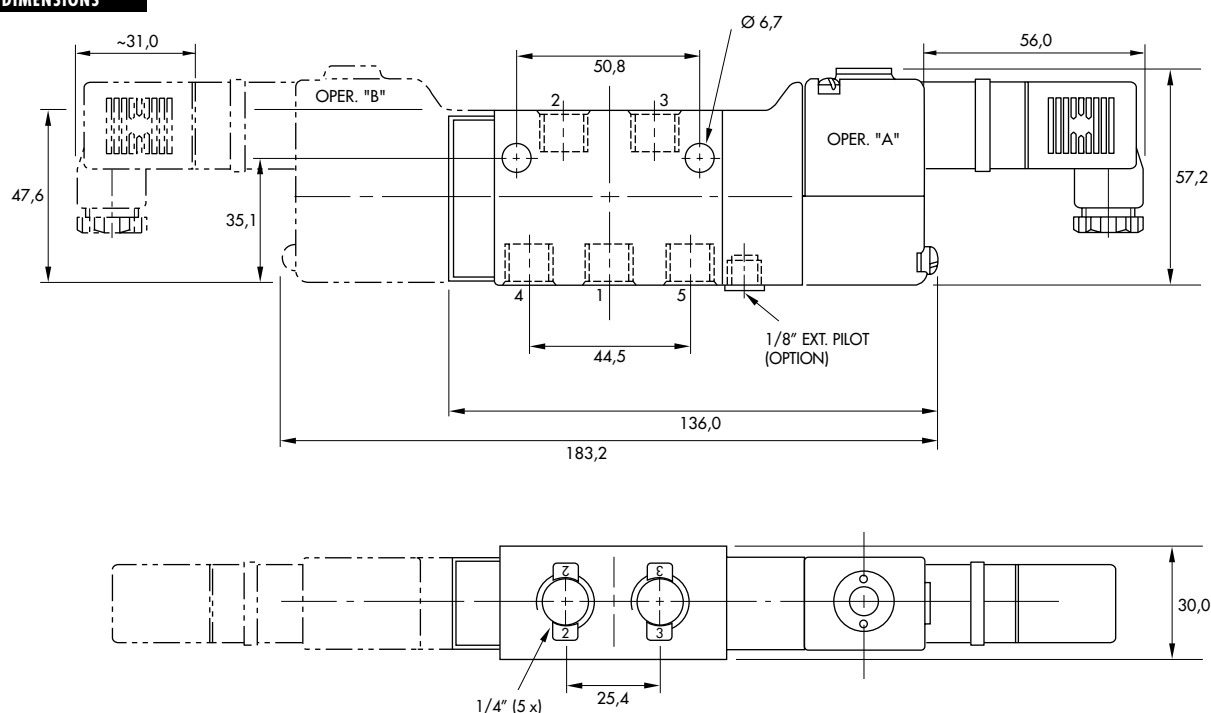
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.

## Options :

- BSPP threads. • NAMUR interface. • Explosion-proof model. • Flow control/muffler (1/4") : 10951

# DIMENSIONS

Dimensions shown are metric (mm)


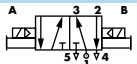
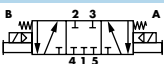
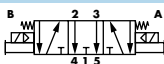
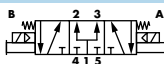


Function	Port size	Flow [Max]	Manifold Mounting	Series
<b>5/2 - 5/3</b>	<b>1/4"</b>	<b>1.4 C<sub>v</sub></b>	stacking body with 1 common port (inlet)	

## 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

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
<b>1/4" NPTF</b>	811C-PM- <b>XXYYZZ</b> -132	821C-PM- <b>XXYYZZ</b> -132	825C-PM- <b>XXYYZZ</b> -532	825C-PM- <b>XXYYZZ</b> -632	825C-PM- <b>XXYYZZ</b> -832

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>RA</b> Conduit 3/8" NPS
<b>59</b> 24 VDC (2.5 W)		<b>BA</b> Flying leads (18")
<b>87</b> 24 VDC (17.1 W)		
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

## MANIFOLD END PLATE KITS (NPTF)\*

INT. PILOT - PART N°.	EXT. PILOT - PART N°.	MODELS USED WITH
M-08001-01-01	M-08001-02-01	3 com. port or 1 com. port models, stacks of 1 thru 16 valves
M-00005-01-01	M-00005-02-01	3 com. port or 1 com. port models, stacks of 17 or more valves

\* Add letter **P** at end of part N°. for BSPP threads; **EXAMPLE** : M-08001-01-01**P**

Note : (1) end plate kit required per stack.

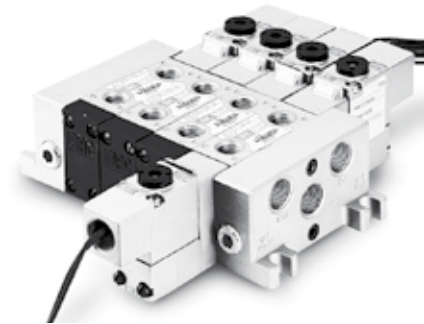
## OPTIONS

811C-PM-111BA-132

- For 2 position dual pressure : replace by 2.

825C-PM-111BA-832

- For 3 position dual pressure, pressure center : replace by 7.



# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C <sub>v</sub> )		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

## Spare parts :

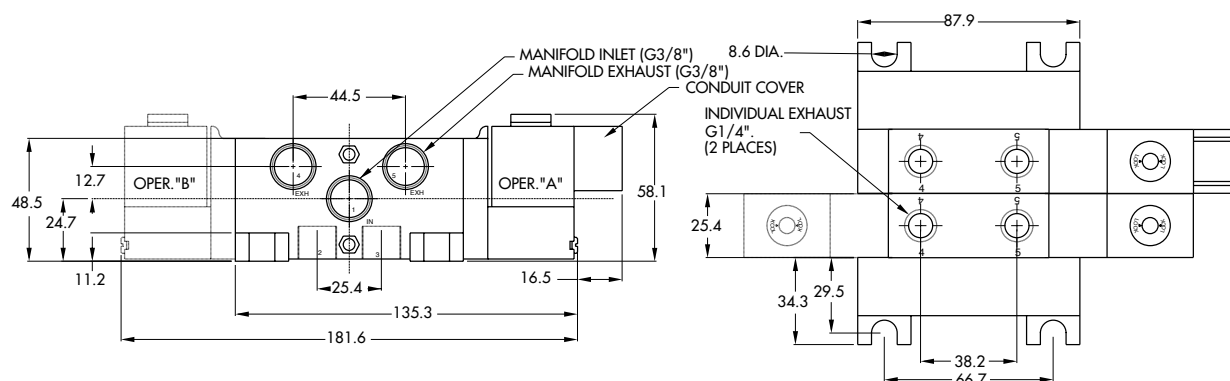
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002

## Options :

- BSPP threads. • Dual inlet block: M-08003 • Flow control/muffler (1/4") : 10951

# DIMENSIONS

Dimensions shown are metric (mm)




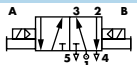
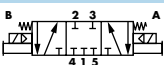
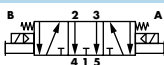
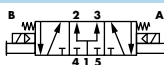
Function	Port size	Flow [Max]	Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.4 C<sub>v</sub></b>	stacking body with 3 common ports (inlet & exhausts)	

## 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

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
<b>1/4" NPTF</b>	811C-PM- <b>XXYYZZ</b> -122	821C-PM- <b>XXYYZZ</b> -122	825C-PM- <b>XXYYZZ</b> -522	825C-PM- <b>XXYYZZ</b> -622	825C-PM- <b>XXYYZZ</b> -822
<b>3/8" NPTF</b>	811C-PM- <b>XXYYZZ</b> -123	821C-PM- <b>XXYYZZ</b> -123	825C-PM- <b>XXYYZZ</b> -523	825C-PM- <b>XXYYZZ</b> -623	825C-PM- <b>XXYYZZ</b> -823

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>RA</b> Conduit 3/8" NPS
<b>59</b> 24 VDC (2.5 W)		<b>BA</b> Flying leads (18")
<b>87</b> 24 VDC (17.1 W)		
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

## MANIFOLD END PLATE KITS (NPTF)\*

INT. PILOT - PART N°.	EXT. PILOT - PART N°.	MODELS USED WITH
M-08001-01-01	M-08001-02-01	3 com. port or 1 com. port models, stacks of 1 thru 16 valves
M-00005-01-01	M-00005-02-01	3 com. port or 1 com. port models, stacks of 17 or more valves

\* Add letter **P** at end of part N°. for BSPP threads; **EXAMPLE** : M-08001-01-01**P**

Note : (1) end plate kit required per stack.

## OPTIONS

811C-PM-111RA-122

- For 2 position dual pressure : replace by 2.

825C-PM-111RA-822

- For 3 position dual pressure, pressure center: replace by 7.

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700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C <sub>v</sub> ), 3/8" : (1.4 C <sub>v</sub> )		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

## Spare parts :

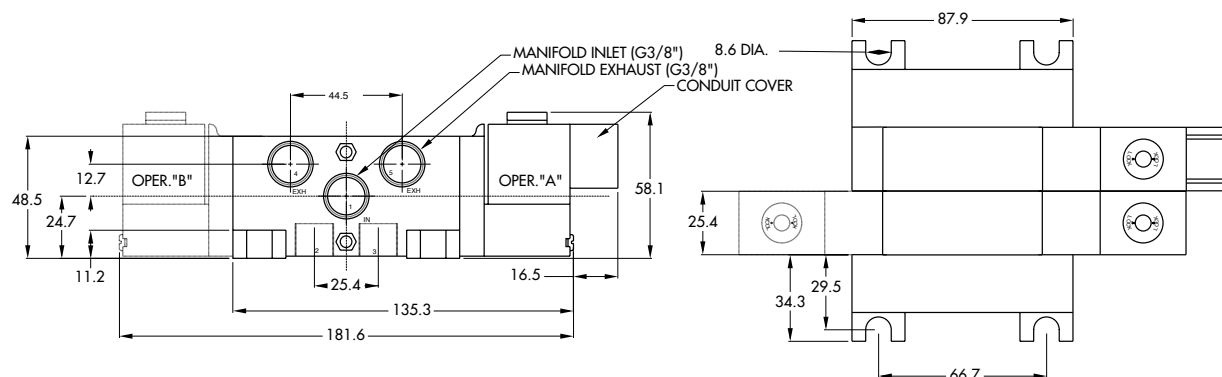
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

## Options :

- BSPP threads. • Dual inlet block: M-08003.

# DIMENSIONS

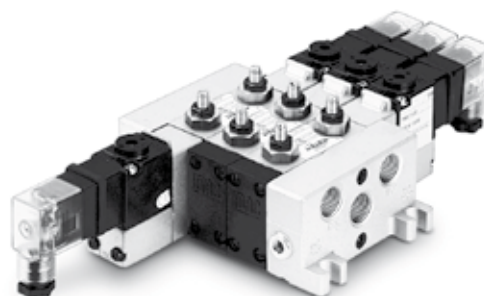
Dimensions shown are metric (mm)




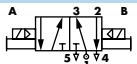
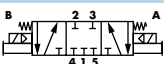
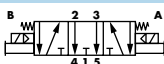
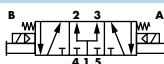
Function	Port size	Flow [Max]	Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.4 C<sub>v</sub></b>	stacking body with 3 common ports and integral F.C.	

## 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

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
<b>1/4" NPTF</b>	811C-PM- <b>XXYYZZ</b> -192	821C-PM- <b>XXYYZZ</b> -192	825C-PM- <b>XXYYZZ</b> -592	825C-PM- <b>XXYYZZ</b> -692	825C-PM- <b>XXYYZZ</b> -892
<b>3/8" NPTF</b>	811C-PM- <b>XXYYZZ</b> -193	821C-PM- <b>XXYYZZ</b> -193	825C-PM- <b>XXYYZZ</b> -593	825C-PM- <b>XXYYZZ</b> -693	825C-PM- <b>XXYYZZ</b> -893

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>RA</b> Conduit 3/8" NPS
<b>59</b> 24 VDC (2.5 W)		<b>BA</b> Flying leads (18")
<b>87</b> 24 VDC (17.1 W)		
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

## MANIFOLD END PLATE KITS (NPTF)\*

INT. PILOT - PART N°.	EXT. PILOT - PART N°.	MODELS USED WITH
M-08001-01-01	M-08001-02-01	3 com. port or 1 com. port models, stacks of 1 thru 16 valves
M-00005-01-01	M-00005-02-01	3 com. port or 1 com. port models, stacks of 17 or more valves

\* Add letter **P** at end of part N°. for BSPP threads; **EXAMPLE** : M-08001-01-01**P**

Note : (1) end plate kit required per stack.

## OPTIONS

811C-PM-111RA-192

- For 2 position dual pressure : replace by 2.

825C-PM-111RA-892

- For 3 position dual pressure, pressure center: replace by 7.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 Cv), 3/8" : (1.4 Cv)		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

## Spare parts :

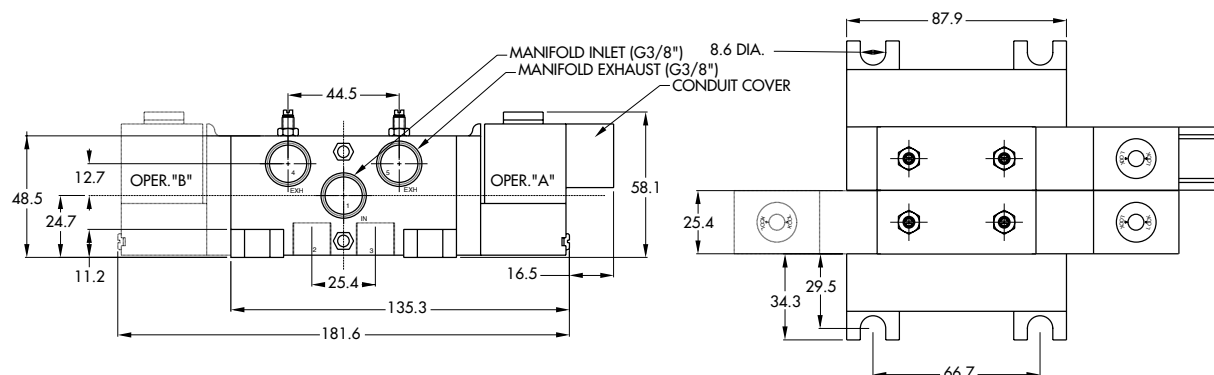
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

## Options :

- BSPP threads. • Dual inlet block: M-08003.

# DIMENSIONS

Dimensions shown are metric (mm)

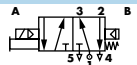
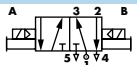
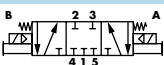
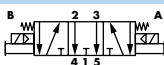
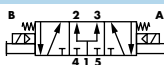


Function	Port size	Flow [Max]	Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.4 C<sub>v</sub></b>	stacking body with 3 common ports with common conduit	

## 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

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
<b>1/4" NPTF</b>	811C-PM- <b>XXYYZZ</b> -142	821C-PM- <b>XXYYZZ</b> -142	825C-PM- <b>XXYYZZ</b> -542	825C-PM- <b>XXYYZZ</b> -642	825C-PM- <b>XXYYZZ</b> -842
<b>3/8" NPTF</b>	811C-PM- <b>XXYYZZ</b> -143	821C-PM- <b>XXYYZZ</b> -143	825C-PM- <b>XXYYZZ</b> -543	825C-PM- <b>XXYYZZ</b> -643	825C-PM- <b>XXYYZZ</b> -843

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>DA</b> Common conduit
<b>12</b> 240/60, 220/50	<b>2</b> Locking	
<b>22</b> 24/60, 24/50		
<b>59</b> 24 VDC (2.5 W)		
<b>87</b> 24 VDC (17.1 W)		
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

## MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0387</b>	Indicator light 24 VDC	Single & double solenoid
<b>0295</b>	Indicator light 120 V/60/50	
<b>0296</b>	Indicator light 240 V/60/50	

**TO ORDER** - Add the appropriate modification number after the valve number; **EXAMPLE** : 811C-PM-111DA-142 **MOD 0295**

## MANIFOLD END PLATE KITS (NPTF)\*

INT. PILOT - PART N°.	EXT. PILOT - PART N°.	MODELS USED WITH
M-08002-01-01	M-08002-02-01	Com. conduit models, stacks of 1 thru 16 valves
M-00007-01-01	M-00007-02-01	Com. conduit models, stacks of 17 or more valves

\* Add letter **P** at end of part N°. for BSPP threads; **EXAMPLE** : M-08002-01-01**P**

Note : (1) end plate kit required per stack.

## OPTIONS

811C-PM-111DA-142

- For 2 position dual pressure : replace by 2.

825C-PM-111DA-842

- For 3 position dual pressure, pressure center : replace by 7.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C <sub>v</sub> ), 3/8" : (1.4 C <sub>v</sub> )		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

## Spare parts :

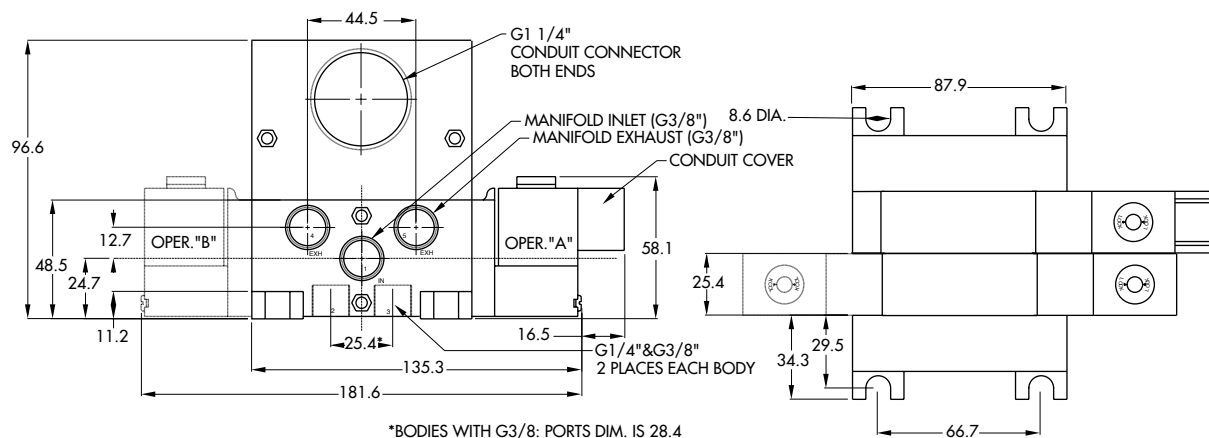
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

## Options :

- BSPP threads. • Dual inlet block: M-00014.

# DIMENSIONS

Dimensions shown are metric (mm)


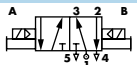
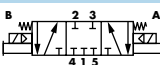

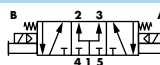


Function	Port size	Flow [Max]	Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.4 C<sub>v</sub></b>	stacking body with 3 common ports with C. C. & integral exh. F. C.	

## 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

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
<b>1/4" NPTF</b>	811C-PM- <b>XXYYZ</b> -162	821C-PM- <b>XXYYZ</b> -162	825C-PM- <b>XXYYZ</b> -562	825C-PM- <b>XXYYZ</b> -662	825C-PM- <b>XXYYZ</b> -862
<b>3/8" NPTF</b>	811C-PM- <b>XXYYZ</b> -163	821C-PM- <b>XXYYZ</b> -163	825C-PM- <b>XXYYZ</b> -563	825C-PM- <b>XXYYZ</b> -663	825C-PM- <b>XXYYZ</b> -863

## SOLENOID OPERATOR ➤

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>DA</b> Common conduit
<b>12</b> 240/60, 220/50	<b>2</b> Locking	
<b>22</b> 24/60, 24/50		
<b>59</b> 24 VDC (2.5 W)		
<b>87</b> 24 VDC (17.1 W)		
<b>61</b> 24 VDC (8.5 W)		

\* Other options available, see page 357.

## MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
<b>0387</b>	Indicator light 24 VDC	Single & double solenoid
<b>0295</b>	Indicator light 120 V/60/50	
<b>0296</b>	Indicator light 240 V/60/50	

**TO ORDER** - Add the appropriate modification number after the valve number; **EXAMPLE** : 811C-PM-111DA-162 **MOD 0295**

## MANIFOLD END PLATE KITS (NPTF)\*

INT. PILOT - PART N°.	EXT. PILOT - PART N°.	MODELS USED WITH
M-08002-01-01	M-08002-02-01	Com. conduit models, stacks of 1 thru 16 valves
M-00007-01-01	M-00007-02-01	Com. conduit models, stacks of 17 or more valves

\* Add letter **P** at end of part N°. for BSPP threads; **EXAMPLE** : M-08002-01-01**P**

Note : (1) end plate kit required per stack.

## OPTIONS

811C-PM-111DA-162

- For 2 position dual pressure : replace by 2.

825C-PM-111DA-862

- For 3 position dual pressure, pressure center : replace by 7.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

## TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C <sub>v</sub> ), 3/8" : (1.4 C <sub>v</sub> )		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

## Spare parts :

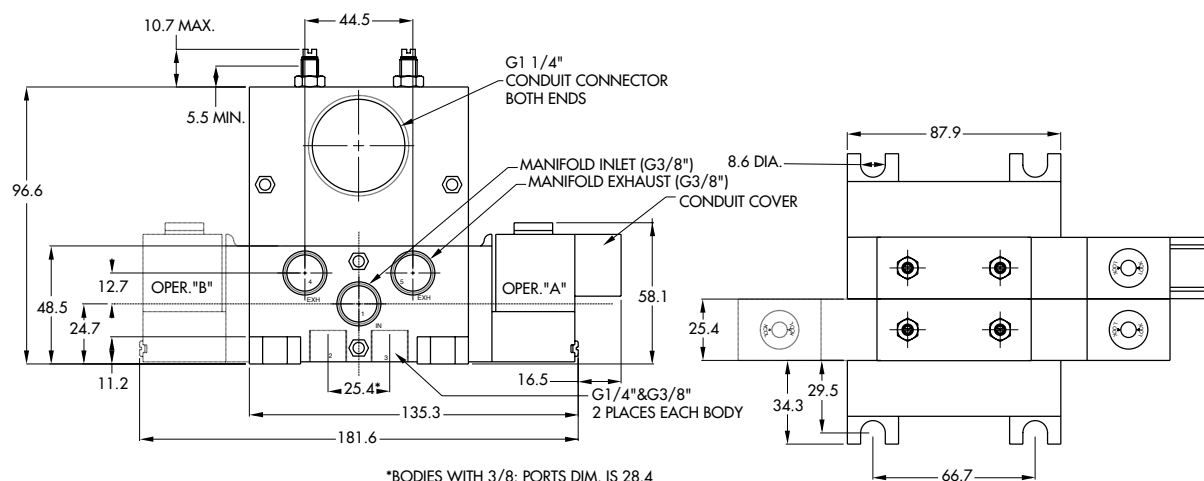
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

## Options :

- BSPP threads. • Dual inlet block: M-00014.

## DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

valve only

Series

Manifold mounting

valve only

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

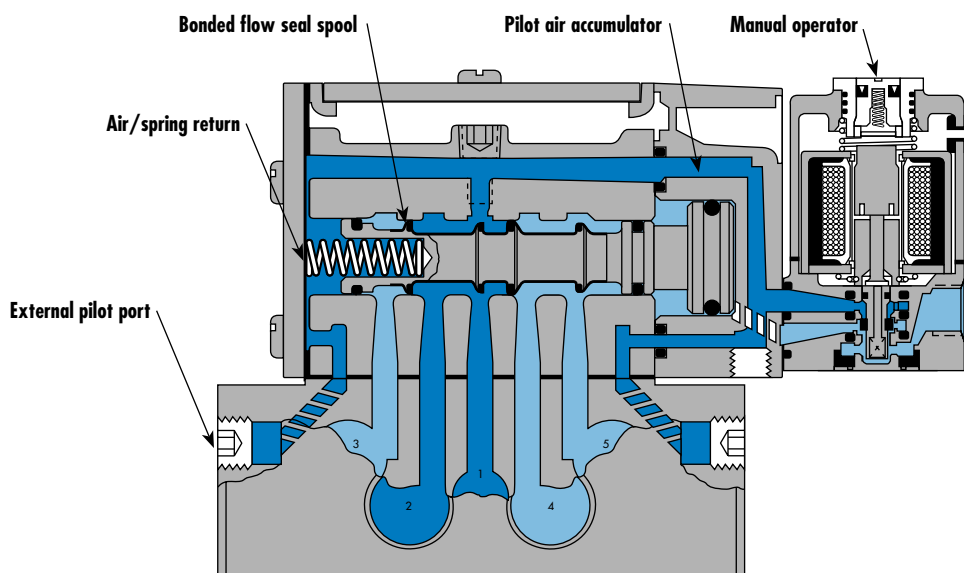
ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



**SERIES FEATURES**

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

#### VALVE CONFIGURATIONS AVAILABLE

- 2-Pos., single or double operators (solenoid or remote air).
- Single or dual pressure.
- 3-Pos., double operator-closed center, open center or pressure center (solenoid or remote air).
- Individual base or add-a-unit manifold base.
- Internal pilot or external pilot (including a common external pilot or manifold models).
- Side porting and bottom porting options.

\*International Standards Organization ISO Common Base Interface (ISO Std. 5599/1)

#### SPECIAL APPLICATION INSTRUCTIONS :

On all models, energizing the "14" operator (solenoid or remote air) connects Port #1 to Cylinder Port #4 and energizing the "12" operator connects Port #1 to Cylinder Port #2. For the following special applications, additional piping considerations are required.

**EXTERNAL PILOT APPLICATIONS\*** - An External Pilot Supply is only required when the main valve pressure is less than 1.8 BARS on single operators (solenoid or remote air) or 0.7 BARS on double solenoid valves only. In these cases, use an External Pilot

model and supply a minimum of 1.8 BARS for single operators or a minimum of 0.7 BARS for double solenoid valves to either the "14" or "12" External Pilot Port of the valve base.

**VACUUM APPLICATIONS** - Use an External Pilot model as described above and also connect the vacuum source to Port #3 & 5 and leave Port#1 open to atmosphere on single pressure models. On two pressure models, reverse the single pressure piping.

**SELECTOR APPLICATIONS** - Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot model and connect the higher pressure to Port #1 and the lower pressure to either Port #3 or 5 depending on which Cylinder Port is to be active.

**TWO PRESSURE APPLICATIONS** - For Internal Pilot models specify the model number for connecting either port #3 or 5, whichever is to be the higher pressure, to the Internal Pilot supply. For external Pilot models, pipe as described above for "External Pilot Application."

\*Note: 1Bar = 14.5 PSIG

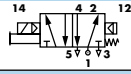
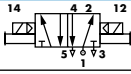
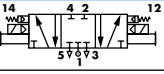
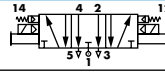
Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.6 C<sub>v</sub></b>	valve only	

## OPERATIONAL BENEFITS

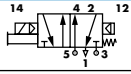
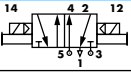

1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return force thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
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 center	5/3 Open center
				
Internal	MV-A1C-A111-PM- <b>XXYZZ</b>	MV-A1C-A211-PM- <b>XXYZZ</b>	MV-A1C-A312-PM- <b>XXYZZ</b>	MV-A1C-A311-PM- <b>XXYZZ</b>
External	MV-A1C-A121-PM- <b>XXYZZ</b>	MV-A1C-A221-PM- <b>XXYZZ</b>	MV-A1C-A322-PM- <b>XXYZZ</b>	MV-A1C-A321-PM- <b>XXYZZ</b>

### DUAL PRESSURE VALVES

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A1C-A131-PM- <b>XXYZZ</b>	MV-A1C-A231-PM- <b>XXYZZ</b>	MV-A1C-A331-PM- <b>XXYZZ</b>
Internal port 5	MV-A1C-A135-PM- <b>XXYZZ</b>	MV-A1C-A232-PM- <b>XXYZZ</b>	MV-A1C-A332-PM- <b>XXYZZ</b>
External	MV-A1C-A141-PM- <b>XXYZZ</b>	MV-A1C-A241-PM- <b>XXYZZ</b>	MV-A1C-A341-PM- <b>XXYZZ</b>

### SOLENOID OPERATOR ►

XX Voltage	YY Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		

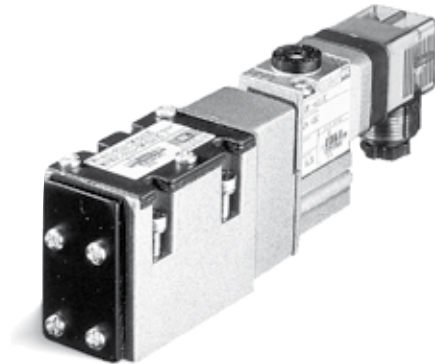
\* Other options available, see page 357.

Note : ISO valves are delivered w/o base. See page 281 for base code.

## OPTIONS

MV-A1C-A111-PM-**XXYZZ**

- For CNOMO pilot, consult factory.
- For universal spool replace by 6 (2 position, sgl. pressure valves only)
- For use with single pressure sandwich regulator, replace by 5.



Note : Photo shown with JC connector.

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100

200

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56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.6 C <sub>v</sub> ), 3/8" : (1.6 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 7-13 ms	De-energize : 10-17 ms

Spare parts :

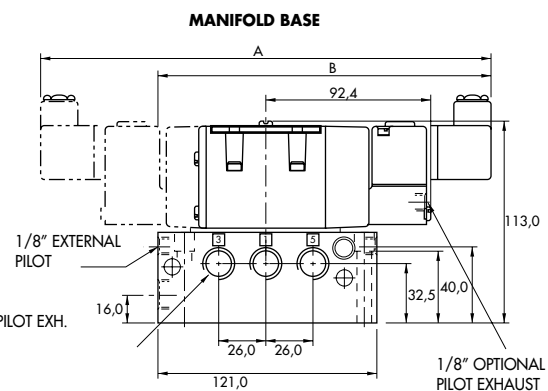
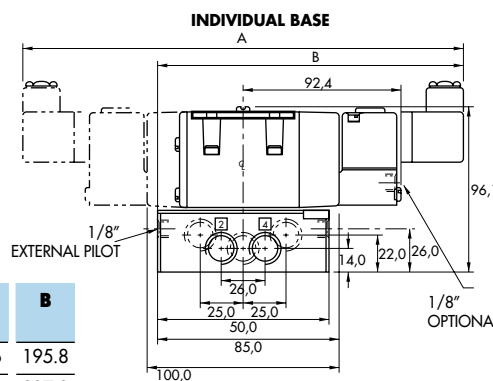
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XYZZ, including seal 16337. • Pressure seal between valve and base : 16344.
- Mounting screw valve to base (x4) : 35304.

## DIMENSIONS

Dimensions shown are metric (mm)

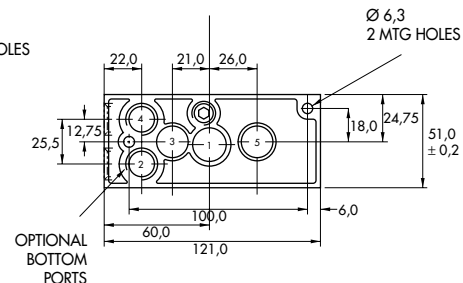
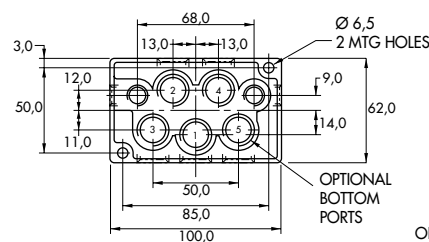
### ISO 1 Manifold mounting

TYPE	A	B
JA & JC	271.6	195.8
JB & JD	294.6	207.3



### ISO 1 Individual mounting

TYPE	A	B
JA & JC	271.6	185.8
JB & JD	294.6	197.3



Individual mounting

valve only

Series

Manifold mounting

valve only

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

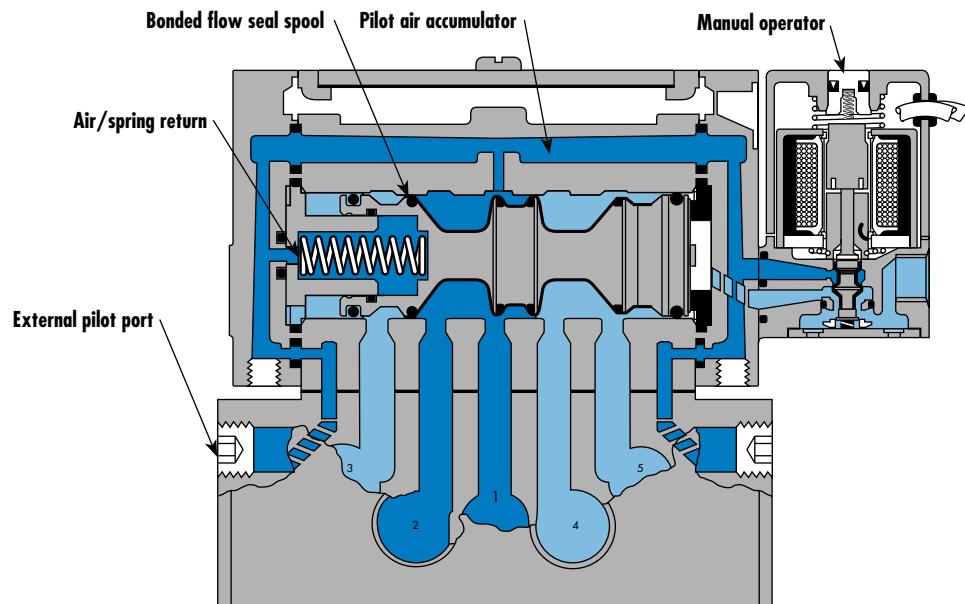
**ISO 2**

ISO 3

MAC 125A

MAC 250A

MAC 500A



**SERIES FEATURES**

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



#### VALVE CONFIGURATIONS AVAILABLE

- 2-Pos., single or double operators (solenoid or remote air).
- Single or dual pressure.
- 3-Pos., double operator-closed center, open center or pressure center (solenoid or remote air).
- Individual base or add-a-unit manifold base.
- Internal pilot or external pilot (including a common external pilot or manifold models).
- Side porting and bottom porting options.

\*International Standards Organization ISO Common Base Interface (ISO Std. 5599/1)

#### SPECIAL APPLICATION INSTRUCTIONS :

On all models, energizing the "14" operator (solenoid or remote air) connects Port #1 to Cylinder Port #4 and energizing the "12" operator connects Port #1 to Cylinder Port #2. For the following special applications, additional piping considerations are required.

**EXTERNAL PILOT APPLICATIONS\*** - An External Pilot Supply is only required when the main valve pressure is less than 1.8 BARS on single operators (solenoid or remote air) or 0.7 BARS on double solenoid valves only. In these cases, use an External Pilot

model and supply a minimum of 1.8 BARS for single operators or a minimum of 0.7 BARS for double solenoid valves to either the "14" or "12" External Pilot Port of the valve base.

**VACUUM APPLICATIONS** - Use an External Pilot model as described above and also connect the vacuum source to Port #3 & 5 and leave Port#1 open to atmosphere on single pressure models. On two pressure models, reverse the single pressure piping.

**SELECTOR APPLICATIONS** - Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot model and connect the higher pressure to Port #1 and the lower pressure to either Port #3 or 5 depending on which Cylinder Port is to be active.

**TWO PRESSURE APPLICATIONS** - For Internal Pilot models specify the model number for connecting either port #3 or 5, whichever is to be the higher pressure, to the Internal Pilot supply. For external Pilot models, pipe as described above for "External Pilot Application."

\*Note: 1Bar = 14.5 PSIG

Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>	valve only	

## 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 center	5/3 Open center
Internal	MV-A2B-A111-PM- <b>XXYZZ</b>	MV-A2B-A211-PM- <b>XXYZZ</b>	MV-A2B-A312-PM- <b>XXYZZ</b>	MV-A2B-A311-PM- <b>XXYZZ</b>
External	MV-A2B-A121-PM- <b>XXYZZ</b>	MV-A2B-A221-PM- <b>XXYZZ</b>	MV-A2B-A322-PM- <b>XXYZZ</b>	MV-A2B-A321-PM- <b>XXYZZ</b>

### DUAL PRESSURE VALVES

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

### SOLENOID OPERATOR ➤

XX Voltage	YY Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		

Note : Photo shown with JC connector.

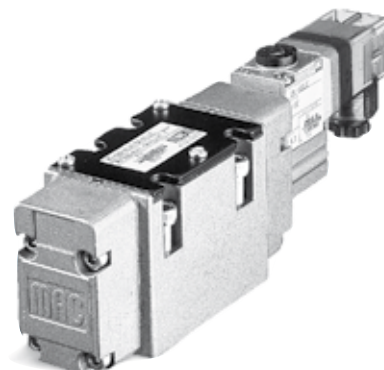
\* Other options available, see page 357.

Note : ISO valves are delivered w/o base. See page 281 for base code.

## OPTIONS

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

- For CNOMO pilot, consult factory.
- For universal spool replace by 6 (2 position, sgl. pressure valves only)
- For use with single pressure sandwich regulator, replace by 5.



35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

## TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI      Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (3.0 C <sub>v</sub> ), 1/2" : (3.0 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 10 ms	De-energize : 15 ms
	120/60	Energize : 6-15 ms	De-energize : 10-17 ms

Spare parts :

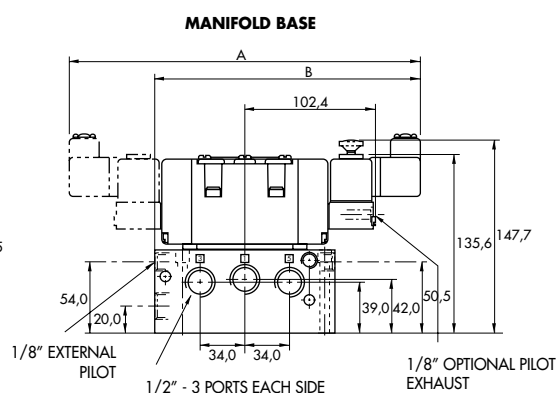
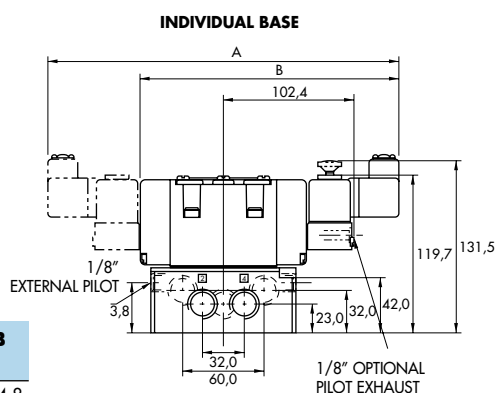
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16351.
- Mounting screw valve to base (x4) : 35412.

## DIMENSIONS

Dimensions shown are metric (mm)

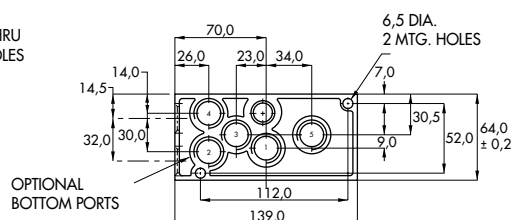
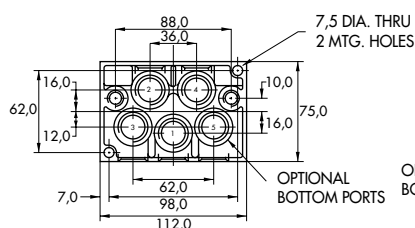
### ISO 2 Manifold mounting

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



Individual mounting

valve only

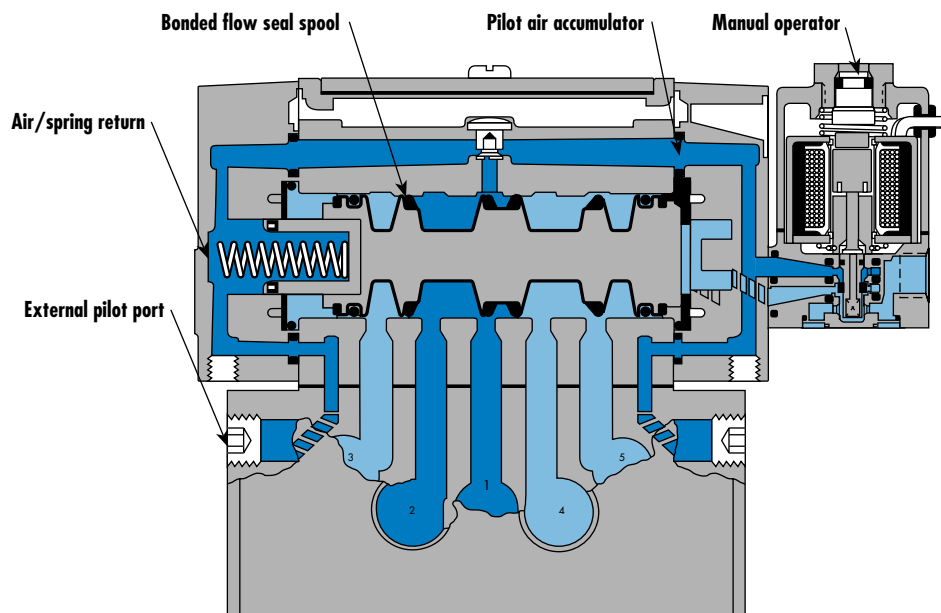
Series

Manifold mounting

valve only

35

100



200

55

56

57

58

59

45

700

900

82

**SERIES FEATURES**

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

6300

6500

6600

1300

800

ISO 1

ISO 2

**ISO 3**

MAC 125A

MAC 250A

MAC 500A

#### VALVE CONFIGURATIONS AVAILABLE

- 2-Pos., single or double operators (solenoid or remote air).
- Single or dual pressure.
- 3-Pos., double operator-closed center, open center or pressure center (solenoid or remote air).
- Individual base.
- Internal pilot or external pilot (including a common external pilot or manifold models).
- Side porting and bottom porting options.

\*International Standards Organization ISO Common Base Interface (ISO Std. 5599/1)

#### SPECIAL APPLICATION INSTRUCTIONS :

On all models, energizing the "14" operator (solenoid or remote air) connects Port #1 to Cylinder Port #4 and energizing the "12" operator connects Port #1 to Cylinder Port #2. For the following special applications, additional piping considerations are required.

**EXTERNAL PILOT APPLICATIONS\*** - An External Pilot Supply is only required when the main valve pressure is less than 1.8 BARS on single operators (solenoid or remote air) or 0.7 BARS on double solenoid valves only. In these cases, use an External Pilot

model and supply a minimum of 1.8 BARS for single operators or a minimum of 0.7 BARS for double solenoid valves to either the "14" or "12" External Pilot Port of the valve base.

**VACUUM APPLICATIONS** - Use an External Pilot model as described above and also connect the vacuum source to Port #3 & 5 and leave Port#1 open to atmosphere on single pressure models. On two pressure models, reverse the single pressure piping.

**SELECTOR APPLICATIONS** - Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot model and connect the higher pressure to Port #1 and the lower pressure to either Port #3 or 5 depending on which Cylinder Port is to be active.

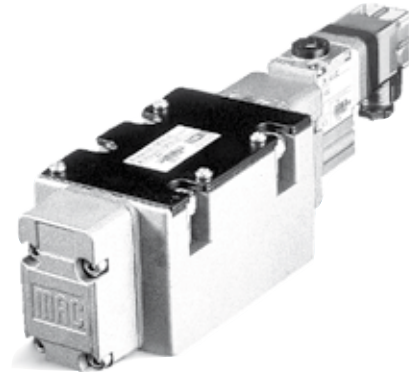
**TWO PRESSURE APPLICATIONS** - For Internal Pilot models specify the model number for connecting either port #3 or 5, whichever is to be the higher pressure, to the Internal Pilot supply. For external Pilot models, pipe as described above for "External Pilot Application."

\*Note: 1Bar = 14.5 PSIG

Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/2" - 3/4"</b>	<b>6.3 C<sub>v</sub></b>	valve only	

## 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.



35  
100  
200  
55  
56  
57  
58  
59

## HOW TO ORDER

### SINGLE PRESSURE VALVES

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
Internal	MV-A3B-A111-PM- <b>XXYYZ</b>	MV-A3B-A211-PM- <b>XXYYZ</b>	MV-A3B-A312-PM- <b>XXYYZ</b>	MV-A3B-A311-PM- <b>XXYYZ</b>
External	MV-A3B-A121-PM- <b>XXYYZ</b>	MV-A3B-A221-PM- <b>XXYYZ</b>	MV-A3B-A322-PM- <b>XXYYZ</b>	MV-A3B-A321-PM- <b>XXYYZ</b>

45

### DUAL PRESSURE VALVES

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure center
Internal port 3	MV-A3B-A131-PM- <b>XXYYZ</b>	MV-A3B-A231-PM- <b>XXYYZ</b>	MV-A3B-A331-PM- <b>XXYYZ</b>
Internal port 5	MV-A3B-A135-PM- <b>XXYYZ</b>	MV-A3B-A232-PM- <b>XXYYZ</b>	MV-A3B-A332-PM- <b>XXYYZ</b>
External	MV-A3B-A141-PM- <b>XXYYZ</b>	MV-A3B-A241-PM- <b>XXYYZ</b>	MV-A3B-A341-PM- <b>XXYYZ</b>

700  
900  
82

### SOLENOID OPERATOR ►

**XX Y ZZ\***

XX Voltage	Y Manual operator	ZZ Electrical connection
<b>11</b> 120/60, 110/50	<b>1</b> Non-locking	<b>JB</b> Rectangular connector
<b>12</b> 240/60, 220/50	<b>2</b> Locking	<b>JD</b> Rectangular connector with light
<b>22</b> 24/60, 24/50		<b>JA</b> Square connector
<b>59</b> 24 VDC (2.5 W)		<b>JC</b> Square connector with light
<b>87</b> 24 VDC (17.1 W)		<b>BA</b> Flying leads (18")
<b>61</b> 24 VDC (8.5 W)		

Note : Photo shown with JC connector.

6300  
6500  
6600  
1300

\* Other options available, see page 357.

Note : ISO valves are delivered w/o base. See page 281 for base code.

## OPTIONS

MV-A3B-A111-PM-**XXYYZ**

- For CNOMO pilot, consult factory.
- For universal spool replace by 6 (2 position, sgl. pressure valves only)
- For use with single pressure sandwich regulator, replace by 5.

800  
ISO 1  
ISO 2  
**ISO 3**

MAC 125A  
MAC 250A  
MAC 500A

# TECHNICAL DATA

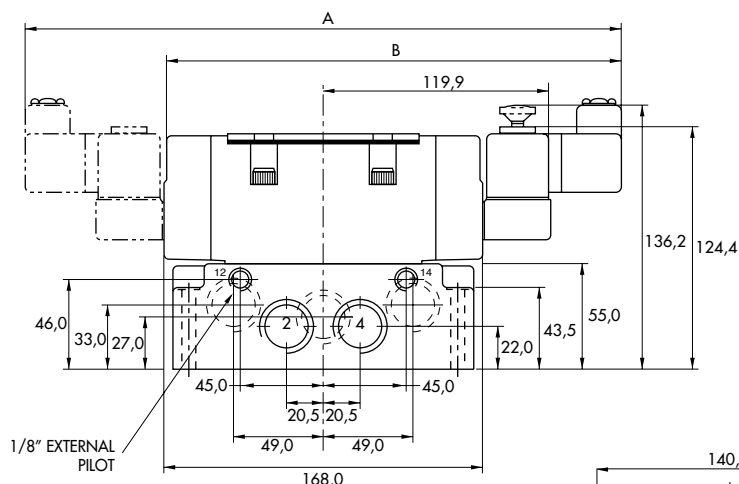
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI      double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI    Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/2" : (6.3 C <sub>v</sub> ), 3/4" : (6.3 C <sub>v</sub> )		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

## Spare parts :

- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416. • Check valve : 70002 (+M-00011).

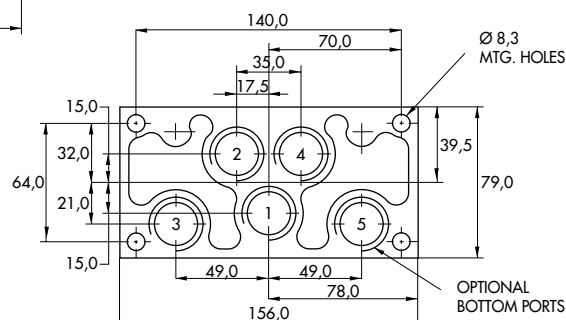
# DIMENSIONS

Dimensions shown are metric (mm)



## ISO 3 Individual mounting

TYPE	A	B
JA & JC	326.6	247.3
JB & JD	349.6	258.8



Individual mounting

valve only	
------------	--

Series

Manifold mounting

valve only	
------------	--

35

100

200

55

56

57

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59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



The MAC 125 series is designed to interface with the Ford/Chrysler standard base. This series is available in the following configurations:

- single or double solenoid
- 2 or 3 position
- single or dual pressure
- with or without indicator lights
- various electrical connections and manual operations

Valves and bases must be ordered separately. These may be assembled prior to shipping by adding the suffix -9 after the valve code.

**EXAMPLE:** MAC 125A-V1B1-PM-111DA-9  
MAC 125A-B21A-9

### SPECIAL APPLICATION INSTRUCTIONS

The 'A' cylinder port is normally open. On a spring return valve, the spring is the 'A' operator, the solenoid the 'B' operator. Energizing the 'B' operator pressurizes the 'B' port; energizing the 'A' operator pressurizes the 'A' port.

### EXTERNAL PILOT APPLICATIONS

An external pilot supply is only required when the main valve pressure is less than 25 psi on single solenoid or 3 position valves and less than 10 psi on double solenoid 2 position valves. Pipe the external pilot supply to the External Pilot Port supplied in the valve base or manifold.

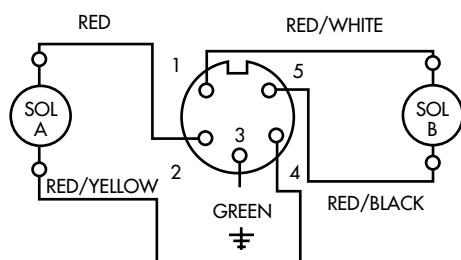
### VACUUM APPLICATIONS

(2-Pos. Valves Only) - Use an External Pilot model as described above and also connect the vacuum source to the Exhaust Port and leave the Inlet Port open to atmosphere. The Inlet port may be connected to a pressure source to provide a selector application (vacuum/pressure).

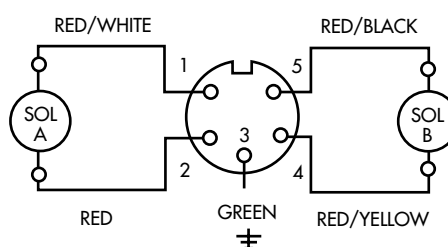
### SELECTOR APPLICATIONS

Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot Model and connect the higher pressure to the Inlet Port and the lower to Port EA or EB depending on which cylinder port is to be active.

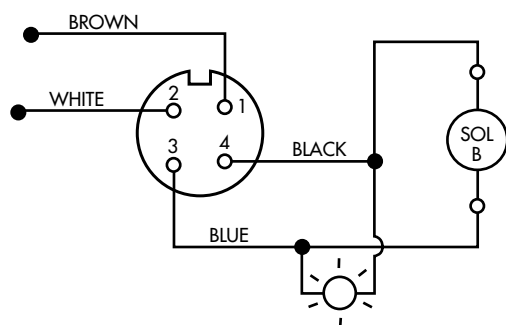
### FORD



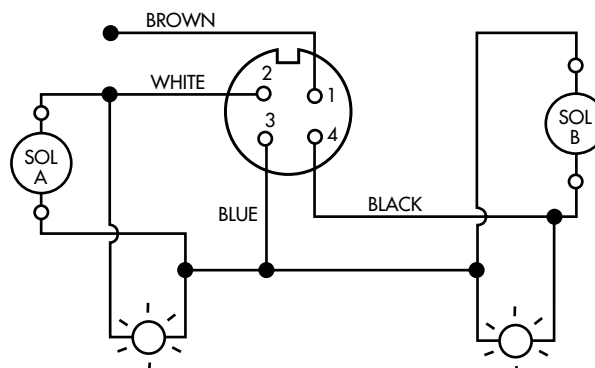
### CHRYSLER



### 4 PIN CONNECTOR : SINGLE



### 4 PIN CONNECTOR : DOUBLE



Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>2.5 C<sub>v</sub></b>	valve only	





## OPERATIONAL BENEFITS

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

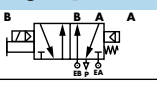
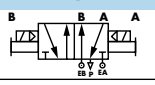
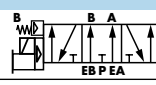


## HOW TO ORDER

### SINGLE PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
					
<b>5 PIN</b>	Internal	MAC125A-V1A2-PM- <b>XXY</b> -DA	MAC125A-V2A2-PM- <b>XXY</b> -DA	MAC125A-V5A2-PM- <b>XXY</b> -DA	MAC125A-V6A2-PM- <b>XXY</b> -DA
<b>(Ford wired)</b>	External	MAC125A-V1A4-PM- <b>XXY</b> -DA	MAC125A-V2A4-PM- <b>XXY</b> -DA	MAC125A-V5A4-PM- <b>XXY</b> -DA	MAC125A-V6A4-PM- <b>XXY</b> -DA
<b>5 PIN</b>	Internal	MAC125A-V1B2-PM- <b>XXY</b> -DA	MAC125A-V2B2-PM- <b>XXY</b> -DA	MAC125A-V5B2-PM- <b>XXY</b> -DA	MAC125A-V6B2-PM- <b>XXY</b> -DA
<b>(Chrysler wired)</b>	External	MAC125A-V1B4-PM- <b>XXY</b> -DA	MAC125A-V2B4-PM- <b>XXY</b> -DA	MAC125A-V5B4-PM- <b>XXY</b> -DA	MAC125A-V6B4-PM- <b>XXY</b> -DA
<b>4 PIN</b>	Internal	MAC125A-V1G2-PM- <b>XXY</b> -DA	MAC125A-V2G2-PM- <b>XXY</b> -DA	MAC125A-V5G2-PM- <b>XXY</b> -DA	MAC125A-V6G2-PM- <b>XXY</b> -DA
<b>MICRO</b>	External	MAC125A-V1G4-PM- <b>XXY</b> -DA	MAC125A-V2G4-PM- <b>XXY</b> -DA	MAC125A-V5G4-PM- <b>XXY</b> -DA	MAC125A-V6G4-PM- <b>XXY</b> -DA
<b>3 PIN</b>	Internal	MAC125A-V1E2-PM- <b>XXY</b> -DA	MAC125A-V2E2-PM- <b>XXY</b> -DA	MAC125A-V5E2-PM- <b>XXY</b> -DA	MAC125A-V6E2-PM- <b>XXY</b> -DA
<b>(Ford wired)</b>	External	MAC125A-V1E4-PM- <b>XXY</b> -DA	MAC125A-V2E4-PM- <b>XXY</b> -DA	MAC125A-V5E4-PM- <b>XXY</b> -DA	MAC125A-V6E4-PM- <b>XXY</b> -DA
<b>5 PIN MICRO</b>	Internal	MAC125A-V1F2-PM- <b>XXY</b> -DA	MAC125A-V2F2-PM- <b>XXY</b> -DA	MAC125A-V5F2-PM- <b>XXY</b> -DA	MAC125A-V6F2-PM- <b>XXY</b> -DA
<b>(Chrysler wired)</b>	External	MAC125A-V1F4-PM- <b>XXY</b> -DA	MAC125A-V2F4-PM- <b>XXY</b> -DA	MAC125A-V5F4-PM- <b>XXY</b> -DA	MAC125A-V6F4-PM- <b>XXY</b> -DA

### DUAL PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure center
				
<b>5 PIN (Ford wired)</b>	External	MAC125A-V3A4-PM- <b>XXY</b> -DA	MAC125A-V4A4-PM- <b>XXY</b> -DA	MAC125A-V7A4-PM- <b>XXY</b> -DA
<b>5 PIN (Chrysler wired)</b>	External	MAC125A-V3B4-PM- <b>XXY</b> -DA	MAC125A-V4B4-PM- <b>XXY</b> -DA	MAC125A-V7B4-PM- <b>XXY</b> -DA
<b>4 PIN MICRO</b>	External	MAC125A-V3G4-PM- <b>XXY</b> -DA	MAC125A-V4G4-PM- <b>XXY</b> -DA	MAC125A-V7G4-PM- <b>XXY</b> -DA
<b>3 PIN (Ford wired)</b>	External	MAC125A-V3E4-PM- <b>XXY</b> -DA	MAC125A-V4E4-PM- <b>XXY</b> -DA	MAC125A-V7E4-PM- <b>XXY</b> -DA
<b>5 PIN MICRO (Chrysler wired)</b>	External	MAC125A-V3F4-PM- <b>XXY</b> -DA	MAC125A-V4F4-PM- <b>XXY</b> -DA	MAC125A-V7F4-PM- <b>XXY</b> -DA

### SOLENOID OPERATOR ➤

**XX Y DA \***

XX	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

\* Other options available, see page 357.

Note : Valves are supplied without base. For base code see page 291.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

**MAC 125A**

**MAC 250A**

**MAC 500A**

# **TECHNICAL DATA**

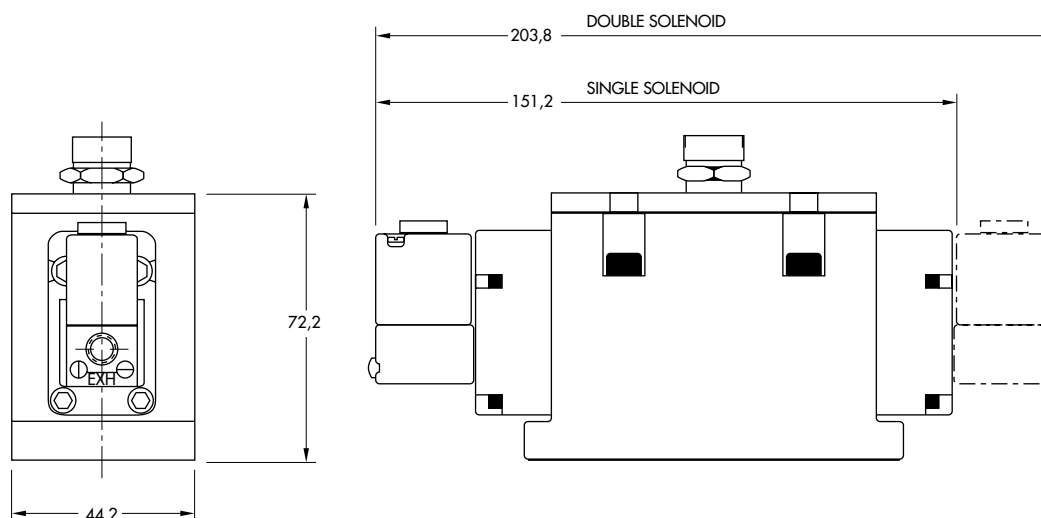
<b>Fluid :</b>	Compressed air, vacuum, inert gases	
<b>Pressure range :</b>	Internal pilot : single operator and 3 positions : 25-150 PSI	double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI	
<b>Pilot pressure :</b>	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI	
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)	
<b>Filtration :</b>	40 µ	
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)	
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1/4" : (2.2 C <sub>v</sub> ), 3/8" : (2.5 C <sub>v</sub> )	
<b>Coil :</b>	Epoxy encapsulated - class A wires - Continuous duty	
<b>Voltage range :</b>	-15% to +10% of nominal voltage	
<b>Protection :</b>	Consult factory	
<b>Power :</b>	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W	

Spare parts :

- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16485
- Mounting screw valve to base (x3) : 32296.

# **DIMENSIONS**

Dimensions shown are metric (mm)



Individual mounting Series

valve only	
------------	--

Manifold mounting 35

valve only	
------------	--

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

The MAC 250 series is designed to interface with the Ford/Chrysler standard base. This series is available in the following configurations:

- single or double solenoid
- 2 or 3 position
- single or dual pressure
- with or without indicator lights
- various electrical connections and manual operations

Valves and bases must be ordered separately. These may be assembled prior to shipping by adding the suffix -9 after the valve code.

**EXAMPLE:** MAC 250A-V1B1-PM-111DA-9  
MAC 250A-B21A-9

### SPECIAL APPLICATION INSTRUCTIONS

The 'A' cylinder port is normally open. On a spring return valve, the spring is the 'A' operator, the solenoid the 'B' operator. Energizing the 'B' operator pressurizes the 'B' port; energizing the 'A' operator pressurizes the 'A' port.

### EXTERNAL PILOT APPLICATIONS

An external pilot supply is only required when the main valve pressure is less than 25 psi on single solenoid or 3 position valves and less than 10 psi on double solenoid 2 position valves. Pipe the external pilot supply to the External Pilot Port supplied in the valve base or manifold.

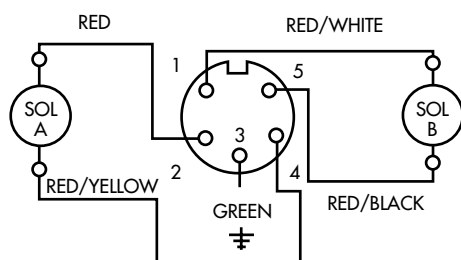
### VACUUM APPLICATIONS

(2-Pos. Valves Only) - Use an External Pilot model as described above and also connect the vacuum source to the Exhaust Port and leave the Inlet Port open to atmosphere. The Inlet port may be connected to a pressure source to provide a selector application (vacuum/pressure).

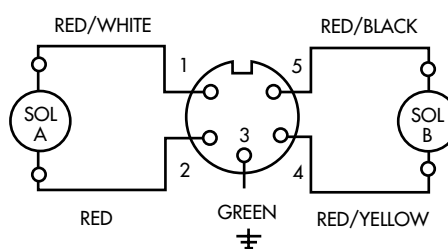
### SELECTOR APPLICATIONS

Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot Model and connect the higher pressure to the Inlet Port and the lower to Port EA or EB depending on which cylinder port is to be active.

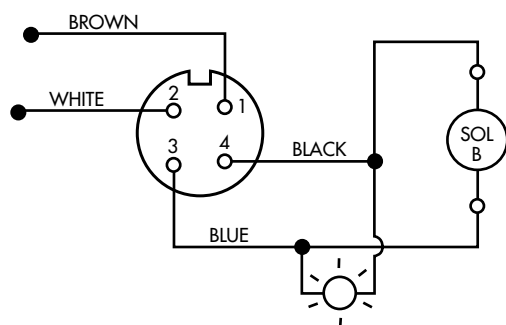
### FORD



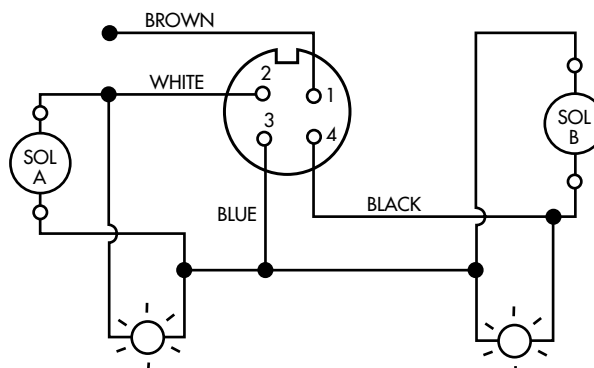
### CHRYSLER



### 4 PIN CONNECTOR : SINGLE



### 4 PIN CONNECTOR : DOUBLE





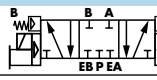
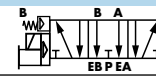
Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/2" - 3/4" - 1"</b>	<b>7.0 C<sub>v</sub></b>	valve only	

## OPERATIONAL BENEFITS

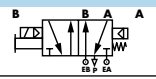
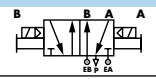
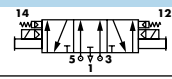
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. High shifting forces.
4. Checked accumulator guarantees maximum pilot pressure
5. Powerful return force thanks to the combination of mechanical and air springs.
6. Bonded spool with minimum friction, shifting in a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

## HOW TO ORDER

### SINGLE PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
					
<b>5 PIN</b>	Internal	MAC250A-V1A2-PM- <b>XXY</b> -DA	MAC250A-V2A2-PM- <b>XXY</b> -DA	MAC250A-V5A2-PM- <b>XXY</b> -DA	MAC250A-V6A2-PM- <b>XXY</b> -DA
<b>(Ford wired)</b>	External	MAC250A-V1A4-PM- <b>XXY</b> -DA	MAC250A-V2A4-PM- <b>XXY</b> -DA	MAC250A-V5A4-PM- <b>XXY</b> -DA	MAC250A-V6A4-PM- <b>XXY</b> -DA
<b>5 PIN</b>	Internal	MAC250A-V1B2-PM- <b>XXY</b> -DA	MAC250A-V2B2-PM- <b>XXY</b> -DA	MAC250A-V5B2-PM- <b>XXY</b> -DA	MAC250A-V6B2-PM- <b>XXY</b> -DA
<b>(Chrysler wired)</b>	External	MAC250A-V1B4-PM- <b>XXY</b> -DA	MAC250A-V2B4-PM- <b>XXY</b> -DA	MAC250A-V5B4-PM- <b>XXY</b> -DA	MAC250A-V6B4-PM- <b>XXY</b> -DA
<b>4 PIN</b>	Internal	MAC250A-V1G2-PM- <b>XXY</b> -DA	MAC250A-V2G2-PM- <b>XXY</b> -DA	MAC250A-V5G2-PM- <b>XXY</b> -DA	MAC250A-V6G2-PM- <b>XXY</b> -DA
<b>MICRO</b>	External	MAC250A-V1G4-PM- <b>XXY</b> -DA	MAC250A-V2G4-PM- <b>XXY</b> -DA	MAC250A-V5G4-PM- <b>XXY</b> -DA	MAC250A-V6G4-PM- <b>XXY</b> -DA
<b>3 PIN</b>	Internal	MAC250A-V1E2-PM- <b>XXY</b> -DA	MAC250A-V2E2-PM- <b>XXY</b> -DA	MAC250A-V5E2-PM- <b>XXY</b> -DA	MAC250A-V6E2-PM- <b>XXY</b> -DA
<b>(Ford wired)</b>	External	MAC250A-V1E4-PM- <b>XXY</b> -DA	MAC250A-V2E4-PM- <b>XXY</b> -DA	MAC250A-V5E4-PM- <b>XXY</b> -DA	MAC250A-V6E4-PM- <b>XXY</b> -DA
<b>5 PIN MICRO</b>	Internal	MAC250A-V1F2-PM- <b>XXY</b> -DA	MAC250A-V2F2-PM- <b>XXY</b> -DA	MAC250A-V5F2-PM- <b>XXY</b> -DA	MAC250A-V6F2-PM- <b>XXY</b> -DA
<b>(Chrysler wired)</b>	External	MAC250A-V1F4-PM- <b>XXY</b> -DA	MAC250A-V2F4-PM- <b>XXY</b> -DA	MAC250A-V5F4-PM- <b>XXY</b> -DA	MAC250A-V6F4-PM- <b>XXY</b> -DA

### DUAL PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure center
				
<b>5 PIN (Ford wired)</b>	External	MAC250A-V3A4-PM- <b>XXY</b> -DA	MAC250A-V4A4-PM- <b>XXY</b> -DA	MAC250A-V7A4-PM- <b>XXY</b> -DA
<b>5 PIN (Chrysler wired)</b>	External	MAC250A-V3B4-PM- <b>XXY</b> -DA	MAC250A-V4B4-PM- <b>XXY</b> -DA	MAC250A-V7B4-PM- <b>XXY</b> -DA
<b>4 PIN MICRO</b>	External	MAC250A-V3G4-PM- <b>XXY</b> -DA	MAC250A-V4G4-PM- <b>XXY</b> -DA	MAC250A-V7G4-PM- <b>XXY</b> -DA
<b>3 PIN (Ford wired)</b>	External	MAC250A-V3E4-PM- <b>XXY</b> -DA	MAC250A-V4E4-PM- <b>XXY</b> -DA	MAC250A-V7E4-PM- <b>XXY</b> -DA
<b>5 PIN MICRO (Chrysler wired)</b>	External	MAC250A-V3F4-PM- <b>XXY</b> -DA	MAC250A-V4F4-PM- <b>XXY</b> -DA	MAC250A-V7F4-PM- <b>XXY</b> -DA

### SOLENOID OPERATOR ➤

**XX Y DA\***

XX	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

\* Other options available, see page 357.

Note : Valves are supplied without base. For base code see page 291.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

#### TECHNICAL DATA

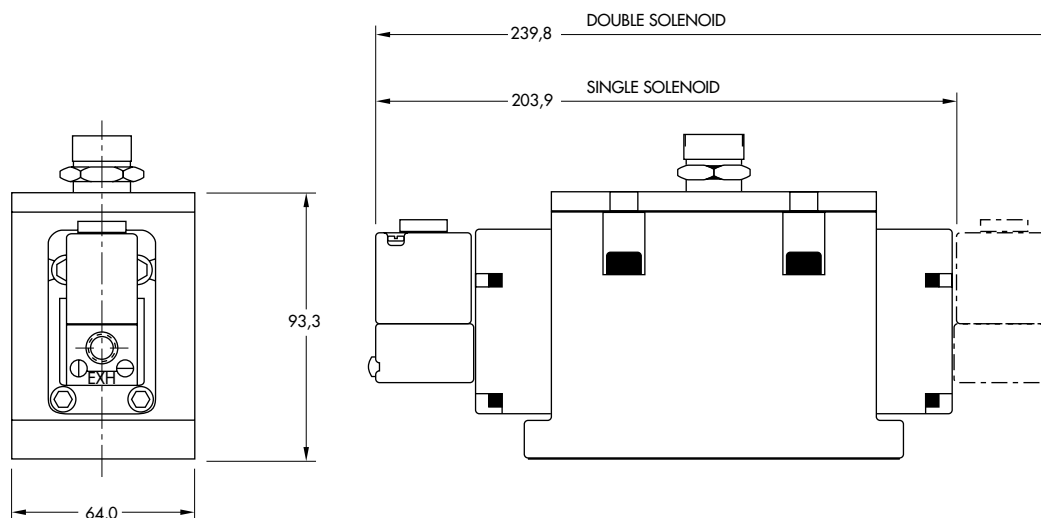
<b>Fluid :</b>	Compressed air, vacuum, inert gases	
<b>Pressure range :</b>	Internal pilot : single operator and 3 positions : 25-150 PSI	double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI	
<b>Pilot pressure :</b>	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI	
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)	
<b>Filtration :</b>	40 µ	
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)	
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1/2" : (6.3 C <sub>v</sub> ), 3/4" : (6.4 C <sub>v</sub> ), 1" : (7.0 C <sub>v</sub> )	
<b>Coil :</b>	Epoxy encapsulated - class A wires - Continuous duty	
<b>Voltage range :</b>	-15% to +10% of nominal voltage	
<b>Protection :</b>	Consult factory	
<b>Power :</b>	~ Inrush : 14.8 VA      Holding : 10.9 VA = 1 to 17.1 W	

Spare parts :

- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16487
- Mounting screw valve to base (x3) : 32346.

#### DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

valve only	
------------	--

Series

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A



The MAC 500 series is designed to interface with the Ford/Chrysler standard base. This series is available in the following configurations:

- single or double solenoid
- 2 or 3 position
- single or dual pressure
- with or without indicator lights
- various electrical connections and manual operations

Valves and bases must be ordered separately. These may be assembled prior to shipping by adding the suffix -9 after the valve code.

**EXAMPLE:** MAC 500A-V1B1-PM-111DA-9  
MAC 500A-B21A-9

### SPECIAL APPLICATION INSTRUCTIONS

The 'A' cylinder port is normally open. On a spring return valve, the spring is the 'A' operator, the solenoid the 'B' operator. Energizing the 'B' operator pressurizes the 'B' port; energizing the 'A' operator pressurizes the 'A' port.

### EXTERNAL PILOT APPLICATIONS

An external pilot supply is only required when the main valve pressure is less than 25 psi on single solenoid or 3 position valves and less than 10 psi on double solenoid 2 position valves. Pipe the external pilot supply to the External Pilot Port supplied in the valve base or manifold.

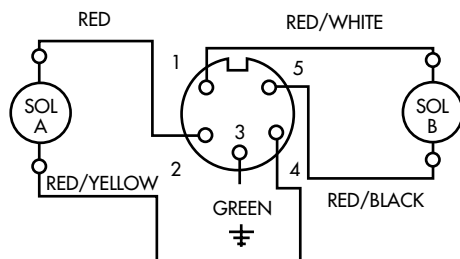
### VACUUM APPLICATIONS

(2-Pos. Valves Only) - Use an External Pilot model as described above and also connect the vacuum source to the Exhaust Port and leave the Inlet Port open to atmosphere. The Inlet port may be connected to a pressure source to provide a selector application (vacuum/pressure).

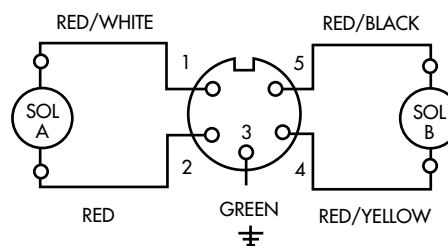
### SELECTOR APPLICATIONS

Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot Model and connect the higher pressure to the Inlet Port and the lower to Port EA or EB depending on which cylinder port is to be active.

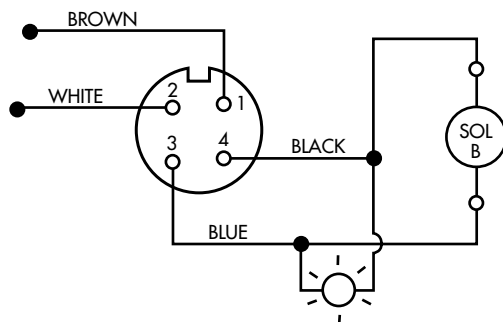
### FORD



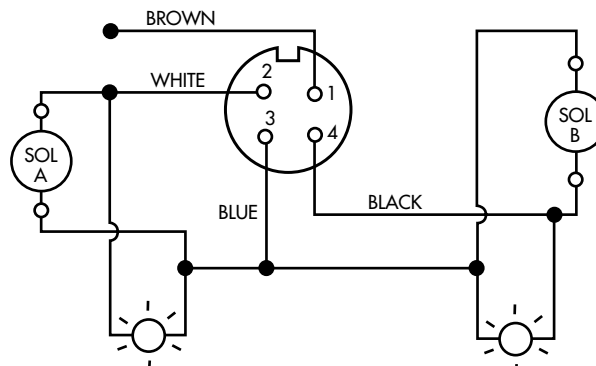
### CHRYSLER



### 4 PIN CONNECTOR : SINGLE



### 4 PIN CONNECTOR : DOUBLE







Function	Port size	Flow [Max]	Individual mounting	Series
<b>5/2 - 5/3</b>	<b>1" - 1 1/4"</b>	<b>11.2 C<sub>v</sub></b>	valve only	

## OPERATIONAL BENEFITS

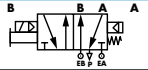
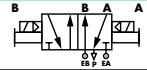
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. High shifting forces.
4. Checked accumulator guarantees maximum pilot pressure
5. Powerful return force thanks to the combination of mechanical and air springs.
6. Bonded spool with minimum friction, shifting in a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

## HOW TO ORDER

### SINGLE PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
					
<b>5 PIN</b>	Internal	MAC500A-V1A2-PM- <b>XXY</b> -DA	MAC500A-V2A2-PM- <b>XXY</b> -DA	MAC500A-V5A2-PM- <b>XXY</b> -DA	MAC500A-V6A2-PM- <b>XXY</b> -DA
<b>(Ford wired)</b>	External	MAC500A-V1A4-PM- <b>XXY</b> -DA	MAC500A-V2A4-PM- <b>XXY</b> -DA	MAC500A-V5A4-PM- <b>XXY</b> -DA	MAC500A-V6A4-PM- <b>XXY</b> -DA
<b>5 PIN</b>	Internal	MAC500A-V1B2-PM- <b>XXY</b> -DA	MAC500A-V2B2-PM- <b>XXY</b> -DA	MAC500A-V5B2-PM- <b>XXY</b> -DA	MAC500A-V6B2-PM- <b>XXY</b> -DA
<b>(Chrysler wired)</b>	External	MAC500A-V1B4-PM- <b>XXY</b> -DA	MAC500A-V2B4-PM- <b>XXY</b> -DA	MAC500A-V5B4-PM- <b>XXY</b> -DA	MAC500A-V6B4-PM- <b>XXY</b> -DA
<b>4 PIN</b>	Internal	MAC500A-V1G2-PM- <b>XXY</b> -DA	MAC500A-V2G2-PM- <b>XXY</b> -DA	MAC500A-V5G2-PM- <b>XXY</b> -DA	MAC500A-V6G2-PM- <b>XXY</b> -DA
<b>MICRO</b>	External	MAC500A-V1G4-PM- <b>XXY</b> -DA	MAC500A-V2G4-PM- <b>XXY</b> -DA	MAC500A-V5G4-PM- <b>XXY</b> -DA	MAC500A-V6G4-PM- <b>XXY</b> -DA
<b>3 PIN</b>	Internal	MAC500A-V1E2-PM- <b>XXY</b> -DA	MAC500A-V2E2-PM- <b>XXY</b> -DA	MAC500A-V5E2-PM- <b>XXY</b> -DA	MAC500A-V6E2-PM- <b>XXY</b> -DA
<b>(Ford wired)</b>	External	MAC500A-V1E4-PM- <b>XXY</b> -DA	MAC500A-V2E4-PM- <b>XXY</b> -DA	MAC500A-V5E4-PM- <b>XXY</b> -DA	MAC500A-V6E4-PM- <b>XXY</b> -DA
<b>5 PIN MICRO</b>	Internal	MAC500A-V1F2-PM- <b>XXY</b> -DA	MAC500A-V2F2-PM- <b>XXY</b> -DA	MAC500A-V5F2-PM- <b>XXY</b> -DA	MAC500A-V6F2-PM- <b>XXY</b> -DA
<b>(Chrysler wired)</b>	External	MAC500A-V1F4-PM- <b>XXY</b> -DA	MAC500A-V2F4-PM- <b>XXY</b> -DA	MAC500A-V5F4-PM- <b>XXY</b> -DA	MAC500A-V6F4-PM- <b>XXY</b> -DA

### DUAL PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator
			
<b>5 PIN (Ford wired)</b>	External	MAC500A-V3A4-PM- <b>XXY</b> -DA	MAC500A-V4A4-PM- <b>XXY</b> -DA
<b>5 PIN (Chrysler wired)</b>	External	MAC500A-V3B4-PM- <b>XXY</b> -DA	MAC500A-V4B4-PM- <b>XXY</b> -DA
<b>4 PIN MICRO</b>	External	MAC500A-V3G4-PM- <b>XXY</b> -DA	MAC500A-V4G4-PM- <b>XXY</b> -DA
<b>3 PIN (Ford wired)</b>	External	MAC500A-V3E4-PM- <b>XXY</b> -DA	MAC500A-V4E4-PM- <b>XXY</b> -DA
<b>5 PIN MICRO (Chrysler wired)</b>	External	MAC500A-V3F4-PM- <b>XXY</b> -DA	MAC500A-V4F4-PM- <b>XXY</b> -DA

### SOLENOID OPERATOR ➤

**XX Y DA\***

XX	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

\* Other options available, see page 357.

Note : Valves are supplied without base. For base code see page 291.

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

MAC 125A

MAC 250A

MAC 500A

#### TECHNICAL DATA

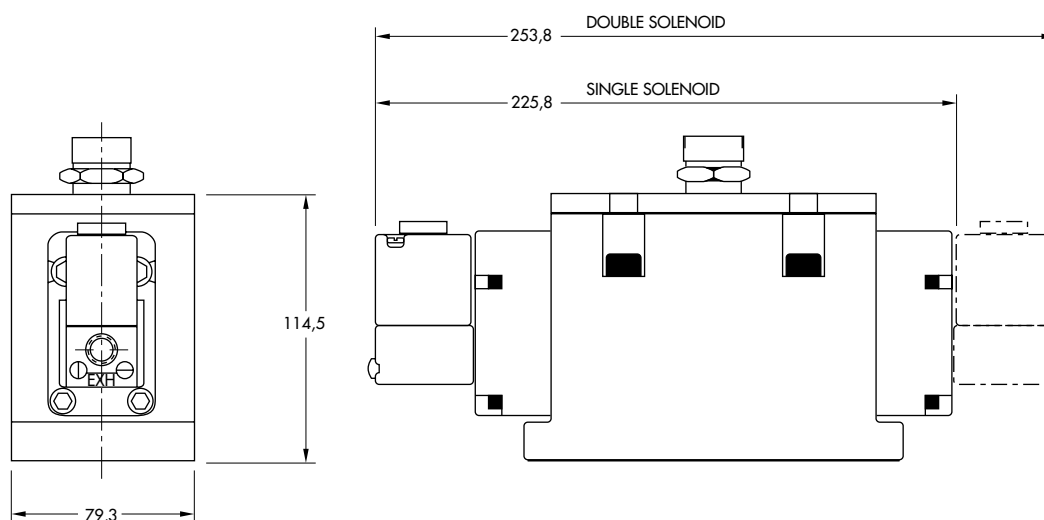
<b>Fluid :</b>	Compressed air, vacuum, inert gases	
<b>Pressure range :</b>	Internal pilot : single operator and 3 positions : 25-150 PSI	double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI	
<b>Pilot pressure :</b>	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI	
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)	
<b>Filtration :</b>	40 µ	
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)	
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1" : (11.0 C <sub>v</sub> ), 1 1/4" : (11.2 C <sub>v</sub> )	
<b>Coil :</b>	Epoxy encapsulated - class A wires - Continuous duty	
<b>Voltage range :</b>	-15% to +10% of nominal voltage	
<b>Protection :</b>	Consult factory	
<b>Power :</b>	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17.1 W	

Spare parts :

- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16535
- Mounting screw valve to base (x3) : 32434.

#### DIMENSIONS

Dimensions shown are metric (mm)





## Section 2 Remote air valves

---

Function	Port size	Flow [Max]
<b>3/2 - 2/2</b>	<b>1/8" - 1/4"</b>	<b>0.18 C<sub>v</sub></b>
<b>3/2 - 2/2</b>	<b>1/8"</b>	<b>0.18 C<sub>v</sub></b>
<b>3/2 - 2/2</b>	<b>1/4" - 3/8"</b>	<b>2.5 C<sub>v</sub></b>
<b>3/2 - 2/2</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>6.2 C<sub>v</sub></b>
<b>3/2 - 2/2</b>	<b>1/2" - 3/4" - 1"</b>	<b>17.4 C<sub>v</sub></b>
<b>3/2 - 2/2</b>	<b>1" - 1 1/4" - 1 1/2"</b>	<b>33.5 C<sub>v</sub></b>
<b>3/2 - 2/2</b>	<b>2" - 2 1/2"</b>	<b>65.0 C<sub>v</sub></b>
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>0.7 C<sub>v</sub></b>
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>0.8 C<sub>v</sub></b>
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>1.4 C<sub>v</sub></b>
<b>4/2 - 4/3</b>	<b>1/8" - 1/4" - 3/8"</b>	<b>1.35 C<sub>v</sub></b>
<b>4/2 - 4/3</b>	<b>1/4" - 3/8"</b>	<b>1.35 C<sub>v</sub></b>
<b>4/2 - 4/3</b>	<b>1/4" - 3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>
<b>4/2 - 4/3</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.1 C<sub>v</sub></b>
<b>4/2 - 4/3</b>	<b>3/4" - 1"</b>	<b>9.6 C<sub>v</sub></b>
<b>4/2 - 4/3</b>	<b>3/4" - 1" - 1 1/4" - 1 1/2"</b>	<b>15.9 C<sub>v</sub></b>
<b>5/2 - 5/3</b>	<b>1/4"</b>	<b>1.4 C<sub>v</sub></b>
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.6 C<sub>v</sub></b>
<b>5/2 - 5/3</b>	<b>3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>
<b>5/2 - 5/3</b>	<b>1/2" - 3/4"</b>	<b>6.3 C<sub>v</sub></b>

Individual mounting			Manifold mounting			Series	
inline	sub-base	valve only		stacking	sub-base	valve only	
P. 187							1100
					P. 189		
P. 193							55
P. 197							56
P. 201							57
P. 205							58
P. 209							59
P. 213							700
				P. 215			
P. 219				P. 221			900
	P. 225						82
					P. 227		
	P. 231				P. 233		6300
	P. 237				P. 239		6500
	P. 243				P. 245		6600
	P. 249						2700
P. 253							1800
		P. 257				P. 257	ISO 1
		P. 261				P. 261	ISO 2
		P. 265					ISO 3



Individual mounting

Inline

Manifold mounting

sub-base

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

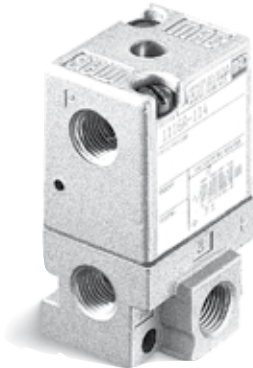




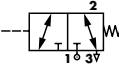
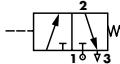
Function	Port size	Flow (Max)	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8" - 1/4"</b>	<b>0.18 C<sub>v</sub></b>	Inline	

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. Powerful return spring.
4. Maximum shifting forces.



HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>1/8" NPTF</b>	1111A-111	1161A-111
<b>1/4" NPTF</b>	1113A-111	1163A-111

Air pilot port : 1/8" NPTF.

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

# **TECHNICAL DATA**

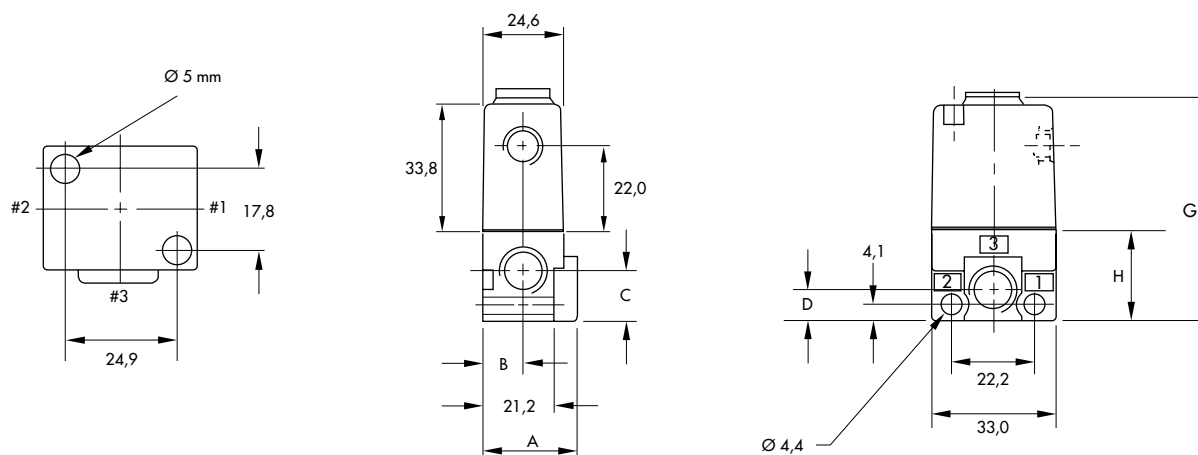
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	20 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 140°F (-18°C to 60°C)
Flow (at 6 bar, ΔP=1bar) :	0.18 C <sub>v</sub>

Options :

- BSPP threads.

# **DIMENSIONS**

Dimensions shown are metric (mm)

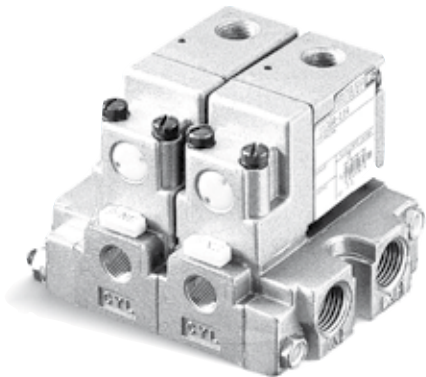


<b>1/8"</b>	28.4	12.7	14.0	8.0	60.1	23.2
<b>1/4"</b>	29.8	13.3	12.7	9.9	60.9	24.1

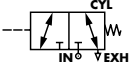
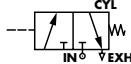
Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8"</b>	<b>0.18 C<sub>v</sub></b>	sub-base	

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. Powerful return spring.
4. Maximum shifting forces.





HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>Valve less base</b>	1130A-111	1170A-111
<b>Sub-base 1/8" NPTF</b>	1132A-111	1172A-111

Air pilot port : 1/8" NPTF.  
End plate kit (1/4" ports) : A2-5004-01.

OPTIONS

11X2A-111	
	- Replace by 2 for 2-way normally closed.
	- Replace by 4 for 2-way normally open.

1100

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56

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58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

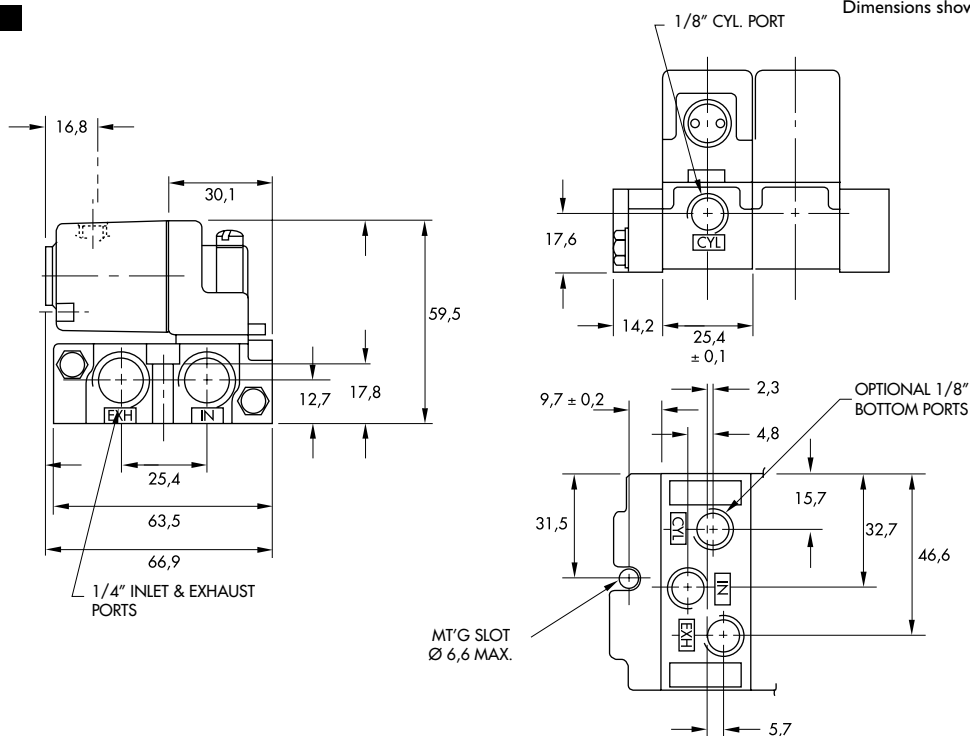
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	20 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 140°F (-18°C to 60°C)
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.18 C <sub>v</sub> )

- Spare parts : • Function plate : A2-7009. • Pressure seal between bases : 16226. • Tie-rod (x2) : 19546.
- Options : • BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)





Individual mounting

Inline	
--------	--

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

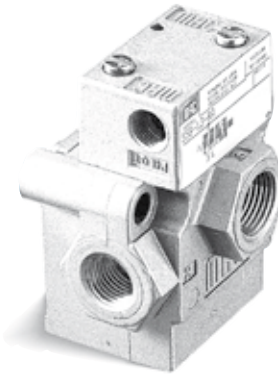
ISO 3



Function	Port size	Flow (Max)	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/4" - 3/8"</b>	<b>2.5 C<sub>v</sub></b>	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
<b>1/4" NPTF</b>	Internal	55B-11-RA	55B-21-RA
<b>3/8" NPTF</b>		55B-12-RA	55B-22-RA
<b>1/4" NPTF</b>	External	55B-11-RE	55B-21-RE
<b>3/8" NPTF</b>		55B-12-RE	55B-22-RE

Air pilot port : 1/8" NPTF.

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 25 PSI. "RE" provides an external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.

1100

55

56

57

58

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700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3



# TECHNICAL DATA

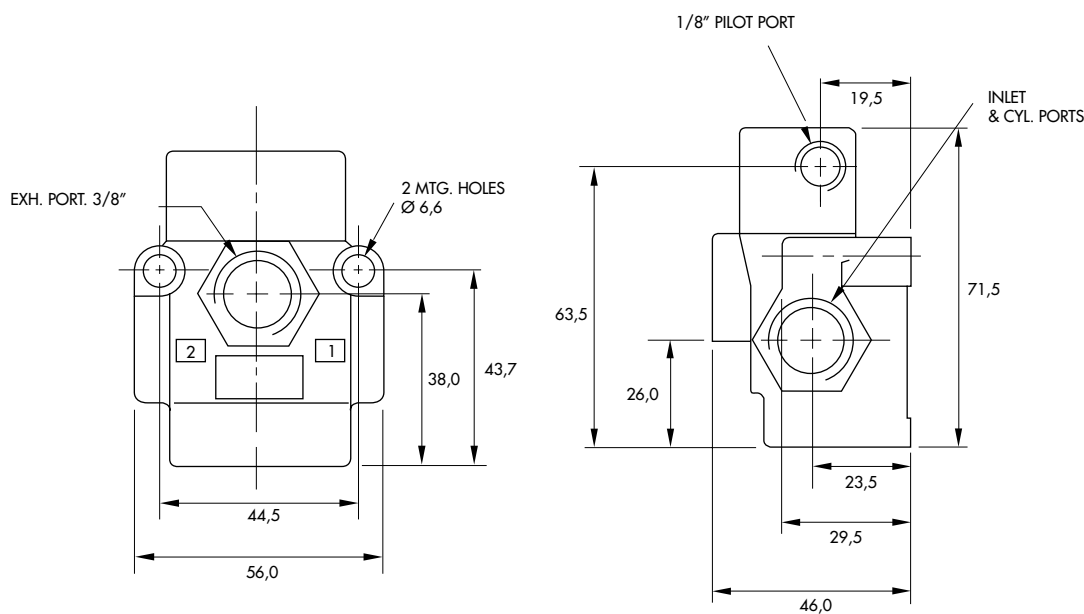
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	25 - 150 PSI ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 μ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/4" : (2.5 C <sub>v</sub> ), 3/8" : (2.5 C <sub>v</sub> )

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

Options : • BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Inline

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

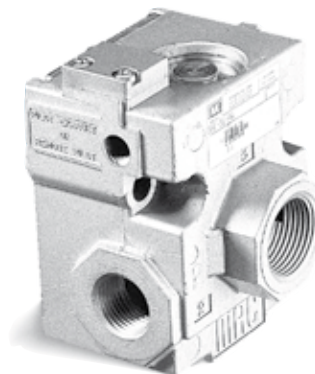
ISO 3



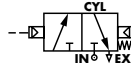
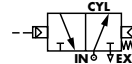
Function	Port size	Flow (Max)	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>6.2 C<sub>v</sub></b>	Inline	

#### 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
			
<b>3/8" NPTF</b>	Internal	56C-52-RA	56C-82-RA
<b>1/2" NPTF</b>		56C-53-RA	56C-83-RA
<b>3/4" NPTF</b>		56C-57-RA	56C-87-RA
<b>3/8" NPTF</b>	External	56C-52-RE	56C-82-RE
<b>1/2" NPTF</b>		56C-53-RE	56C-83-RE
<b>3/4" NPTF</b>		56C-57-RE	56C-87-RE

Air pilot port : 1/8" NPTF.

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 25 PSI. "RE" provides an external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.

1100

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56

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58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

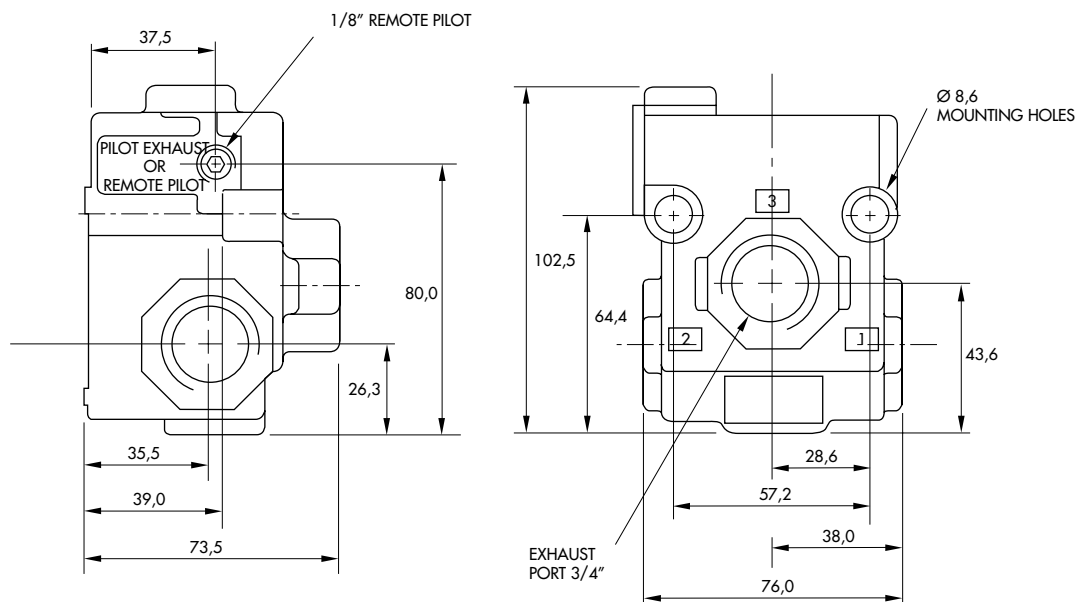
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	25 - 150 PSI ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 μ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	3/8" : (6.0 C <sub>v</sub> ), 1/2" : (6.1 C <sub>v</sub> ), 3/4" : (6.2 C <sub>v</sub> )

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

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Inline

Series

1100

55

56

**57**

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

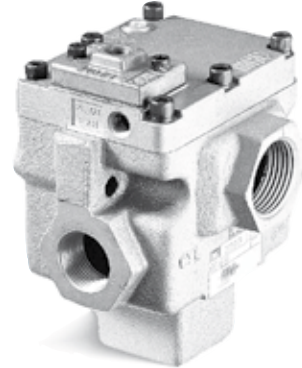
ISO 3



Function	Port size	Flow (Max)	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/2" - 3/4" - 1"</b>	<b>17.4 C<sub>v</sub></b>	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.



1100

55

56

57

58

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700

900

82

6300

6500

6600

2700

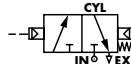
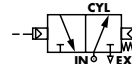
1800

ISO 1

ISO 2

ISO 3

## HOW TO ORDER

Port size	Air spring	NC valve	NO valve
			
<b>1/2" NPTF</b>	Internal	57D-51-RA	57D-81-RA
<b>3/4" NPTF</b>		57D-52-RA	57D-82-RA
<b>1" NPTF</b>		57D-53-RA	57D-83-RA
<b>1/2" NPTF</b>	External	57D-51-RE	57D-81-RE
<b>3/4" NPTF</b>		57D-52-RE	57D-82-RE
<b>1" NPTF</b>		57D-53-RE	57D-83-RE

Air pilot port : 1/8" NPTF.

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 25 PSI. "RE" provides an external pilot port and should have a pressure range of 25-75 PSI. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.



# TECHNICAL DATA

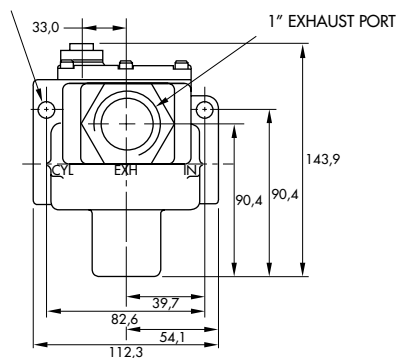
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	25 - 150 PSI ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/2" : (11.0 C <sub>v</sub> ), 3/4" : (15.3 C <sub>v</sub> ), 1" : (17.4 C <sub>v</sub> )

- Spare parts :      • Remote air pilot block : R-59003. • Check valve : 70019.
- Options :            • BSPP threads.

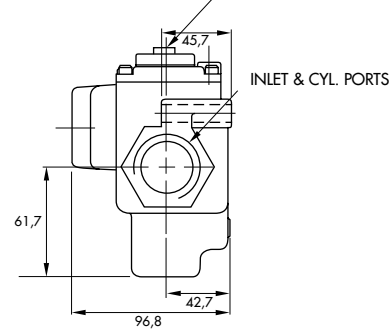
# DIMENSIONS

Dimensions shown are metric (mm)

Ø 8,6 MT'G HOLES



1/8" REMOTE PILOT



Individual mounting

Inline

Series

1100

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56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

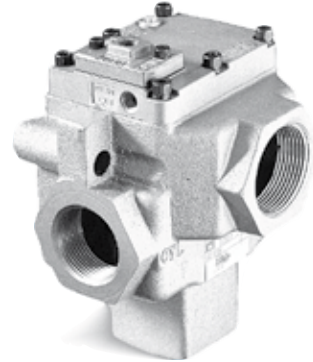
ISO 3



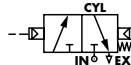
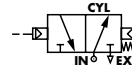
Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1" - 1 1/4" - 1 1/2"</b>	<b>33.5 C<sub>v</sub></b>	Inline	

## 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
			
<b>1" NPTF</b>	Internal	58D-51-RA	58D-81-RA
<b>1 1/4" NPTF</b>		58D-52-RA	58D-82-RA
<b>1 1/2" NPTF</b>		58D-53-RA	58D-83-RA
<b>1" NPTF</b>	External	58D-51-RE	58D-81-RE
<b>1 1/4" NPTF</b>		58D-52-RE	58D-82-RE
<b>1 1/2" NPTF</b>		58D-53-RE	58D-83-RE

Air pilot port : 1/8" NPTF.

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 25 PSI. "RE" provides an external pilot port and should have a pressure range of 25-75 PSI. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.

1100

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56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

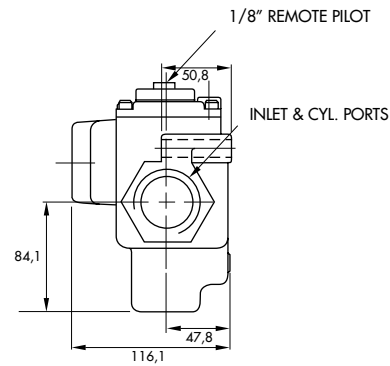
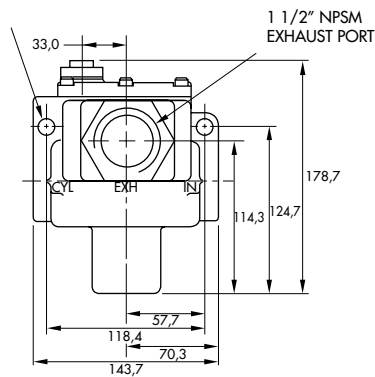
ISO 3

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	25 - 150 PSI ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 μ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1" : (31.2 C <sub>v</sub> ), 1 1/4" : (32.5 C <sub>v</sub> ), 1 1/2" : (33.5 C <sub>v</sub> )

- Spare parts :      • Remote air pilot block : R-59003. • Check valve : 70019.
- Options :            • BSPP threads.

**DIMENSIONS** Dimensions shown are metric (mm)

Ø 13,5 MT'G HOLES



Individual mounting

Inline

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

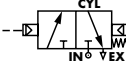


Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	2" - 2 1/2"	65.0 C <sub>v</sub>	Inline	

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
		
2" NPTF	Internal	59B-52-RA
2 1/2" NPTF		59B-53-RA
2" NPTF	External	59B-52-RE
2 1/2" NPTF		59B-53-RE

Air pilot port : 1/8" NPTF.

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 25 PSI. "RE" provides an external pilot port and should have a pressure range of 25-75 PSI. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.



1100

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700

900

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6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3



# TECHNICAL DATA

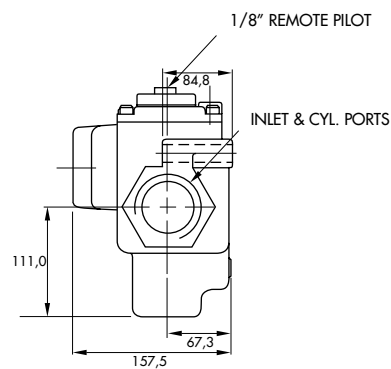
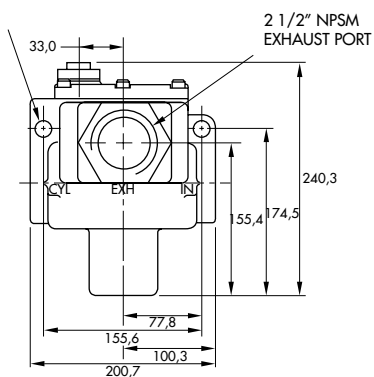
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	25 - 150 PSI ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 μ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	2" : (60.0 C <sub>v</sub> ), 2 1/2" : (65.0 C <sub>v</sub> )

- Spare parts :
- Remote air pilot block : R-59003. • Check valve : 70019.
- Options :
- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)

Ø 13,5 MT'G HOLES



Individual mounting

Inline

Manifold mounting

stacking

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

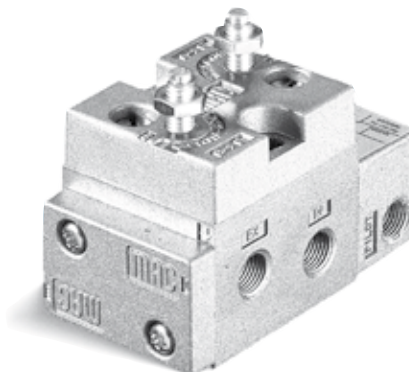
ISO 3



Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>0.7 C<sub>v</sub></b>	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.



1100

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58

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700

900

82

6300

6500

6600

2700

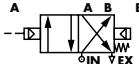
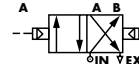
1800

ISO 1

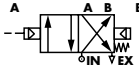
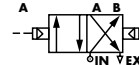
ISO 2

ISO 3

#### HOW TO ORDER

Port size	Single operator	Double operator
		
<b>1/8" NPTF</b>	711C-11-RA	721C-11-RA
<b>1/4" NPTF</b>	711C-12-RA	721C-12-RA

#### HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Single operator	Double operator
		
<b>1/8" NPTF</b>	712C-11-RA	722C-11-RA
<b>1/4" NPTF</b>	712C-12-RA	722C-12-RA

Air pilot port : 1/8" NPTF.

# TECHNICAL DATA

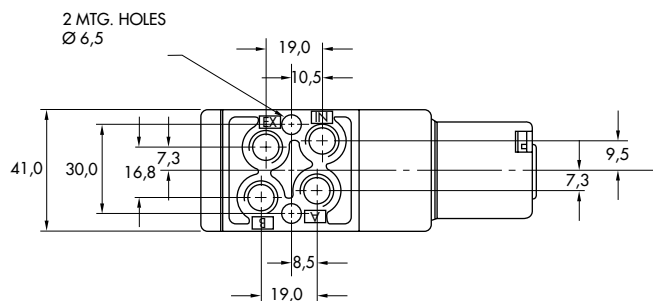
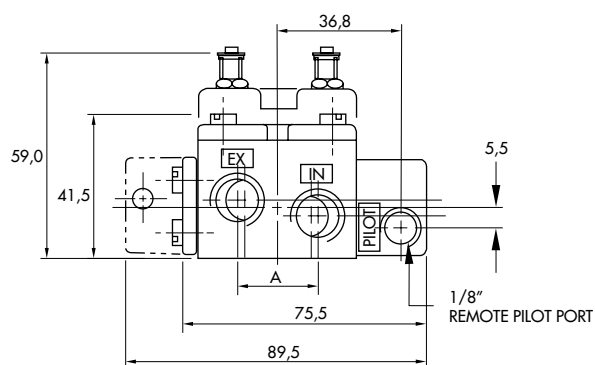
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator : 20 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 μ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.6 C <sub>v</sub> ), 1/4" : (0.7 C <sub>v</sub> )

Spare parts : • Remote air operator : R-07002. • Valve cover plate with integral flow controls : N-07002.

Options : • BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)

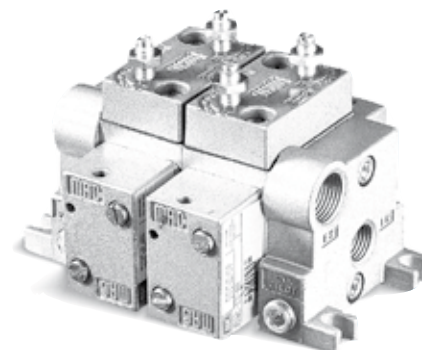


1/8"	21.0
1/4"	24.0

Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>0.8 C<sub>v</sub></b>	stacking	

#### 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.



1100

55

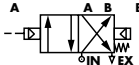
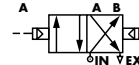
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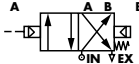
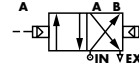
#### HOW TO ORDER

Port size	Single operator	Double operator
		
<b>1/8" NPTF</b>	713C-11-RA	723C-11-RA
<b>1/4" NPTF</b>	713C-12-RA	723C-12-RA

700

900

#### HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Single operator	Double operator
		
<b>1/8" NPTF</b>	714C-11-RA	724C-11-RA
<b>1/4" NPTF</b>	714C-12-RA	724C-12-RA

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

End plate kit (Port size 1/4") : M-07001-01-01, internal pilot.  
M-07001-02-01, external pilot.

Air pilot port : 1/8" NPTF.

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator : 20 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 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" : (0.7 C <sub>v</sub> ), 1/4" : (0.8 C <sub>v</sub> )

## Spare parts :

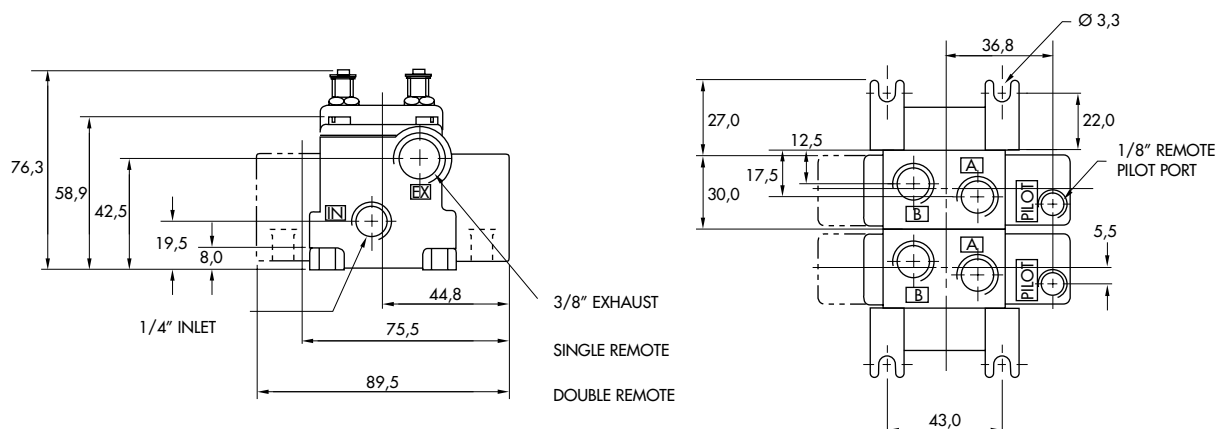
- Remote air operator : R-07002. • Valve cover plate with integral flow controls : N-07004.
- Pressure seal between valves : 16368. • Tie-rod (x2) : 19674.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Inline

Manifold mounting

stacking

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3



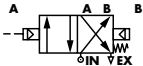
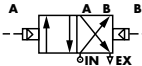


Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2</b>	<b>1/8" - 1/4"</b>	<b>1.4 C<sub>v</sub></b>	Inline	

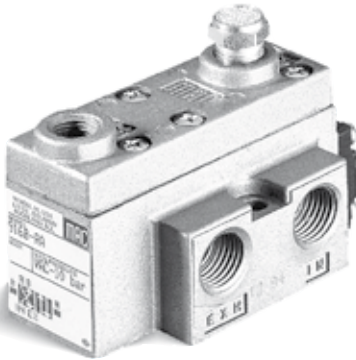
OPERATIONAL BENEFITS

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
		
<b>1/8" NPTF</b>	911B-RA	921B-RA
<b>1/4" NPTF</b>	912B-RA	922B-RA

Air pilot port : 1/8" NPTF.



1100

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1800

ISO 1

ISO 2

ISO 3

# TECHNICAL DATA

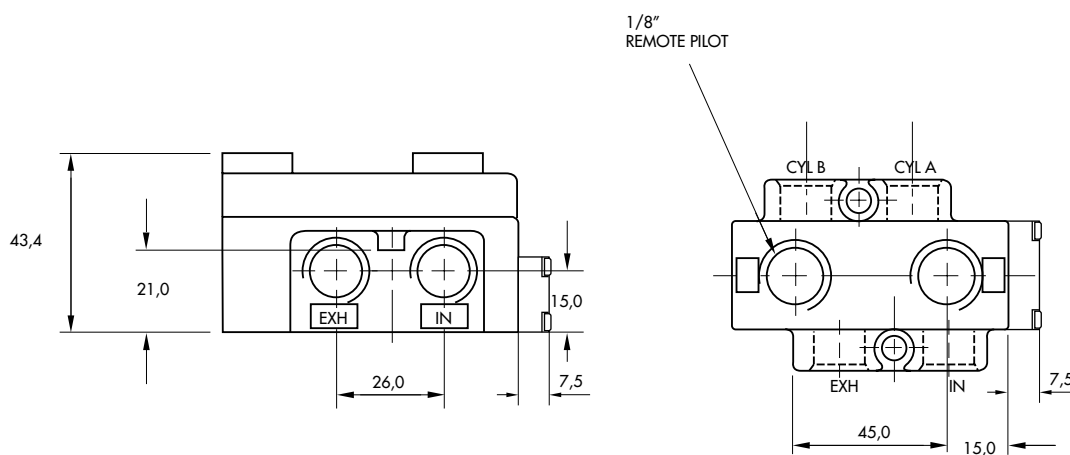
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 μ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.8 C <sub>v</sub> ), 1/4" : (1.2 C <sub>v</sub> )

Spare parts : • Remote air operator (single operator) : R-09002-01. • Remote air operator ( double operator) : R-09002-02.

Options : • BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)

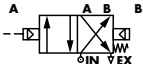
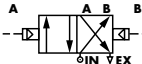


Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	1/8" - 1/4"	1.4 C <sub>v</sub>	stacking	

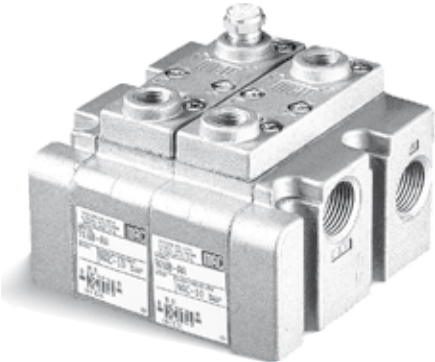
OPERATIONAL BENEFITS

- 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	Single operator	Double operator
		
1/8" NPTF	913B-RA	923B-RA
1/4" NPTF	914B-RA	924B-RA

Air pilot port : 1/8" NPTF.  
 Manifold fastening kit (3/8" NPTF) : M-09001-01.



1100

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700

900

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6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator : 25 to 150 PSI $\geq$ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	1/8" : (0.8 C <sub>v</sub> ), 1/4" : (1.2 C <sub>v</sub> )

## Spare parts :

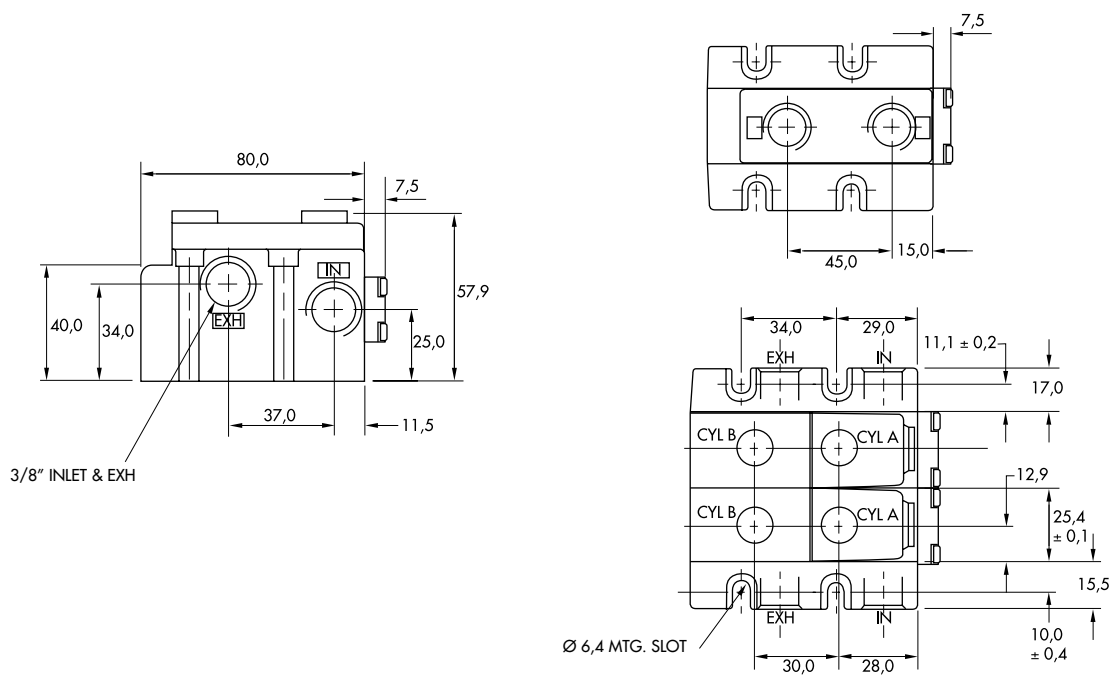
- Remote air operator (single operator) : R-09002-01. • Remote air operator (double operator) : R-09002-02.
- Pressure seal between valves : 16358. • Tie-rod (x2) : 19615.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

sub-base	
----------	--

Manifold mounting

sub-base	
----------	--

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

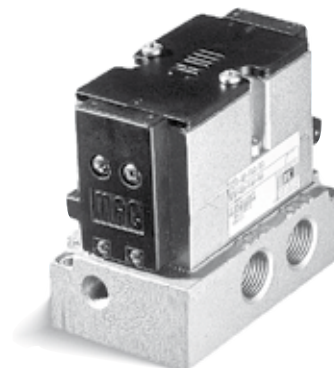
ISO 3



Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>1/8" - 1/4" - 3/8"</b>	<b>1.35 C<sub>v</sub></b>	sub-base	

#### OPERATIONAL BENEFITS

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



1100

55

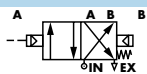
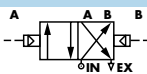
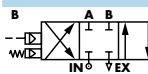
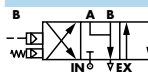
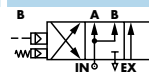
56

57

58

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#### HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
<b>Valve less base</b>	82A-AB-000-RA	82A-BB-000-RA	82A-EB-000-RA	82A-FB-000-RA	82A-GB-000-RA
<b>Sub-base 1/8" NPTF</b>	82A-AB-AAA-RA	82A-BB-AAD-RA	82A-EB-AAD-RA	82A-FB-AAD-RA	82A-GB-AAD-RA
<b>Sub-base 1/4" NPTF</b>	82A-AB-BAA-RA	82A-BB-BAD-RA	82A-EB-BAD-RA	82A-FB-BAD-RA	82A-GB-BAD-RA
<b>Sub-base 3/8" NPTF</b>	82A-AB-CAA-RA	82A-BB-CAD-RA	82A-EB-CAD-RA	82A-FB-CAD-RA	82A-GB-CAD-RA

700

900

82

#### OPTIONS

82A-AB-000-RA

└ - For dual pressure valves, replace A by C, B by D, E by M, F by L, G by H.

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3



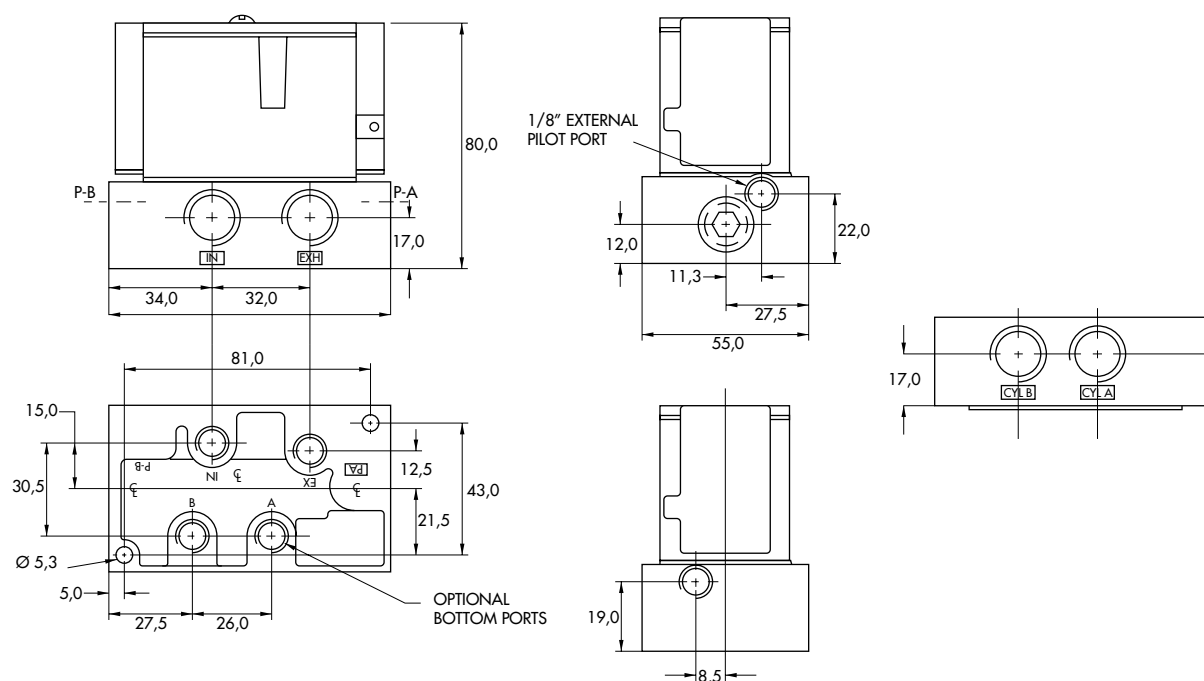
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	1/8" : (0.9 C <sub>v</sub> ), 1/4" : (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )

- Spare parts :      • Remote air adapter assy.: R-82003.
- Options :            • BSPP threads.

# DIMENSIONS

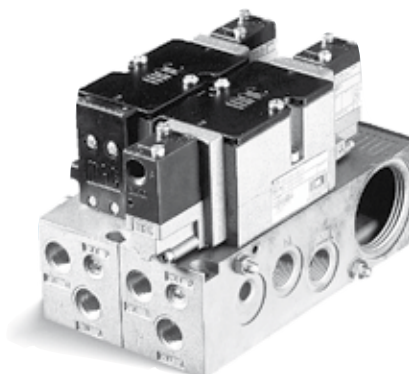
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>1/4" - 3/8"</b>	<b>1.35 C<sub>v</sub></b>	sub-base	

## OPERATIONAL BENEFITS

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



1100

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58

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700

900

82

6300

6500

6600

2700

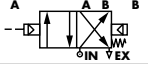
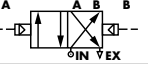
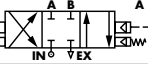
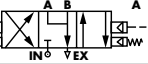
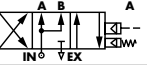
1800

ISO 1

ISO 2

ISO 3

## HOW TO ORDER

Port size	Pilot air	<b>4/2 Single operator</b>	<b>4/2 Double operator</b>	<b>4/3 Closed center</b>	<b>4/3 Open center</b>	<b>4/3 Pressure center</b>
						
<b>Valve less base</b>	Internal only	82A-AB-000-TM-RA11	82A-BB-000-TM-RA11	82A-EB-000-TM-RA11	82A-FB-000-TM-RA11	82A-GB-000-TM-RA11
<b>Sub-base</b>	Internal	82A-AB-BKA-TM-RA11	82A-BB-BKA-TM-RA11	82A-EB-BKA-TM-RA11	82A-FB-BKA-TM-RA11	82A-GB-BKA-TM-RA11
<b>1/4" NPTF</b>	External	82A-AB-BKD-TM-RA11	82A-BB-BKD-TM-RA11	82A-EB-BKD-TM-RA11	82A-FB-BKD-TM-RA11	82A-GB-BKD-TM-RA11
<b>Sub-base</b>	Internal	82A-AB-CKA-TM-RA11	82A-BB-CKA-TM-RA11	82A-EB-CKA-TM-RA11	82A-FB-CKA-TM-RA11	82A-GB-CKA-TM-RA11
<b>3/8" NPTF</b>	External	82A-AB-CKD-TM-RA11	82A-BB-CKD-TM-RA11	82A-EB-CKD-TM-RA11	82A-FB-CKD-TM-RA11	82A-GB-CKD-TM-RA11

## OPTIONS

82A-AB-000-TM-RA11

— For dual pressure valves, replace A by C, B by D, E by M, F by L, G by H.

Manifold fastening kit : N-82005-01.

### TECHNICAL DATA

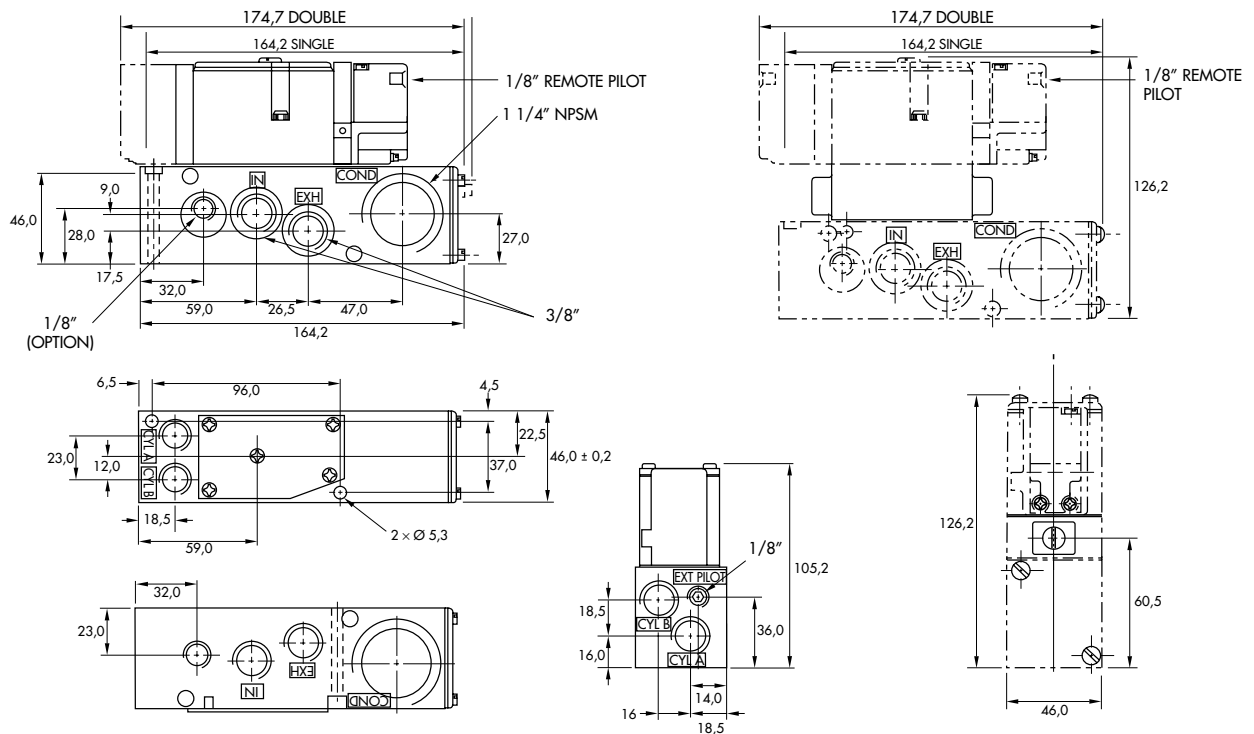
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI    Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )

Spare parts :                      • Remote air operated pilot : TM-RA11.

Options :                              • BSPP threads.

### DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

sub-base	
----------	--

Manifold mounting

sub-base	
----------	--

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

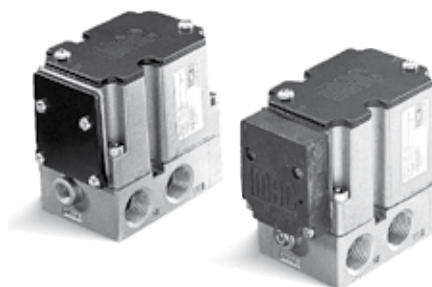
ISO 3



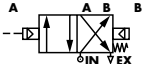
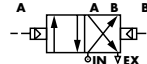
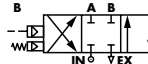
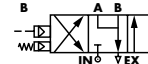
Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>1/4" - 3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>	sub-base	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
<b>Valve less base</b>	 6312D-000-RA	 6322D-000-RA	 6332D-000-RA	 6342D-000-RA
<b>Sub-base 1/4" NPTF</b>	6312D-131-RA	6322D-141-RA	6332D-141-RA	6342D-141-RA
<b>Sub-base 3/8" NPTF</b>	6312D-231-RA	6322D-241-RA	6332D-241-RA	6342D-241-RA
<b>Sub-base 1/2" NPTF</b>	6312D-331-RA	6322D-341-RA	6332D-341-RA	6342D-341-RA

## OPTIONS

6312D-131-RA

- For bottom ports (excluding 1/2"), replace by 4.

1100

55

56

57

58

59

700

900

82

**6300**

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	1/4" : (2.0 C <sub>v</sub> ), 3/8" : (2.6 C <sub>v</sub> ), 1/2" : (3.0 C <sub>v</sub> )

## Spare parts :

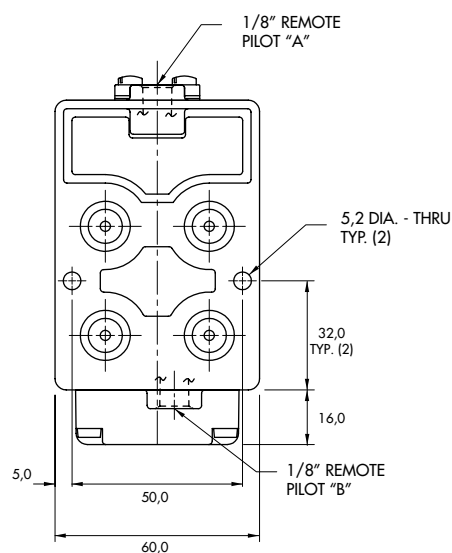
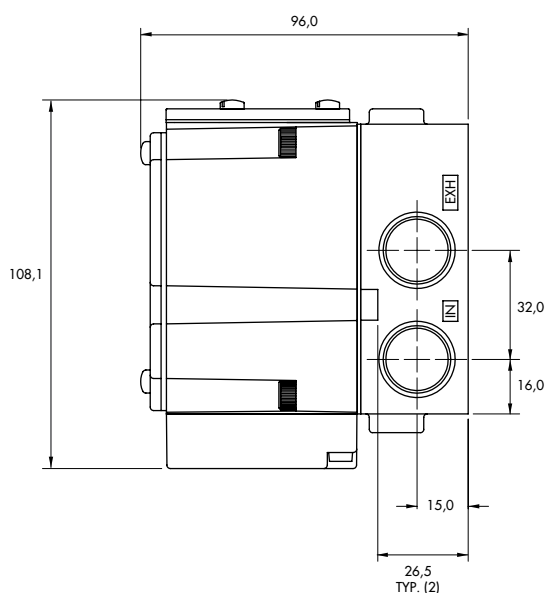
- Remote air operator (A side) : R-63004A. • Remote air operator (B side) : R-63005A.
- Seal between valve and base : 16298. • Mounting screw valve to base (x4) : 35303.

## Options :

- BSPP threads.

# DIMENSIONS

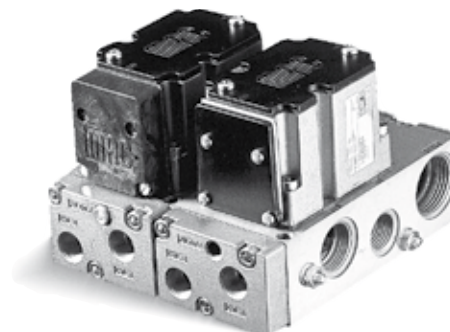
Dimensions shown are metric (mm)



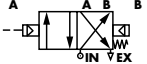
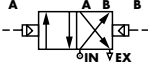
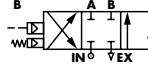
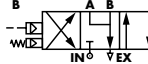
Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>1/4" - 3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>	sub-base	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
				
<b>Valve less base</b>	6312D-000-RA	6322D-000-RA	6332D-000-RA	6342D-000-RA
<b>Sub-base 1/4" NPTF</b>	6312D-431-RA	6322D-441-RA	6332D-441-RA	6342D-441-RA
<b>Sub-base 3/8" NPTF</b>	6312D-531-RA	6322D-541-RA	6332D-541-RA	6342D-541-RA
<b>Sub-base 1/2" NPTF</b>	6312D-631-RA	6322D-641-RA	6332D-641-RA	6342D-641-RA

## OPTIONS

6312D-431-RA

— For bottom cylinder ports, replace by 4.

Fastening kit : N-63002-01



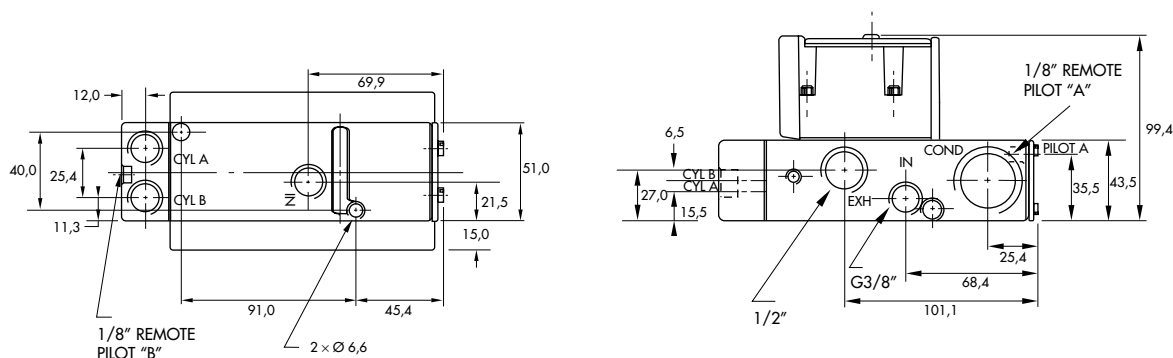
# **TECHNICAL DATA**

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	1/4" : (2.0 C <sub>v</sub> ), 3/8" : (2.6 C <sub>v</sub> ), 1/2" : (3.0 C <sub>v</sub> )

- Spare parts :
- Remote air operator (A side) : R-63004A. • Remote air operator (B side) : R-63005A. • Seal between valve and base : 16298.
  - Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624.
- Options :
- BSPP threads.

# **DIMENSIONS**

Dimensions shown are metric (mm)



Individual mounting

sub-base	
----------	--

Manifold mounting

sub-base	
----------	--

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

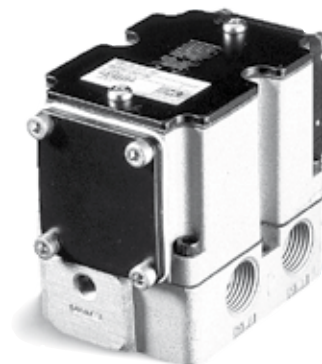
ISO 3



Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.1 C<sub>v</sub></b>	sub-base	

#### OPERATIONAL BENEFITS

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



#### HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>	6512B-000-RA	6522B-000-RA	6532B-000-RA	6542B-000-RA	6552B-000-RA
<b>Sub-base 3/8" NPTF</b>	6512B-131-RA	6522B-141-RA	6532B-141-RA	6542B-141-RA	6552B-141-RA
<b>Sub-base 1/2" NPTF</b>	6512B-231-RA	6522B-241-RA	6532B-241-RA	6542B-241-RA	6552B-241-RA
<b>Sub-base 3/4" NPTF</b>	6512B-331-RA	6522B-341-RA	6532B-341-RA	6542B-341-RA	6552B-341-RA

#### OPTIONS

6512B-131-RA

Dual pressure valves : replace by 4. (excluding 3/4" base)

1100

55

56

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700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

# TECHNICAL DATA

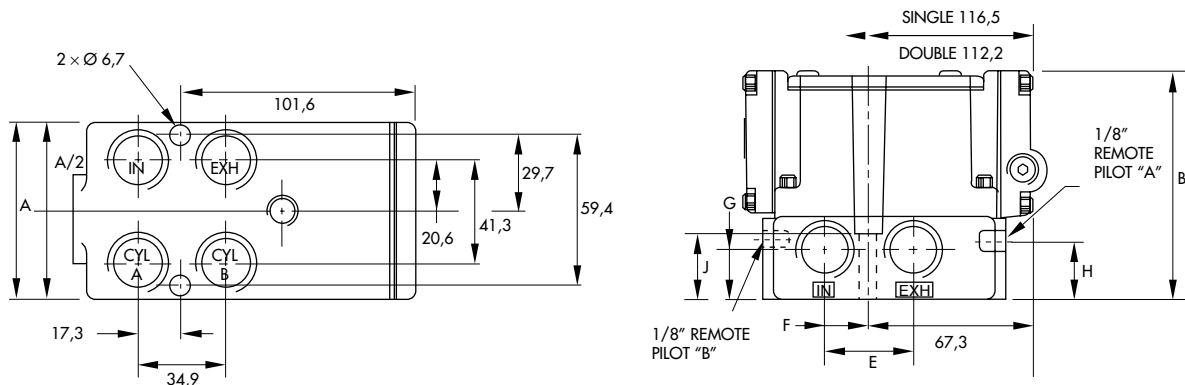
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	3/8" : (4.5 C <sub>v</sub> ), 1/2" : (5.0 C <sub>v</sub> ), 3/4" : (5.1 C <sub>v</sub> )

Spare parts :      • Remote air operator : R-00008. • Seal between valve and base : 16246. • Mounting screw valve to base (x4) : 32201.

Options :      • BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)

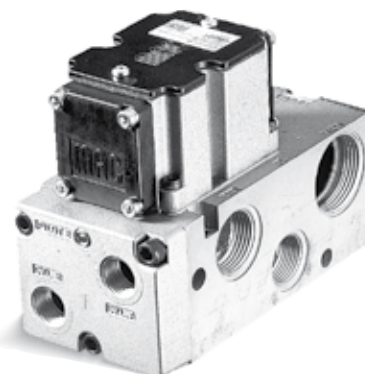


<b>3/8" &amp; 1/2"</b>	69.6	97.4	36.0	17.9	19.0	23.6	25.4
<b>3/4"</b>	94.5	109.3	40.1	19.2	20.8	35.9	36.6

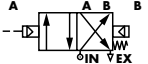
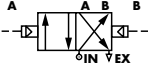
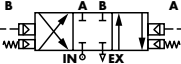
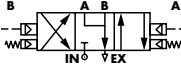

Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>3/8" - 1/2" - 3/4"</b>	<b>5.1 C<sub>v</sub></b>	sub-base	

## OPERATIONAL BENEFITS

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



## HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
<b>Valve less base</b>	6512B-000-RA	6522B-000-RA	6532B-000-RA	6542B-000-RA	6552B-000-RA
<b>Sub-base 3/8" NPTF</b>	6512B-431-RA	6522B-441-RA	6532B-441-RA	6542B-441-RA	6552B-441-RA
<b>Sub-base 1/2" NPTF</b>	6512B-531-RA	6522B-541-RA	6532B-541-RA	6542B-541-RA	6552B-541-RA
<b>Sub-base 3/4" NPTF</b>	6512B-631-RA	6522B-641-RA	6532B-641-RA	6542B-641-RA	6552B-641-RA

## OPTIONS

6512B-431-RA

For dual pressure valves, replace by 4.

Fastening kit : N-65002-01.

# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	3/8" : (4.5 C <sub>v</sub> ), 1/2" : (5.0 C <sub>v</sub> ), 3/4" : (5.1 C <sub>v</sub> )

## Spare parts :

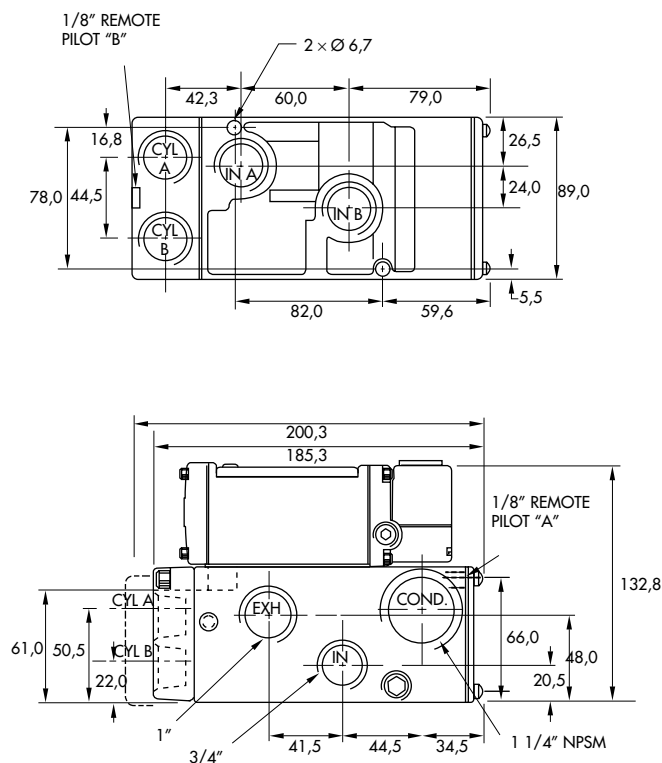
- Remote air operator : R-00008. • Seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540.

## Options :

- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

sub-base	
----------	--

Manifold mounting

sub-base	
----------	--

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

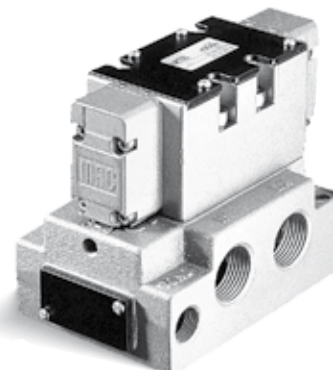




Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>3/4" - 1"</b>	<b>9.6 C<sub>v</sub></b>	sub-base	

#### OPERATIONAL BENEFITS

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



#### HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
<b>Valve less base</b>	6612A-000-RA	6622A-000-RA	6632A-000-RA	6642A-000-RA	6652A-000-RA
<b>Sub-base 3/4" NPTF</b>	6612A-231-RA	6622A-241-RA	6632A-241-RA	6642A-241-RA	6652A-241-RA
<b>Sub-base 1" NPTF</b>	6612A-331-RA	6622A-341-RA	6632A-341-RA	6642A-341-RA	6652A-341-RA

#### OPTIONS

6612A-231-RA

Dual pressure valves : replace by 4.

1100

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58

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700

900

82

6300

6500

**6600**

2700

1800

ISO 1

ISO 2

ISO 3

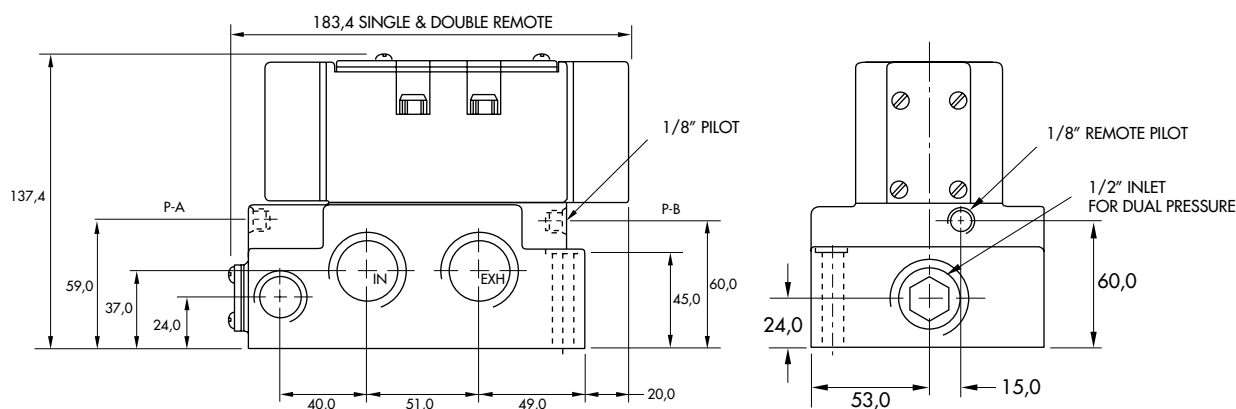
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	3/4" : (9.0 C <sub>v</sub> ), 1" : (9.6 C <sub>v</sub> )

- Spare parts :      • Remote air operator : R-A3004. • Pressure seal between valve and base : 16436. • Mounting screw valve to base (x4) : 35416.
- Options :      • BSPP threads.

# DIMENSIONS

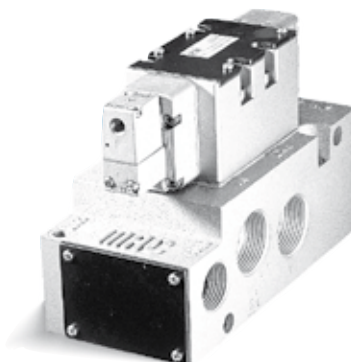
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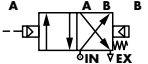
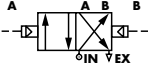
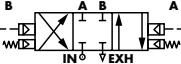
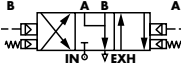

Function	Port size	Flow [Max]	Manifold mounting	Series
<b>4/2 - 4/3</b>	<b>3/4" - 1"</b>	<b>9.6 C<sub>v</sub></b>	sub-base	

#### OPERATIONAL BENEFITS

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



#### HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
<b>Valve less base</b>	6612A-000-PM-RA11	6622A-000-PM-RA11	6632A-000-PM-RA11	6642A-000-PM-RA11	6652A-000-PM-RA11
<b>Sub-base 3/4" NPTF</b>	6612A-431-PM-RA11	6622A-441-PM-RA11	6632A-441-PM-RA11	6642A-441-PM-RA11	6652A-441-PM-RA11
<b>Sub-base 1" NPTF</b>	6612A-531-PM-RA11	6622A-541-PM-RA11	6632A-541-PM-RA11	6642A-541-PM-RA11	6652A-541-PM-RA11

#### OPTIONS

6612A-XXX-PM-RA11

For dual pressure valves, replace by 4.

Fastening kit : N-66002-01.

1100

55

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59

700

900

82

6300

6500

**6600**

2700

1800

ISO 1

ISO 2

ISO 3

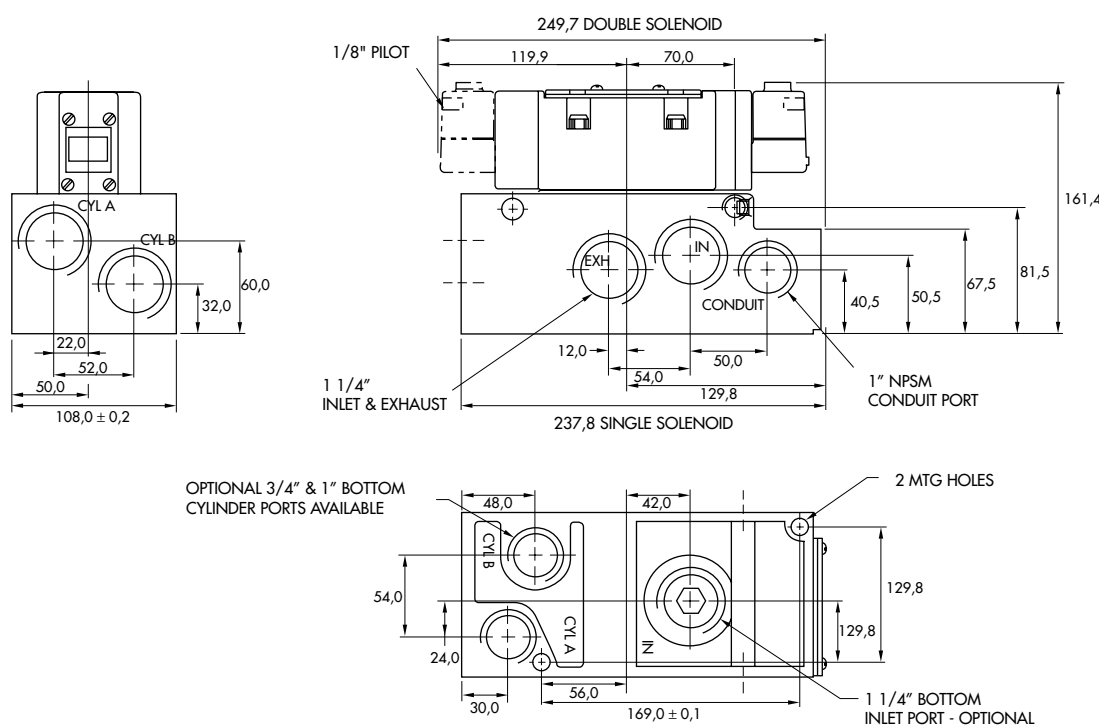
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	3/4" : (9.0 C <sub>v</sub> ), 1" : (9.6 C <sub>v</sub> )

- Spare parts :
- Remote air operator : R-A3004. • Pressure seal between valve and base : 16436. • Mounting screw valve to base (x4) : 35416.
  - Tie-rod (x2) : 19789. • Remote air pilot : PME-RA11.
- Options :
- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

sub-base	
----------	--

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

**2700**

1800

ISO 1

ISO 2

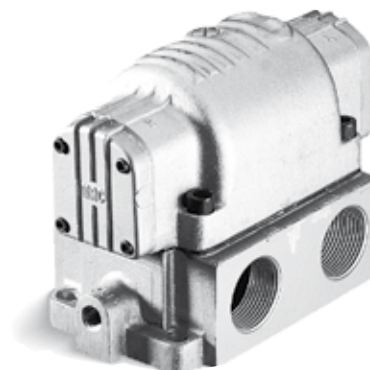
ISO 3



Function	Port size	Flow [Max]	Individual mounting	Series
<b>4/2 - 4/3</b>	<b>3/4" - 1" - 1 1/4" - 1 1/2"</b>	<b>15.9 C<sub>v</sub></b>	sub-base	

## OPERATIONAL BENEFITS

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



1100

55

56

57

58

59

700

900

82

6300

6500

6600

**2700**

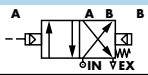
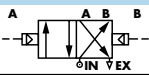
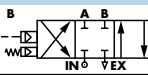
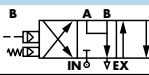
1800

ISO 1

ISO 2

ISO 3

## HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
					
<b>Valve less base</b>		2701G-1			
<b>Sub-base 3/4" NPTF</b>		2721G-1			
<b>Sub-base 1" NPTF</b>	Internal	2731G-1			
<b>Sub-base 1 1/4" NPTF</b>		2751G-1			
<b>Sub-base 1 1/2" NPTF</b>		2761G-1			
<b>Valve less base</b>		2701G-2	2703G-2	2707G-2	2708G-2
<b>Sub-base 3/4" NPTF</b>		2721G-2	2723G-2	2727G-2	2728G-2
<b>Sub-base 1" NPTF</b>	External	2731G-2	2733G-2	2737G-2	2738G-2
<b>Sub-base 1 1/4" NPTF</b>		2751G-2	2753G-2	2757G-2	2758G-2
<b>Sub-base 1 1/2" NPTF</b>		2761G-2	2763G-2	2767G-2	2768G-2



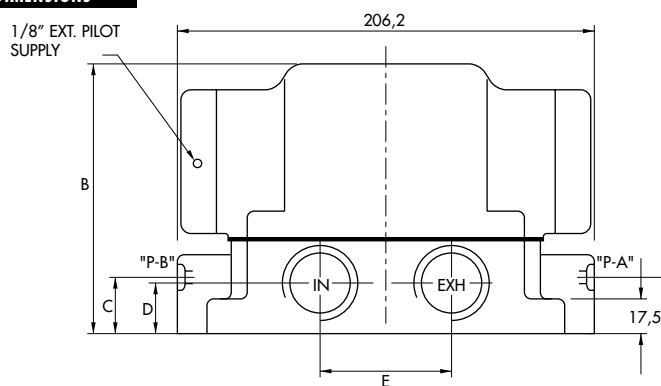
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	3/4" : (11.5 C <sub>v</sub> ), 1" : (13.4 C <sub>v</sub> ), 1 1/4" : (15.4 C <sub>v</sub> ), 1 1/2" : (15.9 C <sub>v</sub> )

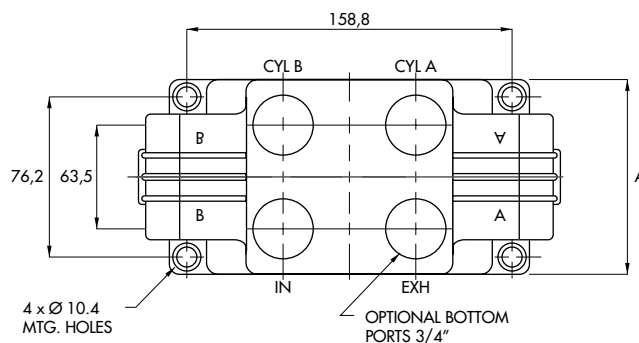
- Spare parts :      • Remote air end plate : R-00016B. • Pressure seal between valve and base : 16083. • Mounting screw valve to base (x4) : 32214.
- Options :      • BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



	A	B	C	D	E
<b>3/4" NPTF</b>	95.3	132.3	28.4	25.4	63.5
<b>1" NPTF</b>					
<b>1 1/4" NPTF</b>	114.3	148.3	23.9	30.2	76.2
<b>1 1/2" NPTF</b>					69.9



Individual mounting

Series

Inline

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3



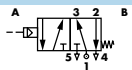
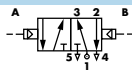
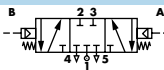
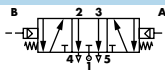
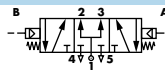
Function	Port size	Flow [Max]	Individual mounting	Series
<b>5/2 - 5/3</b>	<b>1/4"</b>	<b>1.4 C<sub>v</sub></b>	Inline	

## 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	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
<b>1/4" NPTF</b>	180001-112-0003	180003-112-0003	180304-512-0304	180304-612-0304	180304-812-0304

Air pilot port : 1/8" NPTF.

Options : Side pilot port : replace code 0003 by 0010 (2 positions valves only).

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

**1800**

ISO 1

ISO 2

ISO 3

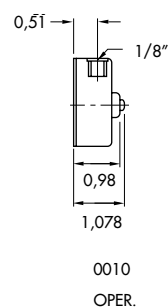
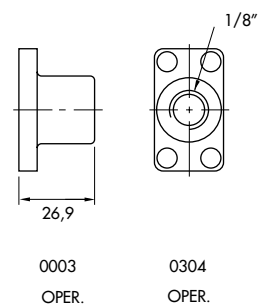
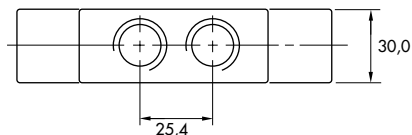
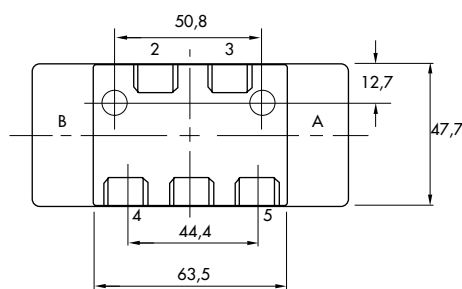
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 200 PSI
Air signal pressure :	Single operator and 3 positions : 20 to 150 PSI      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/4" - 3/8" : (1.4 C <sub>v</sub> )

- Spare parts :
- Remote air operator (2 positions) : 180003. • Remote air operator (3 positions) : 180304.
- Options :
- BSPP threads. • 3/8" ports (ports 1, 2 & 3 - MOD. 0358 required).

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

valve only	
------------	--

Series

Manifold mounting

sub-base	
----------	--

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

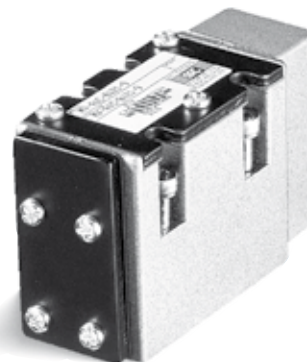
ISO 3



Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>1/4" - 3/8"</b>	<b>1.6 C<sub>v</sub></b>	valve only	

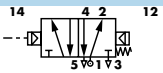
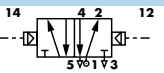
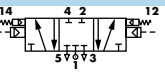
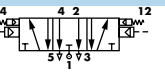
## OPERATIONAL BENEFITS

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.

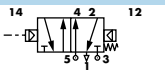
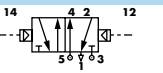
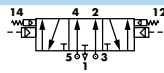


## HOW TO ORDER

### SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A1C-B111	-----	-----	-----
External	MV-A1C-B121	MV-A1C-B221	MV-A1C-B322	MV-A1C-B321

### DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A1C-B131	-----	-----
Internal port 5	MV-A1C-B135	-----	-----
External	MV-A1C-B141	MV-A1C-B241	MV-A1C-B341

Note : ISO valves are delivered w/o base. See page 281 for base code

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3



# TECHNICAL DATA

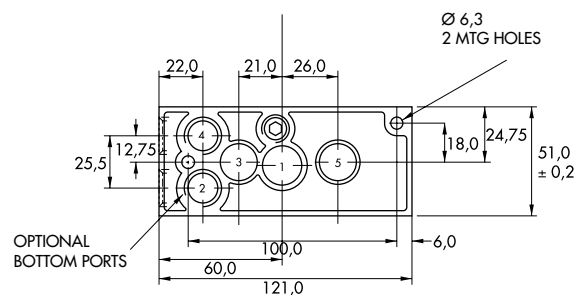
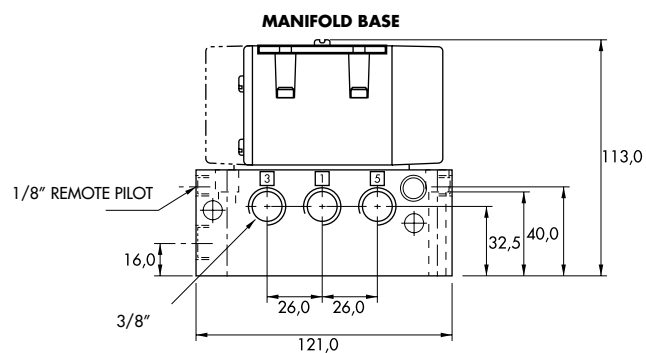
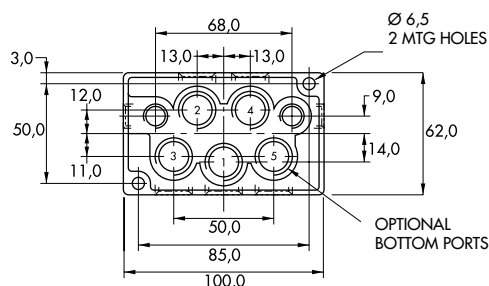
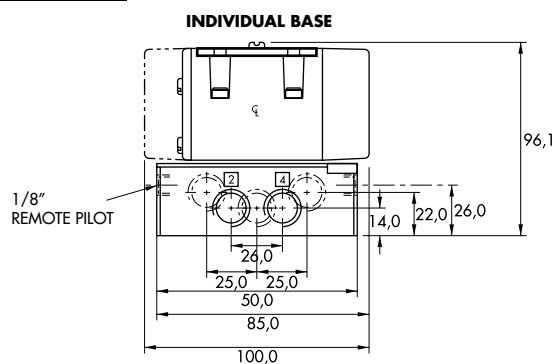
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 20 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	1/4" - 3/8" : (1.6 C <sub>v</sub> )

Spare parts :

- Remote air operator 2 positions : R-A1010. • Remote air operator 3 positions : R-A1005B.
- Pressure seal between valve and base : 16344. • Mounting screw body to base (x4) : 35304.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

valve only	
------------	--

Manifold mounting

sub-base	
----------	--

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

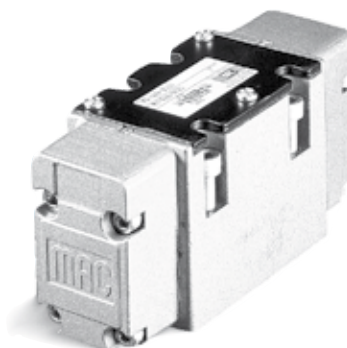
ISO 3



Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
<b>5/2 - 5/3</b>	<b>3/8" - 1/2"</b>	<b>3.0 C<sub>v</sub></b>	valve only	

#### 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.



1100

55

56

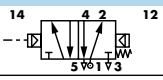
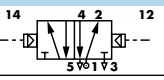
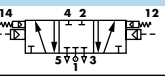
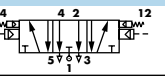
57

58

59

#### HOW TO ORDER

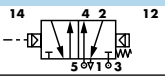
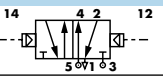
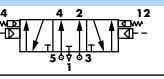
#### SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A2B-B111	-----	-----	-----
External	MV-A2B-B121	MV-A2B-B221	MV-A2B-B322	MV-A2B-B321

700

900

#### DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A2B-B131	-----	-----
Internal port 5	MV-A2B-B135	-----	-----
External	MV-A2B-B141	MV-A2B-B241	MV-A2B-B341

82

6300

6500

6600

Note : ISO valves are delivered w/o base. See page 281 for base code.

2700

1800

ISO 1

ISO 2

ISO 3

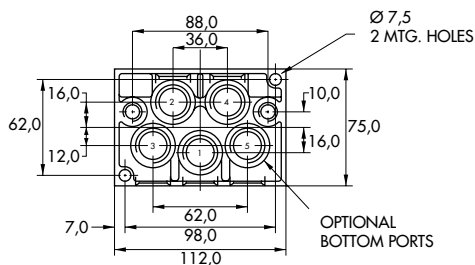
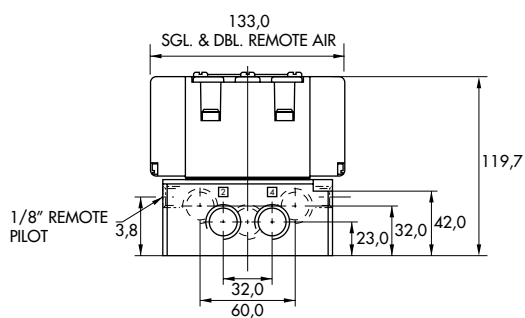
<b>Fluid :</b>	Compressed air, vacuum, inert gases
<b>Pressure range :</b>	Vacuum to 150 PSI
<b>Air signal pressure :</b>	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
<b>Filtration :</b>	40 $\mu$
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)
<b>Flow (at 6 bar, <math>\Delta P=1\text{bar}</math>) :</b>	3/8" - 1/2" : (3.0 C <sub>v</sub> )

Spare parts : • Remote air operator : R-A3004. • Pressure seal between valve and base : 16351. • Mounting screw body to base (x4) : 35412.

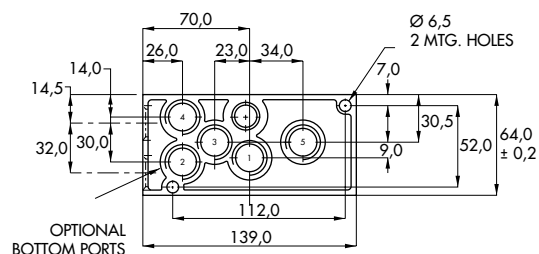
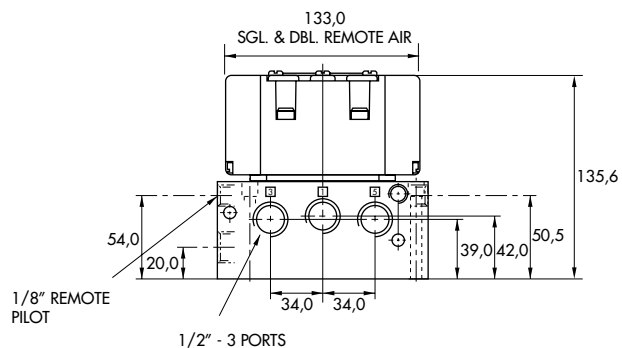
## DIMENSIONS

Dimensions shown are metric (mm)  
Dimensions shown are metric (mm)

**SHOWN ON  
INDIVIDUAL BASE**



**SHOWN ON  
MANIFOLD BASE**



Individual mounting

valve only	
------------	--

Series

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

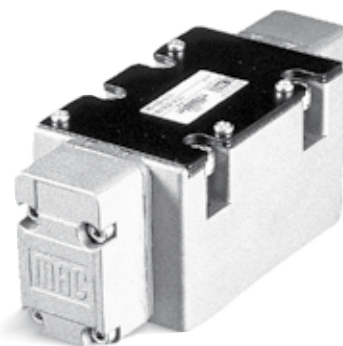
ISO 3



Function	Port size	Flow [Max]	Individual mounting	Series
<b>5/2 - 5/3</b>	<b>1/2" - 3/4"</b>	<b>6.3 C<sub>v</sub></b>	valve only	

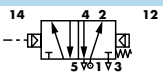
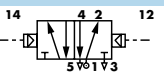
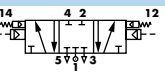
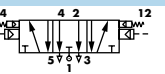
## OPERATIONAL BENEFITS

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.

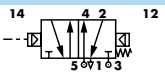
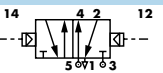
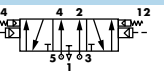


## HOW TO ORDER

### SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A3B-B111	-----	-----	-----
External	MV-A3B-B121	MV-A3B-B221	MV-A3B-B322	MV-A3B-B321

### DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A3B-B131	-----	-----
Internal port 5	MV-A3B-B135	-----	-----
External	MV-A3B-B141	MV-A3B-B241	MV-A3B-B341

Note : ISO valves are delivered w/o base. See page 281 for base code.

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3



# TECHNICAL DATA

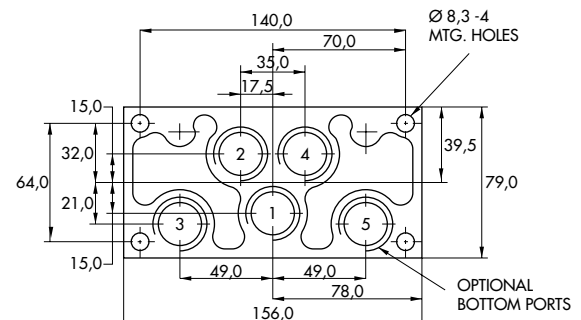
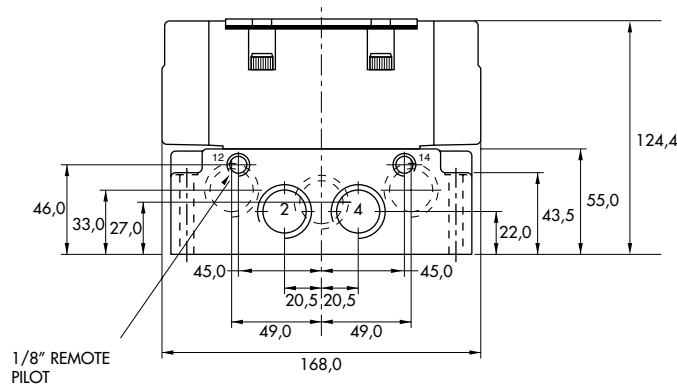
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI $\geq$ main valve pressure      Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 $\mu$
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1$ bar) :	1/2" - 3/4" : (6.3 C <sub>v</sub> )

Spare parts :

• Remote air operator : R-A3004. • Pressure seal between valve and base : 16436. • Mounting screw body to base (x4) : 35416.

# DIMENSIONS

Dimensions shown are metric (mm)





## Section 3 Mechanically and manually operated valves

Function	Port size	Flow (Max)
<b>3/2 - 2/2</b>	<b>1/8" - 1/4"</b>	<b>0.18 C<sub>v</sub></b>
<b>3/2 - 2/2</b>	<b>1/8" - 1/4"</b>	<b>0.14 C<sub>v</sub></b>
<b>5/2 - 5/3</b>	<b>1/4"</b>	<b>1.35 C<sub>v</sub></b>

Individual mounting		Manifold mounting		Series
Inline		sub-base		
P. 273		P. 275		1100
P. 279				1800



Individual mounting

Inline	
--------	--

Manifold mounting

sub-base	
----------	--

Series

1100
1800



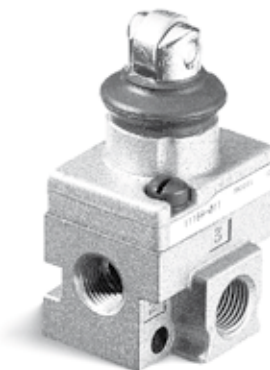
Function	Port size	Flow [Max]	Individual mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8" - 1/4"</b>	<b>0.18 C<sub>v</sub></b>	Inline	

## OPERATIONAL BENEFITS

1. Short stroke with high flow.
2. Powerful return spring.

**1100**

**1800**



## HOW TO ORDER

Port size	Universal valve	NC only valve
<b>1/8" NPTF</b>	1111A- <b>XXX</b>	1161A- <b>XXX</b>
<b>1/4" NPTF</b>	1113A- <b>XXX</b>	1163A- <b>XXX</b>

## MECHANICAL OPERATOR ➤

**XXX**

Code	Description	Code	Description	Code	Description
<b>011</b>	Cam roller parallel to ports 1 & 2	<b>023</b>	Lever locking pull perpendicular to ports 1 & 2	<b>031</b>	Push button
<b>012</b>	Cam roller perpendicular to ports 1 & 2	<b>024</b>	Lever non-locking pull perpendicular to ports 1 & 2	<b>032</b>	Push button (panel mounting)
<b>013</b>	Lever cam perpendicular to ports 1 & 2	<b>025</b>	Lever locking push parallel to ports 1 & 2	<b>033</b>	Push button with guard
<b>014</b>	Lever cam parallel to ports 1 & 2	<b>026</b>	Lever non-locking push parallel to ports 1 & 2	<b>036</b>	Palm button
<b>021</b>	Lever locking push perpendicular to ports 1 & 2	<b>027</b>	Lever locking pull parallel to ports 1 & 2	<b>037</b>	Palm button (panel mounting)
<b>022</b>	Lever non-locking push perpendicular to ports 1 & 2	<b>028</b>	Lever non-locking pull parallel to ports 1 & 2	<b>038</b>	Palm button with guard



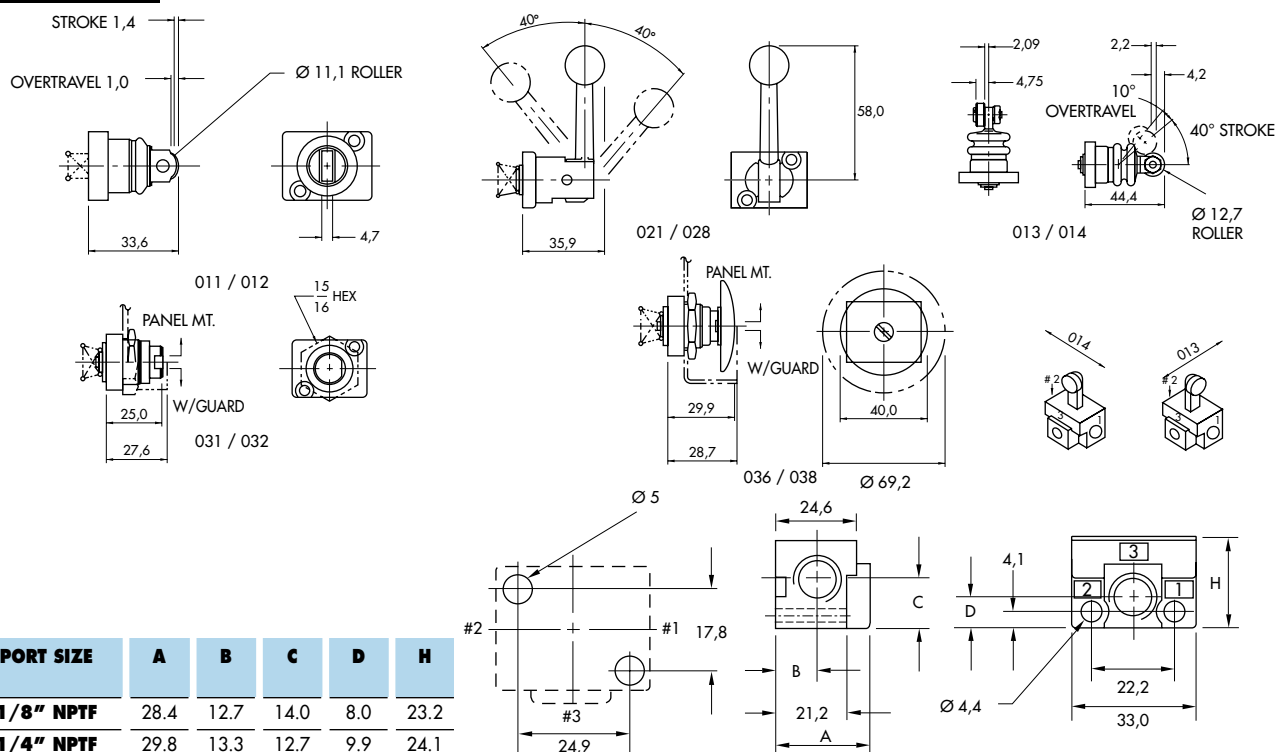
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 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" - 1/4" : (0.18-C <sub>v</sub> )

- Spare parts : • Operator : 1100A-XXX (see codification).
- Options : • BSPP threads.

# DIMENSIONS

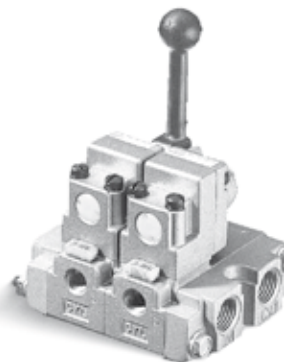
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
<b>3/2 NO-NC, 2/2 NO-NC</b>	<b>1/8"</b>	<b>0.14 C<sub>v</sub></b>	sub-base	

## OPERATIONAL BENEFITS



1. Short stroke with high flow.
2. Powerful return spring.



**1100**

**1800**

## HOW TO ORDER

Port size	Universal valve	NC only valve
		
<b>Valve less base</b>	1130A- <b>xxx</b>	1170A- <b>xxx</b>
<b>Sub-base 1/8" NPTF</b>	1132A- <b>xxx</b>	1172A- <b>xxx</b>

## MECHANICAL OPERATOR >

**xxx**

Code	Description	Code	Description
<b>025</b>	Lever locking push parallel to ports 1 & 2	<b>031</b>	Push button
<b>026</b>	Lever non-locking push parallel to ports 1 & 2	<b>028</b>	Lever non-locking pull parallel to ports 1 & 2
<b>027</b>	Lever locking pull parallel to ports 1 & 2		

End plate kit (Port size 1/4" NPTF) : A2-5004-01.

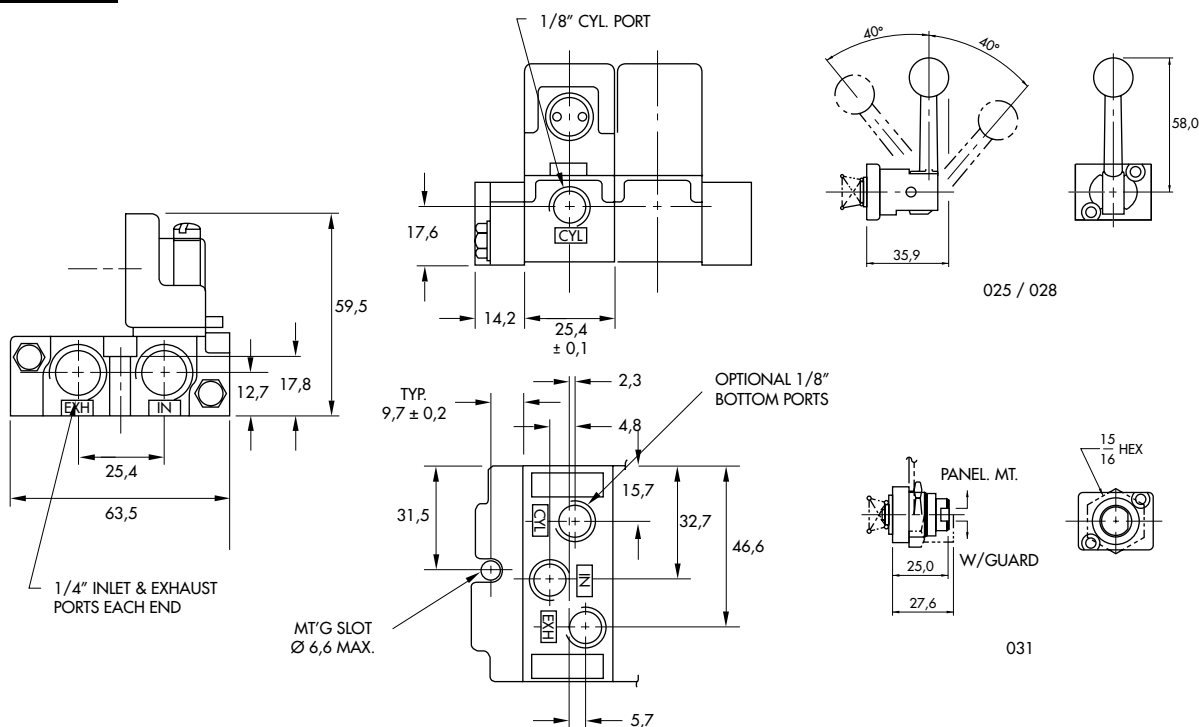
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 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" : (0.14-C <sub>v</sub> )

- Spare parts :
- Operator : 1100A-XXX (see codification).
  - Function plate : A2-7009.
  - Pressure seal between bases : 16226.
  - Tie-rod (x2) : 19546.
- Options :
- BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Inline	
--------	--

Series

1100

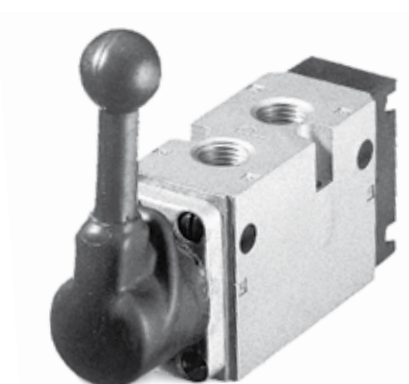
1800



Function	Port size	Flow [Max]	Individual mounting	Series
<b>5/2</b>	<b>1/4"</b>	<b>1.4 C<sub>v</sub></b>	Inline	

#### OPERATIONAL BENEFITS

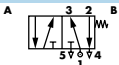
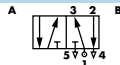
1. Short stroke with high flow.
2. Powerful return force.
3. Bonded spool with minimum friction, shifting in a glass-like finished bore.
4. Wiping effect eliminates sticking.
5. Long service life.



**1100**

**1800**

#### HOW TO ORDER

Port size	Single operator	Double operator
		
<b>1/4" NPTF</b>	180001-112-xxxx	18xxxx-112-xxxx

#### MECHANICAL OPERATOR ➤

**XXXX**

Code	Description	Code	Description	Code	Description
<b>0111</b>	Cam roller parallel to ports 2 & 3	<b>0024</b>	Lever non-locking pull perpendicular to body	<b>0033</b>	Push button with guard
<b>0112</b>	Cam roller perpendicular to ports 2 & 3	<b>0025</b>	Lever locking push parallel to body	<b>0034</b>	Push Pull
<b>0013</b>	Lever cam perpendicular to ports 2 & 3	<b>0026</b>	Lever non-locking push parallel to body	<b>0035</b>	Push Pull (panel mounting)
<b>0014</b>	Lever cam parallel to ports 2 & 3	<b>0027</b>	Lever locking pull parallel to body	<b>0036</b>	Palm button
<b>0021</b>	Lever locking push perpendicular to body	<b>0028</b>	Lever non-locking pull parallel to body	<b>0037</b>	Palm button (panel mounting)
<b>0022</b>	Lever non-locking push perpendicular to body	<b>0031</b>	Push button	<b>0038</b>	Palm button with guard
<b>0023</b>	Lever locking pull perpendicular to body	<b>0032</b>	Push button (panel mounting)	<b>0039</b>	Push Pull palm button

#### OPTIONS

002X

Replace 0 by 2 for lever operator with boot (see photo)

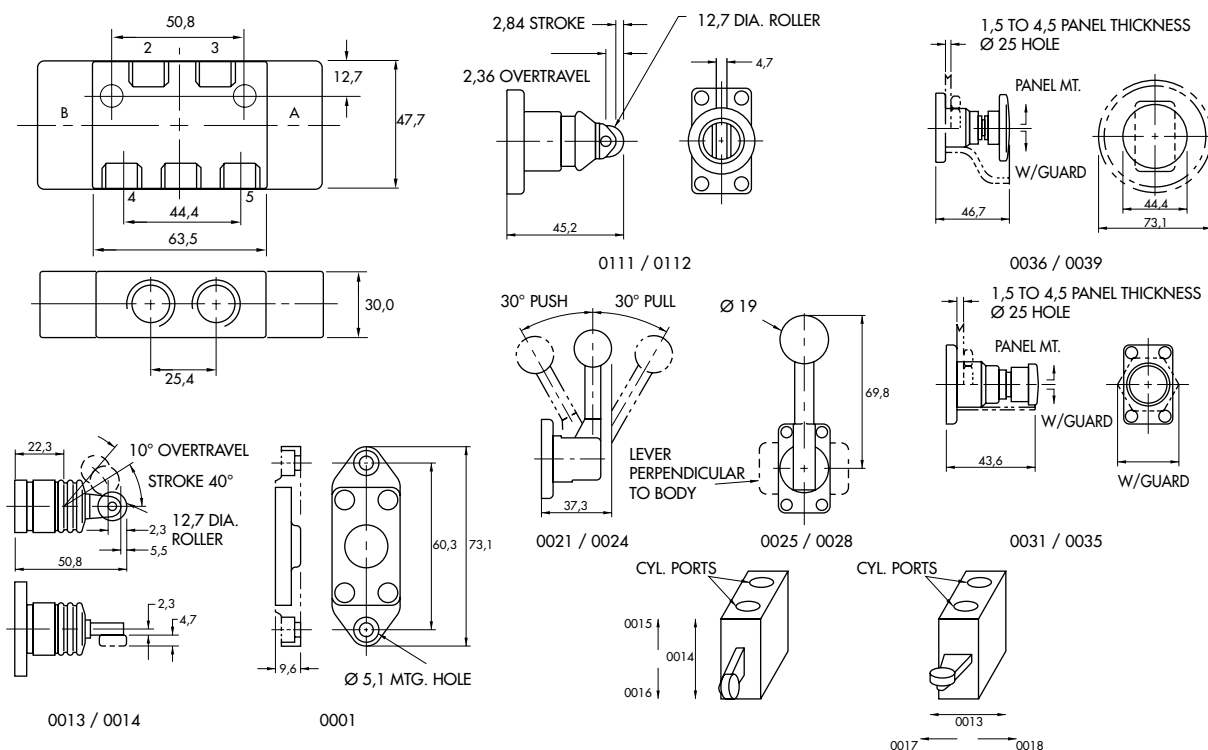
# TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 200 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4-C <sub>v</sub> )

- Spare parts : • Operator : 18XXXX (see codification).
- Options : • BSPP threads. • 3/8" ports (ports 1,2 & 3 - MOD. 0358 required).

# DIMENSIONS

Dimensions shown are metric (mm)





## Section 4 Bases according to ISO 5599





			Series
ISO 1	ISO 2	ISO 3	
P. 285			ISO 1
	P. 287		ISO 2
		P. 289	ISO 3

**ISO 1**

**ISO 2**

**ISO 3**



**HOW TO ORDER**

INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
<b>1/4" NPTF</b>	MB-A1C-221	MB-A1C-223	MB-A1C-222	MB-A1C-224
<b>3/8" NPTF</b>	MB-A1C-231	MB-A1C-233	MB-A1C-232	MB-A1C-234

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
<b>1/4" NPTF</b>	MM-A1C-221	MM-A1C-223	MM-A1C-222	MM-A1C-224
<b>3/8" NPTF</b>	MM-A1C-231	MM-A1C-233	MM-A1C-232	MM-A1C-234

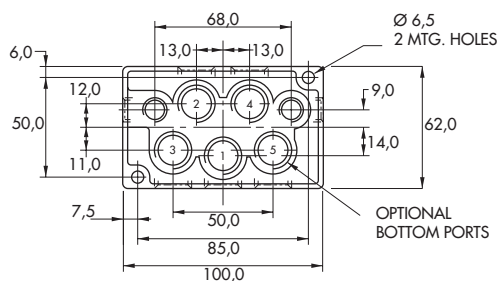
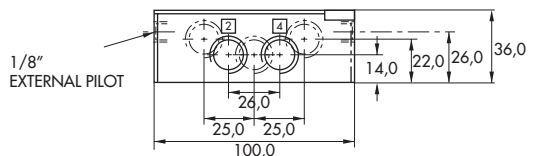
Manifold fastening kit : N-63002-01.

**DIMENSIONS**

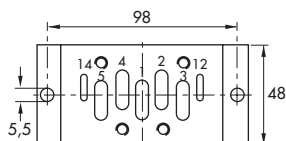
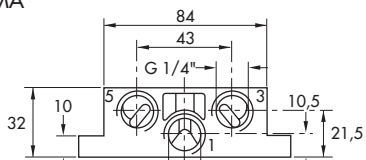
Dimensions shown are metric (mm)

**Individual**

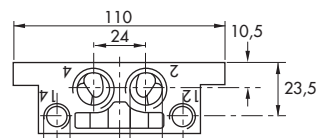
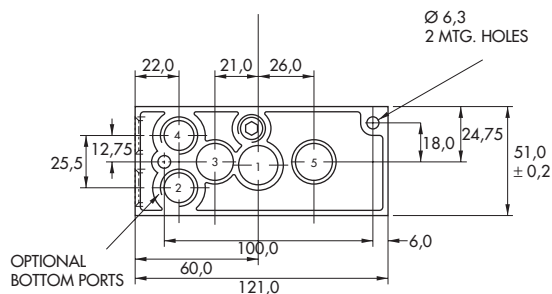
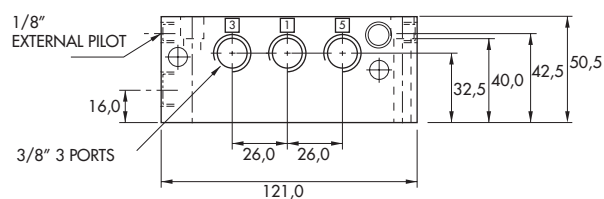
**DIN 5599/1**



**VDMA**



**Manifold**



ISO 1

**ISO 2**

ISO 3



**HOW TO ORDER**

INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
<b>3/8" NPTF</b>	MB-A2B-221	MB-A2B-223	MB-A2B-222	MB-A2B-224
<b>1/2" NPTF</b>	MB-A2B-231	MB-A2B-233	MB-A2B-232	MB-A2B-234

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
<b>3/8" NPTF</b>	MM-A2B-221	MM-A2B-223	MM-A2B-222	MM-A2B-224
<b>1/2" NPTF</b>	MM-A2B-231	MM-A2B-233	MM-A2B-232	MM-A2B-234

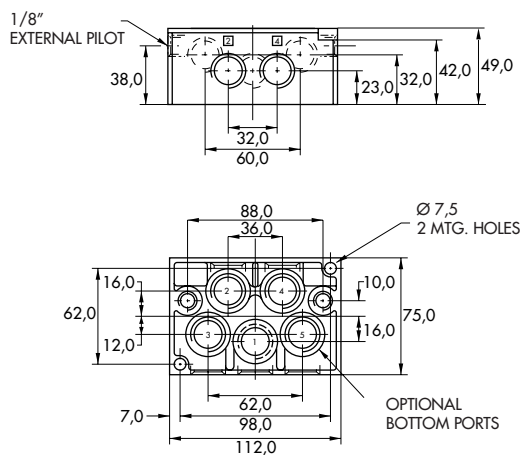
Manifold fastening kit : N-63002-01.

**DIMENSIONS**

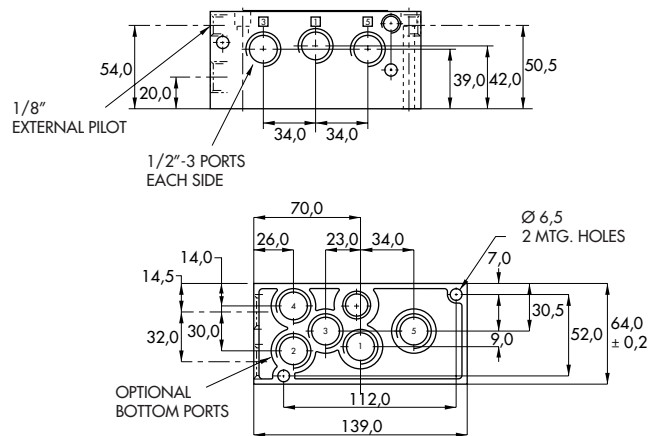
Dimensions shown are metric (mm)

**Individual**

**DIN 5599/1**



**Manifold**



Series

ISO 1

ISO 2

ISO 3



HOW TO ORDER

INDIVIDUAL BASE

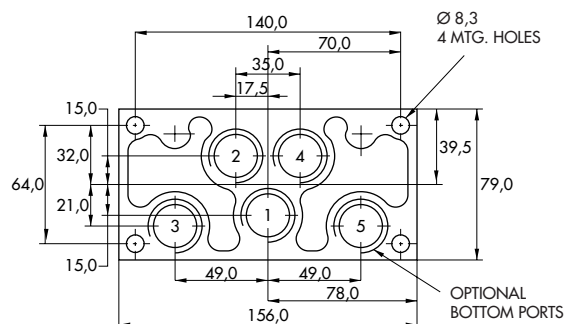
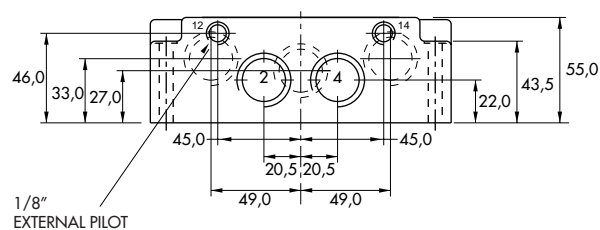
Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
1/2" NPTF	MB-A3B-221	MB-A3B-223	MB-A3B-222	MB-A3B-224
3/4" NPTF	MB-A3B-231	MB-A3B-233	MB-A3B-232	MB-A3B-234

**DIMENSIONS**

Dimensions shown are metric (mm)

Individual

ISO DIN 5599/1





## Section 5 Interchangable sub-bases and manifolds





			Series
MAC 125	MAC 250	MAC 500	
P. 295			MAC 125
	P. 297		MAC 250
		P. 299	MAC 500

**MAC 125**

**MAC 250**

**MAC 500**



**HOW TO ORDER**

INDIVIDUAL BASE

Port size	Side ports
<b>1/4" NPTF</b>	MAC125A-B21A
<b>3/8" NPTF</b>	MAC125A-B31A

MANIFOLD BASE

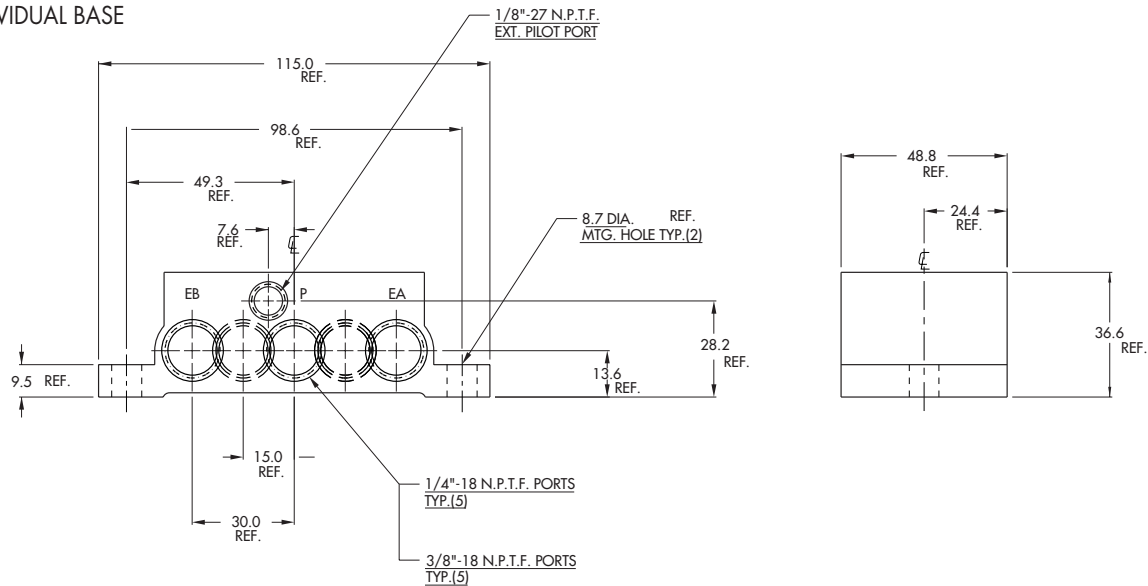
Port size	Bottom cylinder ports	Side & bottom cylinder ports
<b>1/4" NPTF</b>	MAC125A-M21B	MAC125A-M21C
<b>3/8" NPTF</b>	MAC125A-M31B	MAC125A-M31C

Manifold fastening kit : M-12001-01 (3/8" NPTF)

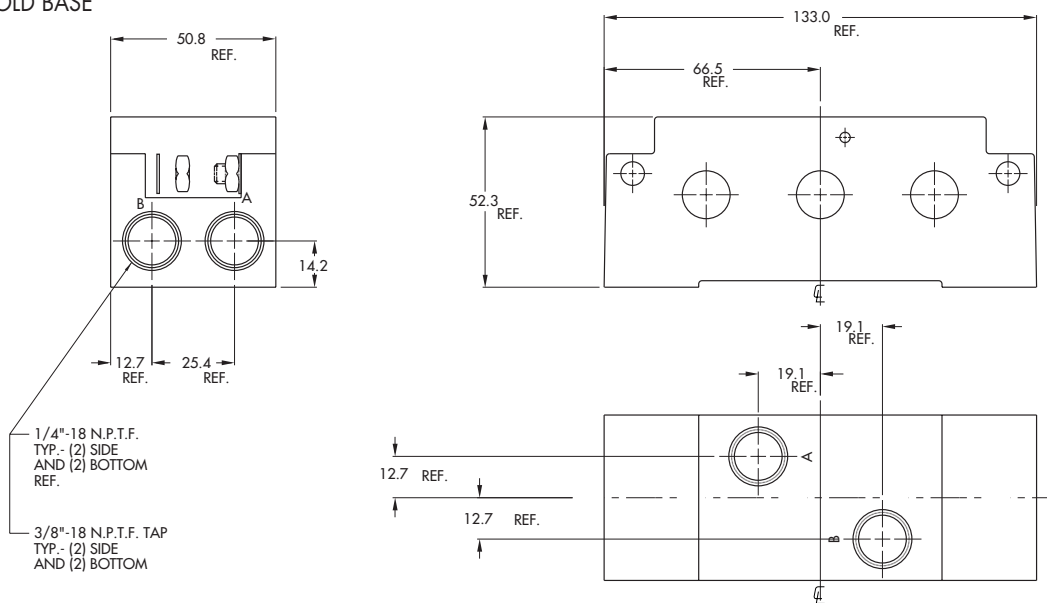
**DIMENSIONS**

Dimensions shown are metric (mm)

**INDIVIDUAL BASE**



**MANIFOLD BASE**





**MAC 125**

**MAC 250**

**MAC 500**

**HOW TO ORDER**

INDIVIDUAL BASE

Port size	Side ports
<b>1/2" NPTF</b>	MAC250A-B21A
<b>3/4" NPTF</b>	MAC250A-B31A
<b>1" NPTF</b>	MAC250A-B41A

MANIFOLD BASE

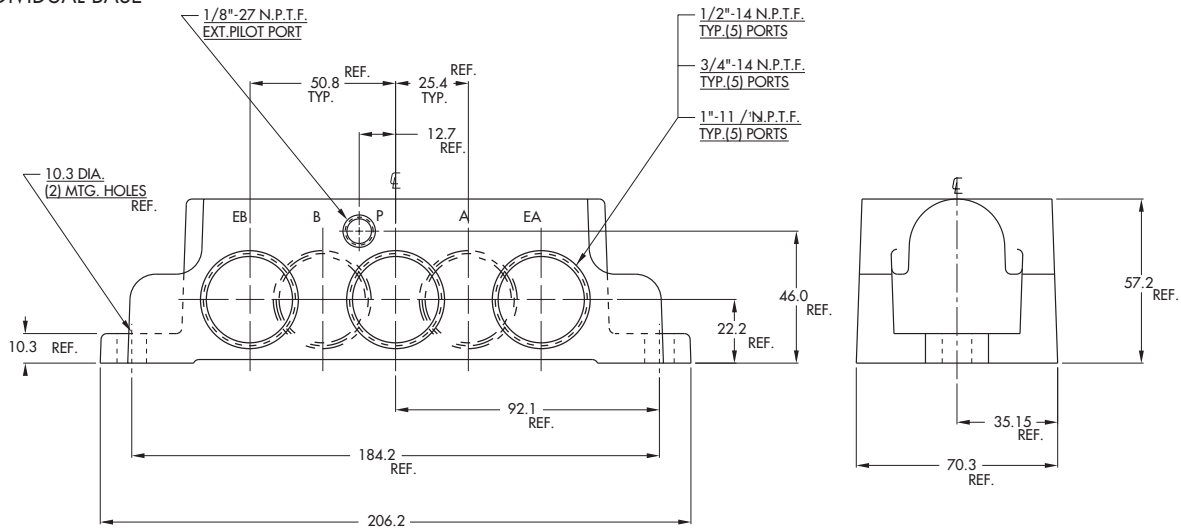
Port size	Bottom cylinder ports	Side & bottom cylinder ports
<b>1/2" NPTF</b>	MAC250A-M21B	MAC250A-M21C
<b>3/4" NPTF</b>	MAC250A-M31B	MAC250A-M31C

Manifold fastening kit : M-25001-01 (only required for manifolds with side & bottom cylinder ports)

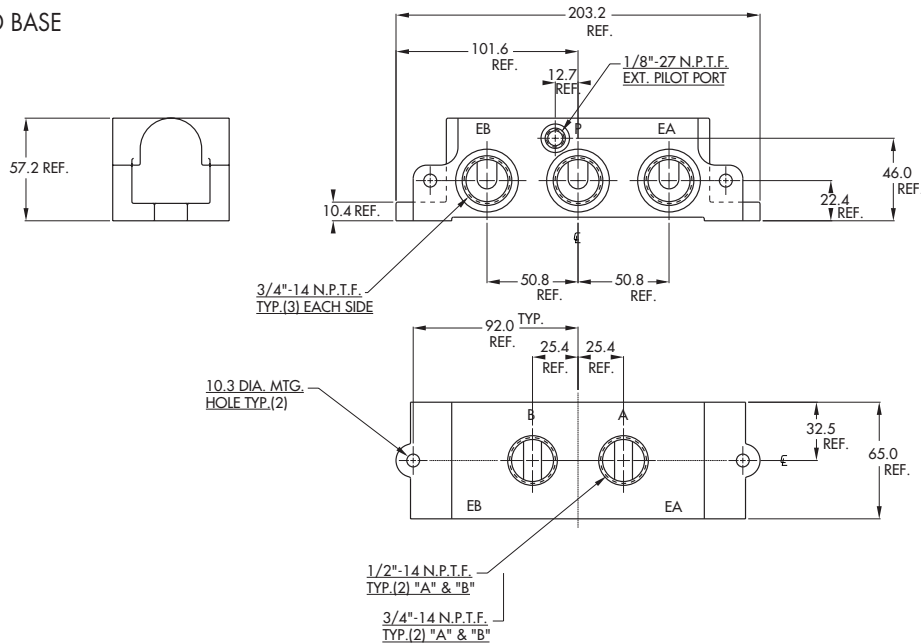
**DIMENSIONS**

Dimensions shown are metric (mm)

**INDIVIDUAL BASE**



**MANIFOLD BASE**



Series

MAC 125

MAC 250

MAC 500



HOW TO ORDER

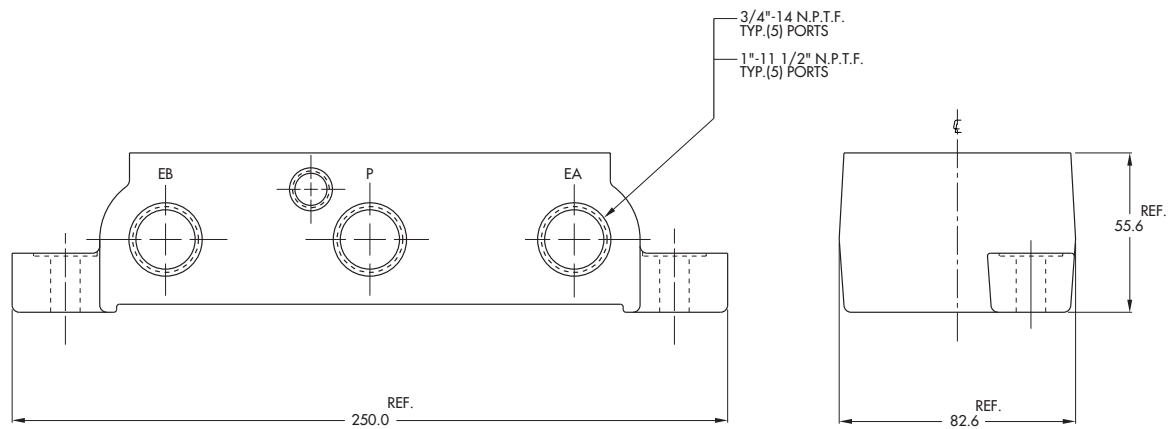
INDIVIDUAL BASE

Port size	Side ports
3/4" NPTF	MAC500A-B21A
1" NPTF	MAC500A-B31A

**DIMENSIONS**

Dimensions shown are metric (mm)

INDIVIDUAL BASE



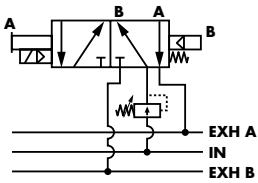


## Section 6 Pressure regulators



# Manual adjust

Single  
regulator  
Single  
pressure

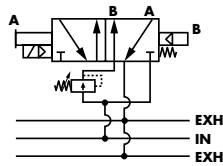


P. 305

P. 309

P. 313

Single  
regulator  
Dual pressure

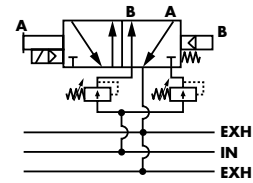


P. 305

P. 309

P. 313

Dual regulator  
Dual pressure

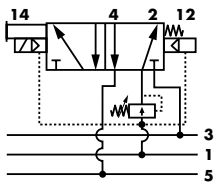


P. 305

P. 309

P. 313

Single  
regulator  
Single  
pressure

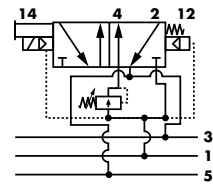


P. 317

P. 321

P. 325

Single  
regulator  
Dual pressure

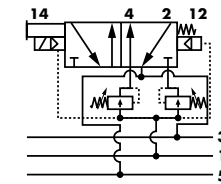


P. 317

P. 321

P. 325

Dual regulator  
Dual pressure

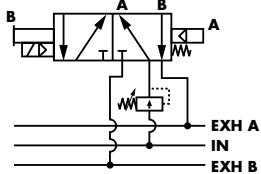


P. 317

P. 321

P. 325

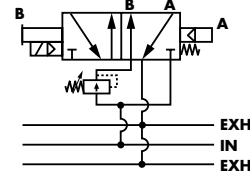
Single  
regulator  
Single  
pressure



P. 329

P. 333

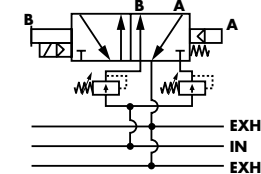
Single  
regulator  
Dual pressure



P. 329

P. 333

Dual regulator  
Dual pressure



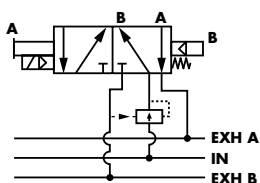
P. 329

P. 333

# Air adjust

Series

Single  
regulator  
Single  
pressure

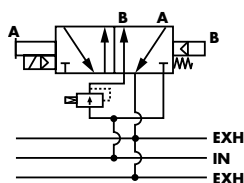


P. 307

P. 311

P. 315

Single  
regulator  
Dual pressure

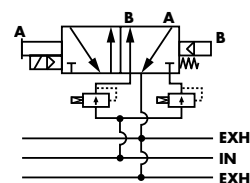


P. 307

P. 311

P. 315

Dual regulator  
Dual pressure



P. 307

P. 311

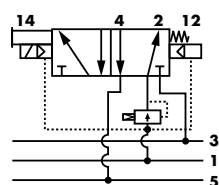
P. 315

**PR82A**

**PR63D**

**PR65C**

Single  
regulator  
Single  
pressure

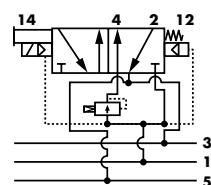


P. 319

P. 323

P. 327

Single  
regulator  
Dual pressure

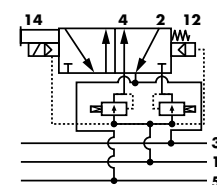


P. 319

P. 323

P. 327

Dual regulator  
Dual pressure



P. 319

P. 323

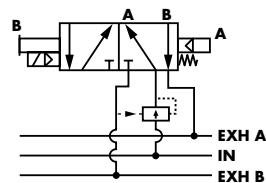
P. 327

**PRA1A**

**PRA2D**

**PRA3C**

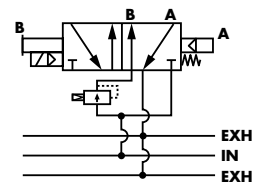
Single  
regulator  
Single  
pressure



P. 331

P. 335

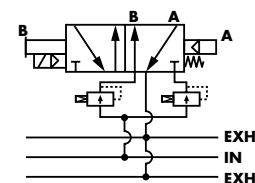
Single  
regulator  
Dual pressure



P. 331

P. 335

Dual regulator  
Dual pressure



P. 331

P. 335

**PR125A**

**PR250B**

**Sandwich pressure regulator with manual adjust locking knob.**

**OPERATIONAL BENEFITS**

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**

**PR63D**

**PR65C**

**HOW TO ORDER**

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR82A-GADA	PR82A-GCDA	PR82A-GBDA	PR82A-GDDA
Gauge parallel to regulator	PR82A-GACA	PR82A-GCCA	PR82A-GBCA	PR82A-GDCA
Gauge perpendicular to regulator	PR82A-GABA	PR82A-GCBA	PR82A-GBBA	PR82A-GDBA

REGULATORS FOR "NON PLUG-IN" AND REMOTE AIR VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR82A-HADA	PR82A-HCDA	PR82A-HBDA	PR82A-HDDA
Gauge parallel to regulator	PR82A-HACA	PR82A-HCCA	PR82A-HBCA	PR82A-HDCA
Gauge perpendicular to regulator	PR82A-HABA	PR82A-HCBA	PR82A-HBBA	PR82A-HDBA

Note : regulating range for above models is 0-120 PSI. For other ranges see technical data page.

\* To be used with dual pressure valves.

**ADJUSTMENT OPTIONS**

PR82A-xxxx

- Replace by A for "plug-in" with slotted stem adjustment.
- Replace by B for "non plug-in" with slotted stem adjustment.
- Replace by K for "plug-in" with locking slotted stem adjustment.
- Replace by L for "non plug-in" with locking slotted stem adjustment.

\*\*SELECTOR OPTIONS selects pressure to inlet of adjacent valve.

PR82A-xxxx

- Replace by S for dual regulators.
- Replace by T for regulator on "B" end with by-pass on "A" end.

\*\* This option must be used with a single pressure valve and selector manifold base.

**PRA1A**

**PRA2D**

**PRA3C**

**PR125A**

**PR250B**

# TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 120 PSI (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(1.08 C <sub>v</sub> )

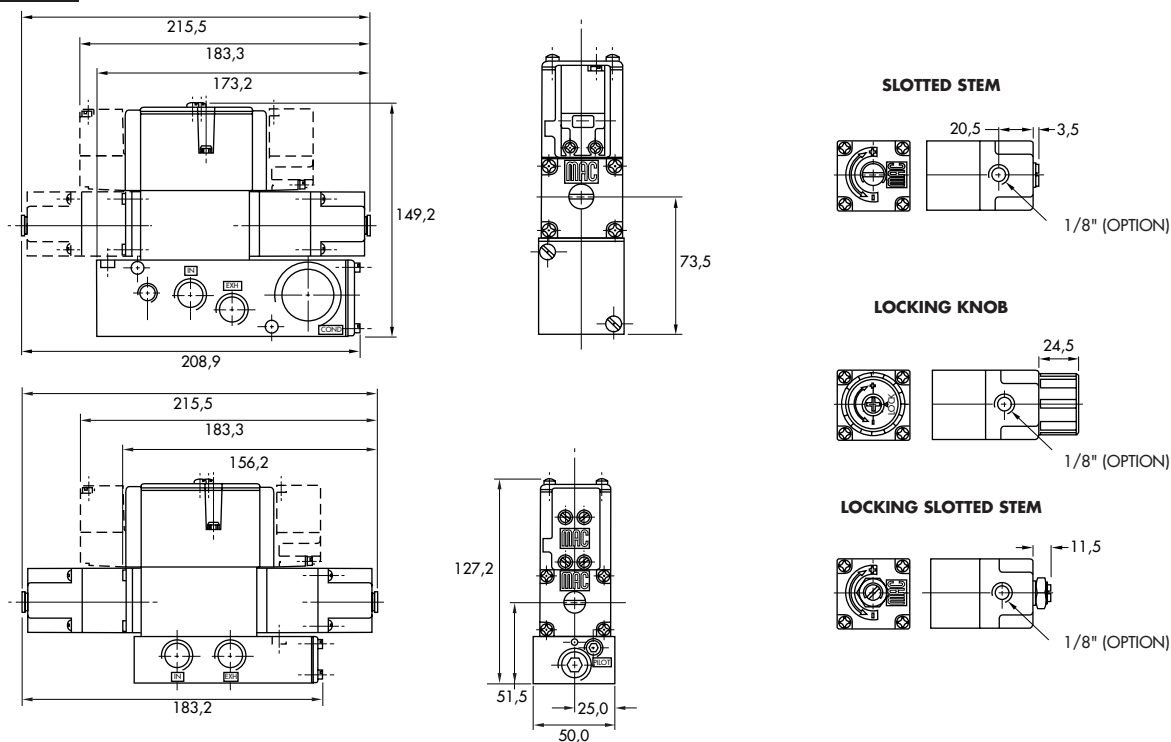
- Spare parts :
- Pressure regulator (less sandwich block) : PR82A-J0AA (KNOB), PR82A-C0AA (SLOTTED STEM), PR82A-M0AA (LOCKING SLOTTED STEM).
  - Gauges : N-82016-01 (0-120 PSI perpendicular)  
N-82016-02 (0-120 PSI parallel)  
N-82016-03 (0-80 PSI perpendicular)  
N-82016-04 (0-80 PSI parallel)  
N-82016-05 (0-30 PSI perpendicular)  
N-82016-06 (0-30 PSI parallel)

Regulating range options : PR82A-XXXXA

- |              |   |
|--------------|---|
| Replace by B | - 0 to 80 PSI   |
| Replace by C | - 0 to 30 PSI   |
| Replace by D | - 0 to 120 PSI on "A" end<br>- 0 to 80 PSI on "B" end |
| Replace by E | - 0 to 120 PSI on "B" end<br>- 0 to 80 PSI on "A" end |
| Replace by F | - 0 to 120 PSI on "A" end<br>- 0 to 30 PSI on "B" end |
| Replace by G | - 0 to 120 PSI on "B" end<br>- 0 to 30 PSI on "A" end |
| Replace by H | - 0 to 80 PSI on "A" end<br>- 0 to 30 PSI on "B" end  |
| Replace by J | - 0 to 80 PSI on "B" end<br>- 0 to 30 PSI on "A" end  |

# DIMENSIONS

Dimensions shown are metric (mm)



**Sandwich pressure regulator with air pilot adjust.**

**OPERATIONAL BENEFITS**

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**

**PR63D**

**PR65C**

**HOW TO ORDER**

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR82A-DADA	PR82A-DCDA	PR82A-DBDA	PR82A-DDDA
Gauge parallel to regulator	PR82A-DACA	PR82A-DCCA	PR82A-DBCA	PR82A-DDCA
Gauge perpendicular to regulator	PR82A-DABA	PR82A-DCBA	PR82A-DBBA	PR82A-DDBA

REGULATORS FOR "NON PLUG-IN" AND REMOTE AIR VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR82A-EADA	PR82A-ECDA	PR82A-EBDA	PR82A-EDDA
Gauge parallel to regulator	PR82A-EACA	PR82A-ECCA	PR82A-EBCA	PR82A-EDCA
Gauge perpendicular to regulator	PR82A-EABA	PR82A-ECBA	PR82A-EBBA	PR82A-EDBA

\* To be used with dual pressure valves.

**PRA1A**

**PRA2D**

**PRA3C**

**PR125A**

**PR250B**

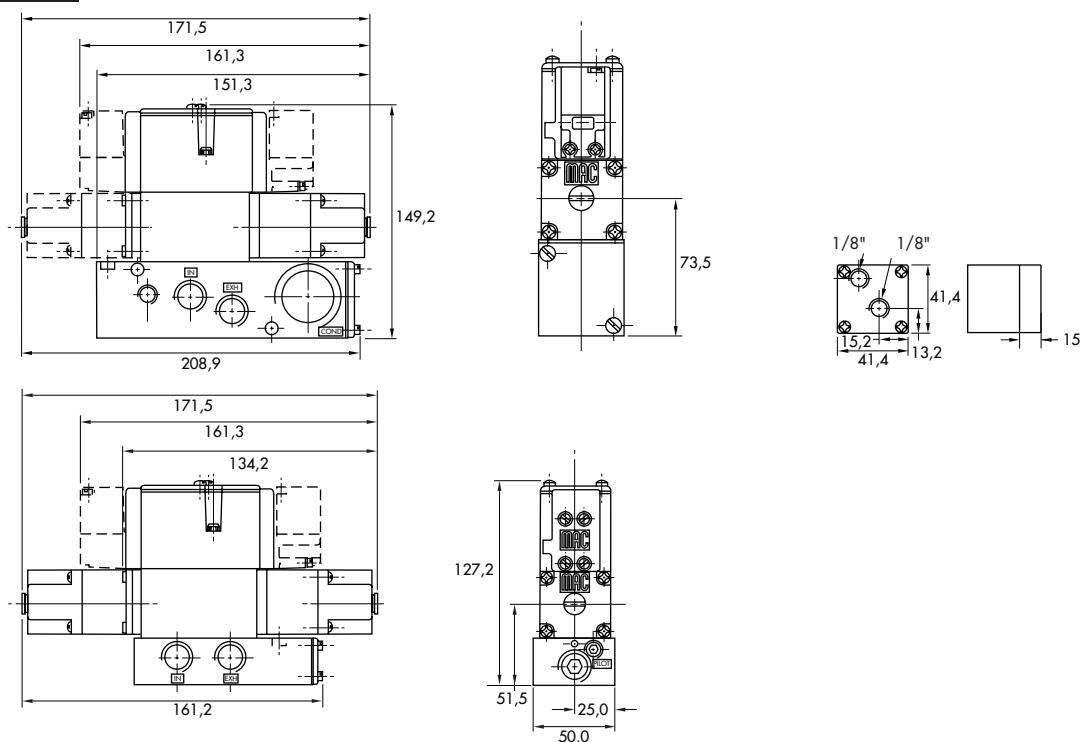
# TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(1.08 C <sub>v</sub> )

- Spare parts :
- Pressure regulator (less sandwich block) : PR82A-FOAA.
  - Gauges : N-82016-01 (0-120 PSI perpendicular)  
N-82016-02 (0-120 PSI parallel)

# DIMENSIONS

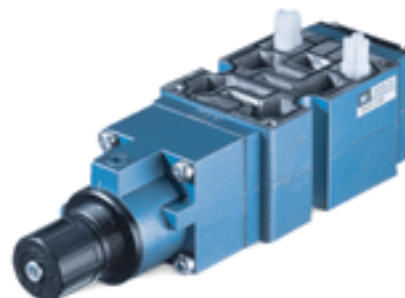
Dimensions shown are metric (mm)



## Sandwich pressure regulator with manual adjust knob.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**  
**PR63D**  
**PR65C**

### HOW TO ORDER

#### REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR63D-22AA	PR63D-21AA	PR63D-24AA	PR63D-23AA	PR63D-25AA
Glycerine filled gauge on regulator(s)	PR63D-22BA	PR63D-21BA	PR63D-24BA	PR63D-23BA	PR63D-25DA
Glycerine filled gauge opposite to regulator	PR63D-22CA	PR63D-21CA	PR63D-24CA	PR63D-23CA	-----
Non-filled gauge on regulator(s)	PR63D-22FA	PR63D-21FA	PR63D-24FA	PR63D-23FA	PR63D-25HA
Non-filled gauge opposite to regulator	PR63D-22GA	PR63D-21GA	PR63D-24GA	PR63D-23GA	-----

Note : above models are coded for use with double solenoid plug-in valves.

#### REGULATORS FOR "NON PLUG-IN" AND REMOTE AIR VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR63D-32AA	PR63D-31AA	PR63D-34AA	PR63D-33AA	PR63D-35AA
Glycerine filled gauge on regulator(s)	PR63D-32BA	PR63D-31BA	PR63D-34BA	PR63D-33BA	PR63D-35DA
Glycerine filled gauge opposite to regulator	PR63D-32CA	PR63D-31CA	PR63D-34CA	PR63D-33CA	-----
Non-filled gauge on regulator(s)	PR63D-32FA	PR63D-31FA	PR63D-34FA	PR63D-33FA	PR63D-35HA
Non-filled gauge opposite to regulator	PR63D-32GA	PR63D-31GA	PR63D-34GA	PR63D-33GA	-----

Note : regulating range for above models is 0-150 PSI.  
For other ranges see technical data page.

\* To be used with dual pressure valves (manifolds only).

### PLUG-IN OPTIONS

PR63D-xxxx

- Replace by 1 for single solenoid plug-in with knob adjustment.

### ADJUSTMENT OPTIONS

PR63D-xxxx

- Replace by A for slotted stem adjustment for single solenoid plug-in.
- Replace by B for slotted stem adjustment for double solenoid plug-in.
- Replace by C for slotted stem adjustment for non plug-in valves.
- Replace by E for slotted stem with locknut for single solenoid plug-in.
- Replace by F for slotted stem with locknut for double solenoid plug-in.
- Replace by G for slotted stem with locknut for non plug-in valves.

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

**PRA1A**  
**PRA2D**  
**PRA3C**

**PR125A**  
**PR250B**

# TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(2.4 C <sub>v</sub> )

Spare parts :

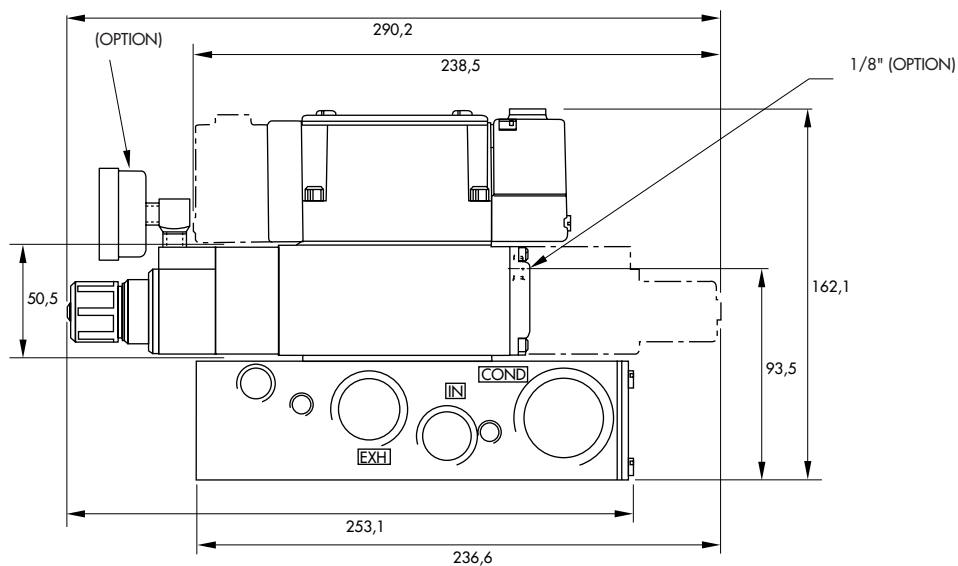
- Pressure regulator (less sandwich block) : PR63D-41AA (KNOB), PR63D-D1AA (SLOTTED STEM), PR63D-H1AA (SLOTTED STEM WITH LOCKNUT).
- Gauges :
  - Glycerine filled : N-62015-01
  - Non filled : N-62016-01

Regulating range options : PR63D-XXXX

Replace by B - 0 to 100 PSI  
 Replace by C - 0 to 45 PSI

# DIMENSIONS

Dimensions shown are metric (mm)

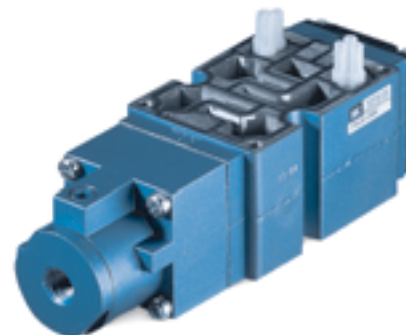




## Sandwich pressure regulator with air pilot adjust.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**

**PR63D**

**PR65C**

### HOW TO ORDER

#### REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B *	Dual pressure Regulator B end Regulated pressure to port A *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR63D-2BAA	PR63D-2AAA	PR63D-2DAA	PR63D-2CAA	PR63D-2EAA
Glycerine filled gauge on regulator(s)	PR63D-2BBA	PR63D-2ABA	PR63D-2DBA	PR63D-2CBA	PR63D-2EDA
Glycerine filled gauge opposite to regulator	PR63D-2BCA	PR63D-2ACA	PR63D-2DCA	PR63D-2CCA	-----
Non-filled gauge on regulator(s)	PR63D-2BFA	PR63D-2AFA	PR63D-2DFA	PR63D-2CFA	PR63D-2EHA
Non-filled gauge opposite to regulator	PR63D-2BGA	PR63D-2AGA	PR63D-2DGA	PR63D-2CGA	-----

Note : above models are coded for use with double solenoid plug-in valves.

#### REGULATORS FOR "NON PLUG-IN" AND REMOTE AIR VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B *	Dual pressure Regulator B end Regulated pressure to port A *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR63D-3BAA	PR63D-3AAA	PR63D-3DAA	PR63D-3CAA	PR63D-3EAA
Glycerine filled gauge on regulator(s)	PR63D-3BBA	PR63D-3ABA	PR63D-3DBA	PR63D-3CBA	PR63D-3EDA
Glycerine filled gauge opposite to regulator	PR63D-3BCA	PR63D-3ACA	PR63D-3DCA	PR63D-3CCA	-----
Non-filled gauge on regulator(s)	PR63D-3BFA	PR63D-3AFA	PR63D-3DFA	PR63D-3CFA	PR63D-3EHA
Non-filled gauge opposite to regulator	PR63D-3BGA	PR63D-3AGA	PR63D-3DGA	PR63D-3CGA	-----

\* To be used with dual pressure valves (available only on manifolds).

### PLUG-IN OPTIONS

PR63D-**xxxx**

- Replace by 1 for single solenoid plug-in.

**PRA1A**

**PRA2D**

**PRA3C**

**PR125A**

**PR250B**

#### TECHNICAL DATA

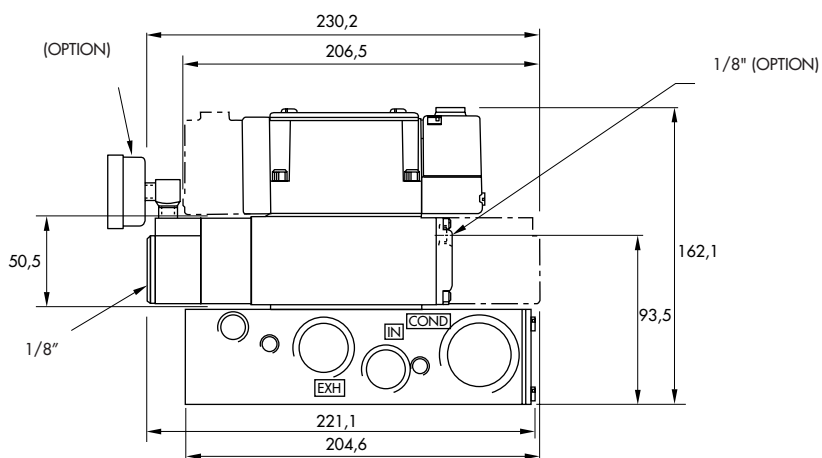
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	(2.4 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PR63D-4AAA.
- Gauges :
  - Glycerine filled : N-62015-01
  - Non filled : N-62016-01

#### DIMENSIONS

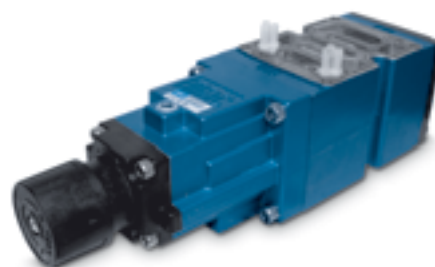
Dimensions shown are metric (mm)



## Sandwich pressure regulator with manual adjust knob.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A

PR63D

PR65C

### HOW TO ORDER

#### REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-22AA	PR65C-21AA	PR65C-24AA	PR65C-23AA	PR65C-25AA
Glycerine filled gauge on regulator(s)	PR65C-22BA	PR65C-21BA	PR65C-24BA	PR65C-23BA	PR65C-25DA
Glycerine filled gauge opposite to regulator	PR65C-22CA	PR65C-21CA	PR65C-24CA	PR65C-23CA	-----
Non-filled gauge on regulator(s)	PR65C-22FA	PR65C-21FA	PR65C-24FA	PR65C-23FA	PR65C-25HA
Non-filled gauge opposite to regulator	PR65C-22GA	PR65C-21GA	PR65C-24GA	PR65C-23GA	-----

Note : above models are coded for use with double solenoid plug-in valves.

#### REGULATORS FOR "NON PLUG-IN" AND REMOTE AIR VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-32AA	PR65C-31AA	PR65C-34AA	PR65C-33AA	PR65C-35AA
Glycerine filled gauge on regulator(s)	PR65C-32BA	PR65C-31BA	PR65C-34BA	PR65C-33BA	PR65C-35DA
Glycerine filled gauge opposite to regulator	PR65C-32CA	PR65C-31CA	PR65C-34CA	PR65C-33CA	-----
Non-filled gauge on regulator(s)	PR65C-32FA	PR65C-31FA	PR65C-34FA	PR65C-33FA	PR65C-35HA
Non-filled gauge opposite to regulator	PR65C-32GA	PR65C-31GA	PR65C-34GA	PR65C-33GA	-----

Note : regulating range for above models is 0-150 PSI.  
For other ranges see technical data page.

### PLUG-IN OPTIONS

PR65C-xxxx

- Replace by 1 for single solenoid plug-in with knob adjustment.

### ADJUSTMENT OPTIONS

PR65C-xxxx

- Replace by A for slotted stem adjustment for single solenoid plug-in.
- Replace by B for slotted stem adjustment for double solenoid plug-in.
- Replace by C for slotted stem adjustment for non plug-in valves.
- Replace by E for slotted stem with locknut for single solenoid plug-in.
- Replace by F for slotted stem with locknut for double solenoid plug-in.
- Replace by G for slotted stem with locknut for non plug-in valves.

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

PRA1A

PRA2D

PRA3C

PR125A

PR250B

# TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	(4.0 C <sub>v</sub> )

Spare parts :

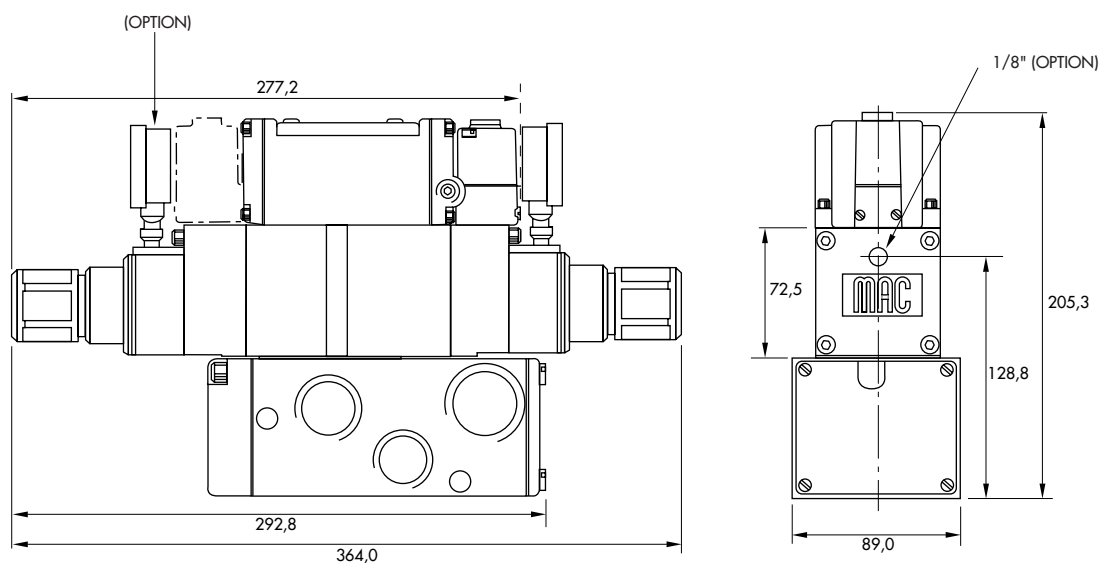
- Pressure regulator (less sandwich block) : PR65C-41AA (KNOB), PR65C-D1AA (SLOTTED STEM), PR65C-H1AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

Regulating range options : PR65C-XXXX

Replace by B - 0 to 100 PSI  
Replace by C - 0 to 45 PSI

# DIMENSIONS

Dimensions shown are metric (mm)



## Sandwich pressure regulator with air pilot adjust.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A

PR63D

**PR65C**

### HOW TO ORDER

#### REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-2BAA	PR65C-2AAA	PR65C-2DAA	PR65C-2CAA	PR65C-2EAA
Glycerine filled gauge on regulator(s)	PR65C-2BBA	PR65C-2ABA	PR65C-2DBA	PR65C-2CBA	PR65C-2EDA
Glycerine filled gauge opposite to regulator	PR65C-2BCA	PR65C-2ACA	PR65C-2DCA	PR65C-2CCA	-----
Non-filled gauge on regulator(s)	PR65C-2BFA	PR65C-2AFA	PR65C-2DFA	PR65C-2CFA	PR65C-2EHA
Non-filled gauge opposite to regulator	PR65C-2BGA	PR65C-2AGA	PR65C-2DGA	PR65C-2CGA	-----

Note : above models are coded for use with double solenoid plug-in valves.

#### REGULATORS FOR "NON PLUG-IN" AND REMOTE AIR VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-3BAA	PR65C-3AAA	PR65C-3DAA	PR65C-3CAA	PR65C-3EAA
Glycerine filled gauge on regulator(s)	PR65C-3BBA	PR65C-3ABA	PR65C-3DBA	PR65C-3CBA	PR65C-3EDA
Glycerine filled gauge opposite to regulator	PR65C-3BCA	PR65C-3ACA	PR65C-3DCA	PR65C-3CCA	-----
Non-filled gauge on regulator(s)	PR65C-3BFA	PR65C-3AFA	PR65C-3DFA	PR65C-3CFA	PR65C-3EHA
Non-filled gauge opposite to regulator	PR65C-3BGA	PR65C-3AGA	PR65C-3DGA	PR65C-3CGA	-----

PRA1A

PRA2D

PRA3C

PR125A

PR250B

### PLUG-IN OPTIONS

PR65C-xxxx

— Replace by 1 for single solenoid plug-in.

# TECHNICAL DATA

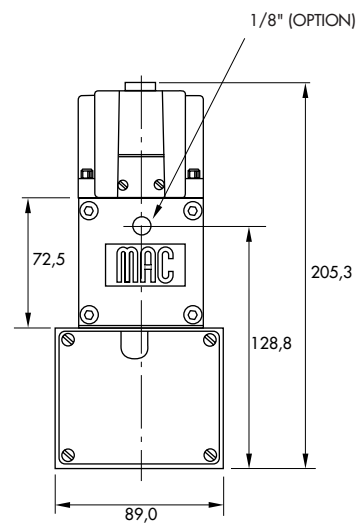
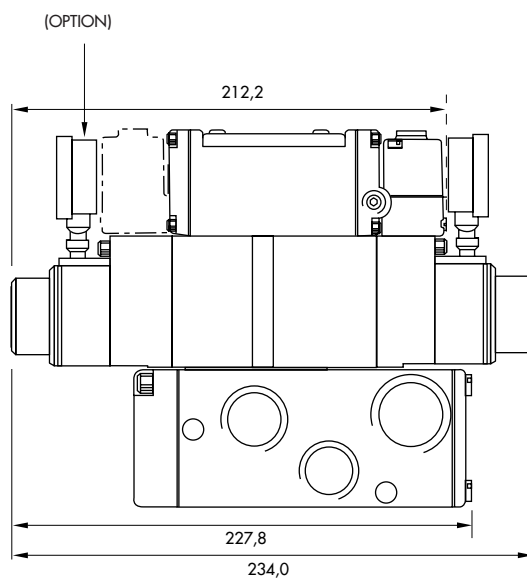
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	(4.0 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PR65C-4AAA.
- Gauges : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

# DIMENSIONS

Dimensions shown are metric (mm)



## Sandwich pressure regulator with manual adjust knob.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**  
**PR63D**  
**PR65C**

### HOW TO ORDER

#### INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure <sup>*</sup> Regulator 14 end Regulated pressure to port 4	Dual pressure <sup>*</sup> Regulator 12 end Regulated pressure to port 2	Dual pressure <sup>*</sup> Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA1A-GAAA	PRA1A-GCAA	PRA1A-GBAA	PRA1A-GDAA	PRA1A-GEAA
Gauge parallel to regulator(s)	PRA1A-GADA	PRA1A-GCDA	PRA1A-GBDA	PRA1A-GDDA	PRA1A-GEEA
Gauge perpendicular to regulator(s)	PRA1A-GABA	PRA1A-GCBA	PRA1A-GBBA	PRA1A-GDBA	PRA1A-GECA

#### EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure <sup>*</sup> Regulator 14 end Regulated pressure to port 4	Dual pressure <sup>*</sup> Regulator 12 end Regulated pressure to port 2	Dual pressure <sup>*</sup> Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA1A-HAAA	PRA1A-HCAA	PRA1A-HBAA	PRA1A-HDAA	PRA1A-HEAA
Gauge parallel to regulator(s)	PRA1A-HADA	PRA1A-HCDA	PRA1A-HBDA	PRA1A-HDDA	PRA1A-HEEA
Gauge perpendicular to regulator(s)	PRA1A-HABA	PRA1A-HCBA	PRA1A-HBBA	PRA1A-HDBA	PRA1A-HECA

\* - To be used with dual pressure valves.

Valve code is : MV-A1C-AX5X-PM-XYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A1C-AX4X-PM-XYZZ (dual pressure ext. pilot)

Note : regulating range for above models is 0-120 PSI. For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35336.

**PRA1A**  
**PRA2D**  
**PRA3C**

**PR125A**  
**PR250B**

### ADJUSTMENT OPTIONS

PRA1A-XXXX

- Replace by A for slotted stem adjustment (internal pilot)
- Replace by B for slotted stem adjustment (external/remote air)
- Replace by K for slotted stem with locknut (internal pilot)
- Replace by L for slotted stem with locknut (external/remote air)

# TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 120 PSI (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(1.0 C <sub>v</sub> )

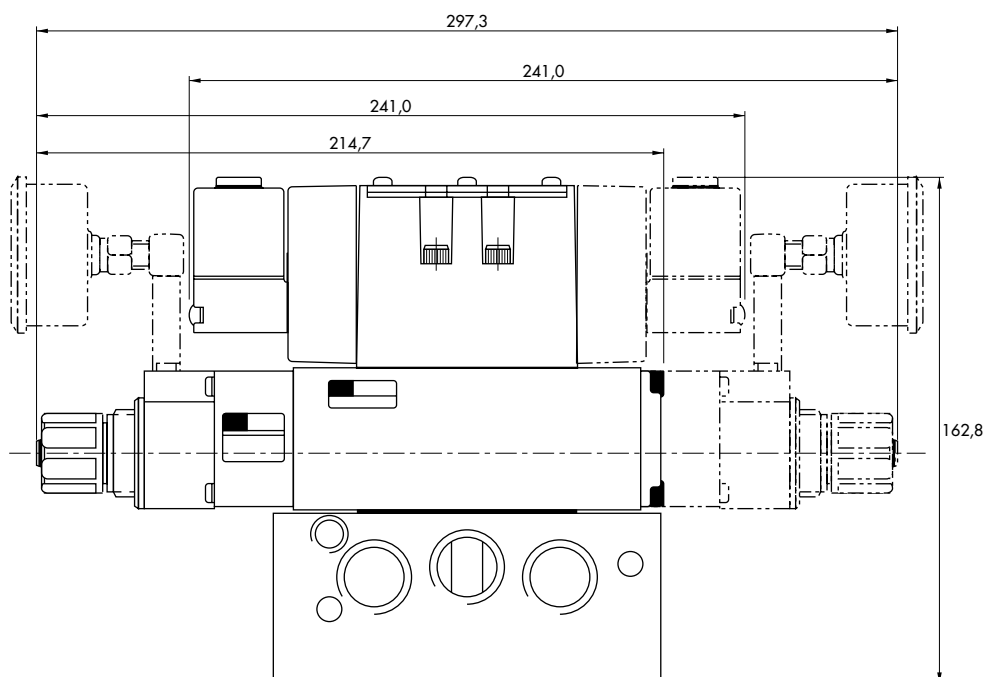
- Spare parts :
- Pressure regulator (less sandwich block) : PRA1A-J0AA (KNOB), PRA1A-C0AA (SLOTTED STEM), PRA1A-M0AA (SLOTTED STEM WITH LOCKNUT).
  - Gauges : N-82016-01 (0-120 PSI perpendicular)  
N-82016-02 (0-120 PSI parallel)  
N-82016-03 (0-80 PSI perpendicular)  
N-82016-04 (0-80 PSI parallel)  
N-82016-05 (0-30 PSI perpendicular)  
N-82016-06 (0-30 PSI parallel)

Regulating range options : PRA1A-XXXX

- |              |                            |
|--------------|----------------------------|
| Replace by B | - 0 to 80 PSI              |
| Replace by C | - 0 to 30 PSI              |
| Replace by D | - 0 to 120 PSI on "14" end |
|              | - 0 to 80 PSI on "12" end  |
| Replace by E | - 0 to 120 PSI on "12" end |
|              | - 0 to 80 PSI on "14" end  |
| Replace by F | - 0 to 120 PSI on "14" end |
|              | - 0 to 30 PSI on "12" end  |
| Replace by G | - 0 to 120 PSI on "12" end |
|              | - 0 to 30 PSI on "14" end  |
| Replace by H | - 0 to 80 PSI on "14" end  |
|              | - 0 to 30 PSI on "12" end  |
| Replace by J | - 0 to 80 PSI on "12" end  |
|              | - 0 to 30 PSI on "14" end  |

# DIMENSIONS

Dimensions shown are metric (mm)

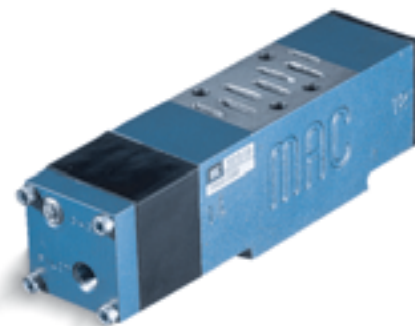




**Sandwich pressure regulator with air pilot adjust.**

**OPERATIONAL BENEFITS**

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**  
**PR63D**  
**PR65C**

**HOW TO ORDER**

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA1A-DAAA	PRA1A-DCAA	PRA1A-DBAA	PRA1A-DDAA	PRA1A-DEAA
Gauge parallel to regulator(s)	PRA1A-DADA	PRA1A-DCDA	PRA1A-DBDA	PRA1A-DDDA	PRA1A-DEEA
Gauge perpendicular to regulator(s)	PRA1A-DABA	PRA1A-DCBA	PRA1A-DBBA	PRA1A-DDBA	PRA1A-DECA

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA1A-EAAA	PRA1A-ECAA	PRA1A-EBAA	PRA1A-EDAA	PRA1A-EEAA
Gauge parallel to regulator(s)	PRA1A-EADA	PRA1A-ECDA	PRA1A-EBDA	PRA1A-EDDA	PRA1A-EEEA
Gauge perpendicular to regulator(s)	PRA1A-EABA	PRA1A-ECBA	PRA1A-EBBA	PRA1A-EDBA	PRA1A-EECA

\* - To be used with dual pressure valves.

Valve code is : MV-A1C-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A1C-AX4X-PM-XXYZZ (dual pressure ext. pilot)

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35336.

**PRA1A**  
**PRA2D**  
**PRA3C**

**PR125A**  
**PR250B**

#### TECHNICAL DATA

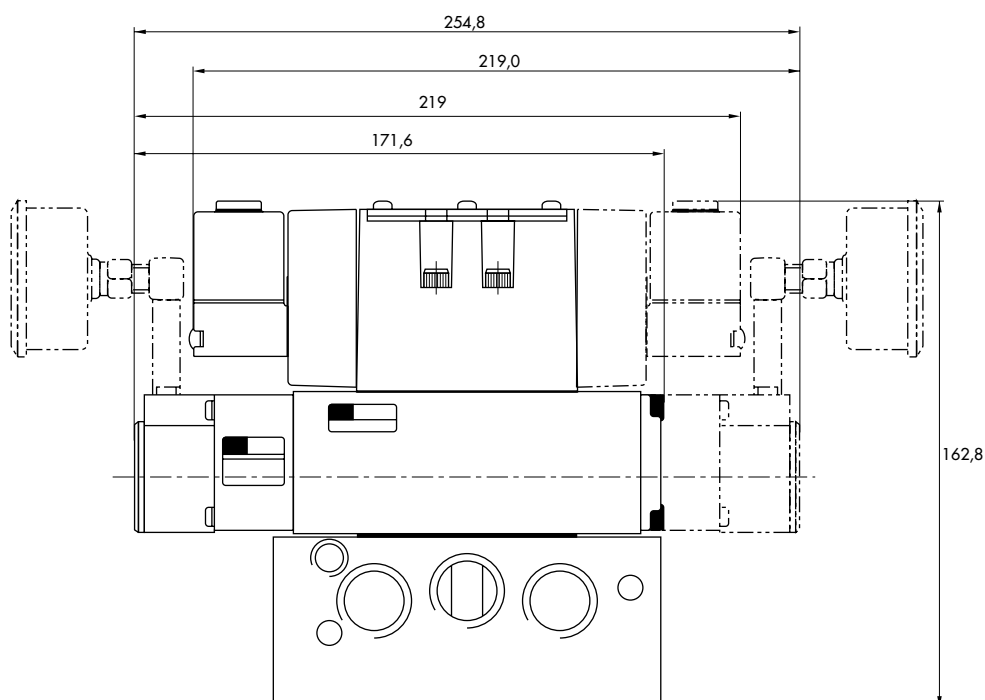
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(1.0 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PRA1A-FOAA.
- Gauges : N-82016-01 (0-120 PSI perpendicular)  
N-82016-02 (0-120 PSI parallel)

#### DIMENSIONS

Dimensions shown are metric (mm)



## Sandwich pressure regulator with manual adjust knob.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**  
**PR63D**  
**PR65C**

### HOW TO ORDER

#### INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-1AAA	PRA2D-1EAA	PRA2D-1BAA	PRA2D-1FAA	PRA2D-1JAA
Non-filled gauge on regulator(s)	PRA2D-1ADA	PRA2D-1EDA	PRA2D-1BDA	PRA2D-1FDA	PRA2D-1JEA
Non-filled gauge opposite to regulator	PRA2D-1CDA	PRA2D-1GDA	PRA2D-1DDA	PRA2D-1HDA	----
Glycerine filled gauge on regulator(s)	PRA2D-1ABA	PRA2D-1EBA	PRA2D-1BBA	PRA2D-1FBA	PRA2D-1JCA
Glycerine filled gauge opposite to regulator	PRA2D-1CBA	PRA2D-1GBA	PRA2D-1DBA	PRA2D-1HBA	----

**PRA1A**  
**PRA2D**  
**PRA3C**

#### EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-2AAA	PRA2D-2EAA	PRA2D-2BAA	PRA2D-2FAA	PRA2D-2JAA
Non-filled gauge on regulator(s)	PRA2D-2ADA	PRA2D-2EDA	PRA2D-2BDA	PRA2D-2FDA	PRA2D-2JEA
Non-filled gauge opposite to regulator	PRA2D-2CDA	PRA2D-2GDA	PRA2D-2DDA	PRA2D-2HDA	----
Glycerine filled gauge on regulator(s)	PRA2D-2ABA	PRA2D-2EBA	PRA2D-2BBA	PRA2D-2FBA	PRA2D-2JCA
Glycerine filled gauge opposite to regulator	PRA2D-2CBA	PRA2D-2GBA	PRA2D-2DBA	PRA2D-2HBA	----

\* - To be used with dual pressure valves.

Valve code is : MV-A2B-AX5X-PM-XXYYZ (sgl. pressure ext. pilot)

Valve code is : MV-A2B-AX4X-PM-XXYYZ (dual pressure ext. pilot)

Note : regulating range for above models is 0-150 PSI.

For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #19177.

### ADJUSTMENT OPTIONS

PRA2D-xxxx

- Replace by A for slotted stem adjustment (internal pilot)
- Replace by B for slotted stem adjustment (external pilot)
- Replace by D for slotted stem with locknut (internal pilot)
- Replace by E for slotted stem with locknut (external pilot)

**PR125A**  
**PR250B**

#### TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(2.3 C <sub>v</sub> )

Spare parts :

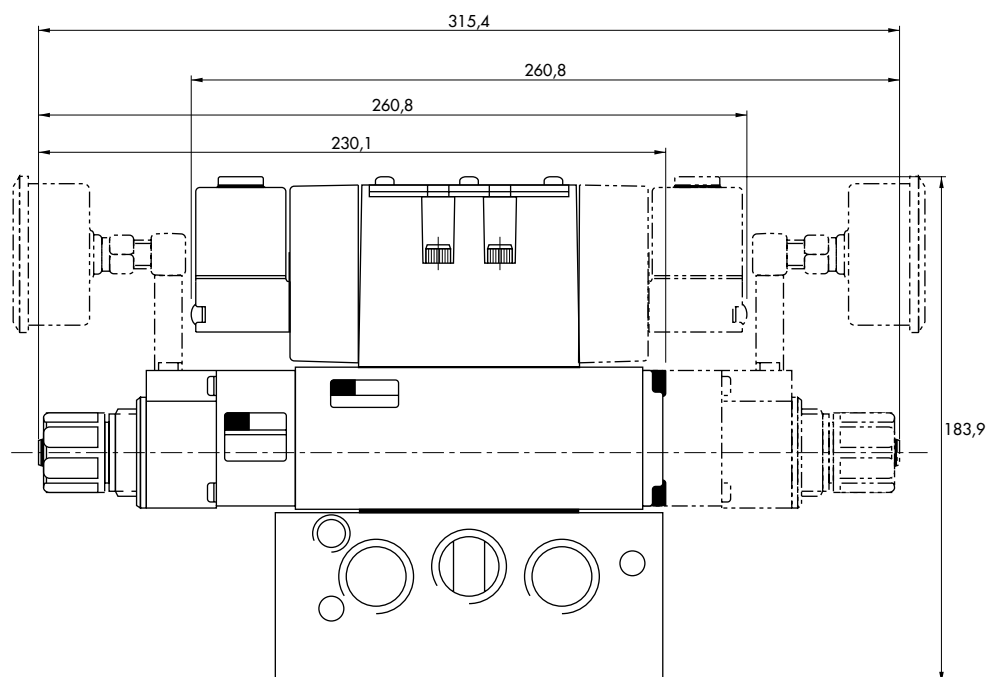
- Pressure regulator (less sandwich block) : PRA2D-30AA (KNOB), PRA2D-C0AA (SLOTTED STEM), PRA2D-F0AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

Regulating range options : PRA2D-XXXA

Replace by B - 0 to 100 PSI  
 Replace by C - 0 to 45 PSI

#### DIMENSIONS

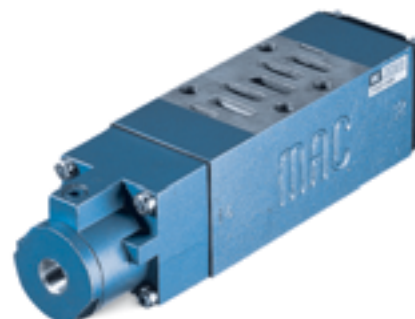
Dimensions shown are metric (mm)



## Sandwich pressure regulator with air pilot adjust.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**  
**PR63D**  
**PR65C**

### HOW TO ORDER

#### INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA2D-4AAA	PRA2D-4EAA	PRA2D-4BAA	PRA2D-4FAA	PRA2D-4JAA
Non-filled gauge on regulator(s)	PRA2D-4ADA	PRA2D-4EDA	PRA2D-4BDA	PRA2D-4FDA	PRA2D-4JEA
Non-filled gauge opposite to regulator	PRA2D-4CDA	PRA2D-4GDA	PRA2D-4DDA	PRA2D-4HDA	-----
Glycerine filled gauge on regulator(s)	PRA2D-4ABA	PRA2D-4EBA	PRA2D-4BBA	PRA2D-4FBA	PRA2D-4JCA
Glycerine filled gauge opposite to regulator	PRA2D-4CBA	PRA2D-4GBA	PRA2D-4DBA	PRA2D-4HBA	-----

**PRA1A**  
**PRA2D**  
**PRA3C**

#### EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA2D-5AAA	PRA2D-5EAA	PRA2D-5BAA	PRA2D-5FAA	PRA2D-5JAA
Non-filled gauge on regulator(s)	PRA2D-5ADA	PRA2D-5EDA	PRA2D-5BDA	PRA2D-5FDA	PRA2D-5JEA
Non-filled gauge opposite to regulator	PRA2D-5CDA	PRA2D-5GDA	PRA2D-5DDA	PRA2D-5HDA	-----
Glycerine filled gauge on regulator(s)	PRA2D-5ABA	PRA2D-5EBA	PRA2D-5BBA	PRA2D-5FBA	PRA2D-5JCA
Glycerine filled gauge opposite to regulator	PRA2D-5CBA	PRA2D-5GBA	PRA2D-5DBA	PRA2D-5HBA	-----

\* - To be used with dual pressure valves.

Valve code is : MV-A2B-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A2B-AX4X-PM-XXYZZ (dual pressure ext. pilot)

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #19177.

**PR125A**  
**PR250B**

#### TECHNICAL DATA

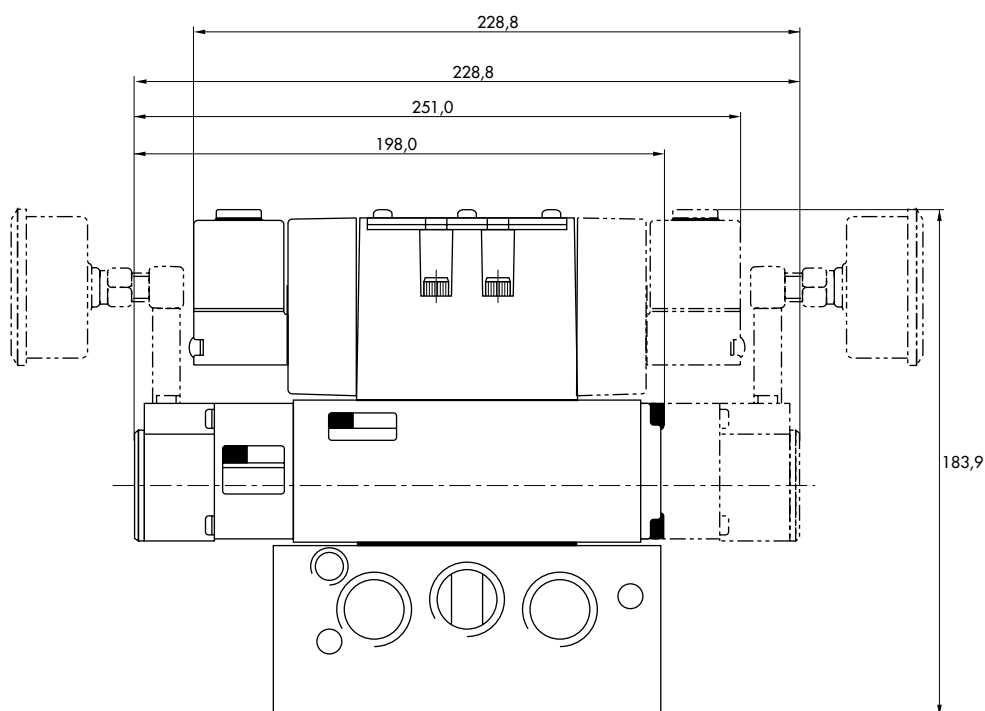
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(2.3 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PRA2D-60AA.
- Gauges :
  - Glycerine filled : N-62015-01
  - Non filled : N-62016-01

#### DIMENSIONS

Dimensions shown are metric (mm)



**Sandwich pressure regulator with manual adjust knob.**

**OPERATIONAL BENEFITS**

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**  
**PR63D**  
**PR65C**

**HOW TO ORDER**

**INTERNAL PILOT**

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-1AAA	PRA3C-1EAA	PRA3C-1BAA	PRA3C-1FAA	PRA3C-1JAA
Non-filled gauge on regulator(s)	PRA3C-1ADA	PRA3C-1EDA	PRA3C-1BDA	PRA3C-1FDA	PRA3C-1JEA
Non-filled gauge opposite to regulator	PRA3C-1CDA	PRA3C-1GDA	PRA3C-1DDA	PRA3C-1HDA	----
Glycerine filled gauge on regulator(s)	PRA3C-1ABA	PRA3C-1EBA	PRA3C-1BBA	PRA3C-1FBA	PRA3C-1JCA
Glycerine filled gauge opposite to regulator	PRA3C-1CBA	PRA3C-1GBA	PRA3C-1DBA	PRA3C-1HBA	----

**PRA1A**  
**PRA2D**  
**PRA3C**

**EXTERNAL PILOT AND REMOTE AIR**

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-2AAA	PRA3C-2EAA	PRA3C-2BAA	PRA3C-2FAA	PRA3C-2JAA
Non-filled gauge on regulator(s)	PRA3C-2ADA	PRA3C-2EDA	PRA3C-2BDA	PRA3C-2FDA	PRA3C-2JEA
Non-filled gauge opposite to regulator	PRA3C-2CDA	PRA3C-2GDA	PRA3C-2DDA	PRA3C-2HDA	----
Glycerine filled gauge on regulator(s)	PRA3C-2ABA	PRA3C-2EBA	PRA3C-2BBA	PRA3C-2FBA	PRA3C-2JCA
Glycerine filled gauge opposite to regulator	PRA3C-2CBA	PRA3C-2GBA	PRA3C-2DBA	PRA3C-2HBA	----

\* - To be used with dual pressure valves.

Valve code is : MV-A3B-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A3B-AX4X-PM-XXYZZ (dual pressure ext. pilot)

Note : regulating range for above models is 0-150 PSI.

For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35418.

**ADJUSTMENT OPTIONS**

PRA3C-xxxx

- Replace by A for slotted stem adjustment (internal pilot)
- Replace by B for slotted stem adjustment (external pilot)
- Replace by D for slotted stem with locknut (internal pilot)
- Replace by E for slotted stem with locknut (external pilot)

**PR125A**  
**PR250B**

# TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(5.4 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PRA3C-30AA (KNOB), PRA3C-C0AA (SLOTTED STEM), PRA3C-F0AA (SLOTTED STEM WITH LOCKNUT).
- Gauges :
  - Glycerine filled : N-62015-01
  - Non filled : N-62016-01

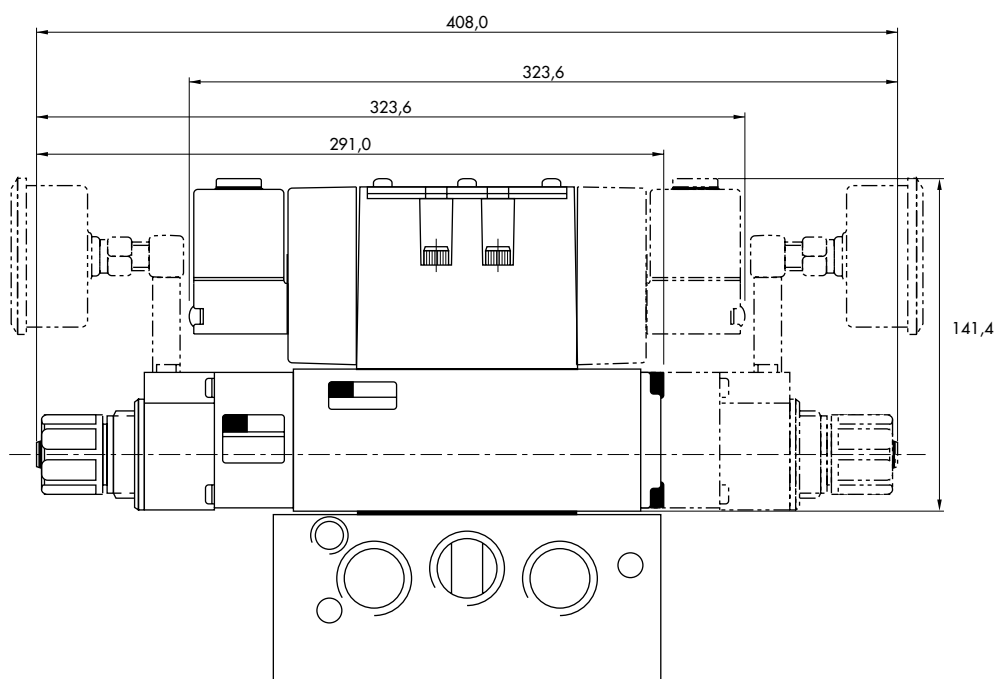
Regulating pressure options :

PRA3C-XXXA  

 Replace by B - 0 to 100 PSI  
 Replace by C - 0 to 45 PSI

# DIMENSIONS

Dimensions shown are metric (mm)





## Sandwich pressure regulator with air pilot adjust.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**  
**PR63D**  
**PR65C**

### HOW TO ORDER

#### INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA3C-4AAA	PRA3C-4EAA	PRA3C-4BAA	PRA3C-4FAA	PRA3C-4JAA
Non-filled gauge on regulator(s)	PRA3C-4ADA	PRA3C-4EDA	PRA3C-4BDA	PRA3C-4FDA	PRA3C-4JEA
Non-filled gauge opposite to regulator	PRA3C-4CDA	PRA3C-4GDA	PRA3C-4DDA	PRA3C-4HDA	----
Glycerine filled gauge on regulator(s)	PRA3C-4ABA	PRA3C-4EBA	PRA3C-4BBA	PRA3C-4FBA	PRA3C-4JCA
Glycerine filled gauge opposite to regulator	PRA3C-4CBA	PRA3C-4GBA	PRA3C-4DBA	PRA3C-4HBA	----

#### EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA3C-5AAA	PRA3C-5EAA	PRA3C-5BAA	PRA3C-5FAA	PRA3C-5JAA
Non-filled gauge on regulator(s)	PRA3C-5ADA	PRA3C-5EDA	PRA3C-5BDA	PRA3C-5FDA	PRA3C-5JEA
Non-filled gauge opposite to regulator	PRA3C-5CDA	PRA3C-5GDA	PRA3C-5DDA	PRA3C-5HDA	----
Glycerine filled gauge on regulator(s)	PRA3C-5ABA	PRA3C-5EBA	PRA3C-5BBA	PRA3C-5FBA	PRA3C-5JCA
Glycerine filled gauge opposite to regulator	PRA3C-5CBA	PRA3C-5GBA	PRA3C-5DBA	PRA3C-5HBA	----

\* - To be used with dual pressure valves.

Valve code is : MV-A3B-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A3B-AX4X-PM-XXYZZ (dual pressure ext. pilot)

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35418.

**PRA1A**  
**PRA2D**  
**PRA3C**

**PR125A**  
**PR250B**

#### TECHNICAL DATA

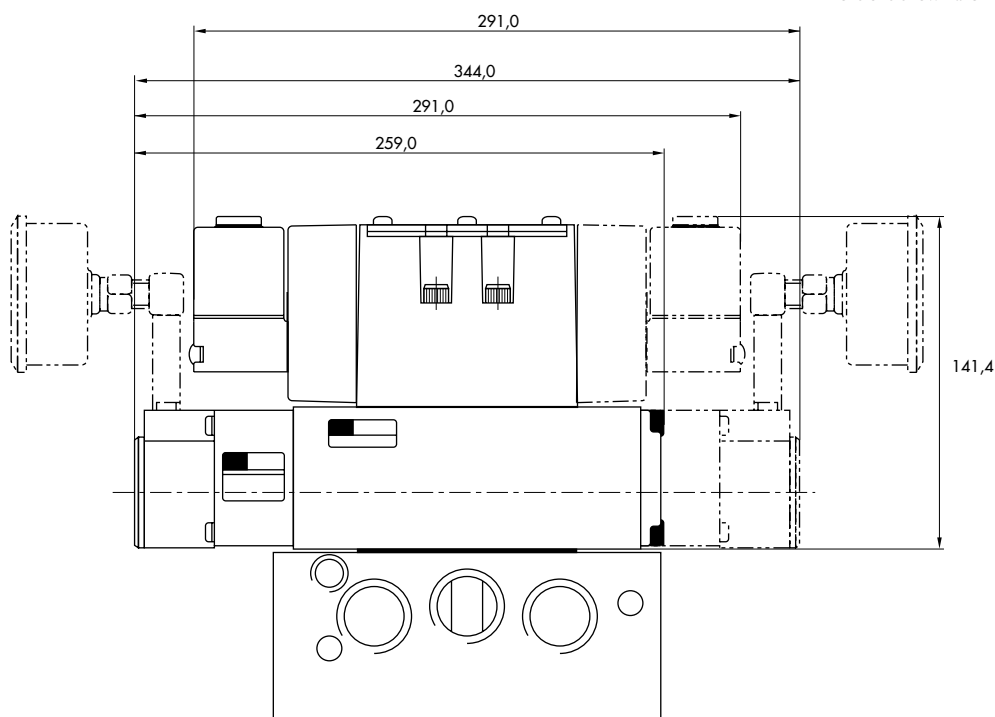
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(5.4 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PRA3C-60AA.
- Gauges :
  - Glycerine filled : N-62015-01
  - Non filled : N-62016-01

#### DIMENSIONS

Dimensions shown are metric (mm)



## Sandwich pressure regulator with manual adjust knob.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A  
PR63D  
PR65C

### HOW TO ORDER

#### INTERNAL PILOT REGULATORS

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR125A-GCAA	PR125A-GAAA	PR125A-GDAA	PR125A-GBAA	PR125A-GEAA
Gauge parallel to regulator(s)	PR125A-GCDA	PR125A-GADA	PR125A-GDDA	PR125A-GBDA	PR125A-GEEA
Gauge perpendicular to regulator(s)	PR125A-GCBA	PR125A-GABA	PR125A-GDBA	PR125A-GBBA	PR125A-GECA

PRA1A  
PRA2D  
PRA3C

#### EXTERNAL PILOT REGULATORS

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR125A-HCAA	PR125A-HAAA	PR125A-HDAA	PR125A-HBAA	PR125A-HEAA
Gauge parallel to regulator(s)	PR125A-HCDA	PR125A-HADA	PR125A-HDDA	PR125A-HBDA	PR125A-HEEA
Gauge perpendicular to regulator(s)	PR125A-HCBA	PR125A-HABA	PR125A-HDBA	PR125A-HBBA	PR125A-HECA

\* - To be used with dual pressure valves.

Valve code is : MAC125A-VXX4-PM-XYZZ (valves must be external pilot models for either single or dual pressure valves)

Note : regulating range for above models is 0-120 PSI. For other ranges see technical data page. Photo shown with slotted stem.

### ADJUSTMENT OPTIONS

PR125A-xxxx

- Replace by A for internal pilot with slotted stem
- Replace by B for external pilot with slotted stem
- Replace by K for internal pilot with locking slotted stem
- Replace by L for external pilot with locking slotted stem

PR125A  
PR250B

# TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 120 PSI (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(1.8 C <sub>v</sub> )

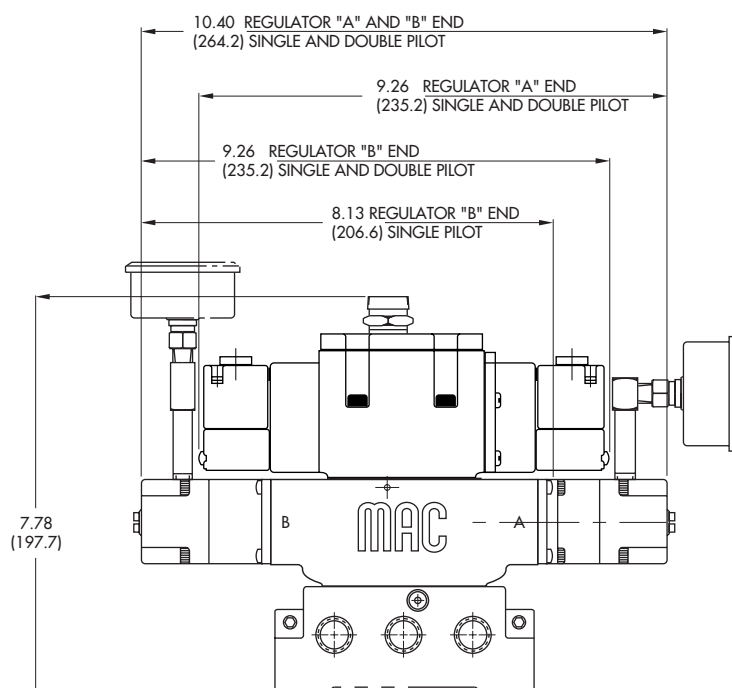
- Spare parts :
- Pressure regulator (less sandwich block) : PR125A-J0AA (KNOB), PR125A-C0AA (SLOTTED STEM), PR125A-M0AA (LOCKING SLOTTED STEM).
  - Gauges : N-82016-01 (0-120 PSI perpendicular)  
N-82016-02 (0-120 PSI parallel)  
N-82016-03 (0-80 PSI perpendicular)  
N-82016-04 (0-80 PSI parallel)  
N-82016-05 (0-30 PSI perpendicular)  
N-82016-06 (0-30 PSI parallel)

Regulating range options : PR125A-XXXX

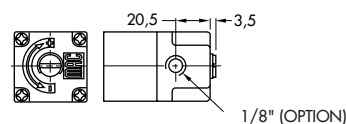
- Replace by B - 0 to 80 PSI
- Replace by C - 0 to 30 PSI
- Replace by D - 0 to 120 PSI on "A" end  
- 0 to 80 PSI on "B" end
- Replace by E - 0 to 120 PSI on "B" end  
- 0 to 80 PSI on "A" end
- Replace by F - 0 to 120 PSI on "A" end  
- 0 to 30 PSI on "B" end
- Replace by G - 0 to 120 PSI on "B" end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

# DIMENSIONS

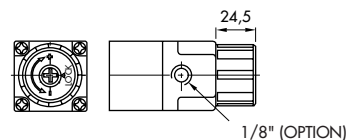
Dimensions shown are metric (mm)



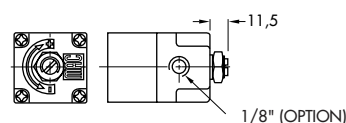
## SLOTTED STEM



## LOCKING KNOB



## LOCKING SLOTTED STEM



## Sandwich pressure regulator with air pilot adjust.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A  
PR63D  
PR65C

### HOW TO ORDER

#### INTERNAL PILOT REGULATORS

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR125A-DCAA	PR125A-DAAA	PR125A-DDAA	PR125A-DBAA	PR125A-DEAA
Gauge parallel to regulator(s)	PR125A-DCDA	PR125A-DADA	PR125A-DDDA	PR125A-DBDA	PR125A-DEEA
Gauge perpendicular to regulator(s)	PR125A-DCBA	PR125A-DABA	PR125A-DDBA	PR125A-DBBA	PR125A-DECA

PRA1A  
PRA2D  
PRA3C

#### EXTERNAL PILOT REGULATORS

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR125A-ECAA	PR125A-EAAA	PR125A-EDAA	PR125A-EBAA	PR125A-EEAA
Gauge parallel to regulator(s)	PR125A-ECDA	PR125A-EADA	PR125A-EDDA	PR125A-EBDA	PR125A-EEEA
Gauge perpendicular to regulator(s)	PR125A-ECBA	PR125A-EABA	PR125A-EDBA	PR125A-EBBA	PR125A-EECA

\* - To be used with dual pressure valves.

Valve code is : MAC125A-VXX4-PM-XXYZZ (valves must be external pilot models for either single or dual pressure valves)

PR125A  
PR250B

# TECHNICAL DATA

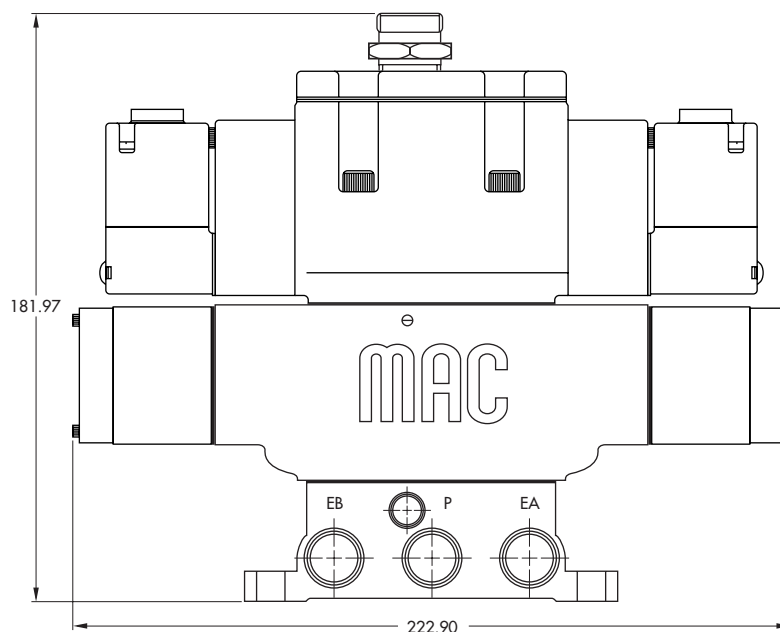
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(1.8 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PR125A-F0AA
- Gauges : N-82016-01 (0-120 PSI perpendicular)  
N-82016-02 (0-120 PSI parallel)

# DIMENSIONS

Dimensions shown are metric (mm)



**Sandwich pressure regulator with manual adjust knob.**

**OPERATIONAL BENEFITS**

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



**PR82A**  
**PR63D**  
**PR65C**

**HOW TO ORDER**

**INTERNAL PILOT REGULATORS**

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Regulated pressures to ports A and B *
<b>No gauge</b>	PR250B-ACAA	PR250B-AAAA	PR250B-ADAA	PR250B-ABAA	PR250B-AEAA
<b>Dry Gauge</b>	PR250B-ACCA	PR250B-AACA	PR250B-ADCA	PR250B-ABCA	PR250B-AEEA
<b>Glycerine Gauge</b>	PR250B-ACBA	PR250B-AABA	PR250B-ADBA	PR250B-ABBA	PR250B-AEDA

**PRA1A**  
**PRA2D**  
**PRA3C**

**EXTERNAL PILOT REGULATORS**

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Regulated pressures to ports A and B *
<b>No gauge</b>	PR250B-BCAA	PR250B-BAAA	PR250B-BDAA	PR250B-BBAA	PR250B-BEAA
<b>Dry Gauge</b>	PR250B-BCCA	PR250B-BACA	PR250B-BDCA	PR250B-BBCA	PR250B-BEEA
<b>Glycerine Gauge</b>	PR250B-BCBA	PR250B-BABA	PR250B-BDBA	PR250B-BBBA	PR250B-BEDA

\* - To be used with dual pressure valves.

Valve code is : MAC250A-VXX4-PM-XXYYZ (valves must be external pilot models for either single or dual pressure valves)

Note : regulating pressure range for above models is 7-120 PSI. For other ranges see technical data page.

**PR125A**  
**PR250B**

# TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	7 to 120 PSI (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(4.7 C <sub>v</sub> )

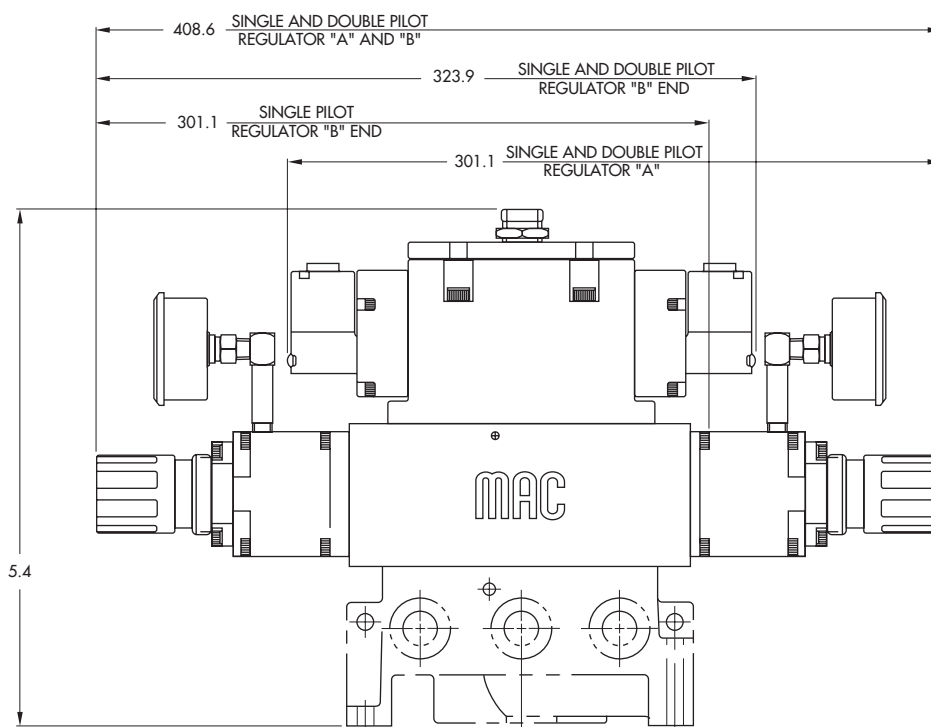
Spare parts :

- Pressure regulator (less sandwich block) : PR250B-C0AA (KNOB)
- Gauges : • N-82016-01 (perpendicular)  
• N-82016-02 (parallel)

Regulating range options : PR250B-XXXA  
└─ Replace by B - 7 to 60 PSI

# DIMENSIONS

Dimensions shown are metric (mm)





## Sandwich pressure regulator with air pilot adjust.

### OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A  
PR63D  
PR65C

### HOW TO ORDER

#### INTERNAL PILOT REGULATORS

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Regulated pressures to ports A and B *
No gauge	PR250B-DCAA	PR250B-DAAA	PR250B-DDAA	PR250B-DBAA	PR250B-DEAA
Dry Gauge	PR250B-DCCA	PR250B-DACA	PR250B-DDCA	PR250B-DBCA	PR250B-DEEA
Glycerine Gauge	PR250B-DCBA	PR250B-DABA	PR250B-DDBA	PR250B-DBBA	PR250B-DEDA

PRA1A  
PRA2D  
PRA3C

#### EXTERNAL PILOT REGULATORS

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Regulated pressures to ports A and B *
No gauge	PR250B-ECAA	PR250B-EAAA	PR250B-EDAA	PR250B-EBAA	PR250B-EEAA
Dry Gauge	PR250B-ECCA	PR250B-EACA	PR250B-EDCA	PR250B-EBCA	PR250B-EEEA
Glycerine Gauge	PR250B-ECBA	PR250B-EABA	PR250B-EDBA	PR250B-EBBA	PR250B-EEDA

\* - To be used with dual pressure valves.

Valve code is : MAC250A-VXX4-PM-XXYYZ (valves must be external pilot models for both single or dual pressure valves)

PR125A  
PR250B

#### TECHNICAL DATA

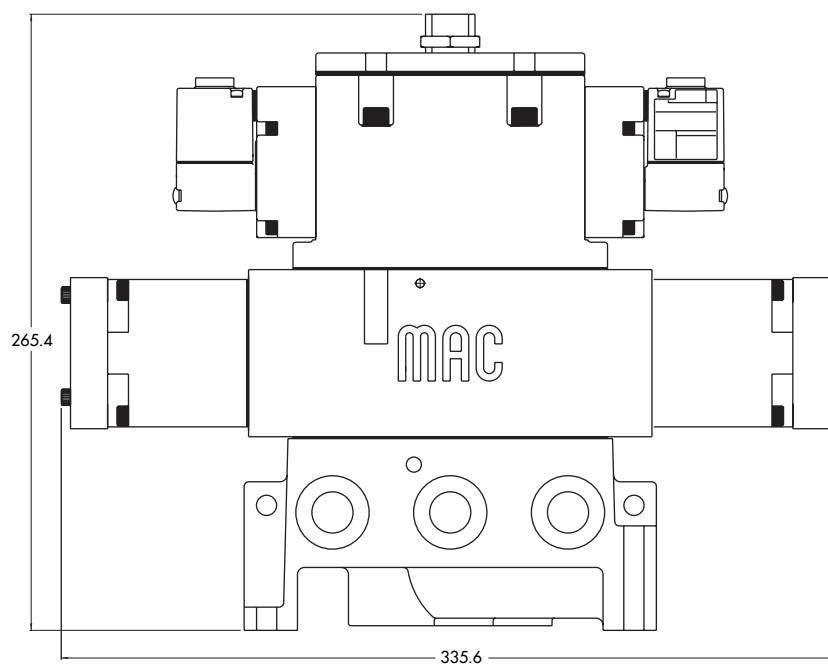
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	7 to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(4.7 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PR250B-FOAA
- Gauges : N-82016-01 (0-120 PSI perpendicular)  
N-82016-02 (0-120 PSI parallel)

#### DIMENSIONS

Dimensions shown are metric (mm)





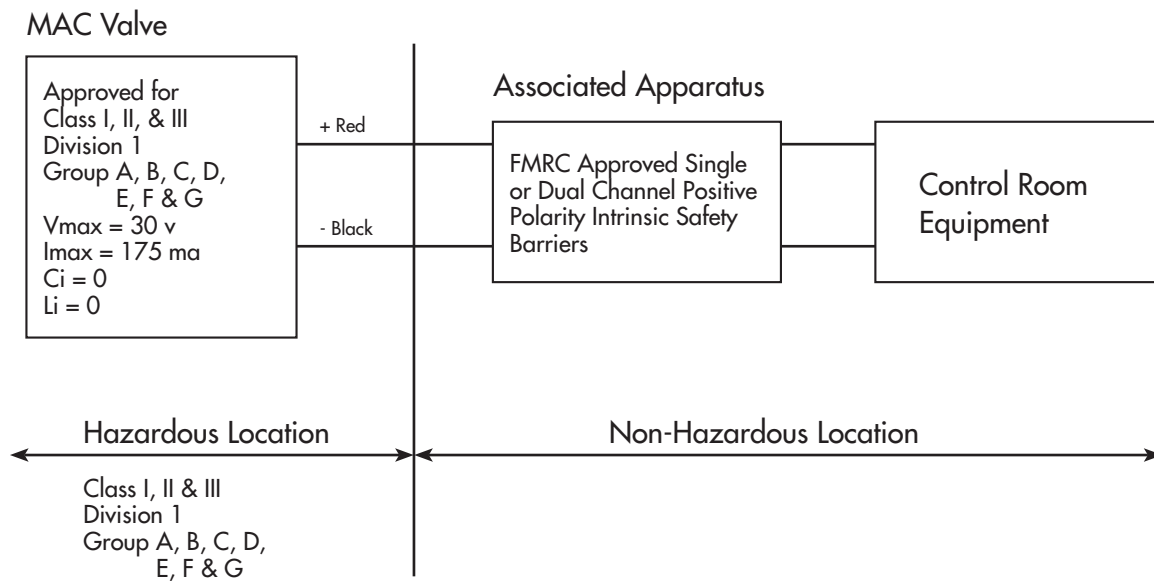
## Section 7 Intrinsically Safe Valves

	Page
Specifications for Intrinsically Safe Valves	339
35 series	342
45 series	342
100 series	343
56 series	344
57 series	344
58 series	344
800 series	345
900 series	346
82 series	347
6300 series	348
6500 series	349
6600 series	350
ISO 1, 2 & 3	351
MAC 125 & MAC 250	352
*Dimensional information (35, 57, & 58 series)	353

\*Dimensional information differs from "Standard Valve" dimensions.

## INTRINSICALLY SAFE CIRCUIT

In order to use an intrinsically safe valve in a hazardous location, the installation must be in accordance with the following installation diagram :



There are 3 basic parts to an intrinsically safe circuit :

### 1. FIELD DEVICE

This is defined as the device that will be used in the hazardous location. In this case, the field device will be the intrinsically safe valve.

### 2. ASSOCIATED APPARATUS

This will be an energy limiting device also known as a barrier.

### 3. FIELD WIRING

Wiring used to connect the two above devices.

When the MAC intrinsically safe valves were tested for approval, they were tested and approved for the following atmospheres.

Class I, II, III  
Division 1  
Groups ; A, B, C, D, E, F, G

under the following parameters :

Vmax : 30 VDC  
Imax : 175 ma  
Ci : 0  
Li : 0

What this means is that the intrinsically safe valves were tested against each atmosphere with up to 30 VDC and 175 ma of current across the solenoid and found to still be safe. The other two parameters are values to indicate how much energy can be stored or created by the valve :

$C_i$  : Internal capacitance of the solenoid.

This indicates how much energy the solenoid is capable of storing.

$L_i$  : Internal inductance of the solenoid.

This indicates the solenoid's ability to create or increase energy beyond what is supplied.

When applying an intrinsically safe valve in a hazardous location, a proper barrier must first be selected. The barrier selection process must first take into account the parameters the valve was approved for and compared in the following way :

- $V_{max}$  must be greater than or equal to  $V_{oc}$  of the barrier.  
 $V_{oc}$  = Voltage open circuit or maximum allowed out of the barrier
- $I_{max}$  must be greater than or equal to  $I_{sc}$  of the barrier.  
 $I_{sc}$  = Current short circuit or the maximum current allowed out of the barrier
- $C_i$  plus field wiring must be less than  $C_a$  of the barrier.  
 $C_a$  = Allowed capacitance
- $L_i$  plus field wiring must be less than  $L_a$  of the barrier.  
 $L_a$  = Allowed inductance

When properly combined, the barrier will never allow more energy to the intrinsically safe valve than what it was tested and approved for.

The following page can be used as your guide to help ask the right questions when working with an intrinsically safe circuit. Also included is a partial list of intrinsically safe barriers that have been tested with the MAC intrinsically safe valves.

**Approval :** Factory Mutual Research 2X7A8.AX (3610)

Approved as intrinsically safe apparatus and associated apparatus for use in Class I, II, III - Division 1, Group : A, B, C, D, E, F &amp; G.

**Parameters :** Vmax : 30 VDC

Imax : 175 ma

Ci : 0

Li : 0

Operating voltage greater than 11.5 volts

Coil resistance : Approximately 250 ohms

Current draw : 50 ma

Wattage : 0.6 watts

**Circuit Check Lists :**

- Is Vmax greater than or equal to Voc ?
- Is Imax greater than or equal to Isc ?
- Is Ci less than Ca ?
- Is Li less than La ?
- Is the barrier capable of handling 50 ma draw ?
- Is the internal resistance of the barrier 250 ohms or less ?

If all answers to the above questions are “yes” the barrier may be a good choice in combination with the MAC intrinsically safe valve.

To calculate voltage across the solenoid, plug values into the following equations :

$$I_{TOTAL} = \frac{\text{SUPPLY VOLTAGE}}{250 + \text{BARRIER RESISTANCE}} = \text{_____} \quad \leftarrow \text{Plug } I_{TOTAL} \text{ in below}$$

$$\text{Voltage at Solenoid} = I_{TOTAL} \times 250 \text{ ohms} = \text{_____} \text{ volts}$$

Manufacturer	Model #	Barrier Res.	Voltage w/o Light	Voltage w/Light	Groups	Type
Turck	MK72-S01-EX		11.2 v	10.2 v*	A-G	T.I.B.
Crouse-Hinds	SB19140-M2410		13.2 v	12.6 v	C-G	Zener
IMO Industries (Gems Sensors)	114072	234 OHMS	12.0 v	11.4 v	C-G	Zener
Pepperl & Fuchs	KHZ-922/EX-1	270 OHMS	11.6 v	11.06 v	A-G	Zener
	KHZ-922/EX-2	270 OHMS	11.6 v	11.06 v	A-G	Zener
	KHZ-922/EX-3	270 OHMS	11.6 v	11.06 v	A-G	Zener
Stahl	9001/01-280-165-10		13.5 v	12.9 v	C-G	Zener
	9351/10-14-10	80 OHMS	13.7 v	13.4 v	A-G	T.I.B.
Ronan	X57-229P	200 OHMS	12.7 v	12.05 v	C-G	Zener
Measurement Technology	MTL728P+	250 OHMS	11.9 v	11.4 v	A-G	Zener
	MTL3022		15.0 v	14.5 v	C-G	T.I.B.

Above data is based on a 24 v DC supply voltage to the input of the barrier. A 12 v DC, 243 OHM, .6 watt intrinsically safe solenoid is used. The measurement with light is an LED with a current limiting resistor.

Groups indicate what atmosphere the barrier has been approved for. All MAC intrinsically safe valves have been approved for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G indoor hazardous locations.

T.I.B. = Transformer Isolated Barrier

\* = Not a recommended combination

**HOW TO ORDER**

35A - **X X X** - (DXXX - XXX) - FM

BODY  
OPTIONS      SOLENOID  
OPTIONS

BODY TYPE	PORT SIZE	VALVE FUNCTION/MANIFOLD TYPE
<b>Inline</b>	<b>O</b> Manifold Body Only	<b>O</b> Manifold Body Only
<b>A</b> Individual Inline	<b>B</b> #10-32 UNF (Inline Only)	<b>B</b> 3 way N.C. Only (Inline)
<b>D</b> Indiv. Inline w/2 Manifold Mount Ports	<b>D</b> M5 (Inline Only)	
<b>Manifold</b>		
<b>E</b> Manifold Body (N.C. Only)		
<b>G</b> Manifold Body w/Gage Port (N.C. Only)		

Note : there is no manifold base for the 35 series.  
The manifold valve can only mount to a circuit bar, see note below

45A - **X X X** - (DXXX - XXX) - FM

BODY  
OPTIONS      SOLENOID  
OPTIONS

BODY TYPE	PORT SIZE	VALVE FUNCTION/MANIFOLD TYPE
<b>Inline</b>	<b>O</b> Manifold Body Only	<b>Inline</b>
<b>A</b> 4 Port Body	<b>A</b> 1/8" NPT	<b>1</b> No Flow Controls
<b>B</b> 5 Port Body	<b>B</b> #10-32 UNF	<b>Bases - Regulators</b>
<b>D</b> 4 Port Body "O" Ring Mount -All Bottom Ports	<b>C</b> 1/8" BSPPL	<b>O</b> Valve Only - No Base
<b>E</b> 5 Port Body "O" Ring Mount -3 Bottom Ports Inlet and Cylinders	<b>D</b> M5 (Metric)	<b>A</b> Individual Base
<b>F</b> 4 Port Body "O" Ring Mount-Bottom Cylinder Ports Only	<b>F</b> #10-32 UNF Bottom Ports	<b>C</b> Manifold Base
	<b>G</b> M5 Bottom Ports	<b>E</b> Manifold w/Regulator w/Slotted Stem
	<b>H</b> "O" Ring Mount Ports	<b>G</b> Manifold w/Regulator w/Locking Slotted Stem
	<b>J</b> 1/8" NPT Bottom Ports	<b>J</b> Manifold w/Regulator w/Locking Knob
	<b>K</b> 1/8" BSPPL Bottom Ports	
<b>Base Mount</b>		
<b>O</b> For Base Only - No Valve		
<b>L</b> Base Mount Body		
<b>M</b> Base Mount Body with Gage Port		

**MANIFOLD MOUNT ACCESSORIES**

<b>M-45008-01</b>	End Plate Kit
<b>16455</b>	Pressure Seal Between Manifold
<b>19753</b>	Tie Rod
<b>N-45008</b>	Isolator Kit - Inlet and Exhaust
<b>N-45009</b>	Isolator Kit - Inlet only
<b>N-45010</b>	Isolator Kit - Exhaust only
<b>N-45015</b>	End Cover Plate - Plain
<b>N-45016</b>	End Cover Plate w/Flow Controls
<b>N-45017</b>	Flow Control Needle Assembly

D - **X X X** - **X X X** - FM

SOLENOID  
OPTIONS

VOLTAGE	LEAD LENGTH	MANUAL OPERATOR	ELECTRICAL CONNECTION
<b>FR</b> 12VDC (0.6 W)	<b>A</b> 18" Leads	<b>0</b> No operator	<b>BA</b> Grommet
<b>FS</b> 24VDC (0.6 W)	<b>B</b> 24" Leads	<b>1</b> Non-locking Recessed	<b>CA</b> Conduit 1/2" NPS†
	<b>C</b> 36" Leads	<b>2</b> Locking Recessed	<b>CM</b> Metal Conduit 1/2" NPS†
	<b>D</b> 48" Leads	<b>3</b> Non-locking Extended	<b>CN</b> Metal Conduit w/grd. 1/2" NPS†
	<b>E</b> 72" Leads	<b>4</b> Locking Extended	<b>External Plug-in</b>
	<b>J*</b> 6" Leads		<b>FM</b> Plug-in (For ECD & ECE Bar)
			<b>JB</b> Rectangular Plug-in†
			<b>JM</b> Rectangular Male only†
			<b>KA</b> Mini Plug-in
			<b>KJ</b> Mini Plug-in Male only
			<b>TA</b> Dual Tabs (.110) Plain
			<b>TJ</b> Dual Tabs (.110) Plain

\*Use "J" for external plug-in connectors

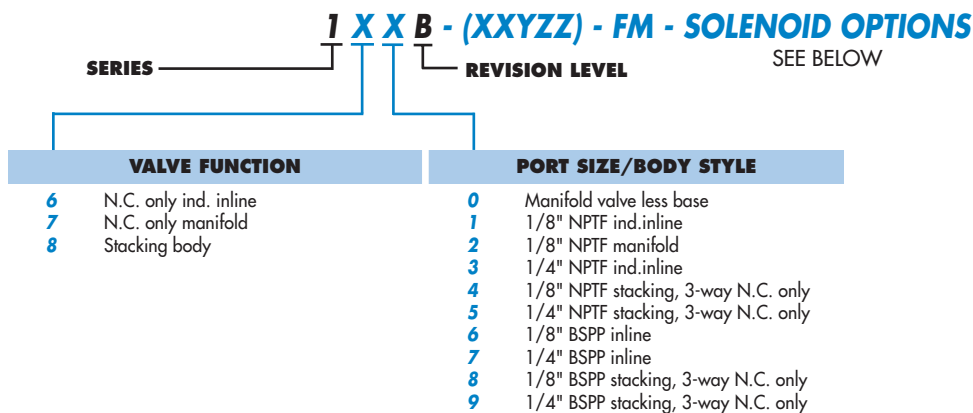
NOTE : For valves mounted to a circuit bar reference MAC circuit bar Catalog for ordering info.  
For the 35 series circuit bar, use MOD FM01 after circuit bar part number.

† Available on individual valves and circuit bars.



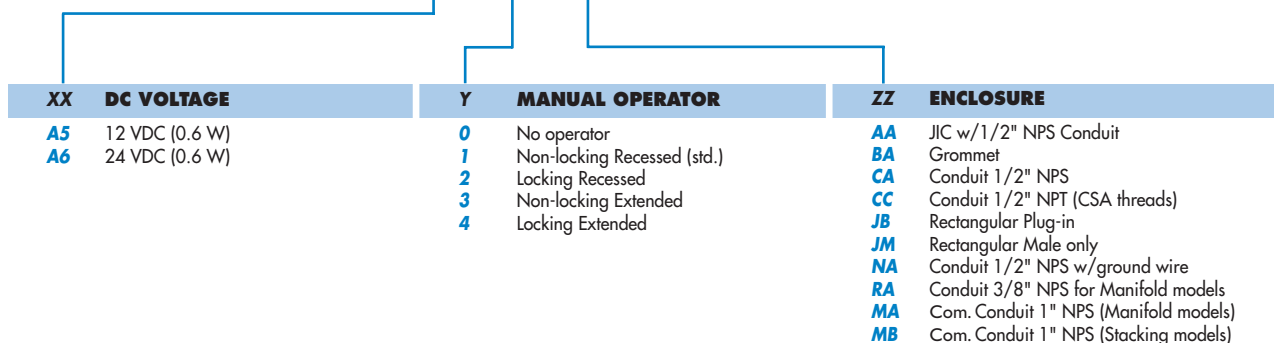
**HOW TO ORDER**

**BODY OPTIONS**



**SOLENOID OPTIONS**

**EXAMPLE :** **XX** **Y** **ZZ - FM**



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

**100 SERIES-SUPPLEMENTAL TECHNICAL DATA**

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

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

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

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

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

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

HOW TO ORDER

**VALVE BODY ASSEMBLY**

SERIES **56 C** -  
REVISION LEVEL

**XX - (XXYZZ) - FM - SOLENOID OPTIONS**

SEE BELOW

VALVE FUNCTION	PORT SIZE/BODY STYLE
<b>1</b> Internal pilot N.C. pilot, N.C. main spool	<b>2</b> 3/8" NPTF
<b>3</b> External pilot N.C. pilot, N.C. main spool	<b>3</b> 1/2" NPTF
<b>6</b> Internal pilot N.C. pilot, N.O. main spool	<b>5</b> 3/8" BSPP
<b>7</b> External pilot N.C. pilot, N.O. main spool	<b>6</b> 1/2" BSPP
	<b>7</b> 3/4" NPTF
	<b>8</b> 3/4" BSPP

**VALVE BODY ASSEMBLY**

SERIES **57**  
**58 D** -  
REVISION LEVEL

**XX - (XXYZZ) - FM - SOLENOID OPTIONS**

SEE BELOW

VALVE FUNCTION	PORT SIZE/BODY STYLE
<b>1</b> Internal pilot N.C. pilot, N.C. main spool	<b>1</b> 1/2" NPTF (57 Series) 1" NPTF (58 Series)
<b>3</b> External pilot N.C. pilot, N.C. main spool	<b>2</b> 3/4" NPTF (57 Series) 1-1/4" NPTF (58 Series)
<b>6</b> Internal pilot N.C. pilot, N.O. main spool	<b>3</b> 1" NPTF (57 Series) 1-1/2" NPTF (58 Series)
<b>7</b> External pilot N.C. pilot, N.O. main spool	<b>4</b> 1/2" BSPP (57 Series) 1" BSPP (58 Series)
	<b>5</b> 3/4" BSPP (57 Series) 1-1/4" BSPP (58 Series)
	<b>6</b> 1" BSPP (57 Series) 1-1/2" BSPP (58 Series)

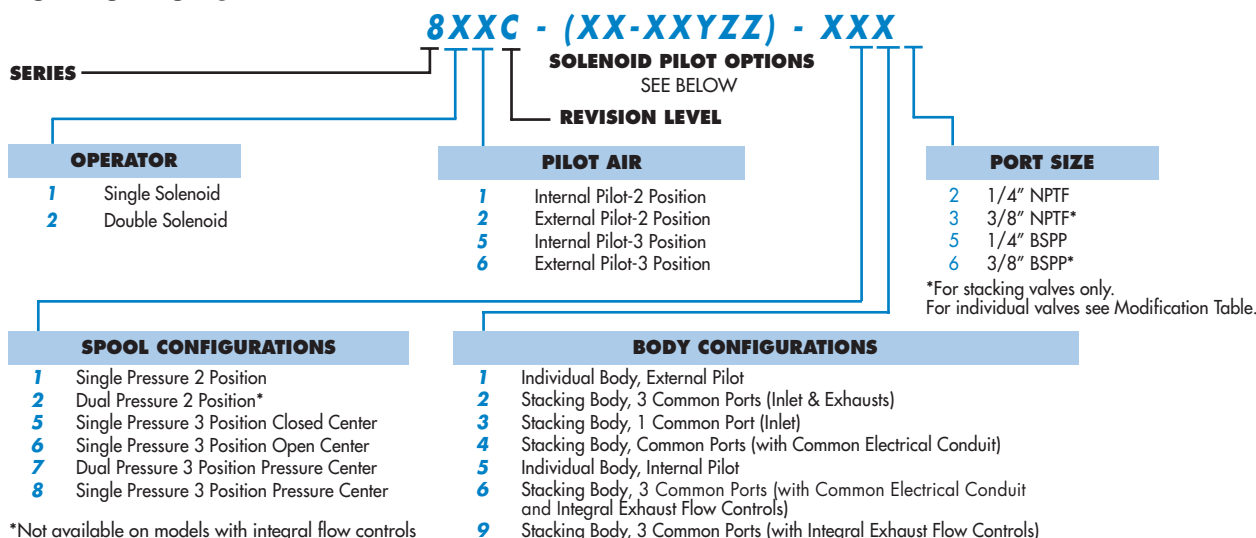
**SOLENOID OPTIONS**

EXAMPLE : **XX Y ZZ - FM**

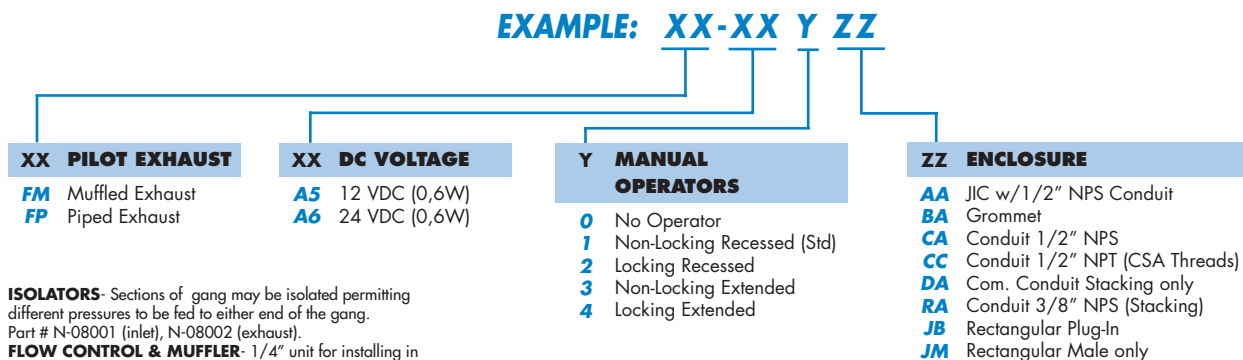
XX DC VOLTAGE	Y MANUAL OPERATOR	ZZ ENCLOSURE
<b>A5</b> 12 VDC (0.6 W)	<b>0</b> No operator	<b>AA</b> JIC w/1/2" NPS Conduit
<b>A6</b> 24 VDC (0.6 W)	<b>1</b> Non-locking Recessed (std.)	<b>BA</b> Grommet
	<b>2</b> Locking Recessed	<b>CA</b> Conduit 1/2" NPS
	<b>3</b> Non-locking Extended	<b>CC</b> Conduit 1/2" NPT (CSA threads)
	<b>4</b> Locking Extended	<b>JA</b> Square Plug-in
		<b>JB</b> Rectangular Plug-in
		<b>JJ</b> Square Male only
		<b>JM</b> Rectangular Male only

## HOW TO ORDER

### BODY OPTIONS



### SOLENOID PILOT OPTIONS



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

**FLOW CONTROL & MUFFLER**- 1/4" unit for installing in individual exhaust ports. Part #10951.

**DUAL INLET PRESSURE BLOCK**- For 3 common ports or 1 common port stacking valves. Provides 2 additional inlet pressure ports to a stack. Part #M-08003. For Common Conduit Valves. Part #M-00014.

### ACCESSORIES

MANIFOLD END PLATE KITS (NPTF)*		
INT. PILOT PART NO.	EXT. PILOT PART NO.	MODELS USED WITH
M-08001-01-01	M-08001-02-01	3 com. port or 1 com. port models, stacks of 1 thru 16 valves.
M-08002-01-01	M-08002-02-01	Com. conduit models, stacks of 1 thru 16 valves.
M-00005-01-01	M-00005-02-01	3 com. port or 1 com. port models, stacks of 17 or more valves.
M-00007-01-01	M-00007-02-01	Com. conduit models, stacks of 17 or more valves.

\*Add letter P at end of part number for BSPP threads;  
EXAMPLE: M-08001-01-01P

### MODIFICATIONS

MOD. NO.	DESCRIPTION	MODEL AVAILABILITY
0358	3/8" Inlet & Cylinder Ports	Individual Valves

HOW TO ORDER

**BODY OPTIONS**

**9XXB - (XX-XXYZZ) - SOLENOID OPTIONS - SEE BELOW**

SERIES ——— REVISION LEVEL

OPERATOR		BODY STYLE/PORTS	
1	Single Solenoid	1	Individual Inline 1/8" NPTF
2	Double Solenoid	2	Individual Inline 1/4" NPTF
		3	Stacking Valve 1/8" NPTF
		4	Stacking Valve 1/4" NPTF
		5	Individual Inline 1/8" BSPP
		6	Individual Inline 1/4" BSPP
		7	Stacking Valve 1/8" BSPP
		8	Stacking Valve 1/4" BSPP
		9	Stacking Valve 3/8" NPTF

For stacking valve 3/8"BSPP ports, use MOD 0005 after complete valve code 919B-FM-A51BA MOD 0005.

**SOLENOID PILOT OPTIONS**

**EXAMPLE: XX-XX Y ZZ**

XX PILOT EXHAUST	XX DC VOLTAGE	Y MANUAL OPERATOR	ZZ ENCLOSURE
FM Muffled Exhaust FP Piped Exhaust	A5 12 VDC (0,6W) A6 24 VDC (0,6W)	0 No Operator 1 Non-Locking Recessed (Std) 2 Locking Recessed 3 Non-Locking Extended 4 Locking Extended	AA JIC w/1/2" NPS Conduit BA Grommet CA Conduit 1/2" NPS CC Conduit 1/2" NPT (CSA Threads) RA Conduit 3/8" NPS (Stacking) MA Com. Conduit 1" NPS Requires (1) M-01002-01 Conduit End Plate Kit per Stack JB Rectangular Plug-In JM Rectangular Male only

**MODIFICATIONS**

PART. NO.	DESCRIPTION
M-09001-01	Manifold End Plate Kit (3/8" NPTF)
M-09001-01P	Manifold End Plate Kit (3/8" BSPP)
N-09002	Isolator Plate Kit - Inlet & Exhaust
N-09003	Isolator Plate Kit - Exhaust only
N-09004A	Isolator Plate Kit - Inlet only

**MANIFOLD ACCESSORIES:**

**MANIFOLD END PLATE KIT:** For each stack one kit is required.

**ISOLATORS:** Sections of a stack may be isolated permitting different pressures to be fed to either end of the stack.

**TO ORDER:** Select the appropriate part number from the adjacent table.

### HOW TO ORDER

82A - XX - XXX - (XX - DXXX - XXX)

#### SPOOL TYPE - VALVE FUNCTION

- O** Individual base or manifold only
- A** Single Operator - single pressure
- B** Double operator - single pressure
- C** Single operator - dual pressure
- D** Double operator - dual pressure
- E** 3-position closed center
- F** 3-position open center
- G** 3-position single pressure, pressure center
- H** 3-position dual pressure, \* pressure center
- J** Single solenoid single pressure solenoid on B end
- K** Single solenoid dual pressure solenoid on B end
- L** 3-position dual pressure, \* open center
- M** 3-position dual pressure, \* closed center

\* Note: For dual pressure w/o regulators consult factory.

#### BODY TYPE

- A** Plug-in body
- B** Non Plug-in body

#### PORT SIZE - THREAD TYPE

- O** Valve only - no base
- A** 1/8" NPTF
- B** 1/4" NPTF
- C** 3/8" NPTF
- D** 1/8" BSPPL
- E** 1/4" BSPPL
- F** 3/8" BSPPL

#### IND. & MANIFOLD BASE PORT CONFIG.

##### --Individual Base--

- O** Valve only - no base
- A** Standard side ports (1/8", 1/4", or 3/8")
- B** Bottom ports only\*
- C** Side and bottom ports\*
- D** Side inlet, side exhaust, bottom cylinder ports\*

##### --Manifold Base--

- K** Standard ports (1/4" or 3/8" only)
- L** Bottom cylinder ports\*
- M** Bottom inlet port
- N** Bottom inlet and cylinder ports\*
- P** Bottom and end cylinder ports\*
- R** Bottom cylinder & end cylinder ports w/bottom inlet port\*
- S** Selector base - standard side ports

\* Bottom parts available in 1/4" & 3/8" only on manifold. Bottom inlet available 1/4" only. For bottom O-ring ports, consult factory.

#### INT. OR EXT. PILOT\*

##### --Internal Pilot--

- O** Valve only - no base
- A** No light in base

##### --External Pilot--

- O** Valve only - no base
- D** No light in base

\* Use internal for main valve pressures of 25-150 PSIG. Use external for main valve pressures of 28" Hg vacuum - 25 PSIG

### PILOT VALVE OPTIONS - (XX - DXXX - XXX)

#### PILOT EXHAUST

- FA** Muffled exhaust

#### VOLTAGE

- FR** 12VDC (0.6w)
- FS** 24VDC (0.6w)

#### LEAD WIRE LENGTH

##### --Plug-in Valve/Base--

- P** Plug-in 8" - standard
- 1** 18" **4** 48"
- 2** 24" **5** 72"
- 3** 36" **6** 96"

##### --Non Plug-in Valve/Base--

- A** 18" **E** 72"
- B** 24" **F** 96"
- C** 36" **J** 6"
- D** 48"

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

#### MANUAL OPERATOR

- 0** No manual operator
- 1** Nonlocking operator
- 2** Locking operator
- 3** Nonlocking extended operator
- 4** Locking extended operator

#### ELECTRICAL CONN.

##### --Plug-in Valve/Base--

- DA** Plug-in (standard)
- BA** Grommet
- CA** Conduit 1/2" NPS
- CM** Metal conduit 1/2" NPS
- CN** Metal conduit w/grd. 1/2" NPS

##### --External Plug-in--

- JB** Rectangular plug-in
- JM** Rectangular male only
- KA** Mini plug-in
- KJ** Mini plug-in male only
- TA** Dual tabs (.110) w/receptables
- TJ** Dual tabs (.110) w/o receptables

### HOW TO ORDER 82 SERIES FLOW CONTROL MODULE\*

FC 82A-AA	Plug-in flow control assembly
FC 82A-BA	Non plug-in flow control assembly

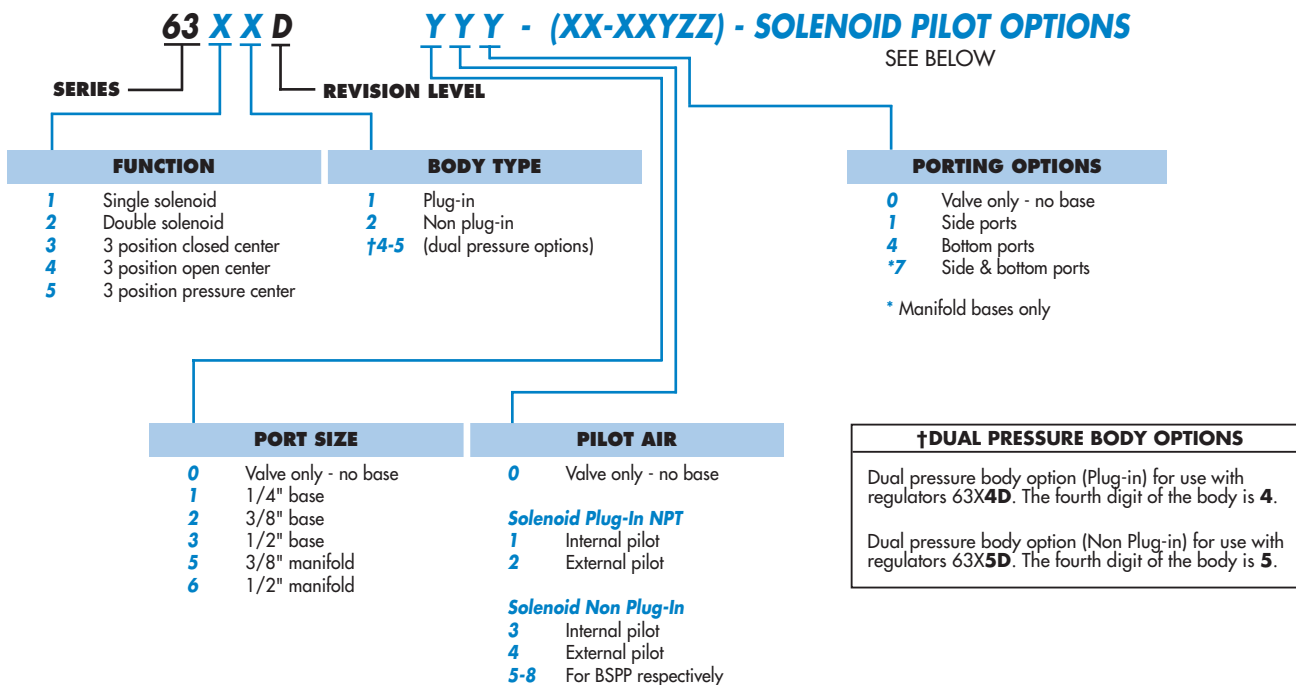
\*If flow control module is to be installed between valve and base or valve and manifold at the factory, add -9 after the flow control model number, i.e., FC82A-AA-9. The flow control model number should follow the valve model number on which it is to be installed.

NOTE: Reference regulator ordering section if a sandwich regulator is required.

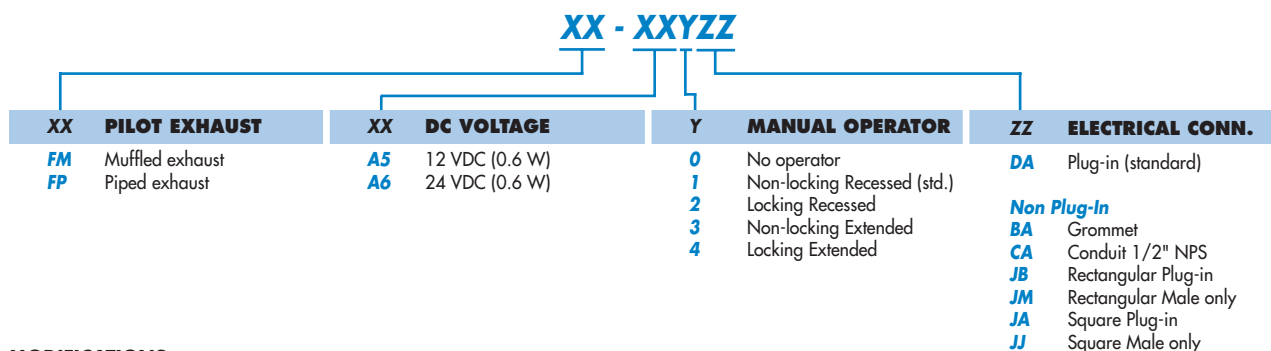
NOTE: If a flow control assembly is used with the dual pressure regulator option, only the flow control on the "A" end is functional. (Controls both cylinder ports.)

**HOW TO ORDER**

**BODY/BASE OPTIONS**



**PILOT VALVE OPTIONS**



**MODIFICATIONS**

**MOD 0210** Bottom inlet port in addition to side inlet port (manifolds only)

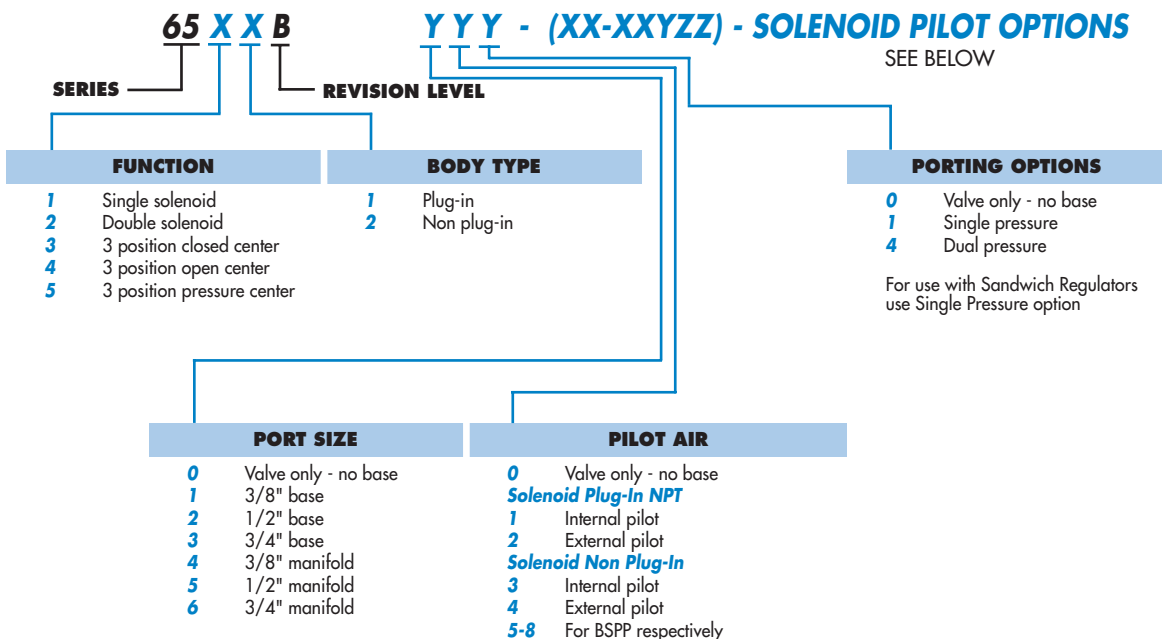
**TO ORDER:** 6311D-511-FM-A51DA **MOD 0210**

Manifold Accessories: Inlet Isolators #32839. Exhaust Isolator #28309.

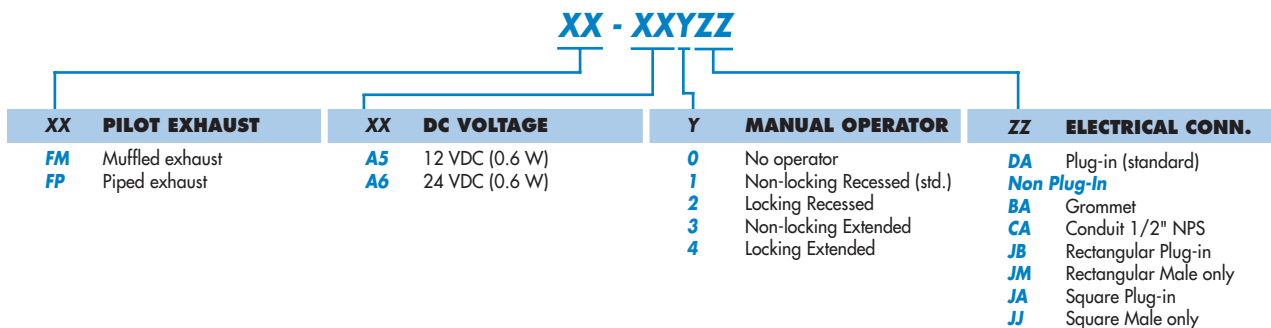
- NOTE:**
1. The valve less base is always the same for internal or external pilot. These options are effected in the base or manifold.
  2. When ordering an external pilot connection for manifold bases, a common external pilot is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.

**HOW TO ORDER**

**BODY/BASE OPTIONS**



**PILOT VALVE OPTIONS**



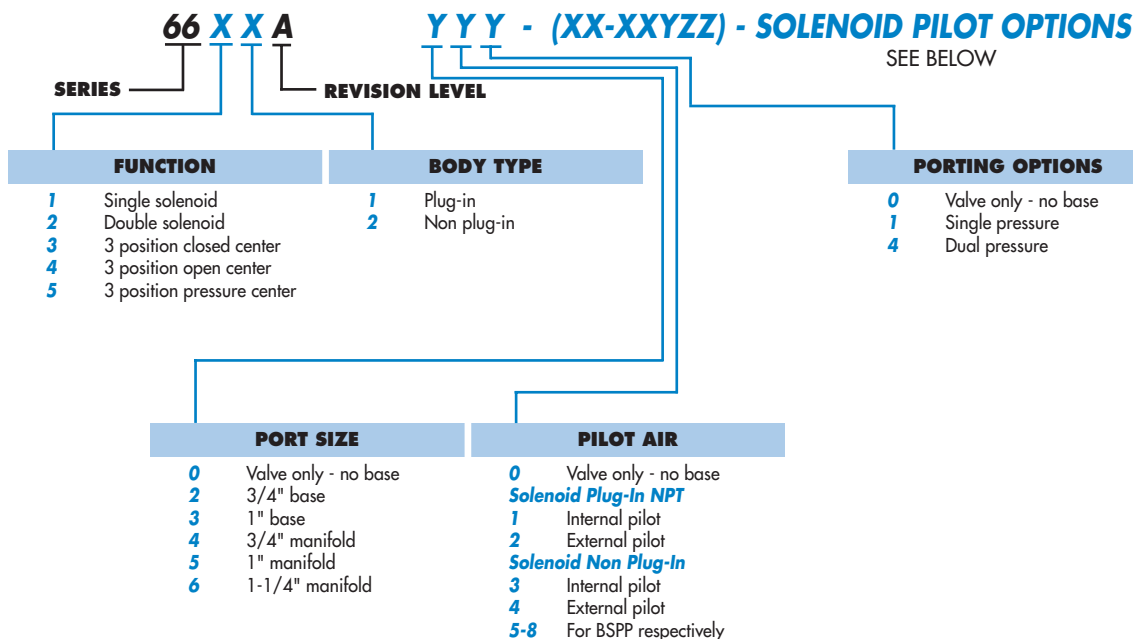
**NOTE:** 1. The valve less base is always the same for internal or external pilot. These options are effected in the base or manifold.  
2. Bottom ports: Refer to modification table below.  
3. Manifold Accessories: Inlet Isolator #28309. Exhaust Isolator #28310.

**MODIFICATIONS**

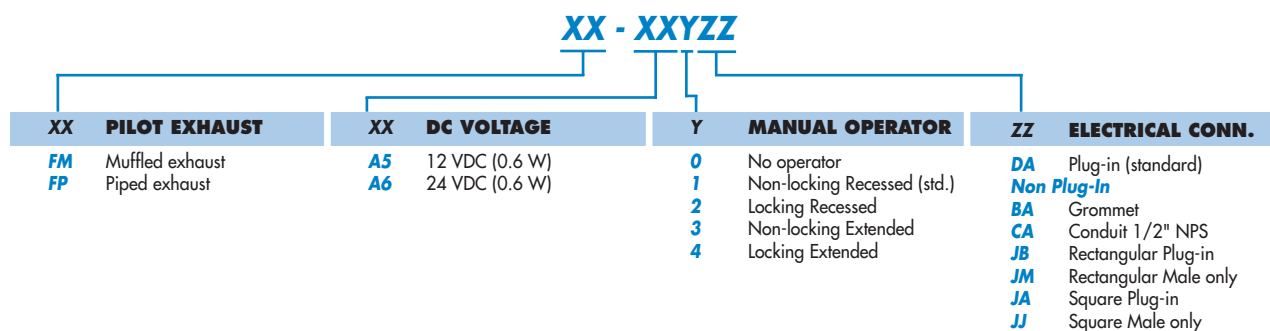
MOD. NO.	DESCRIPTION	MODEL AVAILABILITY
0002	Bottom inlet, exhaust, & cylinder ports (no side ports)	Available on individual base 3/8" & 1/2" only
0004	Full side porting and additional bottom inlet, exhausts, and cylinder ports	Available on individual base 3/8" only
0112	Side inlet & exhaust with bottom cylinder ports (no end cylinder ports)	Available on all manifold models
0210	Porting as ordered in model number plus an additional bottom inlet	Available on all manifold models
0364	Single Pressure - Side inlet & exhaust and additional bottom inlet with bottom cylinder ports (no end cylinder ports) Dual Pressure - Same as single pressure except with two bottom inlets	Available on all manifold models

## HOW TO ORDER

### BODY/BASE OPTIONS



### PILOT VALVE OPTIONS



- NOTE:**
1. The valve less base is always the same for internal or external pilot. These options are effected in the base or manifold.
  2. Bottom ports: Refer to modification table below.
  3. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
  4. Manifold Accessories: Inlet & Exhaust Isolator #28367.

### MODIFICATIONS

MOD. NO.	DESCRIPTION	MODEL AVAILABILITY
0002	Bottom inlet, exhaust, & cylinder ports (no side ports)	Available on individual base 3/4" only
0004	Full side porting and additional bottom inlet, exhausts, and cylinder ports	Available on individual base 3/4" only
0112	Side inlet & exhaust with bottom cylinder ports (no end cylinder ports)	3/4" individual base & 3/4" & 1" manifold base
0210	1-1/4" bottom inlet	Manifold base
0364	1-1/4" bottom inlet & 3/4" or 1" bottom cyl.	Manifold base

**TO ORDER** Add the appropriate modification number after the valve number, **EXAMPLE :** 6611A-211-FM451DA **MOD 0002.**



**MV-A1C ISO 1**  
**MV-A2B ISO 2**  
**MV-A3B ISO 3**

MAC ISO valves are built to International Standards Organization (ISO) Std. 5599/1. They are available in 3 sizes; ISO 1, 2 & 3. To select the ISO size required, insert the appropriate ISO number in the 5th position of the model code; EXAMPLE MV-A1C for ISO 1, MV-A2B for ISO 2, or MV-A3B for ISO 3. Bases and manifolds must be ordered separately from the table below.

## HOW TO ORDER

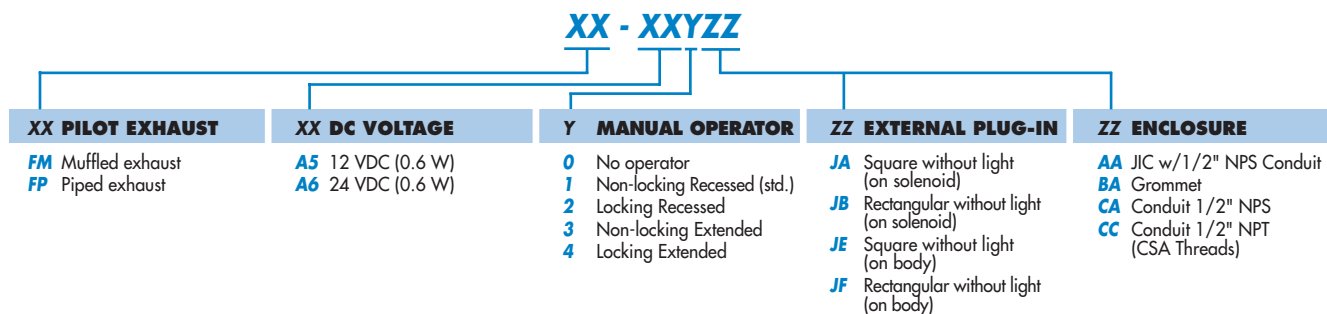
### SOLENOID PILOT OPERATED VALVES LESS BASE SINGLE PRESSURE VALVES

SGL. OPERATOR AIR/SPRING RETURN	DBL. OPERATOR 2-POSITION	PILOT SUPPLY	DBL. OPER. 3-POS. CLOSED CENTER	DBL. OPER. 3-POS. OPEN CENTER
MV-AXB-A111-FM-A51JA MV-AXB-A121-FM-A51JA MV-AXB-A151-FM-A51JA	MV-AXB-A211-FM-A51JA MV-AXB-A221-FM-A51JA MV-AXB-A251-FM-A51JA	Internal Pilot External Pilot External Pilot for use with Regulator	MV-AXB-A312-FM-A51JA MV-AXB-A322-FM-A51JA MV-AXB-A352-FM-A51JA	MV-AXB-A311-FM-A51JA MV-AXB-A321-FM-A51JA MV-AXB-A351-FM-A51JA

### DUAL PRESSURE VALVES

SGL. OPERATOR AIR/SPRING RETURN	DBL. OPERATOR 2-POSITION	PILOT SUPPLY	DBL. OPER. 3-POS. PRESSURE CENTER
MV-AXB-A131-FM-A51JA MV-AXB-A135-FM-A51JA MV-AXB-A141-FM-A51JA	MV-AXB-A231-FM-A51JA MV-AXB-A232-FM-A51JA MV-AXB-A241-FM-A51JA	Int. Pilot-From Port 3 Int. Pilot-From Port 5 External Pilot	MV-AXB-A331-FM-A51JA MV-AXB-A332-FM-A51JA MV-AXB-A341-FM-A51JA

### SOLENOID PILOT VALVE OPTIONS



#### BASE TABLE

ISO TYPE	PORT SIZE	INDIVIDUAL BASE BSPP	INDIVIDUAL BASE NPTF	MANIFOLD BASE BSPP	MANIFOLD BASE NPTF
ISO 1	1/4"	MB-A1C-121	MB-A1C-221	MM-A1C-121	MM-A1C-221
	3/8"	MB-A1C-131	MB-A1C-231	MM-A1C-131	MM-A1C-231
ISO 2	3/8"	MB-A2B-121	MB-A2B-221	MM-A2B-121	MM-A2B-221
	1/2"	MB-A2B-131	MB-A2B-231	MM-A2B-131	MM-A2B-231
ISO 3	1/2"	MB-A3B-121	MB-A3B-221	MM-A3B-121	N/A
	3/4"	MB-A3B-131	MB-A3B-231	MM-A3B-131	N/A

For manifold bases a common external pilot port is available. One connection only is required for all valves in the manifold whether single or double solenoid. Bottom ports are also available; consult factory for ordering information for these options.

**MANIFOLD FASTENING KIT** — For each gang, one kit is required. To order specify part number **N-63002-01**.

**HOW TO ORDER**

**VALVE OPTIONS**

**MAC125A - VXXX - XX - XXYDA - 9 VALVE ASSEMBLED TO BASE**  
**MAC250A**

**SERIES**  
**REVISION LEVEL**

SEE BELOW

FUNCTION	ELECTRICAL CONN. IN TOP PLATE	PILOT
<b>1</b> Single Operator, 2 Position, Single Pressure	<b>A</b> 5 Pin (Ford Wiring)	<b>1</b> Internal Pilot
<b>2</b> Double Operator, 2 Position, Single Pressure	<b>B</b> 5 Pin (Chrysler Wiring)	<b>3</b> External Pilot
<b>3</b> Single Operator, 2 Position, Dual Pressure	<b>G</b> 4 Pin Micro	
<b>4</b> Double Operator, 2 Position, Dual Pressure	<b>E</b> 3 Pin (Ford Wiring)	
<b>5</b> 3 Position, Closed Center	<b>F</b> 5 Pin Micro (Chrysler Wiring)	
<b>6</b> 3 Position, Open Center		
<b>7</b> 3 Position, Dual Pressure, Pressure Center		

**SOLENOID PILOT OPTIONS**

**XX - XX - YDA**

XX	PILOT EXHAUST	XX	DC VOLTAGE	Y	MANUAL OPERATOR
<b>FM</b>	Muffled exhaust	<b>A5</b>	12 VDC (0.6 W)	<b>0</b>	No operator
<b>FP</b>	Piped exhaust	<b>A6</b>	24 VDC (0.6 W)	<b>1</b>	Non-locking Recessed (std.)
				<b>2</b>	Locking Recessed
				<b>3</b>	Non-locking Extended
				<b>4</b>	Locking Extended

ORDERING EXAMPLE: MAC125A-V1A1-FM-A51DA

**BASE/MANIFOLD TABLE**

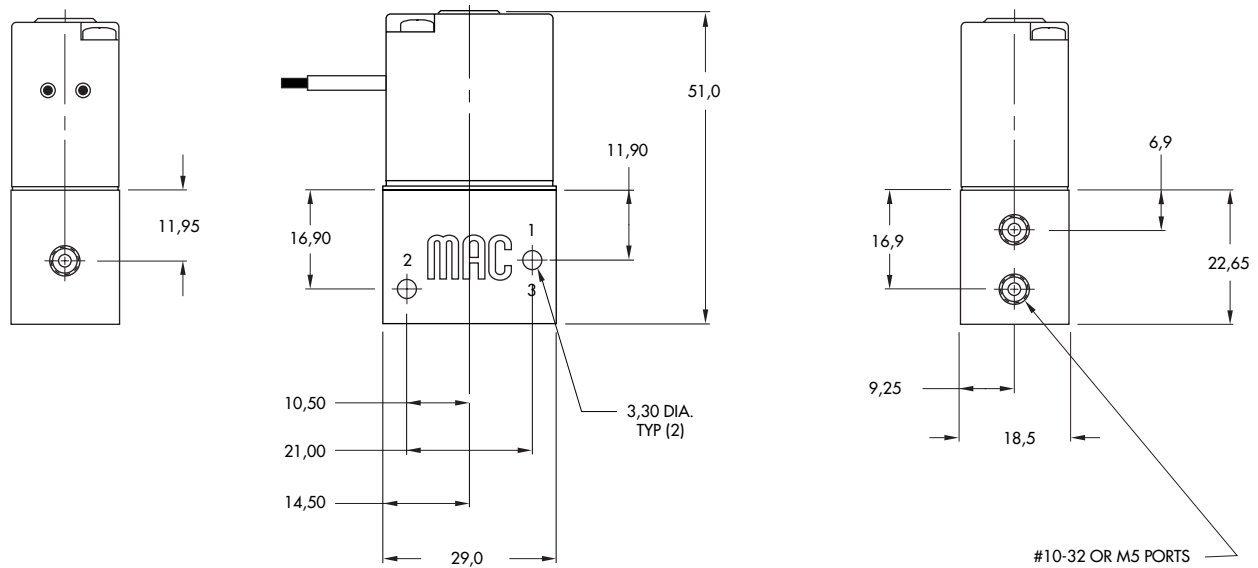
TYPE	PORT SIZE	INDIVIDUAL BASE	MANIFOLD BASE (btm. cyl. ports)	MANIFOLD BASE** (side & btm. cyl. ports)
MAC125	1/4" 3/8"	MAC125A-B21A MAC125A-B31A	MAC125A-M21B MAC125A-M31B	MAC125A-M21C MAC125A-M31C
MAC250	1/2" 3/4" 1"	MAC250A-B21A MAC250A-B31A MAC250A-B41A	MAC250A-M21B MAC250A-M31B N/A	MAC250A-M21C MAC250A-M31C N/A

Individual base available with side ports only.

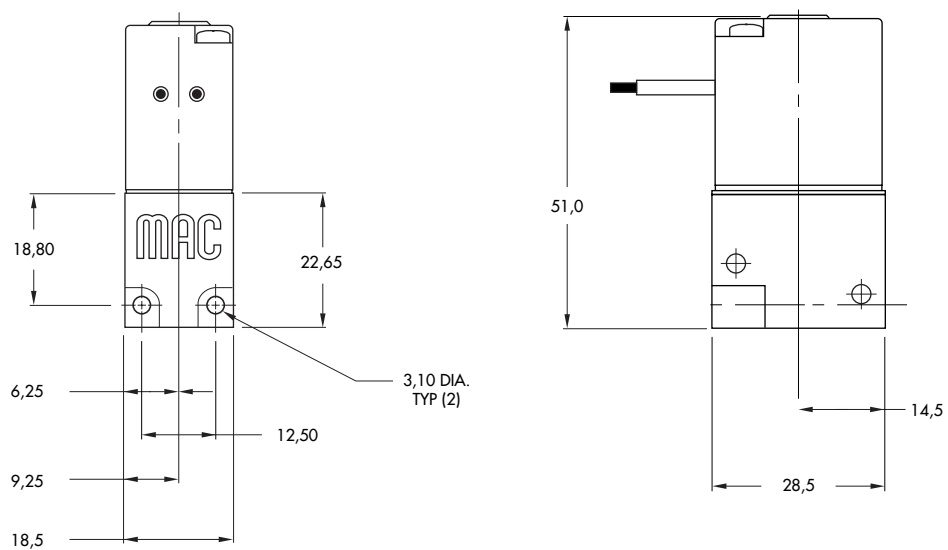
\*\*Requires End Plate Kit M-12002-01 (125 Series), M-25002-01 (250 Series)

Bases & manifolds coded for internal pilot. For external pilot, last number of code is 2. **ORDERING EXAMPLE:** MAC125A-B22A.

### 35 Series Inline

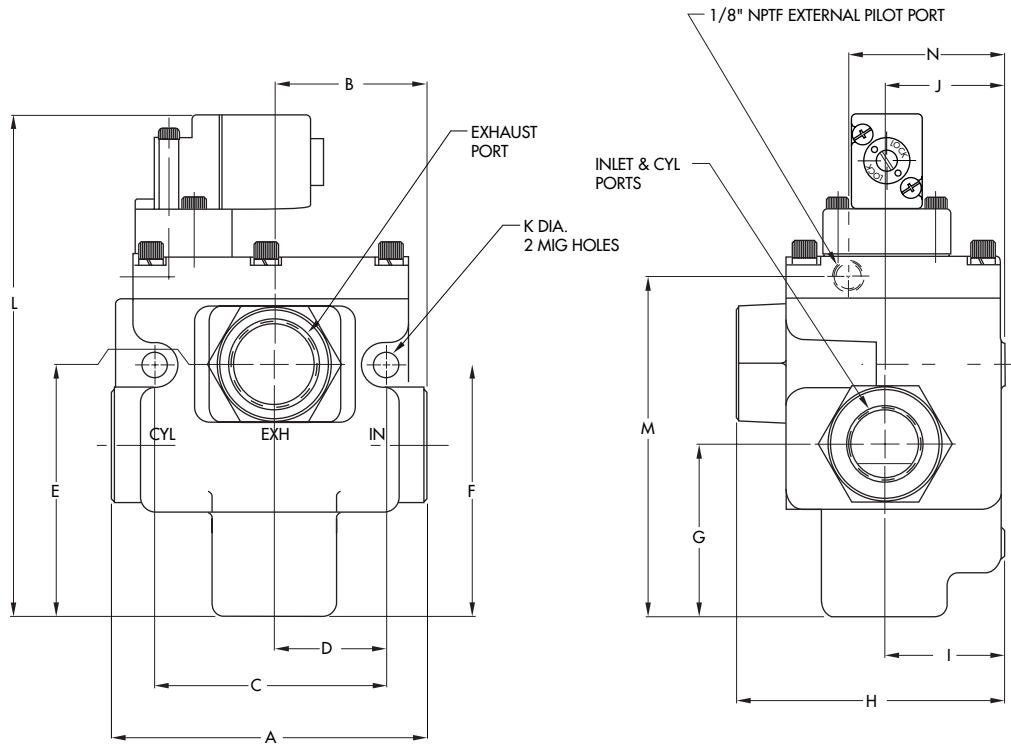


### 35 Series Manifold



## 57 & 58 Intrinsically Safe

Dimensions shown are metric (mm)



DIMENSIONS		A	B	C	D	E	F	G	H	I	J	K	L	M	N
<b>57</b>	Inches	4.42	2.13	3.25	1.56	3.56	3.56	2.43	3.18	1.68	1.80	.34	7.04	4.78	2.19
<b>Series</b>	MM	112.3	54.1	82.6	39.7	90.4	90.4	61.7	96.8	42.7	45.7	8.6	78.9	121.5	55.7
<b>58</b>	Inches	5.66	2.77	4.66	2.27	4.5	4.91	3.31	4.57	1.88	2.00	.53	8.41	6.15	2.39
<b>Series</b>	MM	143.7	70.3	118.4	57.7	114.3	124.7	84.1	116.1	47.8	50.8	13.5	213.6	156.3	60.8



## Section 8 Options

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## 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"> <li>- valves type 100 Series</li> <li>- pilot valves "CNOMO"</li> </ul>	<ul style="list-style-type: none"> <li>- valves type 200 Series</li> </ul>
<ul style="list-style-type: none"> <li>- Pilot operated valves with pilots type 100 Series</li> <li>Series : 55 - 56 - 700 - 800 - 900</li> <li>- 6300 - 6500 - 6600 - 1300</li> <li>- ISO 1 - ISO 2 - ISO 3.</li> <li>- MAC 125 - MAC 250 - MAC 500</li> </ul>	<ul style="list-style-type: none"> <li>- pilot operated valves with pilots type 200 Series</li> <li>Series : 200 - 57 - 58 - 59.</li> </ul>
<ul style="list-style-type: none"> <li>- Pilot operated valves with pilots "CNOMO"</li> <li>Series : ISO1 - ISO2 - ISO3</li> </ul>	

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

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

### 1. VOLTAGE (100 Serie type coil)

- XX Y ZZ	VOLTAGE
11	120/60, 110/50
12	240/60, 220/50
13	100/60, 100/50
15	200/60, 200 /50
16	10/60
20	6/60
21	12/50, 12/60
22	24/60, 24/50
23	32/60, 32/50
24	48/60, 42/50
26*	380/50, 440/50, 440/60, 480/60
29	220/60
34	127/50, 120/50
35	48/50
36	16/60
81	24/50
50	24 VDC (6 W)
51	24 VDC (4 W)
54	12 VDC (4 W)
55	12 VDC (6 W)
57	12 VDC (2.5 W)
59	24 VDC (2.5 W)
60	12 VDC (8.5 W)
61	24 VDC (8.5 W)
64	6 VDC (6 W)
65	32 VDC (7 W)
66	48 VDC (5.8 W)
67	64 VDC (7.5 W)
68	120 VDC (6.4 W)
69*	220 VDC (8.7 W), 250 VDC (11.2 W)
75	90 VDC (8.8 W)
76*	100 VDC (6.9 W)
84*	125 VDC (10.9 W)
87*	24 VDC (17.1 W)
88*	12 VDC (17.4 W)
89*	36 VDC (18.8 W)
90	28 VDC (8.2 W)
91*	6 VDC (10.6 W)
92	190 VDC (6.5 W)
94	3 VDC (7 W)
95	38 VDC (6.4 W)
A1	24 VDC (1 W)
A2	12 VDC (1 W)
A3	9 VDC (1 W)

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

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

\* Voltages are CLSF only

### 1. VOLTAGE (200 Serie type coil)

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

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

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

\* Lights used with "AA" electrical connection

## 3. ELECTRICAL CONNECTION (100 Serie type coil)

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

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

## 3. ELECTRICAL CONNECTION (200 Serie type coil)

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



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

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

**Codification table for voltages / Wire length / Manual operators / Electrical connections**

VALVE CODE ► **- D XX X - X XX**  
**1 2 3 4**

**OPTIONS AVAILABLE FOR**

- Solenoid valves 35, 45 and 82 Series

## 1. VOLTAGE

- D XX	X - X XX	VOLTAGE
AA		120/60, 110/50
AB		240/60, 220/50
AC		24/60, 24/50
AD		24/60
AE		200/60
AF		240/50
AG		100/50, 100/60, 110/60
DA		24 VDC (5.4 W)
DB		12 VDC (5.4 W)
DC		12 VDC (7.5 W)
DD		24 VDC (7.3 W)
DE		12 VDC (12.7 W) - CLSFonly
DF		24 VDC (12.7 W) - CLSF only
DK		110 VDC (4.7 W)
DL		64 VDC (6 W)
DM		36 VDC (5.3 W)
DN		6 VDC (6 W)
DP		48 VDC (5.8 W)
DU		24 VDC (6 W)
EA		12 VDC (6 W)
FA		12 VDC (1.8 W)
FB		24 VDC (1.8 W)
FE		12 VDC (2.4 W)
FF		24 VDC (2.4 W)

## 2. WIRE LENGTH

- D XX	X - X XX	WIRE LENGTH
A		18"
B		24"
C		36"
D		48"
E		72"
F		96"
J		For external plug-in connector ("J", "K" & "T" type electrical connection)
P		For plug-in valves (82 Series only)

### 3. MANUAL OPERATOR

#### - D XX X - X XX MANUAL OPERATOR

<b>0</b>	No operator
<b>1</b>	Non-locking recessed
<b>2</b>	Locking recessed
<b>3</b>	Non-locking extended
<b>4</b>	Locking extended

### 4. ELECTRICAL CONNECTION

#### - D XX X - X XX ELECTRICAL CONNECTION

<b>BA</b>	Flying leads
<b>BK</b>	BA with protection diode
<b>BL</b>	BA with protection varistor (M.O.V.)
<b>** CA</b>	1/2" NPS conduit
<b>** CM</b>	1/2" NPS metal conduit
<b>** CN</b>	1/2" NPS metal conduit w/ground
<b>** JB</b>	Rectangular connector
<b>** JD</b>	Rectangular connector with light
<b>** JM</b>	Rectangular connector, male only
<b>KA</b>	Square connector
<b>KB</b>	Square connector with protection diode
<b>KC</b>	Square connector with protection varistor (M.O.V.)
<b>KD</b>	Square connector with light
<b>KE</b>	Square connector with light and protection diode
<b>KF</b>	Square connector with light and protection varistor (M.O.V.)
<b>KG</b>	Square connector with LED light & diode
<b>KJ</b>	Square connector (male only)
<b>KK</b>	Square connector with protection diode (male only)
<b>KL</b>	Square connector with protection varistor (male only) (M.O.V.)
<b>*** MA</b>	Electrical common conduit
<b>TA</b>	Dual tabs
<b>TB</b>	TA with protection diode
<b>TD</b>	TA with light
<b>TE</b>	TA with light and protection diode
<b>TJ</b>	Dual tabs (male only)
<b>TK</b>	TJ with protection diode
<b>TM</b>	TJ with light
<b>TN</b>	TJ with light and protection diode
<b>DA*</b>	Plug-in connector
<b>DK*</b>	DA with protection diode
<b>DL*</b>	DA with protection varistor (M.O.V.)
<b>FM</b>	Plug-in
<b>FN</b>	Plug-in with diode
<b>FP</b>	Plug-in with M.O.V.

\* To be used with 82 Series only

\*\* Inline valves only for 35 & 45 series. No restrictions for 82 series.

\*\*\* Stacking valves only for 35 & 45 series. Conduit end plate kit required, one per stack.

35 series : M-35002-01  
45 series : M-45005-01

## PRECAUTIONS AND WARNINGS CONCERNING THE APPLICATION, INSTALLATION AND SERVICE OF MAC VALVES AND OTHER MAC VALVES PRODUCTS

The warnings and precautions below are important to be read and understood before designing into a system any MAC Valves products, and before installing or servicing any MAC Valves product. Improper use, installation or servicing of any MAC Valves product in some systems could create a hazard to personnel or equipment. No distinction in importance should be made between the terms warnings and precautions.

### WARNING :

Under no circumstances are MAC Valves products to be used in any application or in any manner where failure of the MAC Valves product to operate as intended could in any way jeopardize the safety of the operator or any other person or property.

- Do not operate outside of pressure range listed on a valve label or outside of the designated temperature range.
- Air supply must be clean and dry. Moisture or contamination can affect proper operation of the valve.
- Before attempting to repair, adjust or clean a MAC Valves product, consult catalog, parts & operation sheet, or factory for proper maintenance procedures, lubrication and cleaning agents. Never attempt to repair or perform other maintenance with air pressure to the valve.
- If air line lubrication is used do not use any lubrication other than those recommended in the catalog, parts & operation sheet or by the factory.

### APPLICATION PRECAUTIONS :

#### INDUSTRIAL USE -

- MAC Valve products are intended for general use in industrial pneumatic and/or vacuum systems. They are general purpose industrial products with literally thousands of different applications in industrial systems. These products are not inherently dangerous, but they are only a component of an overall system. The system in which they are used must provide adequate safeguards to prevent injury or damage in the event failure occurs, whether it be failure of switches, regulators, cylinders, valves or any other component.

#### POWER PRESSES -

MAC Valve products are not designed nor intended to be used to operate and/or control the operation of clutch and/or brake systems on power presses. There are special products on the market for such use.

#### 2-POSITION VALVES -

Some MAC valves are 2-position, 4-way valves. When air is supplied to the inlet port(s) of these valves, there will always be a flow path from the inlet to one of the outlets regardless of which of the two positions the valve is situated. Therefore, if pressurized air retained in the system would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the trapped air.

#### 3- POSITION VALVES-

Some MAC valves are 3-position, 4-way valves. These valves are either double solenoid or double remote air operated.

If either of the two operators is in control, air supplied to the inlet port(s) will pass through the valve to one of the outlets as on 2-position, 4-way valves. However, if neither operator is in control, the valve moves to a center position. Listed below are the various center position functions :

##### A. CLOSED CENTER-

With this type valve, when in the center position all ports are blocked (inlets and exhausts) meaning the air at both outlet ports is trapped. If trapping the air in both outlet ports would present a hazard in the application or servicing, a separate method in the system must be provided to remove the trapped air or this type valve should not be used.

##### B. OPEN CENTER-

With this type valve, when in the center position, the inlet port(s) is blocked and the two outlet ports are open to the exhaust port(s) of the valve. If having no air in either outlet port would present a hazard in the application or servicing, this type valve should not be used.

##### C. PRESSURE CENTER-

With this type valve, when in the center position, the inlet port(s) is connected to both outlet ports of the valve. If having pressurized air to either or both outlet ports would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the retained air or this type valve should not be used.

### OPERATING SPECIFICATIONS -

MAC Valves products are to be installed only on applications that meet all operating specifications described in the MAC catalog for the MAC Valves product.

### MANUAL OPERATORS-

Most MAC valves can be ordered with manual operators. Manual operators when depressed, are designed to shift the valve to the same position as would the corresponding solenoid or remote air pilot operator if it were activated. Care must be taken to order a type, if any, that will be safe for the physical location of the manual operator in the system. If intentional or accidental operation of a valve by a manual operator could cause personal injury or property damage, a manual operator should not be used.

### REMOTE AIR OPERATED VALVES

Pilot valves supplying signal pressure to remote air operated valves should be 3-way valves with adequate supply and exhaust capacity to provide positive pressurizing and exhausting of the pilot supply line. Pilot lines should be open to exhaust when valves are deenergized.

### INSTALLATION PRECAUTIONS :

- Do not install any MAC Valves product without first turning off air (bleed system completely) and electricity to the machine.
- MAC Valves products should only be installed by qualified, knowledgeable personnel who understand how the specific valve is to be pneumatically piped and electrically connected (where applicable). Flow paths through the valve are shown in the catalog and on the valve by use of ANSI or ISO type standard graphic symbols. Do not install unless these symbols and the valve functions and operations are thoroughly understood.
- If air line lubrication is used do not use any lubrication other than those recommended in the catalog, parts & operation sheet or by the factory.

### SERVICE PRECAUTIONS :

- Do not service or remove from service any MAC Valves product without first shutting off both the air and electricity to the valve and making certain no pressurized air which could present a hazard is retained in the system.
- MAC Valves products should only be serviced or removed from service by qualified, knowledgeable personnel who understand how the specific product is used and/or how the specific valve is piped and used and whether there is air retained in the connecting lines to the valve or electric power still connected to the valve.
- Before attempting to repair, adjust or clean a MAC Valves product, consult catalog, parts & operation sheet, or factory for proper maintenance procedures, lubrication and cleaning agents. Never attempt to repair or perform other maintenance with air pressure to the valve.
- MAC Valves products are never to be stepped on while working on a machine. Damage to a MAC valve, or other product or lines to the product (either air or electrical lines) or accidental activation of a manual operator on the valve could result in personal injury or property damage.

### LIMITATION OF GUARANTEE

This Guarantee is limited to the replacement or rebuilding of any valve or other product which should fail to operate properly. Valves or other products, under the MAC Guarantee, must be returned (with or without bases) transportation prepaid and received at our factory within the Guarantee period. They will be returned to the customer at the expense of MAC Valves, Inc., and will carry the same guarantee as provided under the Flat Rate Rebuild Program.

### DISCLAIMER OF GUARANTEE

No claims for labor, material, time, damage, or transportation are allowable nor will any valve or other product be replaced or rebuilt under this guarantee which has been damaged by the purchaser not in the normal course of its use and maintenance during the warranty period. The guarantee does not apply to loss or damage caused by fire, theft, riot, explosion, labor dispute, act of God, or other causes beyond the control of MAC Valves, Inc. MAC Valves, Inc. shall in no event be liable for remote, special or consequential damages under the MAC Guarantee, nor under any implied warranties, including the implied warranty of merchantability.

The above Guarantee is our manner of extending the engineering and service resources of the MAC Valves, Inc. organization to assure our customer long, and continued satisfaction.



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