

# CURRENT Technology



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#### 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





#### **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.

• <u>Direct solenoid valves 3 ways :</u> universal The following functions are available

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

• <u>Pilot operated valves 3 ways :</u>

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)

- <u>Direct solenoid valves 4 ways :</u> The following functions are available
  - 4 ways - 3 ways NC - 3 ways NO - 2 ways NC - 2 ways NO - Divertor
- <u>Pilot operated valves 4 & 5 ways :</u> 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** 



MAC DESIGN FEATURES

#### **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 contaminates.

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.

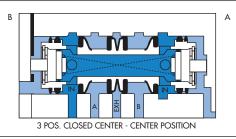
All valves utilize one piece aluminum bodies. On almost all Series valves, the bodies are die cast. The die casting technique used provides large, smooth and direct flow paths for low pressure drop.

#### **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**

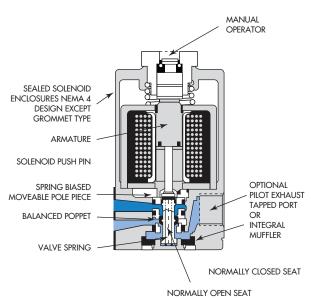
MAC 3-position solenoid and remote air pilot valves are centered by a patented spring centering device or patented combination spring and pressure assisted spool design which reduces side load potential and resultant wear, and assures fast, positive return of the main spool when the pilots are de-energized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

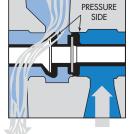


#### **SOLENOID PILOT VALVES**

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.







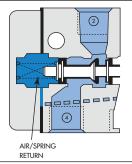
MAC DESIGN FEATURES

#### 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.



MAC DESIGN FEATURES

#### **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 electical 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, Hysterisis, 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	CATA
CIRCUIT BAR CATALOG	9990
PROPORTIONAL VALVE CATALOG	999P
SERIAL INTERFACE PRODUCTS	9999
MACONNECT SYSTEM	CON
NEW TECHNOLOGY	9991

## ATALOG NUMBER

999PPCB 9999SI CONSULT FACTORY 999NTCB

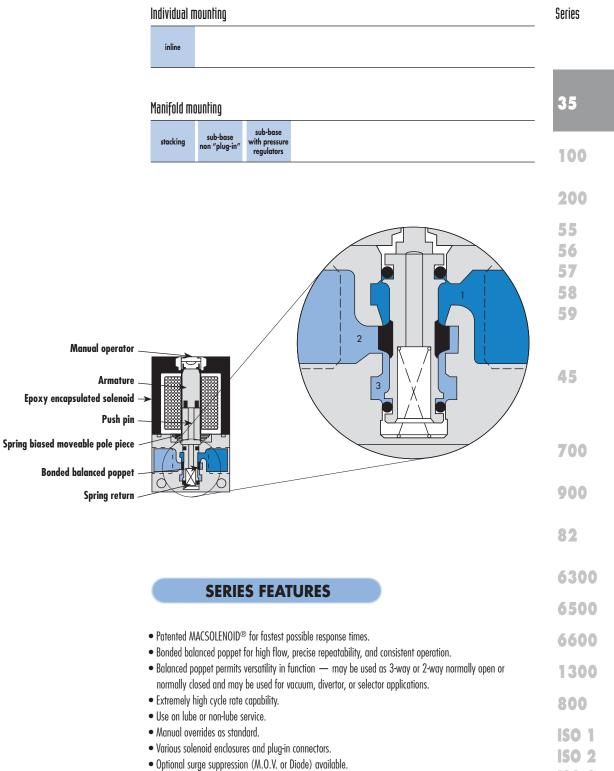


## Section 1 Direct solenoid and solenoid pilot operated valves

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

anifold II stacking	sub-base non "plug-in"	sub-base with pressure regulators	sub-base hazardous location	sub-base with pressure regulators and flow	sub-base "plug-in"	sub-base "plug-in" with pressure regulator	sub-base "plug-in" with flow	sub-base "plug-in" with regulator and flow controls	stacking body with 1 common port (inlet)	stacking body with 3 common ports	stacking body with 3 common ports and integral F.C.	stacking body with 3 common ports with common	stacking body with 3 common ports with C. C. & integral exh. F. C.	valve only	
	piog-in	regulators	location	controls		regulator	controls	controls	(inlet)	ports (inlet & exhausts)	F.C.	with common conduit	integral exh. F. C.		
								·							
2.17															35
	P. 19	P. 21													
P. 27	D 00			·							·				100
	P. 29 P. 37		P. 43												
	F. 37	P. 39-41	r. 43												200
		1.37-11		·							·				
				·											55 56
	·	·													57
				·											58
	·	·		·											59
				·											
P. 7 I															45
	P. 73	P. 75		P. 77											
					P. 79	P. 81	P. 83	P. 85							
															700
P. 91															
D 07		·		·											900
P. 97		·													
	P. 105			·	P. 107										82
	F. TUJ			·	F. 107			·			·				
	P. 115				P.117										6300
	P. 125				P. 127						·				6500
		·						<u></u>			·				
	P. 135				P. 137										6600
		·		·											1300
				·					P. 147						
										P. 149	P. 151	P. 153	P. 155		800
														P. 159	<b>ISO 1</b>
														P. 163	<b>ISO 2</b>
														P. 167	<b>ISO 3</b>
											·			P. 171	MAC 1
														P. 175	MAC 2
														P. 179	MAC 5





- Low wattage DC solenoids down to 1.8 watts.
- $\bullet$  Pattended MACSOLENOID  $^{\tiny (\! \mathrm{B}\!)}$  virtually burn-out proof on AC service.





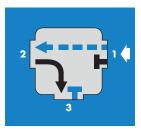
#### VALVE CONFIGURATIONS AVAILABLE :

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.

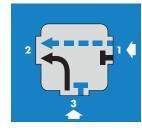
#### **PIPING CHART FOR INDIVIDUAL MODELS**



3 Way Normally Closed



2 Way Normally Closed



Selector



3 Way Normally Open



2 Way Normally Open



Divertor

Supply Operator De-Energized Operator Energized

© Beries 35	Direct	solenoid and sole	noid pilot opera	ited valves
Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-I	NC 1/8"	0.17 C <sub>v</sub>	inline	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune pressure.</li> <li>2. Short stroke with high flow</li> <li>3. The patented solenoid deve forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard</li> <li>6. Burn-out proof solenoid on</li> </ul>	v. velops high shifting d on all valves.			35 100 200 55 56 57
HOW TO ORDER Port si	ze	Universal valve	NC only valve	57 58
1/8" N SOLENOID OPERATOR		2 1 3 35A-AAA-DXXX-XXX D XX X- X XX <sup>*</sup>	2 1 3 35A-AAB-DXXX-XXX	45
XX         Voltage           AA         120/60, 110/50           AB         240/60, 220/50           AC         24/60, 24/50           FB         24 VDC (1.8 W)           DA         24 VDC (5.4 W)	<b>A</b> 1	Vire length X Manual 8" (Flying leads) 1 Non-locking connector 2 Locking		ector
<ul> <li>DF 24 VDC (12.7 W)</li> <li>Other options available, se</li> <li>OPTIONS</li> </ul>	ee page 361.			82
35A-CAX-Dxxx-xxx	# 10.22	·L. f. L.		6300
- with (2) #	# 10-32 ports in backs	side of valve		6500
				6600
				1300
				800
		15	Consult "Precautions" page 364 before use, installation or	ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A





id :	Compressed air, vacu	um, inert gases				
ressure range :	Vacuum to 120 PSI					
ubrication :	Not required, if used	select a medium aniline p	point lubricant (between 180°F and 210°F)			
Filtration :	40 µ					
Temperature range :	0°F to 120°F (-18°C t	o 50°C)				
Flow (at 6 bar, ΔP=1bar) :	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 nom	inal 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			

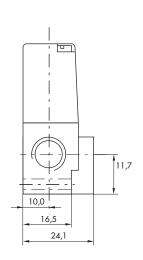
Options :

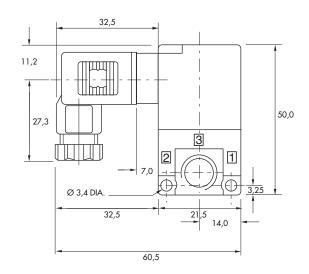
•-Solenoid operator (power  $\geq 5.4$  W) : DXXX-XXX, including mounting screws 35013. • Seal (between solenoid and valve body) : 16402.

 $\bullet$  BSPP threads.  $\bullet$  High flow up to 0.25  $C_{v^{\prime}}$  according to wattage and high flow mod.

DIMENSIONS

Dimensions shown are metric (mm)





© <b>Contraction</b> Series <b>3</b> 5	Direct	solenoid	and solen	oid pilot opera	ted valves
Function	Port size	Clour	(Max)	Manifold mounting	Series
			<u> </u>	Manifold mounting	טוונס
3/2 NO-NC, 2/2 NC	D-NC # 10-32,	, 1/8" 0.1	6 C <sub>v</sub>	stacking	
OPERATIONAL BENEFITS 1. Balanced poppet, immu pressure. 2. Short stroke with high flu 3. The patented solenoid d	ow.			20	35
forces. 4. Powerful return spring. 5. Manual operator stando 6. Burn-out proof solenoid	ard on all valves.				100
HOW TO ORDER					55 56 57
Port	ł size	NC	only valve	NO only valve	58
		ļ —			<b>J</b> 7
	' NPTF 32 UNF		GAC-DXXX-XXX GBC-DXXX-XXX	35A-SAD-DXXX-XXX 35A-SBD-DXXX-XXX	45
SOLENOID OPERATO			<u>x x- x xx</u> *		
XX Voltage	x	Wire length	X Manual op	erator XX	700
AA 120/60, 110/5 AB 240/60, 220/5	50 <b>A</b>	18" (Flying leads) Connector	1 Non-locking 2 Locking	KA Square connector KD Square connector	
AC 24/60, 24/50 FB 24 VDC (1.8 W DA 24 VDC (5.4 W	<u></u>			BA Flying leads	900
DF 24 VDC (12.7 V * Other options available	M)				82
End plate kit required (Port Note : upon request, mani	t size : 1/4") : M-35001- ifolds are mounted at the f	01 actory			6300
OPTIONS					6500
35A- <u>T</u> XX-Dxxx-xxx Bottom	n Inlet				6600
					1300
					800
			17		ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A





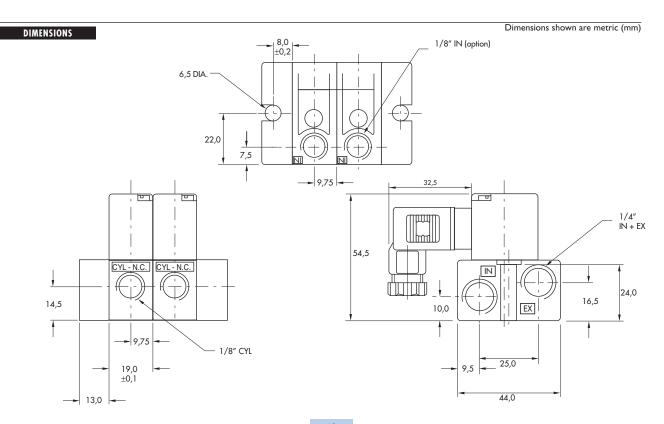
TECHNICAL DATA							
Fluid :	Compressed air, vacuum, inert gases						
Pressure range :	Vacuum to 120 PSI						
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)						
Filtration :	40 µ						
Temperature range :	0°F to 120°F (-18°C to 50°C)						
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 0.12 C <sub>v</sub> , 5.4 to12.7 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						
Response times :	= 1.8 to 12.7 W 24 VDC (5.4 W) Energize : 6 ms De-energize : 2 ms						

Solenoid operator (power ≥ 5.4 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 :

 $\bullet$  BSPP threads.  $\bullet$  High flow up to 0.25  $C_{\nu}$  according to wattage and high flow mod.



© Contraction of the series <b>35</b>	lirect sol	lenoid and sol	lenoid pilot opera	ted valves
Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	# 10-32, 1/8"	0.10 C <sub>v</sub>	sub-base non "plug-in"	
<ol> <li>DPERATIONAL BENEFITS</li> <li>Balanced poppet, immune to var pressure.</li> <li>Short stroke with high flow.</li> <li>The patented solenoid develops forces.</li> <li>Powerful return spring.</li> </ol>	high shifting			35 100
<ol> <li>Manual operator standard on all</li> <li>Burn-out proof solenoid on AC se</li> </ol>				200
				55
				56
HOW TO ORDER				57
SIDE CYLINDER PORTS				58
Port size		Norm. closed Manifold base	Norm. open Manifold base	59
Valve less base (universal # 10-32 UNF base	<u>)</u>	35A-B00-Dxxx-xxx 35A-BBE-Dxxx-xxx	35A-B00-Dxxx-xxx 35A-BBF-Dxxx-xxx	40
# 10-32 UNF base 1/8" NPTF base		35A-BBE-D <b>XXX-XXX</b> 35A-BAE-D <b>XXX-XXX</b>	35A-BBF-Dxxx-xxx 35A-BAF-Dxxx-xxx	
BOTTOM CYLINDER PORTS				
Port size		Norm. closed Manifold base	Norm. open Manifold base	700
		CYL	cri	900
				700
Valve less base (universal	0	35A-B00-D <b>xxx-xxx</b>	35A-B00-D <b>xxx-xxx</b>	
# 10-32 UNF base		35A-BGE-Dxxx-xxx	35A-BGF-D <b>xxx-xxx</b>	82
1/8" NPTF base		35A-BFE-D <b>xxx-xxx</b>	35A-BFF-Dxxx-xxx	
SOLENOID OPERATOR >		D <u>XX X-X XX</u>		6300
				6500
XX         Voltage           AA         120/60, 110/50	<b>X Wire I</b> <b>A</b> 18" (Flyin	length X Manu ng leads) I Non-lou	cking KA Square connector	6600
AB         240/60, 220/50           AC         24/60, 24/50	J Connecto		KD Square connector	
FB         24 VDC (1.8 W)           DA         24 VDC (5.4 W)			<b>BA</b> Flying leads	1300
<b>DF</b> 24 VDC (12.7 W)				800
<ul> <li>Other options available, see pag</li> </ul>	-			ISO 1
End plate kit required (Port size : 1, Note : upon request, manifolds are				150 2
OPTIONS	mounieu ur me ruciory.			150 3
				MAC 125A
35A-EXX-Dxxx-xxx	35A-FXX-Dx		-OXX	MAC 250A
- N.C. only valv	e <u> </u>	- universal w/gage port	- no valve body (base only)	
		19	Consult "Precautions" page 364 before use installation or se	MAC 500A

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





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 : 0.09 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

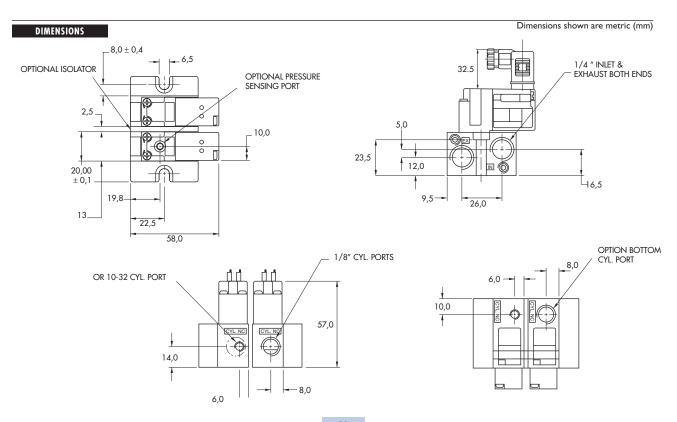
•-Solenoid operator (power  $\geq$  5.4 W) : DXXX-XXX, including mounting screws 35013.

• 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-35006.

Options :

• BSPP threads. • High flow up to 0.18 Cv, according to wattage and high flow mod.



© Direct Birect Series 35	solenoid and sole	noid pilot operated	valves
Function Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC # 10-32,	, 1/8″ 0.10 C <sub>v</sub>	sub-base with pressure regulators	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune to variations of pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The patented solenoid develops high shifting forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard on all valves.</li> <li>6. Burn-out proof solenoid on AC service.</li> </ul>			35 100 200 55
How to order SIDE CYLINDER PORTS			56 57 58
Port size	Norm. closed Manifold base	Norm. open Manifold base	59
Valve less base (universal) # 10-32 UNF base 1/8" NPTF base	Image: Constraint of the second sec	35A-BO0-Dxxx-xxx       35A-BBK-Dxxx-xxx       35A-BBK-Dxxx-xxx       35A-BAK-Dxxx-xxx	45
BOTTOM CYLINDER PORTS			700
Port size	Norm. closed Manifold base	Norm. open Manifold base	/ • •
			900
Valve less base (universal) # 10-32 UNF base 1/8" NPTF base	35A-BO0-Dxxx-xxx 35A-BGJ-Dxxx-xxx 35A-BFJ-Dxxx-xxx	35A-BO0-Dxxx-xxx 35A-BGK-Dxxx-xxx 35A-BFK-Dxxx-xxx	82
SOLENOID OPERATOR >	D <u>xx</u> x- <u>x</u> xx <sup>·</sup>		6300
			6500
XX         Voltage         X           AA         120/60, 110/50         A	Wire length         X         Manual of Manua	KA Square connector	6600
AB         240/60, 220/50         J           AC         24/60, 24/50         J           FB         24 VDC (1.8 W)         DA         24 VDC (5.4 W)	Connector 2 Locking	KD         Square connector with light           BA         Flying leads	1300
<b>DF</b> 24 VDC (12.7 W)			800
<ul> <li>Other options available, see page 361.</li> <li>End plate kit required (Port size : 1/4") : M-35003-4 Note : upon request, manifolds are mounted at the f</li> <li>OPTIONS</li> <li>35A-<u>E</u>XX-Dxxx-xxx</li> <li>35A</li> </ul>		X	ISO 1 ISO 2 ISO 3 MAC 125A
- N.C. only valve	- universal w/gage port	<ul> <li>no valve body (base w/regulator)</li> <li>Consult "Precautions" none 364 before use installation or service of MAC</li> </ul>	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>y</sub> , 5.4 to 12.7 W : 0.1 C <sub>y</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			

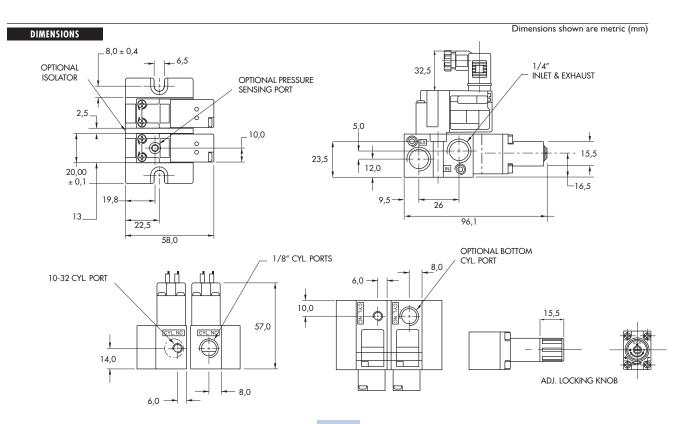
•-Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.

• Seal (between solenoid and valve body) : 16402. • Pressure seal (between valve and base) : 16447.

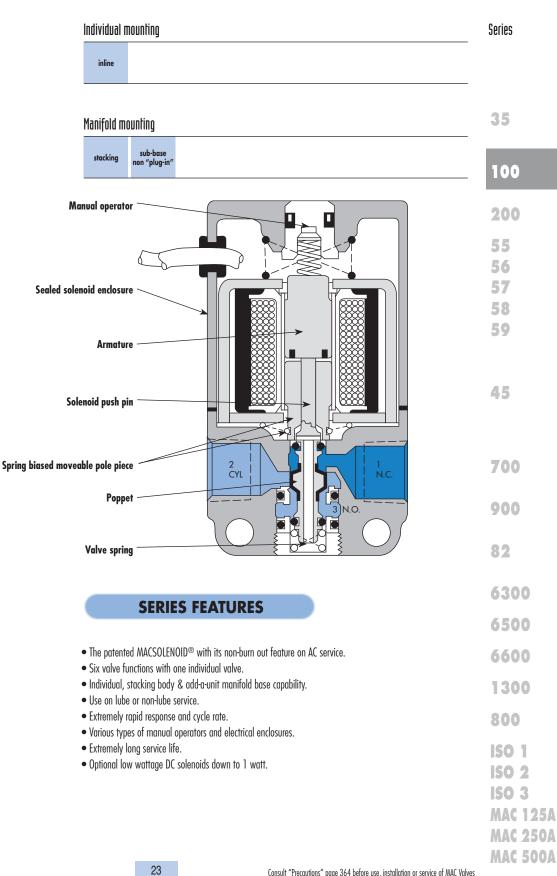
Pressure seal (between bases) : 16461.
Tie-rod (x2) : 19753.
Inlet isolator : N-35007.
Exhaust isolator : N-35006.
Pressure regulator : 35A-00M (ADJ, KNOB) - 35A-00L (SLOTTED STEM).

Options :

• BSPP threads. • High flow up to 0.18 Cv, according to wattage and high flow mod.











#### **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.

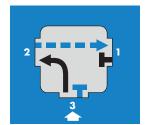
#### **N.C. ONLY MODELS**

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.

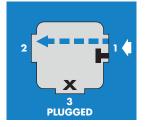
#### PIPING CHART FOR INDIVIDUAL MODELS



3 Way Normally Closed



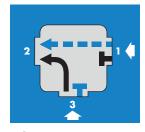
3 Way Normally Open



2 Way Normally Closed

2 Way

**Normally Open** 



Selector



Divertor



Operator Energized 🗖 🗖 🗖 🛑

© Series 100	Direct solo	enoidandso	lenoid pilot operat	ed valves
Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.18 C <sub>v</sub>	inline	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune to pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The patented solenoid develout forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard on</li> <li>6. Burn-out proof solenoid on AC</li> </ul>	ps high shifting all valves.			35 100 200 55 56 57
Port size		Universal valve	NC only valve	58
				59
1/8″ NPT		1 3 111B- <b>XXYZZ</b>	1 3 161B-XXYZZ	
1/4" NPT SOLENOID OPERATOR ➤	F	113B-xxyzz	163B- <b>XXYZZ</b>	45
XX Voltage	Ŷ	Manual operator	ZZ Electrical connection	700
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)		Non-locking Locking	JB Rectangular connector JD Rectangular connector with light JA Square connector JC Square connector with light BA Flying leads (18")	900
61 24 VDC (17.1 W) 61 24 VDC (8.5 W) * Other options available, see p			CA Conduit 1/2" NPS	82
Notes: CHANGING FROM NORMALLY		N		6300
Individual inline valves can be c NORMALLY CLOSED ONLY MC	hanged from normally closed to DDELS	o normally open by connecting the i		6500
		hose applications where a greater t Model numbers are indicated abo	olerance for heavy concentrations of water, ve.	6600
				1300
				800
				ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A

**MAC 500A** 





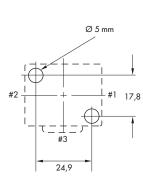
Compressed air, vacuum, inert gases
Vacuum to 150 PSI
Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
40 µ
0°F to 140°F (-18°C to 60°C)
0.18 C <sub>v</sub>
General purpose class A, continuous duty, encapsulated
-15% to +10% of nominal voltage
Consult factory
~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

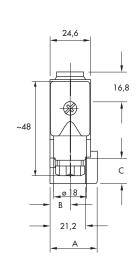
• Solenoid operator (power  $\ge 4$  W) : D1-XXAA, cover mounting screws 32184 and seal 16234.

Options :

• BSPP threads.

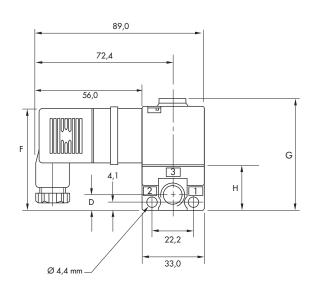
DIMENSIONS





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

Dimensions shown are metric (mm)



© Contraction of the series 100	Direct solu	enoid and so	lenoid pilot operate	d valves
Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.18 C <sub>v</sub>	stacking	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune to var pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The patented solenoid develops forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard on a</li> <li>6. Burn-out proof solenoid on AC s</li> </ul>	high shifting II valves.			35 100 200 55 56 57
HOW TO UKDEK Port size		Universal valve	NC only valve	58
				59
1/8″ NPTF		181B-XXYZZ		
1/4" NPTF		183B- <b>XXYZZ</b>	185B-XXYZZ	45
SOLENOID OPERATOR >		<u>XX Y ZZ</u>		
XX         Voltage           11         120/60, 110/50	Ý	Manual operator Non-locking	ZZ Electrical connection JB Rectangular connector	700
11         120/60, 110/50           12         240/60, 220/50           22         24/60, 24/50	2	Locking	JB Rectangular connector JD Rectangular connector with light BA Flying leads (18")	
<b>59</b> 24 VDC (2.5 W) <b>87</b> 24 VDC (17.1 W)			MB Common conduit 1" NPS	900
61 24 VDC (8.5 W) * Other options available, see pa	ige 357.			82
End plate kit required (Port size 1/ "MB" option also requires end pla	/4″) : M-01001-01			6300
Notes:		N 1		6500
CHANGING FROM NORMALLY C In the case of stacking valves a rev valve is N.C. or N.O.			lve body assembly. This determines whether the	6600
NORMALLY CLOSED ONLY MOD A single purpose Normally Closed	l only model is available for t		olerance for heavy concentrations of water,	1300
compressor products and other air	r line contaminants is desired	. Model numbers are indicated abov	/e.	800
				800
				ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A

**MAC 500A** 





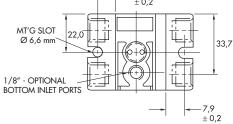
TECHNICAL DATA		
Fluid :	Compressed air, vacuum, inert gases	
Pressure range :	Vacuum to 150 PSI	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)	
Filtration :	40 µ	
Temperature range :	0°F to 140°F (-18°C to 60°C)	-
Flow (at 6 bar, ΔP=1bar) :	0.18 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	

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 56,0 16,8 ~48,0 64,2 IN 19,0 21,6 27,4 + 17,0 EXH 10,4 Î ø 18,0 5,2 ±0,2 25,4 13,0 12,7 24,8 ± 0,1 1/4" INLET & EXHAUST PORTS EACH END 44,0 CYL. PORT 1/8" OR 1/4" - 8,2 ± 0,2



Dimensions shown are metric (mm)

© Constant of the series 100	Direct so	lenoid and so	lenoid pilot operated	valves
Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	1/8″	0.14 C <sub>v</sub>	sub-base non "plug-in"	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune to pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The patented solenoid develop forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard on</li> <li>6. Burn-out proof solenoid on AC</li> </ul>	ops high shifting n all valves.			35 100 200 55 56 57
Port size		Universal valve	NC only valve	58
Valve less base 1/8" base NPTF SOLENOID OPERATOR >		130B-XXYZZ 132B-XXYZZ	2 1 1 1 1 1 1 1 1 1 1 1 1 1	45
XX Voltage		Non-locking	ZZ Electrical connection JB Rectangular connector	700
12         240/60, 220/50           22         24/60, 24/50           59         24 VDC (2.5 W)           87         24 VDC (17.1 W)		2 Locking	JD Rectangular connector with light BA Flying leads (18") MA Common conduit 1" NPS RA Conduit 3/8" NPS	900
61 24 VDC (8.5 W) * Other options available, see p	раде 357.			82
End plate kit required (Port size "MA" option also requires end p				6300
OPTIONS				6500
12XB-xxyzz 2-way N.C.				6600
14XB-xxyzz 2-way N.O.				1300
102 (Base only)				800
Notes: CHANGING FROM NORMALLY For manifold base mounted valv N.O.), one plate for 2 Way N.C NORMALLY CLOSED ONLY MC	ves a plate is provided betwe C. and one for 2 Way N.O. DDELS sed only model is available f	een the valve and the base. Three plate Appropriate plates, determined by the or those applications where a greater	es are available; a reversible plate for 3 Way valves (N.C. & valve model number, are supplied automatically with the valve. tolerance for heavy concentrations of water, compressor	ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A





Fluid :	Compressed air, vacu	um, inert gases		
Pressure range :	Vacuum to 150 PSI			
Lubrication :	Not required, if used	select a medium aniline p	oint lubricant (between 180°F and 210°F)	
Filtration :	40 µ			
Temperature range :	0°F to 140°F (-18°C to	o 60°C)		
Flow (at 6 bar, ΔP=1bar) :	0.14 C <sub>v</sub>			
Coil :	General purpose class	s A, continuous duty, enca	psulated	
Voltage range :	-15% to +10% of nom	inal 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	

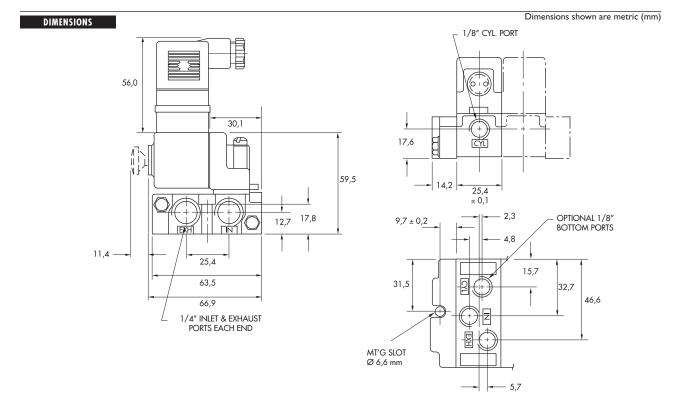
- Spare parts :
- Options :

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

• 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.



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





Individual mountino Series inline inline hazardous location 35 Manifold mounting sub-base sub-base sub-b with pressure regulators azardous n "plug-i location 100 200 **Manual operator** 55 56 57 Sealed solenoid enclosure 58 59 Armature 45 Solenoid push pin 700 Spring biased moveable pole piece 900 **Balanced poppet** 82 Valve spring 6300 **SERIES FEATURES** 6500 • The patented MACSOLENOID® with its non-burn out feature on AC service. 6600 • 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). 1300 • Inline & add-a-unit manifold capability. • Use on lube or non-lube service. 800 • Extremely rapid response and cycle rate. • Various types of manual operators and electrical enclosures. **ISO 1** • Extremely long service life. **ISO 2** • Optional low wattage DC solenoids down to 1 watt. 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.

#### **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 "3-0" 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 "2-0" on the other side for N.O. The 2-way plates block the exhaust at the valve, permitting the mixing in a stack of

#### PIPING CHART FOR INDIVIDUAL MODELS

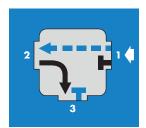
3-ways and 2-ways. Changes within a stack from one function to another can be made without disturbing the plumbing.

#### **SPECIAL APPLICATIONS:** N.C. ONLY MODELS

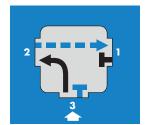
A single purpose Normally Closed Only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

#### **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 ("0") manual operator.



3 Way Normally Closed



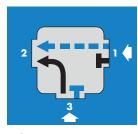
3 Way Normally Open



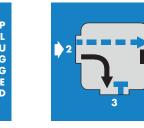
2 Way Normally Closed

2 Way

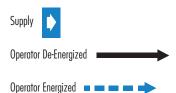
**Normally Open** 



Selector



Divertor



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

© Contraction of the series 200	irect sole	noid and so?	lenoid pilot operate	ed valves
Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.5 C <sub>v</sub>	inline	
<ol> <li>DPERATIONAL BENEFITS</li> <li>Balanced poppet, immune to varie pressure.</li> <li>Short stroke with high flow.</li> <li>The patented solenoid develops h forces.</li> <li>Powerful return spring.</li> <li>Manual operator standard on all the solenoid at th</li></ol>	high shifting I valves.			35 100
6. Burn-out proof solenoid on AC ser	rvice.			200 55 56 57
Port size		Universal valve	NC only valve	58 59
1/8" NPTF 1/4" NPTF SOLENOID OPERATOR ➤		224B-XXYZZ 225B-XXYZZ XX Y ZZ *	274B-XXYZZ 275B-XXYZZ	45
XX         Voltage           11         120/60, 110/50, 24 VDC           12         240/60, 220/50           22         24/60, 24/50           52         24 VDC (2.5 W)           78         24 VDC (24.0 W)	C (6.0 W) 1 2	Manual operator Non-locking Locking	ZZ       Electrical connection         JA       Square connector         JC       Square connector with light         BA       Flying leads (18")         CA       Conduit 1/2" NPS	900
61 24 VDC (8.5 W) * Other options available, see page	 je 357.			82
Notes: CHANGING FROM NORMALLY CLO	LOSED TO NORMALLY OPEN			6300
Individual inline valves can be chang NORMALLY CLOSED ONLY MODEL	nged from normally closed to ELS	o normally open by connecting the i		6500
A single purpose Normally Closed a compressor products and other air li	only model is available tor the line contaminants is desired.	nose applications where a greater to Model numbers are indicated abo	olerance for heavy concentrations of water, ve.	6600
				1300
				800
				ISO 1 ISO 2 ISO 3 MAC 125A

MAC 250A MAC 500A





Compressed air, vacu	uum, inert gases	
Vacuum to 150 PSI		
Not required, if used	select a medium aniline p	point lubricant (between 180°F and 210°F)
40 µ		
0°F to 140°F (-18°C	to 60°C)	
0.5 C <sub>v</sub>		
General purpose clas	ss A, continuous duty, encc	ipsulated
-15% to +10% of nor	ninal voltage	
Consult factory		
~ Inrush : 33 VA	Holding : 19.7 VA	
= 1 to 24 W		
24 VDC (8.5 W)	Energize : 15 ms	De-energize : 5 ms
120/60	Energize : 3-8 ms	De-energize : 3-13 ms
	Vacuum to 150 PSI Not required, if used 40 µ 0°F to 140°F (-18°C 0.5 C <sub>v</sub> General purpose class -15% to +10% of nor Consult factory ~ Inrush : 33 VA = 1 to 24 W 24 VDC (8.5 W)	Not required, if used select a medium aniline p 40 µ 0°F to 140°F (-18°C to 60°C) 0.5 C <sub>v</sub> General purpose class A, continuous duty, enco -15% to +10% of nominal voltage Consult factory ~ Inrush : 33 VA Holding : 19.7 VA = 1 to 24 W 24 VDC (8.5 W) Energize : 15 ms

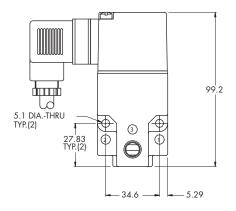
•-Solenoid operator (power  $\ge$  6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.

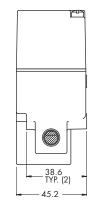
Options :

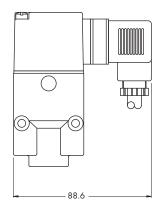
BSPP threads.

#### DIMENSIONS

Dimensions shown are metric (mm)







© Contraction of the series 200	irect sole	noid and sole	enoid pilot operated	valves
Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	1/8″ - 1/4″	0.5 C <sub>v</sub>	inline hazardous location	
OPERATIONAL BENEFITS 1. Balanced poppet, immune to vari pressure. 2. Short stroke with high flow. 3. The patented solenoid develops h forces				35
forces. 4. Powerful return spring. 5. Burn-out proof solenoid on AC se	rvice.			100 200
HOW TO ORDER				55 56 57
Port size		Universal valve	NC only valve	58 59
				57
1/8″ NPTF			274B-XX0EA	_
1/8" NPTF 1/4" NPTF SOLENOID OPERATOR ➤		224B-XX0EA 225B-XX0EA	274B-XX0EA 275B-XX0EA	45
1/4" NPTF SOLENOID OPERATOR ➤ XX Voltage 11 120/60, 110/50, 24 VDC 12 240/60, 220/50		225B-XXOEA		_
1/4" NPTF SOLENOID OPERATOR ➤ XX Voltage 11 120/60, 110/50, 24 VDC 12 240/60, 220/50 22 24/60, 24/50 50 24 VDC (6.0 W) 55 12 VDC (6.0 W)		225B-XXOEA		45
1/4" NPTF SOLENOID OPERATOR ➤ XX Voltage 11 120/60, 110/50, 24 VDC 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)		225B-XXOEA		45
1/4" NPTF SOLENOID OPERATOR ➤ XX Voltage 11 120/60, 110/50, 24 VDC 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 Serie G. Maximum rated fluid and ambie	es designed for hazardous loca	225B-XX0EA	275B-XX0EA Class I, Groups B, C & D; Class II, Groups E, F &	45 700 900
1/4" NPTF SOLENOID OPERATOR ➤ XX Voltage 11 120/60, 110/50, 24 VDC 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 Serie G. Maximum rated fluid and ambie Approval is limited to certain comm These valves are supplied without m	es designed for hazardous loca ent temperature is 40°C; maxir non AC & DC voltages which a nanual operators. This version	225B-XX0EA	275B-XX0EA Class I, Groups B, C & D; Class II, Groups E, F & e. the standard individual inline or the manifold	45 700 900 82
1/4" NPTF         SOLENOID OPERATOR ➤         XX       Voltage         11       120/60, 110/50, 24 VDC         12       240/60, 220/50         22       24/60, 24/50         50       24 VDC (6.0 W)         55       12 VDC (9.5 W)         61       24 VDC (8.5 W)         Notes:         The special version of the 200 Serie         G. Maximum rated fluid and ambie         Approval is limited to certain comm         These valves are supplied without m         valve body assemblies. It can also b	es designed for hazardous loca ent temperature is 40°C; maxir non AC & DC voltages which a nanual operators. This version pe supplied as a pilot for the 5	225B-XX0EA Ations has been approved by CSA for mum pressure is 150 p.s.i. are those designated in the table above of the 200 Series can be supplied on to i7, 58 and 59 Series (with special ada	275B-XX0EA Class I, Groups B, C & D; Class II, Groups E, F & e. the standard individual inline or the manifold	45 700 900 82 6300
1/4" NPTF         SOLENOID OPERATOR ➤         XX       Voltage         11       120/60, 110/50, 24 VDC         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 (8.5 W)         01       24 VDC (8.5 W)         Notes:       The special version of the 200 Serie         G. Maximum rated fluid and ambie       Approval is limited to certain comm         These valves are supplied without m       valve body assemblies. It can also b         CHANGING FROM NORMALLY CL       Individual inline valves can be chan         NORMALLY CLOSED ONLY MODE       ONLY MODE	es designed for hazardous loca ent temperature is 40°C; maxin non AC & DC voltages which a nanual operators. This version be supplied as a pilot for the 5 LOSED TO NORMALLY OPEN nged from normally closed to n	225B-XX0EA	Class I, Groups B, C & D; Class II, Groups E, F & e. the standard individual inline or the manifold apter plate # M-00012). to port 3 instead of port 1.	45 700 900 82 6300 6500
1/4" NPTF         SOLENOID OPERATOR ➤         XX       Voltage         11       120/60, 110/50, 24 VDC         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 Serie         G. Maximum rated fluid and ambie         Approval is limited to certain comm         These valves are supplied without m         valve body assemblies. It can also b         CHANGING FROM NORMALLY CL         Individual inline valves can be chan         NORMALLY CLOSED ONLY MODEL         A single purpose Normally Closed of	es designed for hazardous loca ent temperature is 40°C; maxin non AC & DC voltages which a nanual operators. This version be supplied as a pilot for the 5 LOSED TO NORMALLY OPEN nged from normally closed to n iLS only model is available for tho	225B-XX0EA	Class I, Groups B, C & D; Class II, Groups E, F & e. the standard individual inline or the manifold apter plate # M-00012).	45 700 900 82 6300 6500 6600

ISO 2 ISO 3 MAC 125A

MAC 250A MAC 500A





Compressed air, vacu	uum, inert gases	
Vacuum to 150 PSI		
Not required, if used	select a medium aniline p	point lubricant (between 180°F and 210°F)
40 µ		
0°F to 140°F (-18°C	to 60°C)	
0.5 C <sub>v</sub>		
General purpose clas	ss A, continuous duty, encc	ipsulated
-15% to +10% of nor	ninal voltage	
Consult factory		
~ Inrush : 33 VA	Holding : 19.7 VA	
= 1 to 24 W		
24 VDC (8.5 W)	Energize : 15 ms	De-energize : 5 ms
120/60	Energize : 3-8 ms	De-energize : 3-13 ms
	Vacuum to 150 PSI Not required, if used 40 µ 0°F to 140°F (-18°C 0.5 C <sub>v</sub> General purpose class -15% to +10% of nor Consult factory ~ Inrush : 33 VA = 1 to 24 W 24 VDC (8.5 W)	Not required, if used select a medium aniline p 40 µ 0°F to 140°F (-18°C to 60°C) 0.5 C <sub>v</sub> General purpose class A, continuous duty, enco -15% to +10% of nominal voltage Consult factory ~ Inrush : 33 VA Holding : 19.7 VA = 1 to 24 W 24 VDC (8.5 W) Energize : 15 ms

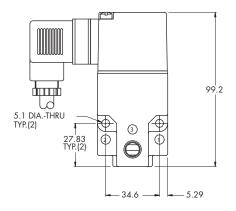
•-Solenoid operator (power  $\ge$  6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.

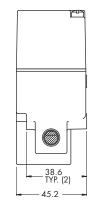
Options :

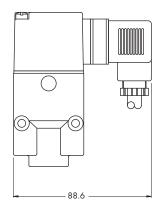
BSPP threads.

#### DIMENSIONS

Dimensions shown are metric (mm)







© Series 200	Direct	solenoid and so	olenoid pilot oper	ated valves
Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO	-NC 1/8" - 1/	4″ 0.5 C <sub>v</sub>	sub-base non "plug-in"	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immur pressure.</li> <li>2. Short stroke with high flo</li> <li>3. The patented solenoid de forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard</li> </ul>	w. evelops high shifting			35 100
6. Burn-out proof solenoid c				200 55 56 57
Port size		Universal valve	NC only valve	58
Valve less base 1/8" base NPTF 1/4" base NPTF		250B-XXYZZ 257B-XXYZZ	280B-XXYZZ 286B-XXYZZ 286B-XXYZZ	45
SOLENOID OPERATOR	₹ ►	XX Y ZZ		
XX Voltage	), 24 VDC (6.0 W)	Y Manual operator 1 Non-locking	ZZ Electrical connection JC Square connector with light	700
12 240/60, 220/50 22 24/60, 24/50 52 24 VDC (2.5 W)		2 Locking	JA Square connector BA Flying leads (18") CA Conduit 1/2" NPS	900
78         24 VDC (24.0 W)           61         24 VDC (8.5 W)				82
* Other options available, see page 357. End plate kit required (Port size : 1/4") : A2-5003-01.				6300
OPTIONS				6500
26XB-xxyzz		206 207 (Base only - 1/8") (Base only - 1/4")		6600
- Universal	z-wdy	(base only - 1/8)	(base only - 1/4)	1300
				800
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.				ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A

**MAC 500A** 





Fluid :	Compressed air, vacu	uum, inert gases	
Pressure range :	Vacuum to 150 PSI		
ubrication :	Not required, if used	select a medium aniline p	point lubricant (between 180°F and 210°F)
Filtration :	40 µ		
lemperature 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 clas	ss A, continuous duty, enco	apsulated
Voltage range :	-15% to +10% of non	ninal 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

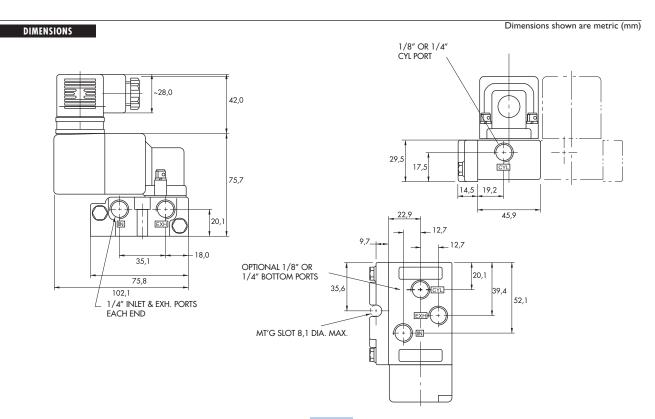
Options :

• 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)



2/2 NO-NC, 2/2 NO-NC     1/4"     0.4 Cy     Integer of the second se	© Di i Series 200	rects	solenoid and sole	enoid pilot operated	valves
a) 2 NoNe, 2/ 2 NoNe       1/4"       0.4 Cy       metageneric         DETUNITION       100         Detension       35         0.0 metageneric       0.0 metageneric         0.0 metageneric       0.0 metageneric <th>Function</th> <th>Port size</th> <th>Flow (Max)</th> <th>Manifold mounting</th> <th>Series</th>	Function	Port size	Flow (Max)	Manifold mounting	Series
a) Head constraints       35         b) Head constraints       36         c) Head constraintes       36 <t< th=""><th>3/2 NO-NC, 2/2 NO-NC</th><th>1/4″</th><th>0.4 C<sub>v</sub></th><th>with pressure</th><th></th></t<>	3/2 NO-NC, 2/2 NO-NC	1/4″	0.4 C <sub>v</sub>	with pressure	
Port size       Universal valve       NC only valve       58 59         Universal valve       Universal valve       Universal valve       58 59         Verve less base       2008-XX7Z       2008-XX7Z       2008-XX7Z       45         SOLENOID OPERATOR >       Verve Verve Verve       Verve       Verve       Verve       Verve       Verve       700         Valve (25 0%)       Verve       Verve       Verve       Verve       Verve       700         Verve       Verve       Verve       Verve       Verve       Verve       700         Verve       Verve       Verve       Verve       Verve       Verve       700         Verve       Verve       Verve       Verve       Verve       700       900         Verve       Verve       Verve       Verve       Verve       700       900         Verve       Verve       Verve       Verve       Verve       Verve       700       900         Verve       Verve       Verve       Verve       Verve       Verve       S00       900         Verve       Verve       Verve       Verve       Verve       S00       S00       900       900       900       900	<ol> <li>pressure.</li> <li>Short stroke with high flow.</li> <li>The patented solenoid develops hig forces.</li> <li>Powerful return spring.</li> <li>Manual operator standard on all vc</li> <li>Burn-out proof solenoid on AC servi</li> <li>Individual pressure control to each oport.</li> </ol>	yh shifting alves. ice.			100 200 55 56
Image: Section of the section of t			Universal valve	NC only valve	
11       120/60, 110/50, 24 VDC (6.0 W)       1       Non-locking       JA       Square connector         12       24/60, 220/50       2       Locking       JC       Square connector with light       9000         22       24/90, 24/50       BA       Flying leads (18')       6       Flying leads (18')       6       6       6       6       7       6       7       6       7       7       0       6       7       7       8       24 VDC (24.0 W)       6       6       7       6       7       8       7       7       8       7       7       7       7       7       8       7       7       7       8       7       8       7       7       8       7       7       7       8       7       7       8       7       7       8       7       7       8       7       7       8       7       7       8       7       7       8       7       7       8       7       7       7			250B- <b>xxyzz</b> 252B- <b>xxyzz</b>	280B-XXYZZ	~ -
* Other options available, see page 357.       82         Wanifold fastening kit required : N-02003       63.00         MODEL       INDIVIDUAL PRESSURE CONTROL TO EACH CYLINDER PORT       65.00         3-Way N.C. or N.O.       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 to the Normally Closed or 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).       1300         800       150       1	11         120/60, 110/50, 24 VDC (6)           12         240/60, 220/50           22         24/60, 24/50           52         24 VDC (2.5 W)           78         24 VDC (24.0 W)	5.0 W)	I Non-locking	JA Square connector JC Square connector with light BA Flying leads (18")	
Manifold fastening kit required : N-02003       63.00         MODEL       2528-       3.Way N.C. or N.O.       65.00         3.Way N.C. or N.O.       2228-       65.00       66.00         2.Way N.C. or N.O.       2828-       28.20       65.00       66.00         3.Way N.C. or N.O.       2828-       28.20       65.00       66.00       66.00         3.Way N.C. only       0.0000       282 B models which are Normally Closed or Normally Closed or Normally Closed Or Normally Open, 3-way or 2-way except for opens or closes the cylinder port (See schematic diagram next page).       13.00         8.00       13.00       10.0000       10.0000       10.0000       10.0000	·	3.57.			82
MODEL       INDIVIDUAL PRESSURE CONTROL TO EACH CYLINDER PORT         252B-       3-Way N.C. or N.O.         262B-       2-Way N.C. or N.O.         2-Way N.C. or N.O.       282B models which are Normally Closed or Normally Open poppet position. Through use of the appropriate function plate to the 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).       6600         1300       800					6300
3-Way N.C. or N.O.       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).       6600         1300       1300	MODEL 252B-	In this v	version the common inlet pressure supplies each in	ndividual valve in the stack. This common pressure passes	
282B- 3-Way N.C. only       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).       1300         800       1501	<b>262B-</b> 2-Way N.C. or N.O.	plate to the 200	the Normally Closed or Normally Open poppet ) Series basic valve, the operation can be Norma	position. Through use of the appropriate function plate on Ily Closed Or Normally Open, 3-way or 2-way except for	
ISO 1	282B-	282B m	nodels which are Normally Closed only. The exha	ust ("out") port is common. Operation of the valves then	1300
150 2					ISO 1 ISO 2

39

ISO 3 MAC 125A MAC 250A MAC 500A

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





-1.1	<u> </u>	• •	
Fluid :	Compressed air, vacu	Jum, inert gases	
Pressure range :	Vacuum to 150 PSI		
Lubrication :	Not required, if used	select a medium aniline p	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 clas	ss A, continuous duty, encc	ıpsulated
Voltage range :	-15% to +10% of nor	ninal 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

•-Solenoid operator (power  $\ge$  6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.

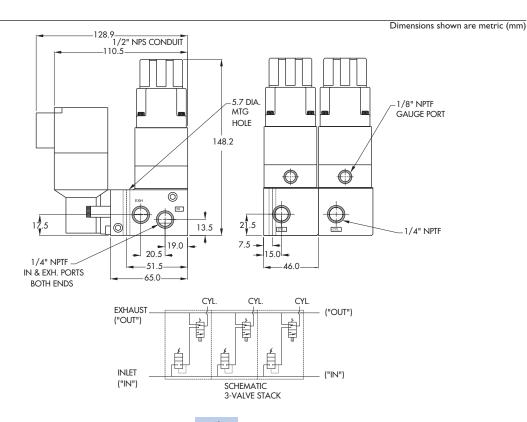
• Function plate : A2.7005. • Seal between bases (x2) : 17016-01. • Tie-rod (x2) : B4-9004. • Pressure regulator : PR02A-A0AA.

Options :

 $\bullet$  BSPP threads.  $\bullet$  Explosion-proof model.  $\bullet$  Isolation of inlet and/or exhaust.

• Mod. PR80 (0-80 pressure range), Mod PR30 (0-30 pressure range)

#### DIMENSIONS





Function	Inlet & outlet port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	1/4″	0.4 C <sub>v</sub>	sub-base with pressure regulators	
OPERATIONAL BENEFITS 1. Balanced poppet, immune to varie pressure. 2. Short stroke with high flow. 2. The stroke with high flow.				35
<ol> <li>The patented solenoid develops h forces.</li> <li>Powerful return spring.</li> <li>Manual operator standard on all</li> </ol>	valves.			100
6. Burn-out proof solenoid on AC set 7. Selected pressure control to a sing			0	200
			0 000	55 56
HOW TO ORDER				57
P	Port size		NC only valve	58
				59
	Valve		IN EXH 251B-XXYZZ	
SOLENOID OPERATOR >		<u>xx y zz</u> ·		45
XX         Voltage           11         120/60, 110/50, 24 VDC           12         240/60, 220/50           22         24/60, 24/50	C (6.0 W) 1	Manual operator Non-locking Locking	ZZ         Electrical connection           JA         Square connector           JC         Square connector with light           BA         Flying leads (18")	700
52         24 VDC (2.5 W)           78         24 VDC (24.0 W)           61         24 VDC (8.5 W)			CA Conduit 1/2" NPS	900
* Other options available, see page	e 357.			82
Manifold fastening kit required : N-0	02003			-
MODEL 251B-		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		6300
3-Way Normally Closed	all valves de-energi: valves and out the c			6500
	the stack the Norma	ally Open pressure is blocked a	ind the regulated normally closed pressure of that valve is open to the same time the pressure at the common outlet would be that of	6600
	the energized valve	e nearest the outlet. If the normal	Illy open pressure port is not used it is open to exhaust from the h base is non-operative. (See schematic diagram next page).	1300
				800
				ISO 1
				<b>ISO 2</b>

- 15U Z **ISO 3**
- MAC 125A
- **MAC 250A**





Fluid :	Compressed air, vacuum, inert gases					
Pressure range :	Vacuum to 150 PSI	Vacuum to 150 PSI				
Lubrication :	Not required, if used	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 clas	ss A, continuous duty, encc	ıpsulated			
Voltage range :	-15% to +10% of nor	ninal 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			

•-Solenoid operator (power  $\ge$  6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.

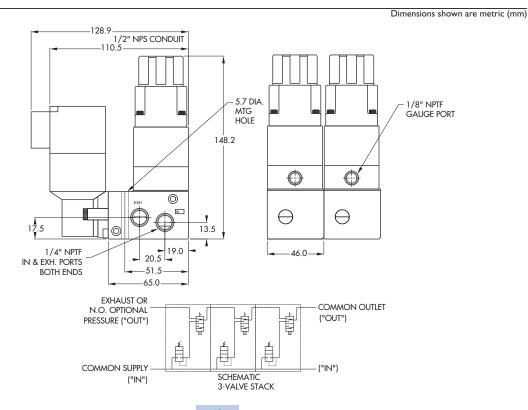
• Function plate : A2-7005. • Seal between bases (x2) : 17016-01. • Tie-rod (x2) : B4-9004. • Pressure regulator : PR02A-A0AA.

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



<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune to var pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The patented solenoid develops forces.</li> <li>4. Powerful structure project</li> </ul>				35
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.5 C <sub>v</sub>	sub-base hazardous location	
Series 200 Function	Port size	Flow (Max)	Manifold mounting	Series
<sup>©</sup>	Direct sol	enoid and s	olenoid pilot oper	aled valves

4. Powerful return spring.

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5. Burn-out proof solenoid on AC service.

HOW TO ORDER			97
Port size	Universal valve	NC only valve	58 59
Valve less base	250B-XX0EA	280B- <b>XX0EA</b>	_
1/8" base NPTF	258B-XX0EA	288B- <b>XX0EA</b>	45
1/4" base NPTF	259B- <b>XX0EA</b>	289B- <b>XX0EA</b>	_
			_

XX

SOLENOID OF	PERALOR	≻
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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)

			6600
2 <u>6</u> ХВ- <b>ххоеа</b>	208	209	6500
- universal 2-way	(Base only - 1/8″)	(Base only - 1/4")	6600

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. 1300 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 800 assemblies. It can also be supplied as a pilot for the 57, 58 and 59 Series (with special adapter plate # M-00012). **ISO 1** 

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. & **ISO 2** 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. **ISO 3** 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.

**MAC 500A** 

200

55 56 57

**MAC 125A MAC 250A** 





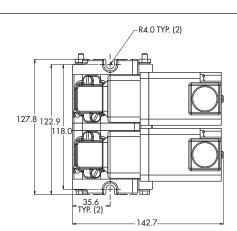
id :	Compressed air, vacu	uum, inert gases	
ressure range :	Vacuum to 150 PSI		
brication :	Not required, if used	select a medium aniline p	point lubricant (between 180°F and 210°F)
Filtration :	40 µ		
Temperature range :	0°F to 140°F (-18°C	to 60°C)	
Flow (at 6 bar, ΔP=1bar) :	0.5 C <sub>v</sub>		
Coil :	General purpose clas	ss A, continuous duty, enco	apsulated
Voltage range :	-15% to +10% of nor	ninal 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

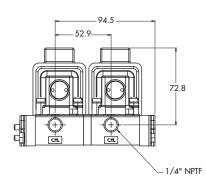
Solenoid operator (power ≥ 6 W) : D4-XXAAC-0EA. • Function plate : A2-7005. • Seal between bases : B5-5010.
Tie-rod (x2) : 19598.

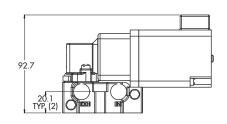
Options :

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

DIMENSIONS







Dimensions shown are metric (mm)





Precision

Individual mounting	Series
	35
Sealed solenoid	100
enclosure enclosure Pilot filter Pilot housing Pilot cartridge Pilot cartridge Pilot cartridge Pilot sisten	200 55 56 57 58 59
Accumulator n ground molded, balanced spool	45 700 900
Air/spring return	82
SERIES FEATURES	6300 6500
<ul> <li>The patented MACSOLENOID<sup>®</sup> with its non-burn out feature on AC service.</li> <li>Balanced spool unaffected by back pressure in the exhaust or by inlet restrictions.</li> </ul>	6600
<ul> <li>Additional spoor undiffered by back pressure in the exhaust of by finer restrictions.</li> <li>May be plugged for 2-way operation.</li> <li>A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.</li> </ul>	1300
<ul> <li>A large checked accompany which supplies the phot and any spring reform for consistent similarity.</li> <li>Use on lube or non-lube service.</li> <li>Extremely rapid response and cycle rate.</li> </ul>	800
<ul> <li>Various types of manual operators and solenoid enclosures.</li> <li>Optional low wattage DC solenoids down to 1 watt.</li> </ul>	ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A





- 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.

Series 55				lot operate	
Inction	Port size	Flow (Max)	Individual mou	IIIIIIy	Series
/2 NO-NC, 2/2 NO-NC	1/4" - 3/8"	2.2 C <sub>v</sub>	inline		
ERATIONAL BENEFITS Balanced spool, immune to varial pressure. Short stroke with high flow. The piston (booster) provides may shifting forces. Checked accumulator guarantees	8. Pilot valv short an kimum	effect eliminates sticking. e with balanced poppet, high d consistent response times.	n flow,		35 100
Solution of the second se second second sec	e air springs.				200 55
HOW TO ORDER				- Color	56 57
Port size	Pilot a	ir	NC valve	NO valve	58
1/4" NPTF	Interna		55B-11-PI- <b>XXYZZ</b>	55B-21-PI-XXYZZ	
3/8" NPTF			55B-12-PI- <b>xxyzz</b>	55B-22-PI- <b>XXYZZ</b>	45
1/4" NPTF 3/8" NPTF	Externo		55B-11-PE- <b>XXYZZ</b> 55B-12-PE- <b>XXYZZ</b>	55B-21-PE- <b>XXYZZ</b> 55B-22-PE- <b>XXYZZ</b>	
DLENOID OPERATOR >		<u>xx</u> <u>y zz</u> .			700
					7.00
XX         Voltage           11         120/60, 110/50	Y 1	Manual operator Non-locking		ectrical connection tangular connector	900
<b>12</b> 240/60, 220/50 <b>22</b> 24/60, 24/50	2	Locking	JD Rec	tangular connector with light are connector	
59         24 VDC (2.5 W)           87         24 VDC (17.1 W)			JC Squ	are connector with light	82
61 24 VDC (17.1 W) 61 24 VDC (8.5 W)			CA Cor	ng leads (18") Iduit 1/2" NPS	
Other options available, see pag	e 357.				6300
					6500
					6600
					1300
					800
					ISO 1
					ISO 2 ISO 3
					MAC 125
					MAC 250

**MAC 500A** 





Fluid :	Compressed air, vacu	um, inert gases		
Pressure range :	Internal pilot : 30 to 150 PSI			
	External pilot : vacuur	n to 150 PSI		
Pilot pressure :	30 to 150 PSI			
Lubrication :	Not required, if used	select a medium aniline p	oint lubricant (between 180°F and 210°F)	
Filtration :	40 µ			
Temperature range :	0°F to 120°F (-18°C t	o 50°C)		
Flow (at 6 bar, $\Delta P=1bar$ ) :	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, enca	psulated	
Voltage range :	-15% to +10% of nom	inal 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	

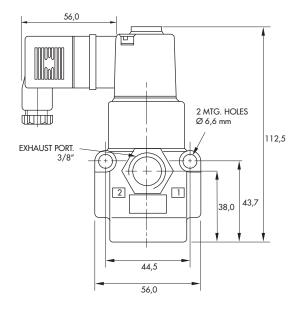
Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363.
Check valve : 70061.

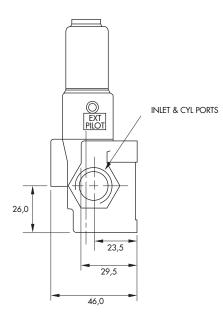
Options :

• BSPP threads.

#### DIMENSIONS

Dimensions shown are metric (mm)







Individual mounting Series inline 35 100 200 55 56 **Pilot valve** 57 **Function plate** Check valve 58 Ext. pilot port 59 From accumulator Pilot exhaust or remote air pilot port 45 **One piece** body FXH 3 700 **Precision ground** 900 molded, balanced Air/spring return spool To accumulator Internal pilot supply 82 6300 **SERIES FEATURES** 6500 • The patented MACSOLENOID® with its non-burn out feature on AC service. 6600 • Seven valve functions in one valve. • Balanced spool unaffected by back pressure in the exhaust or by inlet restrictions. 1300 May be plugged for 2-way operation. • A large checked accumulator which supplies the pilot and air/spring return for consistent shifting. 800 • Use on lube or non-lube service. • Various types of manual operators and solenoid enclosures. **ISO 1** • Optional low wattage DC solenoids down to 1 watt. **ISO 2 ISO 3 MAC 125A** 

**MAC 250A** 

Series <b>56</b>	



- 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. 0." (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.

© Contraction of the series 56	Dir	ect solenoid	and solenoid	pilot operated	l valves
unction		Port size Flow (1	Max] Individu	ial mounting	Series
3/2 NO-NC, 2/2 N	IO-NC	3/8" - 1/2" - 3/4" 5.7 (	L inline		
<ol> <li>DPERATIONAL BENEFITS</li> <li>Balanced spool, immur pressure.</li> <li>Short stroke with high I</li> <li>Large spool area provi forces.</li> <li>Checked accumulator g pilot pressure.</li> <li>Powerful return force th combination of mecha</li> <li>Bonded spool with min in a glass-like finished</li> <li>HOW TO ORDER</li> </ol>	flow. des maximum s guarantees max nanks to the unical and air sp nimum friction, s	8. Pilot valve with balance short and consistent res hifting kimum prings.	ed poppet, high flow,		35 100 200 55 56 57
				only valve	58
Port size	Pilot air	NC only valve NC pilot - NC spool	NO pilot - NC spool	NC pilot - NO spool	59
Port size	Pilot air				59
Port size 3/8" NPTF	Pilot air	NC pilot - NC spool			
	Pilot air	NC pilot - NC spool			59 
3/8″ NPTF		NC pilot - NC spool	<u>Стр</u> <u>т</u> и ехн 56С-22-XXYZZ		
3/8" NPTF 1/2" NPTF		NC pilot - NC spool	<u>сті</u> луді ті білі віді білі віді білі віді білі віді білі віді білі віді віді віді віді віді віді віді в	CYL           IZE         Image: Cyl         Im	
3/8" NPTF 1/2" NPTF 3/4" NPTF		NC pilot - NC spool	CYL         CYL           IN EXH         3           56C-22-XXYZZ         3           56C-23-XXYZZ         3           56C-27-XXYZZ         3	CYL           ITE         ITE           IN EXH         56C-62-XXYZZ           56C-63-XXYZZ         56C-67-XXYZZ	
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF	Internal External	NC pilot - NC spool	CTL         CTL           IN EXH         56C-22-XXYZZ           56C-23-XXYZZ         56C-27-XXYZZ           56C-42-XXYZZ         56C-42-XXYZZ           56C-43-XXYZZ         56C-47-XXYZZ           56C-47-XXYZZ         56C-47-XXYZZ	CYL           IZE         I           56C-62-XXYZZ           56C-63-XXYZZ           56C-67-XXYZZ           56C-72-XXYZZ	
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF SOLENOID OPERATO	Internal External	NC pilot - NC spool	Image: Contract of the second state of the second stat	CYL           Image: Solution of the second state of the	45
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF 30LENOID OPERATO	Internal External	NC pilot - NC spool           Image: Criteria structure           56C-12-XXYZZ           56C-13-XXYZZ           56C-17-XXYZZ           56C-32-XXYZZ           56C-33-XXYZZ           56C-37-XXYZZ           56C-37-XXYZZ	CTL         T         56C-22-XXYZZ         56C-23-XXYZZ         56C-27-XXYZZ         56C-42-XXYZZ         56C-43-XXYZZ         56C-47-XXYZZ         56C-47-XXYZZ         56C-47-XXYZZ         56C-47-XXYZZ         56C-47-XXYZZ         56C-47-XXYZZ         56C-47-XXYZZ         56C-47-XXYZZ         56C-47-XXYZZ	Image: Constraint of the second sec	45 700 900
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF 1/2" NPTF 3/4" NPTF 1/2" NPTF 3/4" NPTF 1/2" NPTF 3/4" NPTF	Internal External DR >	NC pilot - NC spool	Image: constraint of the second state of the second sta	CYL         ITE T T T T T T T T T T T T T T T T T T	45
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF	Internal External	NC pilot - NC spool	Image: constraint of the second state of the second sta	Image: Constraint of the second se	45 700 900
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF	Internal External	NC pilot - NC spool	Image: constraint of the second state of the second sta	CYL         IT IT IT         S6C-62-XXYZZ         S6C-63-XXYZZ         S6C-67-XXYZZ         S6C-72-XXYZZ         S6C-73-XXYZZ         S6C-77-XXYZZ         S6C-77-XXYZZ         S6C-77-XXYZZ         S6C-77-XXYZZ         S6C-77-XXYZZ         S6C-77-XXYZZ         S6C-77-XXYZZ         Source connector         Rectangular connector with light         Square connector         Square connector	45 700 900 82
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF	Internal External DR ►	NC pilot - NC spool	Image: constraint of the second state of the second sta	Image: Contract of the second seco	45 700 900
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF	Internal External DR ►	NC pilot - NC spool         Image: Contract of the spool         56C-12-XXYZZ         56C-13-XXYZZ         56C-32-XXYZZ         56C-33-XXYZZ         56C-37-XXYZZ         56C-37-XXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ	Image: Control of the second state	CYL         IT IF INT         S6C-62-XXYZZ         S6C-63-XXYZZ         S6C-67-XXYZZ         S6C-72-XXYZZ         S6C-73-XXYZZ         S6C-77-XXYZZ         S0C-77-XXYZZ         Square connector         Rectangular connector with light         Square connector	45 700 900 82
3/8" NPTF 1/2" NPTF 3/4" NPTF 3/8" NPTF 1/2" NPTF 3/4" NPTF	Internal External DR ►	NC pilot - NC spool         Image: Contract of the spool         56C-12-XXYZZ         56C-13-XXYZZ         56C-32-XXYZZ         56C-33-XXYZZ         56C-37-XXYZZ         56C-37-XXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ         56C-37-LXYZZ	Image: Control of the second state	CYL         IT IF INT         S6C-62-XXYZZ         S6C-63-XXYZZ         S6C-67-XXYZZ         S6C-72-XXYZZ         S6C-73-XXYZZ         S6C-77-XXYZZ         S0C-77-XXYZZ         Square connector         Rectangular connector with light         Square connector	45 700 900 82 6300

- 800 ISO 1
- 150 3
- MAC 125A
- MAC 250A MAC 500A

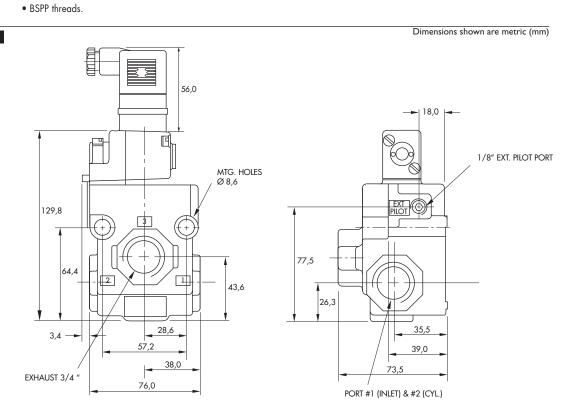




Fluid :	Compressed air, vacu	um, inert gases	
Pressure range :	Internal pilot : 25 to 1	50 PSI	
	External pilot : vacuur	n to 1 <i>5</i> 0 PSI	
Pilot pressure :	25 to 150 PSI		
Lubrication :	Not required, if used	select a medium aniline p	oint lubricant (between 180°F and 210°F)
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C t	o 50°C)	
Flow (at 6 bar, $\Delta P=1bar$ ) :	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> )
Coil :	General purpose class	s A, continuous duty, enca	psulated
Voltage range :	-15% to +10% of nom	inal voltage	
Protection :	Consult factory		
i forcenon i	~ Inrush : 14.8 VA	Holding : 10.9 VA	
Power :	~ Inrusn : 14.0 VA		
	= 1 to 17 W		
		Energize : 11 ms	De-energize : 10,8ms

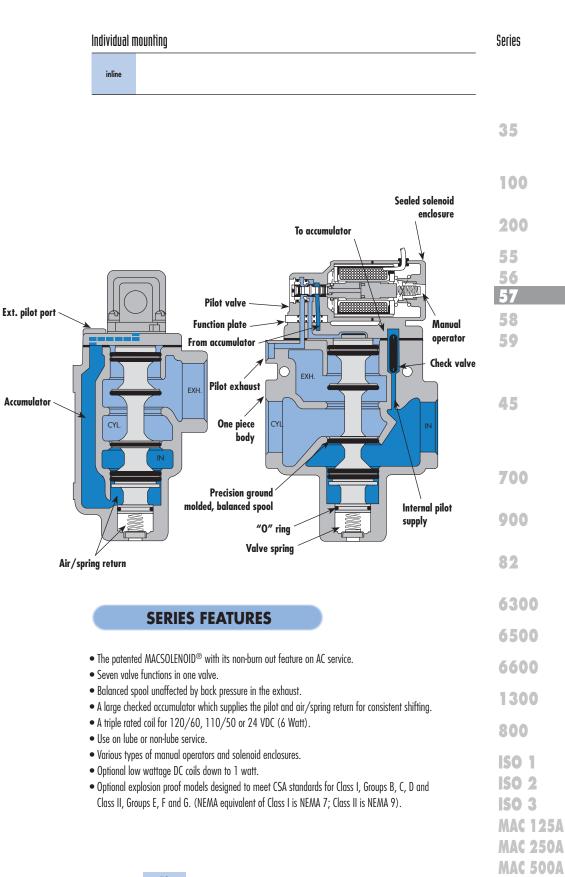
Options :

DIMENSIONS



Direct solenoid and solenoid pilot operated valves





©	
Series <b>57</b>	



- 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 "3-0" (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.

Series <b>57</b>				pilot operated	
ction	Port	size Flow (M	ax] Individi	ual mounting	Series
2 NO-NC, 2/2 N	IO-NC 1/2	2" - 3/4" - 1" 17.4	C <sub>y</sub> inlin	e	
ERATIONAL BENEFITS Balanced spool, immun pressure. Short stroke with high	flow.	<ol> <li>7. Wiping effect eliminates</li> <li>8. Pilot valve with balanced short and consistent resp</li> </ol>	l poppet, high flow,		35
arge spool area provi orces. Checked accumulator pilot pressure.	guarantees maximu	-			100
Powerful return force th combination of mecho Bonded spool with mir	anical and air spring			10	200
n a glass-like finished	bore.			N	55
HOW TO ORDER					56 57
Port size	Pilot air	NC only valve	NO	only valve	58
		NC pilot - NC spool	NO pilot - NC spool	NC pilot - NO spool	59
1/2" NPTF		57D-11- <b>XXYZZ</b>	57D-21- <b>XXYZZ</b>	57D-61- <b>XXYZZ</b>	45
3/4" NPTF	Internal	57D-12- <b>XXYZZ</b> 57D-13- <b>XXYZZ</b>	57D-22- <b>XXYZZ</b> 57D-23- <b>XXYZZ</b>	57D-62- <b>xxyzz</b> 57D-63- <b>xxyzz</b>	45
1/2" NPTF		57D-31-XXYZZ	57D-41-XXYZZ	57D-71-XXYZZ	-
3/4" NPTF	External	57D-32- <b>XXYZZ</b>	57D-42- <b>XXYZZ</b>	57D-72- <b>xxyzz</b>	-
1″ NPTF		57D-33- <b>XXYZZ</b>	57D-43- <b>XXYZZ</b>	57D-73- <b>xxyzz</b>	700
DLENOID OPERATO	OR ►	<u></u>	Y <u>ZZ</u> '		
VV Voltano		Y Manual ar		Electrical connection	900
XX Voltage	<sup>/</sup> 50, 24 VDC (6.0 W)	Y Manual op     No operator	perator ZZ JA	Square connector	0.0
<b>12</b> 240/60, 220/ <b>22</b> 24/60, 24/50	/50	1 Non-locking	JC BA	Square connector with light Flying leads (18″)	82
52 24 VDC (2.5 V	∧)	2 Locking	СА	Conduit 1/2" NPS	
78         24 VDC (24.0           61         24 VDC (8.5 V			EA	Hazardous location	6300
Other options availabl					6500
te : Hazardous locatio	on option supplied v	with no manual operator ("0"). DC v	voltage not available below 6 Watts.		6600
					1300
					800
					ISO 1 ISO 2 ISO 3 MAC 125/ MAC 250/ MAC 500/



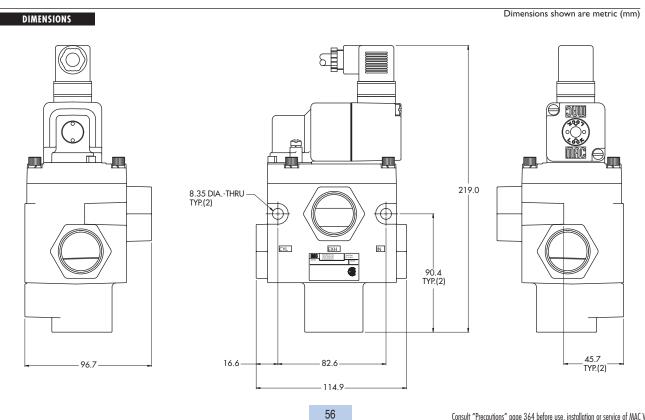


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 25 to 150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	25 to 150 PSI (Not to exceed main valve pressure by more than 50 PSI)
Lubrication :	Not required, if used select a medium aniline point lubricant (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, $\Delta P=1 bar)$ :	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

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.

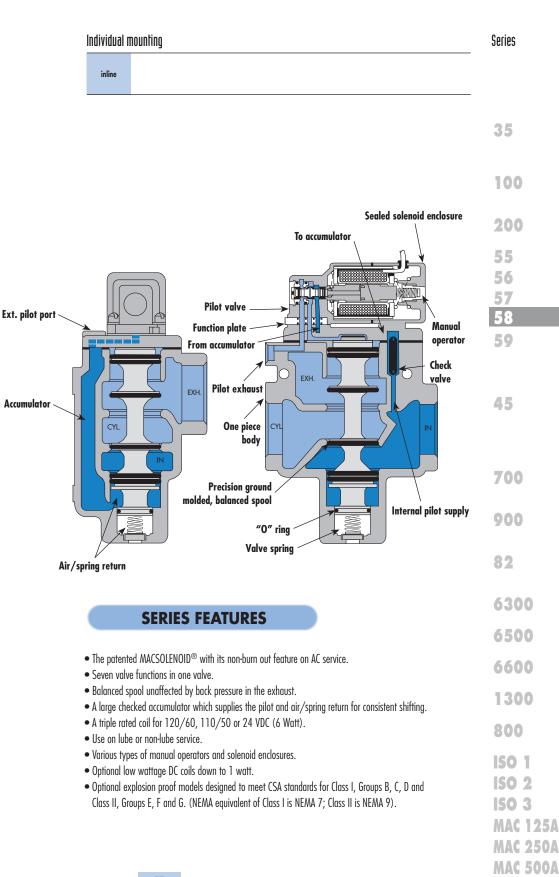
Options :

• BSPP threads.



Direct solenoid and solenoid pilot operated valves





Series <b>58</b>	



- 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 "3-0" (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.

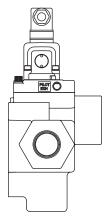
Pressure.       Shift vicke with bigh flow.         Short stocke with high flow.       Shift vicke with bigh flow.         Short stocke with high flow.       Shift vicke with bigh flow.         Checked accumulator guarantess maximum pilot pressure.       Shift vicke with bigh flow.         Powerful return force thanks to the combination of the mechanical and of synings.       Shift vicke with bigh flow.         Bodded apool with minimum friction, shifting in a glasslike finished bore.       NO anly valve         MV TO ORDER       NO pilot - NC spool         Port size       Plot ein       NC only valve         MV TO RER       NO pilot - NC spool       NO anly valve         I 1/4" NPTF       Internal       SBD-12 xxrzz       SBD-22 xxrzz       SBD-61 - Xxrzz         1 1/4" NPTF       Internal       SBD-13 xxrzz       SBD-21 xxrzz       SBD-72 xxrzz       SBD-72 xxrzz         1 1/4" NPTF       Internal       SBD-13 xxrzz       SBD-41 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz         1 1/4" NPTF       External       SBD-33 xxrzz       SBD-41 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz         2 240/60, 220/30       2 xxrzz       SBD-32 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz       SBD-73 xxrzz	35 100 200 55 56 57 58
<ul> <li>Balancad spool, immune to variations of pressure.</li> <li>B. 19. Wing effect eliminates sticking.</li> <li>B. 19. Wing effect</li></ul>	100 200 55 56 57
wind person:       Submitted to and	200 55 56 57
Port size       Pilot dir       NC celly valve NC pilot - NC spool       NO only valve NO pilot - NC spool       NC pilot - NO spool         Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool         Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool         Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool         Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool         Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool         Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool       Image: transmission of the spool         Image: transmission of the spool of t	
Image: Note of the set o	
If XNPT         IN KNH         IN KH         SBD-1-XXYZZ         SBD-1-XXYZZ         SBD-1-XXYZZ         SBD-1-XXYZZ         SBD-1-XXYZZ         SBD-1-XXYZZ         SBD-1-XXYZZ         SBD-33-XXYZZ         SBD-43-XXYZZ         SBD-71-XXYZZ         SBD-71-XXYZZ         SBD-71-XXYZZ         SBD-71-XXYZZ         SBD-72-XXYZZ         SBD-72-XXYZZ         SBD-72-XXYZZ         SBD-73-XXYZZ	59
1 1/2" NPTF       58D-13-xxrzz       58D-23-xxrzz       58D-63-xxrzz         1" NPTF       58D-31-xxrzz       58D-42-xxrzz       58D-71-xxrzz         1 1/4" NPTF       External       58D-32-xxrzz       58D-42-xxrzz       58D-72-xxrzz         1 1/2" NPTF       58D-33-xxrzz       58D-42-xxrzz       58D-72-xxrzz       58D-73-xxrzz         1 1/2" NPTF       58D-33-xxrzz       58D-42-xxrzz       58D-73-xxrzz       58D-73-xxrzz         1 1/2" NPTF       58D-33-xxrzz       58D-43-xxrzz       58D-73-xxrzz       58D-73-xxrzz         1 1/2" NPTF       58D-33-xxrzz       58D-73-xxrzz       58D-73-xxrzz       58D-73-xxrzz         1 1/2" NPTF       58D-73-xxrzz       58D-73-xxrzz       58D-73-xxrzz       58D-73-xxrzz         1 1/20'A0, 120/50, 24 /DC (6.0 W)       0       No operator       JA       Square connector         1 1       120/60, 110/50, 24 /DC (6.0 W)       0       No operator       JA       Square connector         2 2 40/60, 220/50       1       Non-locking       JC       Square connector       JC         2 2 40/60, 24/50       2       Locking       BA       Flying leads (18")       EA         78       24 VDC (2.5 W)       2       Locking       EA       Hazardous location	
1" NPTF       58D-31-XXYZZ       58D-41-XXYZZ       58D-71-XXYZZ         1 1/4" NPTF       External       58D-32-XXYZZ       58D-42-XXYZZ       58D-72-XXYZZ         1 1/2" NPTF       58D-33-XXYZZ       58D-43-XXYZZ       58D-73-XXYZZ         1 1/2" NPTF       58D-33-XXYZZ       58D-43-XXYZZ       58D-73-XXYZZ         1 1/2" NPTF       58D-33-XXYZZ       58D-43-XXYZZ       58D-73-XXYZZ         1 1/2" NPTF       58D-73-XXYZZ       58D-73-XXYZZ       58D-73-XXYZZ         1 1       120/60, 110/50, 24 VDC (6.0 W)       0       No operator       ZZ       Electrical connection         1 1       12 240/60, 220/50       1       Non-locking       JC       Square connector         1 2       24 VDC (2.5 W)       2       Locking       ZA       Canduit 1/2" NPS         2 24 VDC (2.4 UW)       2       Locking       EA       Hazardous location         31 24 VDC (2.5 W)       78       24 VDC (8.5 W)       EA       Hazardous location         2 4 VDC (8.5 W)       78       24 VDC (8.5 W)       EA       Hazardous location         2 4 VDC (8.5 W)       78       EA       Hazardous location       EA	45
1 1/4" NPTF       External       58D-32-XXYZZ       58D-42-XXYZZ       58D-72-XXYZZ         1 1/2" NPTF       58D-33-XXYZZ       58D-43-XXYZZ       58D-73-XXYZZ         LENOID OPERATOR >       XX Yoltage       Y Manual operator       ZZ Electrical connection         11       120/60, 110/50, 24 VDC (6.0 W)       0       No operator       JA       Square connector         12       240/60, 220/50       1       Non-locking       JC       Square connector         22       24 VDC (2.5 W)       2       Locking       GA       Canduit 1/2" NPS         24 VDC (2.5 W)       24 VDC (8.5 W)       Dther options available, see page 357.       EA       Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.	
LENOID OPERATOR > XX Y ZZ XX Voltage Y Manual operator ZZ Electrical connection 11 120/60, 110/50, 24 VDC (6.0 W) 0 No operator JA Square connector 12 240/60, 220/50 1 Non-locking JC Square connector with light 22 24/60, 24/50 22.5 W) 32 24 VDC (2.5 W) CA Conduit 1/2" NPS 84 Hying leads (18") CA Conduit 1/2" NPS 84 Hazardous location 61 24 VDC (8.5 W) 2ther options available, see page 357. e : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.	
XX       Voltage       Y       Manual operator       ZZ       Electrical connection         11       120/60, 110/50, 24 VDC (6.0 W)       0       No operator       JA       Square connector         12       240/60, 220/50       1       Non-locking       JC       Square connector with light         22       24/60, 24/50       2       Locking       JC       Square connector with light         32       24 VDC (2.5 W)       2       Locking       CA       Conduit 1/2" NPS         78       24 VDC (8.5 W)       CA       Conduit 1/2" NPS       EA         11       24 VDC (8.5 W)       EA       Hazardous location         21       24 VDC (8.5 W)       D       EA       Hazardous location	700
XX       Voltage       Y       Manual operator       ZZ       Electrical connection         11       120/60, 110/50, 24 VDC (6.0 W)       0       No operator       JA       Square connector         12       240/60, 24/50       1       Non-locking       JC       Square connector with light         22       24/60, 24/50       2       Locking       JC       Square connector with light         52       24 VDC (2.5 W)       2       Locking       GA       Flying leads (18")         53       24 VDC (2.5 W)       CA       Conduit 1/2" NPS       EA         61       24 VDC (8.5 W)       EA       Hazardous location       EA         Dther options available, see page 357.         te : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.	
11       120/60, 110/50, 24 VDC (6.0 W)       0       No operator       JA       Square connector         12       240/60, 220/50       1       Non-locking       JC       Square connector with light         22       24/40, 24/50       2       Locking       JC       Square connector         52       24 VDC (2.5 W)       2       Locking       CA       Conduit 1/2" NPS         78       24 VDC (8.5 W)       EA       Hazardous location       Hazardous location         Other options available, see page 357.       e : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.	900
78       24 VDC (24.0 W)         61       24 VDC (8.5 W)         EA Hazardous location         Dther options available, see page 357.         e : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.	82
e : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.	6300
	6500
	6600
	1300
	800

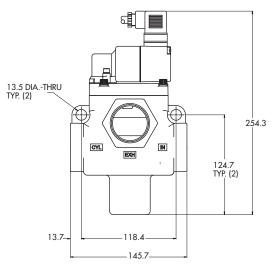


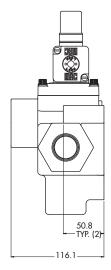


luid :	Compressed air, vacuur	m, inert gases	
Pressure range :	Internal pilot : 25 to 15	O PSI	
	External pilot : vacuum	to 150 PSI	
ilot pressure :	25 to 150 PSI (Not to e	exceed main valve pressur	e by more than 50 PSI)
ubrication :	Not required, if used s	elect a medium aniline po	int lubricant (between 180°F and 210°F)
iltration :	40 µ		
lemperature range :	0°F to 120°F (-18°C to	50°C)	
Flow (at 6 bar, ΔP=1bar) :	Norm. Closed :1" (18.7	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" (20.8C <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, encap	sulated
Voltage range :	-15% to +10% of nomir	nal 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

# DIMENSIONS







Dimensions shown are metric (mm)





Individual mounting	Series
inline	
	35
	100
Sealed solenoid enclosure To accumulator	200
Ext. pilot port	55 56 57
Function plate From accumulator	58 59
Accumulator	45
Precision ground molded, balanced spool "O" ring	700 900
Valve spring	82
Air/spring return	0Z
SERIES FEATURES	6300
	6500
<ul> <li>The patented MACSOLENOID<sup>®</sup> with its non-burn out feature on AC service.</li> <li>Seven valve functions in one valve.</li> </ul>	6600
<ul> <li>Balanced spool unaffected by back pressure in the exhaust.</li> <li>A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.</li> </ul>	1300
<ul> <li>A triple rated coil for 120/60, 110/50 or 24 VDC (6 Watt).</li> <li>Use on lube or non-lube service.</li> </ul>	800
<ul> <li>Ose on house of incircular service.</li> <li>Various types of manual operators and solenoid enclosures.</li> <li>Optional low wattage DC coils down to 1 watt.</li> <li>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).</li> </ul>	ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A

E	
Series <b>59</b>	



- 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 "3-0" (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.

/2 NO-NC, 2/2 NO-NC     2" - 2 1/2"     60.0 Cy     Interventional product of the state of	35 100 200 55 56 57 58 59
<ul> <li>Belanced spool, immune to variations of pressure. Short stack with high flow. Large spool area provides maximum shifting. Checked accumulator guarantees maximum priot pressure. Powerful return force thanks to the combination of mechanical and air springs. Bonded spool with minimum friction, shifting in a glasslike finished bore.</li> <li>Port size Piet air NC only valve nc glasslike finished bore.</li> <li>Piet air NC only valve NC pilot - NC spool NC p</li></ul>	100 200 55 56 57 58
Checked accumulator guarantees maximum slot pressure. >wewful return force thanks to the combination of mechanical and sirpings. Sanded spool with minimum friction, shifting n a glass-like finished bore.       NC only valve NC pilot - NC spool       NO only valve NO pilot - NC spool <b>POrt size</b> Pilot sir       NC only valve NC pilot - NC spool       NO only valve NO pilot - NC spool         2" NPTF       Internal       598-12-xxrzz       598-22-xxrzz         2 '' NPTF       Internal       598-12-xxrzz       598-23-xxrzz         2 '' NPTF       External       598-33-xxrzz       598-43-xxrzz         2 '' NPTF       External       0       No operator       JA         2 1 / 2" NPTF       Syla - 2 wrzz       598-43-xxrzz       598-43-xxrzz         2 1 / 2" NPTF       Syla - 2 wrzz       598-43-xxrzz       598-43-xxrzz         2 1 / 2" NPTF       Syla - 2 wrzz       598-43-xxrzz       598-43-xxrzz         2 2 1 / 2" NPTF       10       No operator       JA       Square connector         11       120/60, 110/50, 24 VDC (6.0 W)       2       Locking	200 55 56 57 58
ombination of mechanical and air springs. Ionidel spool with minimum friction, shifting n a glass-like finished bore. HOW TO ORDER Port size Pilot air NC only valve NC pilot - NC spool NO only valve NC pilot - NC spool PTE / I + R NC only valve NC pilot - NC spool PTE / I + R NC only valve NO only valve NO only valve NO pilot - NC spool PTE / I + R NC only valve NO pilot - NC spool PTE / I + R NC only valve NO pilot - NC spool PTE / I + R NC only valve NO pilot - NC spool PTE / I + R PTE / I +	55 56 57 58
An a glass-like finished bore.         NO only valve         Port size       Pilot air       NC only valve       NO only valve         NC pilot - NC spool       NO pilot - NC spool       NO pilot - NC spool         Image: Colspan="2">Image: Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">NO only valve         Port size       Pilot air       NC only valve       NO only valve       NO pilot - NC spool         Image: Colspan="2">Image: Colspan="2">Colspan="2"Colsp	56 57 58
Port size       Pilot air       NC only valve NC pilot - NC spool       NO only valve NO pilot - NC spool         2" NPTF       Internal       59B-12-xxyzz       59B-22-xxyzz         2 1/2" NPTF       Internal       59B-13-xxyzz       59B-23-xxyzz         2 " NPTF       External       59B-32-xxyzz       59B-42-xxyzz         2 1/2" NPTF       External       59B-33-xxyzz       59B-43-xxyzz         2 1/2" NPTF       59B-33-xxyzz       59B-43-xxyzz         2 1/2" NPTF       59B-33-xxyzz       59B-43-xxyzz         2 1/2" NPTF       V       Manual operator       ZZ         ELNOID OPERATOR >       Y       Manual operator       ZZ         1 20/60, 110/50, 24 VDC (6.0 W)       0       No operator       JA       Square connector         12 240/60, 220/50       1       Non-locking       JC       Square connector         22 24/60, 24/50       2       Locking       BA       Flying leads (18")         22 24/60, 24/50       2       Locking       EA       Hazardous location         31 24 VDC (8.5 W)       NO       EA       Hazardous location       EA         24 vDC (8.5 W)       NO       EA       Hazardous location       EA <td>58</td>	58
2" NPTF       Internal       59B-12-XXYZZ       59B-22-XXYZZ         2 1/2" NPTF       59B-13-XXYZZ       59B-23-XXYZZ         2 1/2" NPTF       External       59B-32-XXYZZ         2 1/2" NPTF       External       59B-33-XXYZZ         2 1/2" NPTF       59B-33-XXYZZ       59B-43-XXYZZ         2 1/2" NPTF       59B-32-XXYZZ       59B-43-XXYZZ         2 1/2" NPTF       59B-33-XXYZZ       59B-43-XXYZZ         Veltage       Y       Manual operator       ZZ         LENOID OPERATOR >       XX Y ZZ '       59B-43-XXYZZ         XX Voltage       Y       Manual operator       ZZ         11 120/60, 110/50, 24 VDC (6.0 W)       0       No operator       IA       Square connector         12 240/60, 220/50       1       Non-locking       JC       Square connector       IA         22 24/60, 24/50       2       Locking       JC       Square connector       IA         52 24 VDC (2.5 W)       78       24 VDC (8.5 W)       EA       Hazardous location         Cher options available,	59
IN EXH     IN EXH       2" NPTF     Internal     59B-12-XXYZZ     59B-22-XXYZZ       2 1/2" NPTF     59B-32-XXYZZ     59B-23-XXYZZ       2" NPTF     External     59B-32-XXYZZ       2 1/2" NPTF     External     59B-32-XXYZZ       2 1/2" NPTF     External     59B-32-XXYZZ       2 1/2" NPTF     59B-33-XXYZZ     59B-42-XYZZ       2 1/2" NPTF     59B-33-XXYZZ     59B-43-XXYZZ       2 1/2" NPTF     59B-33-XXYZZ     59B-43-XXYZZ       LENOID OPERATOR ≻     XX Y ZZ *       XX     Voltage     Y       Manual operator     ZZ       2 20/60, 220/50     7       1 1 20/60, 110/50, 24 VDC (6.0 W)     0       0 No operator     JA       12 240/60, 220/50     7       2 24/60, 220/50     2       2 24/02, 24/50     2       2 4 VDC (2.5 W)     EA       78 24 VDC (2.5 W)     CA       61 24 VDC (8.5 W)     EA       Cher options available, see page 357.	
2" NPTF       External       59B-32-XXYZZ       59B-42-XXYZZ         2 1/2" NPTF       59B-33-XXYZZ       59B-43-XXYZZ         LENOID OPERATOR ≻       XX Y ZZ *         XX       Voltage       Y Manual operator         11       120/60, 110/50, 24 VDC (6.0 W)       0       No operator         12       240/60, 220/50       1       Non-locking         22       24/60, 24/50       2       Locking         52       24 VDC (2.5 W)       61       24 VDC (8.5 W)         Other options available, see page 357.       CA       Conduit 1/2" NPS	_
2 1/2" NPTF       59B-33-XXYZZ       59B-43-XXYZZ         LENOID OPERATOR ➤       XX Y ZZ *         XX Voltage       Y Manual operator       ZZ Electrical connection         11       120/60, 110/50, 24 VDC (6.0 W)       0       No operator       JA Square connector         12       240/60, 220/50       1       Non-locking       JC Square connector         22       24/60, 24/50       2       Locking       BA Flying leads (18")         52       24 VDC (2.5 W)       CA Conduit 1/2" NPS       EA Hazardous location         61       24 VDC (8.5 W)       EA Hazardous location       EA Hazardous location	45
XX         Voltage         Y         Manual operator         ZZ         Electrical connection           11         120/60, 110/50, 24 VDC (6.0 W)         0         No operator         JA         Square connector           12         240/60, 220/50         1         Non-locking         JC         Square connector with light           22         24/60, 24/50         2         Locking         BA         Flying leads (18")           52         24 VDC (2.5 W)         2         Locking         CA         Conduit 1/2" NPS           78         24 VDC (24.0 W)         EA         Hazardous location         EA         Hazardous location	_
11       120/60, 110/50, 24 VDC (6.0 W)       0       No operator       JA       Square connector         12       240/60, 220/50       1       Non-locking       JC       Square connector with light         22       24/60, 24/50       2       Locking       BA       Flying leads (18")         52       24 VDC (2.5 W)       CA       Conduit 1/2" NPS       EA         78       24 VDC (24.0 W)       EA       Hazardous location         61       24 VDC (8.5 W)       Dther options available, see page 357.       Figure 357.	700
22       24/60, 24/50       2       Locking       BA       Flying leads (18")         52       24 VDC (2.5 W)       CA       Conduit 1/2" NPS         61       24 VDC (8.5 W)       EA       Hazardous location         Other options available, see page 357.       Differ options available, see page 357.       EA	900
	82
e : Hazardous location option supplied with no manual operator ("0"). DC voltage not available below 6 Watts.	6300
	6500
	6600
	1300
	800
	ISO 1 ISO 2 ISO 3 MAC 12





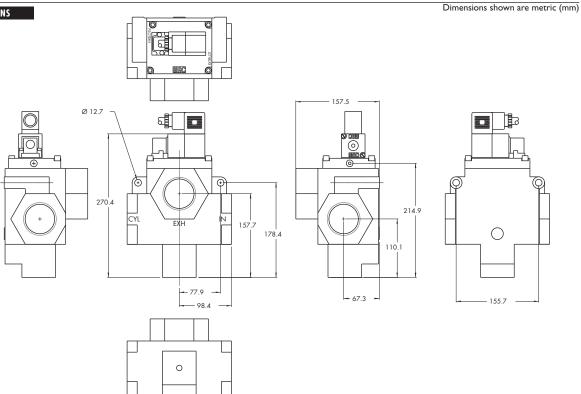
Fluid :	Compressed air, vacu	uum, inert gases	
Pressure range :	Internal pilot : 25 to	150 PSI	
	External pilot : vacuu	m to 1 <i>5</i> 0 PSI	
Pilot pressure :	25 to 150 PSI (Not to	exceed main valve pressur	re by more than 50 PSI)
Lubrication :	Not required, if used	select a medium aniline po	pint lubricant (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, $\Delta P=1bar)$ :	2" (55.0 C <sub>v</sub> ), 2 1/2"	C <sub>v</sub> (60.0 C <sub>v</sub> )	
Coil :	General purpose clas	ss A, continuous duty, encap	osulated
Voltage range :	-15% to +10% of non	ninal 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

Pilot valve : 250B-XXYZZ, including mounting screws 32223 and function plate A2-7005.
Check valve : 70019.

Options :

• BSPP threads.







Individual mounting Series sub-base 10n″plug-in′ inline 35 Manifold mounting sub-base sub-base with pressure regulators and flow controls sub-b stacking with pressure regulators non″plug-in' 100 Manual operator 200 Armature **Epoxy** encapsulated 55 solenoid 56 57 58 Push pin 59 Spring biased moveable pole piece 45 EX I 700 Bonded balanced poppets 900 Spring return 82 6300 **SERIES FEATURES** 6500 • Single and double solenoid or remote air. 6600 • The patented MACSOLENOID® for fastest possible response times. • Bonded balanced poppets for high flow, precise repeatability, and consistent operation. 1300 • Balanced poppet design permits versatility in pipping. Valves can be piped as 4-way, 3-way or 2-way, normally closed or normally open or can be used for vacuum, diverter or selector applications. 800 • Use on lube or non-lube service. • Extremely high cycle rates. **ISO 1** • Extremely long service life due to unique poppet cushions. **ISO 2** • Manual overrides as standard. • Various solenoid enclosures and plug-in connectors **ISO 3** • Optional surge suppression available. **MAC 125A** • Low wattage DC solenoids — down to 1.8 watts. **MAC 250A** • Patented MACSOLENOID<sup>®</sup> — virtually burn-out proof on AC service. **MAC 500A** 

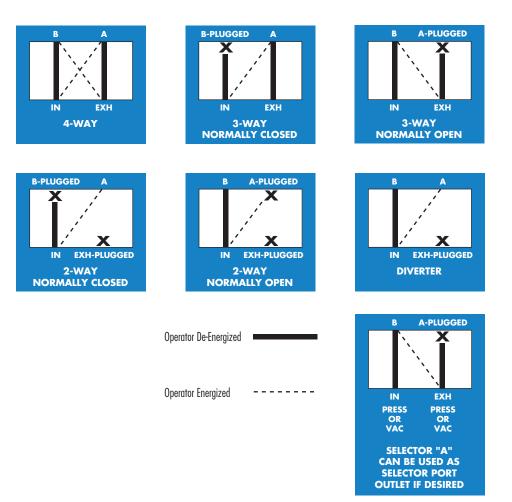




- 2-position single and double solenoid or remote air.
- Single pressure (4 or 5 ports)
- Individual, stacking and manifold base mounted models.
- Integral individual exhaust flow controls with common exhaust port.
- Integral regulators and flow controls on manifolds.

#### **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. Pipping suggestions are shown in the chart below.



© Contraction of the series <b>45</b>	irect	solenoi	d and	s o l e n	oid pil	ot operated	valves
Function	Port size	Flo	DW (Max)		Individual mountin	19	Series
4/2	#10-32 -	1/8″ 0	.15 C <sub>v</sub>		inline		
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune to vari pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The patented solenoid develops h forces.</li> </ul>						0	35
<ol> <li>Powerful return spring.</li> <li>Manual operator standard on all</li> <li>Burn-out proof solenoid on AC se</li> </ol>							100
·						OG I	200
							55
HOW TO ORDER						h	56 57
HOW TO ORDER Port size		Si	ngle operator		D	ouble operator	58
		A			(Minimu A	m DC wattage 5.4W)	59
					上 	EXHÝ ÔIN 65A-GA1-DXXX-XXX	
1/8" NPTF # 10-32 UNF			A-AA1-D <b>xxx-xxx</b> A-AB1-D <b>xxx-xxx</b>			5A-GB1-D <b>xxx-xxx</b> 5A-GB1-D <b>xxx-xxx</b>	45
WITH INTEGRATED FLOW CO	ONTROLS						
Port size		Si	ngle operator			ouble operator vm DC wattage 5.4W)	
		<b>م</b> لـ			۵. بیر ا		700
1/8" NPTF # 10-32 UNF			A-AA2-Dxxx-xxx A-AB2-Dxxx-xxx			5A-GA2-D <b>xxx-xxx</b> 5A-GB2-D <b>xxx-xxx</b>	900
# IV-34 UNF					40	5A-G82-DXXX-XXX	
SOLENOID OPERATOR >			XX X-XX ┘┬┬	<b>XX</b>		1	82
XX Voltage	x v	Vire length	x	Manual ope	erator X	kx	6300
AA         120/60, 110/50           AB         240/60, 220/50		8″ (Flying leads) Connector	1 2	Non-locking Locking	ŀ	KA         Square connector           KD         Square connector with light	6500
AC 24/60, 24/50 FB 24 VDC (1.8 W) DA 24 VDC (5.4 W)					J	IB         Rectangular connector           ID         Rectangular connector with light           BA         Flying leads	6600
<b>DF</b> 24 VDC (12.7 W)							
* Other options available, see pag BOTTOM PORT OPTIONS (O'RING I							1300
45A-XXX-D xxx-xxx	MOUNT)						800
D-Sgl. oper Al F-Sgl. oper "A H-Dbl. oper A J-Dbl. oper "A	" & "B" ports Il ports						ISO 1 ISO 2 ISO 3 MAC 125A
			67		Consult "Procoutions" n	nne 364 hefore use installation or service of MAC Valve	MAC 250A MAC 500A



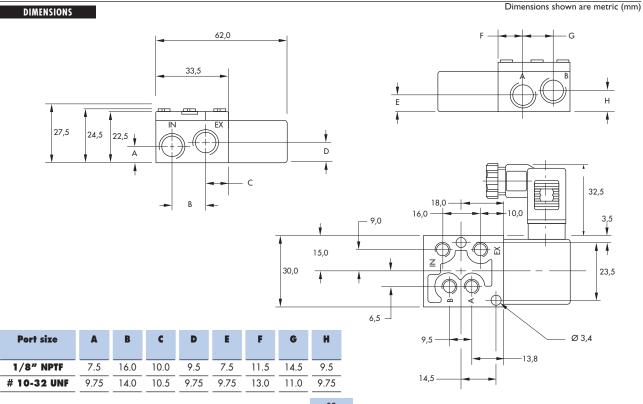


Compressed air, vacu	um, inert gases					
Vacuum to 120 PSI						
Not required, if used	select a medium aniline p	point lubricant (between 180°F and 210°F)				
40 µ						
0°F to 120°F (-18°C to	- ·					
General purpose class	A, continuous duty, enco	upsulated				
-15% to +10% of nomi	inal voltage					
Consult factory						
~ Inrush : 10.9 VA	Holding : 7.7 VA					
= 1.8 to 12.7 W	-					
24 VDC (5.4 W)	Energize : 6 ms	De-energize : 2 ms				
120/60	Energize : 3-8 ms	De-energize : 2-7 ms				
	Vacuum to 120 PSI Not required, if used 40 µ 0°F to 120°F (-18°C to 1.8 W : (0.1 C <sub>v</sub> ), 5.4 General purpose class -15% to +10% of nom Consult factory ~ Inrush : 10.9 VA = 1.8 to 12.7 W 24 VDC (5.4 W)	Not required, if used select a medium aniline p 40 $\mu$ 0°F to 120°F (-18°C to 50°C) 1.8 W : (0.1 C <sub>v</sub> ), 5.4 W : (0.15 C <sub>v</sub> ) General purpose class A, continuous duty, enco -15% to +10% of nominal voltage Consult factory ~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W 24 VDC (5.4 W) Energize : 6 ms				

• Solenoid operator (power  $\geq$  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>y</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).



© <b>Olympic Series 4.5</b>	Direct	solenoid	and solen	oid pilot opera	ted valves
Function	Port size	Flow	[Max]	Individual mounting	Series
4/2	#10-32 ·	- 1/8″ 0.13	3 C <sub>v</sub>	sub-base non"plug-in"	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune pressure.</li> <li>2. Short stroke with high flow</li> <li>3. The patented solenoid der forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard</li> <li>6. Burn-out proof solenoid of</li> </ul>	w. velops high shifting d on all valves.				35 100
HOW TO ORDER				2000	200 55 56 57 58
Port s	ize	Singl	e operator	Double operator (Minimum DC wattage 5,4W) A B	
Valve less base 1/8" NPTF base #10-32 UNF base WITH INTEGRATED FLC	) DW CONTROLS	45A-L	AA-Dxxx-xxx BA-Dxxx-xxx	A         B           EXH V         0 IN           45A-N00-Dxxx-xxx           45A-NAA-Dxxx-xxx           45A-NBA-Dxxx-xxx	45
Port s		Singl	e operator	Double operator (Minimum DC wattage 5,4W)	700
Valve less base			B-DXXX-XXX AB-DXXX-XXX	45A-NAB-DXXX-XXX 45A-NAB-DXXX-XXX	900
#10-32 UNF base SOLENOID OPERATOR	>		BB-Dxxx-xxx	45A-NBB-Dxxx-xxx	82
XX         Voltage           AA         120/60, 110/50           AB         240/60, 220/50	X A 	Wire length 18" (Flying leads) Connector	X Manual op 1 Non-locking 2 Locking	erator XX KA Square connector KD Square connector wi	6300 6500 ith light 6600
AC 24/60, 24/50 FB 24 VDC (1.8 W) DA 24 VDC (5.4 W) DF 24 VDC (12.7 W)				BA Flying leads	1300
* Other options available,					800
OPTIONS 45A-LAA-D xxx-xxx Substitute	″J″ for 1/8″ bottom o	cylinder ports			ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A
			69	Consult "Precautions" name 364 hefore use installation or se	





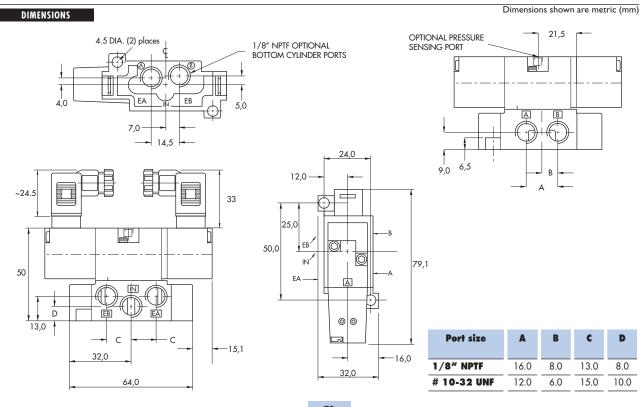
TECHNICAL DATA						
Fluid :	Compressed air, vacuum, inert gases					
Pressure range :	Vacuum to 120 PSI					
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)					
Filtration :	40 µ					
Temperature range :	0°F to 120°F (-18°C to 50°C)					
Flow (at 6 bar, ΔP=1bar) :						
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					

• 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 :

 $\bullet$  BSPP threads.  $\bullet$  High flow up to 0.20  $C_{v^{\prime}}$  according to wattage and high flow mod.



©	Direct solen	ioid and soler	noid pilot operated	valves
Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	# 10-32 - 1/8″	0.20 C <sub>v</sub>	stacking	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune to pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The patented solenoid develor forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard on</li> <li>6. Burn-out proof solenoid on A</li> </ul>	ops high shifting on all valves.			35 100 200 55 56 57
HOW TO ORDER Port size	ð	Single operator	Double operator (Minimum DC wattage 5,4W)	57 58 59
1/8" NP1 # 10-32 U WITH INTEGRATED FLOW Port size	JNF V CONTROLS	45A-SA1-Dxxx-xxx 45A-SB1-Dxxx-xxx Single operator	45A-TA1-DXXX-XXX 45A-TB1-DXXX-XXX Double operator	45
1/8" NP1 # 10-32 U		A EXH Y OIN 45A-SA2-DXXX-XXX 45A-SB2-DXXX-XXX	A         B         B           EXH V         SIN           45A-TA2-DXXX-XXX           45A-TB2-DXXX-XXX	700 900
SOLENOID OPERATOR ➤ XX Voltage AA 120/60, 110/50 AB 240/60, 220/50 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 End plate kit required (Port size	A 18" (Flying leads J Connector		Perator XX KA Square connector KD Square connector with light BA Flying leads	82 6300 6500 6600 1300 800 ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A





Compressed air, vacuu	m, inert gases					
Vacuum to 120 PSI						
Not required, if used s	select a medium aniline p	point lubricant (between 180°F and 210°F)				
40 µ						
0°F to 120°F (-18°C to	50°C)					
1.8 W : (0.14 C <sub>v</sub> ), 5.4	1.8 W : (0.14 C <sub>v</sub> ), 5.4 W : (0.2 C <sub>v</sub> )					
General purpose class	A, continuous duty, encc	apsulated				
-15% to +10% of nomi	nal voltage					
Consult factory						
~ Inrush : 10.9 VA	Holding : 7.7 VA					
= 1.8 to 12.7 W						
24 VDC (5.4 W)	Energize : 6 ms	De-energize : 2 ms				
120/60	Energize : 3-8 ms	De-energize : 2-7 ms				
	Vacuum to 120 PSI Not required, if used s 40 µ 0°F to 120°F (-18°C to 1.8 W : (0.14 C <sub>v</sub> ), 5.4 General purpose class -15% to +10% of nomi Consult factory ~ Inrush : 10.9 VA = 1.8 to 12.7 W 24 VDC (5.4 W)	Not required, if used select a medium aniline p 40 $\mu$ 0°F to 120°F (-18°C to 50°C) 1.8 W : (0.14 C <sub>v</sub> ), 5.4 W : (0.2 C <sub>v</sub> ) General purpose class A, continuous duty, enco -15% to +10% of nominal voltage Consult factory ~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W 24 VDC (5.4 W) Energize : 6 ms				

• Solenoid operator (power  $\geq 5.4$  W) : DXXX-XXX, including mounting screws 35013.

• Seal (between solenoid and valve body) : 16402. • Seal between valves : 16422. • Tie-rod (x2) : 19813.

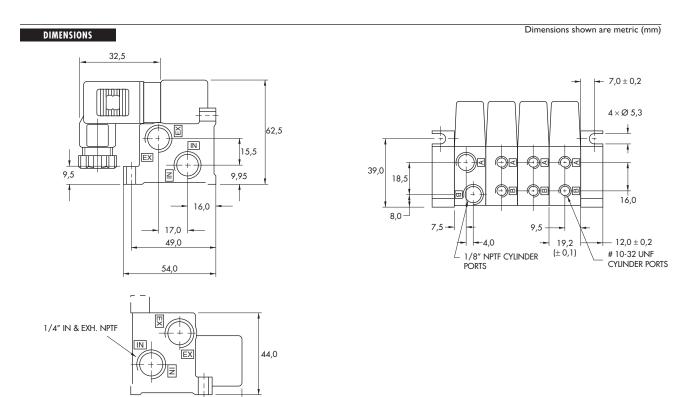
• Valve cover plate with flow controls : N-45004.

62,5

• Inlet & exhaust isolator : N-45005. Inlet isolator : N-45006. Exhaust isolator : N-45007

Options :

 $\bullet$  BSPP threads.  $\bullet$  High flow up to 0.3  $C_{v^{\prime}}$  according to wattage and high flow mod.



<b>e</b> Series <b>45</b>	Direct s	solenoid	and solen	oid pilot o	perated va	lves
Function	Port size	Flow (Ma	X]	Manifold mounting	5	eries
4/2	# <b>10-32 -</b> 1	I/8″ 0.11 C	v	sub-base non"plug-in"		
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune pressure.</li> <li>2. Short stroke with high flow</li> <li>3. The patented solenoid dev forces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standard</li> <li>6. Burn-out proof solenoid on</li> </ul>	w. velops high shifting d on all valves.				Po,	35 100 200 55 56 57
HOW TO ORDER Port si	ize	Single o	perator	Double ope (Minimum DC wat	rator	58
Valve less base 1/8" NPTF base # 10-32 UNF base WITH INTEGRATED FLC	  	A 45A-L00- 45A-LAC- 45A-LBC-	Dxxx-xxx	A 45A-NO0-DX 45A-NBC-DX	xx-xxx xx-xxx	59 45
Port si		Single o		Double ope (Minimum DC wat	tage 5.4W)	700
Valve less base 1/8" NPTF base # 10-32 UNF base		45A-L00-	Dxxx-xxx	45A-N00-Dx 45A-NAD-Dx 45A-NBD-Dx	xx-xxx xx-xxx	900 82
SOLENOID OPERATOR	>		<b>x- <u>x</u> xx</b> . T	400 100 00		5300
XX         Voltage           AA         120/60, 110/50           AB         240/60, 220/50           AC         24/60, 24/50	<b>A</b> 18	f <b>ire length</b> " (Flying leads) nnnector	X         Manual ope           1         Non-locking           2         Locking	KA Squa KD Squa	ire connector	6500 6600
FB         24 VDC (1.8 W)           DA         24 VDC (5.4 W)           DF         24 VDC (12.7 W)						1300
* Other options available, s						800
End plate kit required (Port s	ize 1/4" NPTF) : M-45008	3-01	73	Consult "Precruitions" none 364 before		ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A





Compressed air, vacuum, inert gases				
Vacuum to 120 PSI				
Not required, if used	select a medium aniline p	point lubricant (between 180°F and 210°F)		
40 µ				
0°F to 120°F (-18°C to	50°C)			
1.8 W : (0.09 C <sub>v</sub> ), 5.4	W : (0.11 C <sub>v</sub> )			
General purpose class	A, continuous duty, enco	ipsulated		
-15% to +10% of nomi	nal voltage			
Consult factory				
~ Inrush : 10.9 VA	Holding : 7.7 VA			
= 1.8 to 12.7 W				
24 VDC (5.4 W)	Energize : 6 ms	De-energize : 2 ms		
120/60	Energize : 3-8 ms	De-energize : 2-7 ms		
	Vacuum to 120 PSI Not required, if used s 40 µ 0°F to 120°F (-18°C to 1.8 W : (0.09 C <sub>v</sub> ), 5.4 General purpose class -15% to +10% of nomi Consult factory ~ Inrush : 10.9 VA = 1.8 to 12.7 W 24 VDC (5.4 W)	Vacuum to 120 PSI Not required, if used select a medium aniline p 40 µ 0°F to 120°F (-18°C to 50°C) 1.8 W : (0.09 C <sub>v</sub> ), 5.4 W : (0.11 C <sub>v</sub> ) General purpose class A, continuous duty, enco -15% to +10% of nominal voltage Consult factory ~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W 24 VDC (5.4 W) Energize : 6 ms		

• Solenoid operator (power  $\geq$  5.4 W) : DXXX-XXX, including mounting screws 35013.

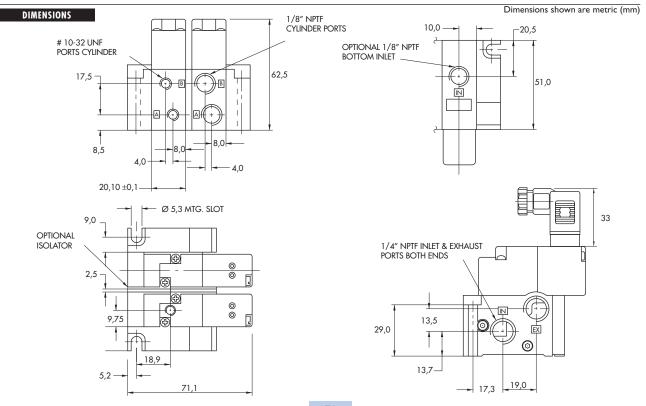
• Seal (between solenoid and valve body) : 16402. • Seal between base and valve : 16453. • Seal between bases : 16455.

• 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 :

 $\bullet$  BSPP threads.  $\bullet$  High flow up to 0.18 C<sub>v</sub>, according to wattage and high flow Mod.  $\bullet$  Bottom inlet : specify Mod. 0210.



© Constant of the series <b>45</b>	Direct	solenoi	dandsole	noid pilo	t operated v	alves
Function	Port size	Floi	u (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, immu pressure. 2. Short stroke with high flue 3. The patented solenoid d	ow.			Ť.		35
forces. 4. Powerful return spring. 5. Manual operator standc 6. Burn-out proof solenoid				0		100 200
				0	2	55 56
HOW TO ORDER						57 58
Port	size	Sin	gle operator		le operator DC wattage 5,4W)	50 59
Valve less base 1/8" NPTF base # 10-32 UNF base		454	-LOO-DXXX-XXX -LAJ-DXXX-XXX A-LBJ-DXXX-XXX	45A-N	Image: Second	45
SOLENOID OPERATO			<b>x x- x xx</b> .			700
XX         Voltage           AA         120/60, 110/5           AB         240/60, 220/5           AC         24/60, 24/50           FB         24 VDC (1.8 W	i0 A 1 i0 J C	<b>Vire length</b> 8″ (Flying leads) Connector	X Manual a 1 Non-locking 2 Locking	pperator XX KA KD BA	Square connector Square connector with light Flying leads	900
DA         24 VDC (5.4 W)           DF         24 VDC (12.7 V)	∨)					82
	t size 1/4" NPTF) : M-4500					6300
Options (with gauge port)	: Single operator : replace Double operator : replace					6500
REGULATOR OPTIONS	("J" is for Adj. knob	1				6600
	e with "E" for slotted ster	n				1300
Left Replace	e with "G" for locking sl	otted stem				800
			75		64 hefore use installation or service of MAC Values	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 p	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> )		
	i			
Coil :	General purpose class A, c	ontinuous duty, enca	ipsulated	
Voltage range :	-15% to +10% of nominal v	oltage		
Protection :	Consult factory			
Power :	~ Inrush : 10.9 VA H	olding : 7.7 VA		
	= 1.8 to 12.7 W			
Response times :	24 VDC (5.4 W) Er	nergize : 6 ms	De-energize : 2 ms	
	120/60 Er	nergize : 3-8 ms	De-energize : 2-7 ms	

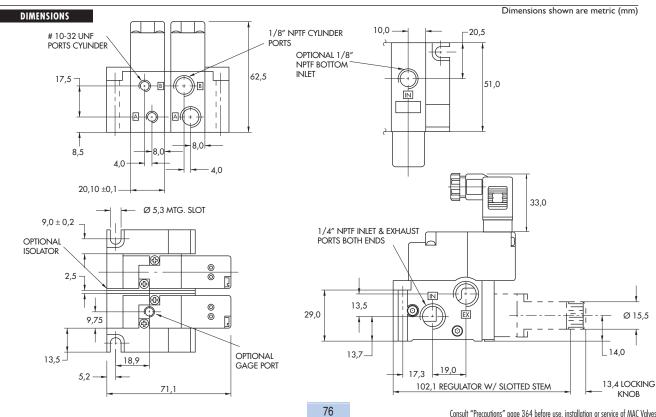
• Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.

• 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.



<b>Beries 45</b>	Direct s	olenoid and s	olenoid pilot oper	aled valves
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 and flow controls	
<ul> <li><b>DPERATIONAL BENEFITS</b></li> <li>1. Balanced poppet, immurpressure.</li> <li>2. Short stroke with high flo</li> <li>3. The patented solenoid deforces.</li> <li>4. Powerful return spring.</li> <li>5. Manual operator standar</li> <li>6. Burn-out proof solenoid content</li> </ul>	w. evelops high shifting rd on all valves.			35 100 200 55 56
HOW TO ORDER				57
Port	size	Single operator	Double operator (Minimum DC wattage 5,	4w) 59
Valve less base 1/8" NPTF base # 10-32 UNF base		45A-LOV-DXXX-XXX 45A-LAK-DXXX-XXX 45A-LBK-DXXX-XXX	45A-N00-DXXX-XXX 45A-NAK-DXXX-XXX 45A-NBK-DXXX-XXX	45
SOLENOID OPERATOR	<≻			700
XX         Voltage           AA         120/60, 110/50           AB         240/60, 220/50           AC         24/60, 24/50	) <b>A</b> 18"	(Flying leads) 1 No	anual operator XX n-locking KA Square connec king KD Square connec BA Flying leads	
FB         24 VDC (1.8 W)           DA         24 VDC (5.4 W)           DF         24 VDC (12.7 W)	·			82
* Other options available, End plate kit required (Port	size 1/4" NPTF) : M-45008-	01.		6300
	Single operator : replace L b Double operator : replace N	уM		6500
REGULATOR AND F.C. OPTIONS				6600
45A-XX <u>K</u> -D <b>xxx-xxx</b>	("K" option is for Adj.			1300
	with "F" for slotted stem c with "H" for locking slotte			800
				ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A

**MAC 500A** 





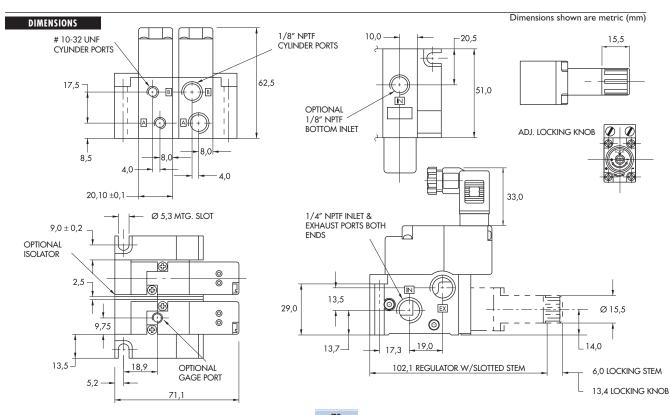
TECHNICAL DATA					
Fluid :	Compressed air, vacuum, inert gases				
Pressure range :	Vacuum to 120 PSI				
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)				
Filtration :	40 µ				
Temperature range :	0°F to 120°F (-18°C to 50°C)				
Flow (at 6 bar, 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				

• 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.
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 :

 $\bullet$  BSPP threads.  $\bullet$  High flow up to 0.18 C<sub>v</sub>, according to wattage and high flow Mod.  $\bullet$  Bottom inlet : specify Mod. 0210.

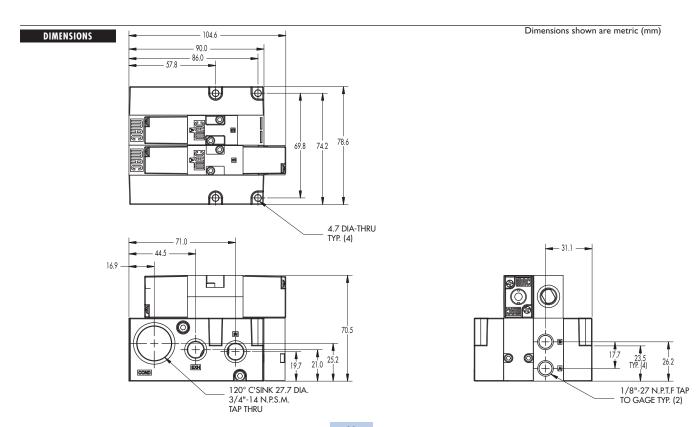


© Constant of the series 45			enoid pilot operate	
Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	# 10-32 - 1 5/32 Pressed-intul		Manifold base plug-in	
OPERATIONAL BENEFITS 1. Balanced poppet, immu pressure. 2. Short stroke with high fl 3. The patented solenoid c forces. 4. Powerful return spring. 5. Magnud apparter stand	low. develops high shifting			35
5. Manual operator stando 6. Burn-out proof solenoid				200 55
HOW TO ORDER				56 57
	t size	Single operator	Double operator	58
Valve less base 1/8" NPTF base # 10-32 UNF base 5/32 Pressed-in fr	ube receptacles	A B B B C C C C C C C C C C C C C C C C	A         B         B           45A-N00-00-DxxJ-xxx           45A-NSA-BL-DxxJ-xxx           45A-NSD-BL-DxxJ-xxx           45A-NSF-BL-DxxJ-xxx	45
Note: Double operator val SOLENOID OPERATO	lves are only available with bo DR <b>&gt;</b>	ttom cylinder ports. D XX J-X XX *		700
XX Voltage		X Manual operator	XX Electrical connection	900
AA 120/60, 110/5 AB 240/60, 220/5 DA 24 VDC (5.4W) FA 12 VDC (1.8W)	50	0 No operator 1 Non-locking 2 Locking	FM         Plug-in           FN         Plug-in with diode           FP         Plug-in with M.O.V.	82
FB         24 VDC (1.8W)           FE         12 VDC (2.4W)           FF         24 VDC (2.4W)				6300
* Other options available				6500
OPTIONS				6600
45A- L SA-A C -DxxJ-x	xx Side cylinder ports - Singl	e operator only		1300
L	Bottom cylinder ports – Si	ngle or double operator		800
L M N P Exan	Base only – no valve Single solenoid - Base mo Single solenoid - Base mo Double solenoid – Base m Double solenoid – Base m nple: base only: 45A-0SA-AC plate kit required : M-45028-0	unt body with gage port ount body ount body with gage port (1/8" NPTF wired for single operator)		ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A
		79	Consult "Precautions" page 364 before use, installation or service of	





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, $\Delta P=1bar)$ :	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	~ Inrush : 10.9 VA Holding : 7.7 VA
: DC	= 1.8 to 12.7 W
Spare parts :	<ul> <li>Inlet isolator : 28477</li> <li>Exhaust isolator : 28476</li> <li>Tie rod (x2): 79244</li> <li>Seal between bases: 16762</li> <li>Seal between valve &amp; base: 16453</li> </ul>
Options :	• BSPP threads



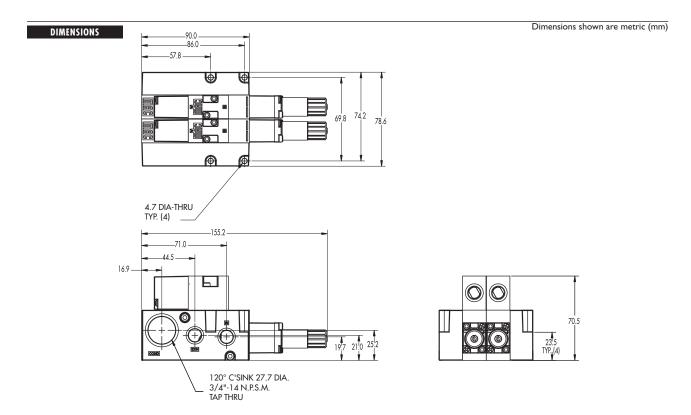
® <b>O</b> <b>Series 45</b>	Direct sol	enoid and se	olenoid pilot opera	ated valves
Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	# 10-32 - 1/8" 5/32 Pressed-intube reco	" 0.11 C <sub>V</sub>	Manifold base plug-in with pressure regulators	
<ol> <li>OPERATIONAL BENEFITS</li> <li>Balanced poppet, imm pressure.</li> <li>Short stroke with high f</li> <li>The patented solenoid forces.</li> <li>Powerful return spring.</li> <li>Manual operator stand</li> <li>Burn-out proof solenoid</li> </ol>	flow.   develops high shifting dard on all valves.			35 100 200
HOW TO ORDER				55 56 57
	Port size		Single operator	58 59
Valve less base 1/8" NPTF base # 10-32 UNF bas 5/32 Pressed-in f			A       B       B         EXH V       IN         45A-100-00-DxxJ-xxx         45A-LSA-AJ-DxxJ-xxx         45A-LSD-AJ-DxxJ-xxx         45A-LSF-AJ-DxxJ-xxx	45
SOLENOID OPERATO	OR ►	D <u>xx</u> J-x <u>xx</u> .		700
XX Voltage AA 120/60, 110/ AB 240/60, 220/		- No operator	XX Electrical connection FM Plug-in EN Plug-in	900
AB         240/60, 220/           DA         24 VDC (5.4W)           FA         12 VDC (1.8W)	V) 2 V)	J	FNPlug-in with diodeFPPlug-in with M.O.V.	82
FB         24 VDC (1.8W           FE         12 VDC (2.4W           FF         24 VDC (2.4W	V) V)			6300
* Other options available	le, see page 361.			6500
Note : Bottom cylinder po OPTIONS	orts only with the regulator option.			6600
45A-LSA-AJ-DxxJ-x				1300
L J E G	Regulator with adjusting knob Regulator with slotted stem Regulator with locking slotted			800
O L M Exa End	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, $\Delta P=1bar)$ :	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	~ Inrush : 10.9 VA Holding : 7.7 VA
: DC	= 1.8 to 12.7 W
Spare parts :	<ul> <li>Inlet isolator : 28477</li> <li>Exhaust isolator : 28476</li> <li>Tie rod (x2): 79244</li> <li>Seal between bases: 16762</li> <li>Seal between valve &amp; base: 16453</li> </ul>
Options :	• BSPP threads



© <b>Constant</b> Series <b>4</b> 5	Direct solend	oid and sole	enoid pilot operat	ed valves
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, immu pressure. 2. Short stroke with high flu 3. The patented solenoid d	flow.		(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	35
forces. 4. Powerful return spring. 5. Manual operator stando	lard on all valves.		Althe section of	100
6. Burn-out proof solenoid	on AC service.		Gr. O	200
			er o	55 56
HOW TO ORDER				57
	Port size		Single operator	58 59
Valve less base			A B B B EXH D ON DXJ-XXX 45A-LOO-OD-DXXJ-XXX 45A-LSA-AD-DXXJ-XXX	45
# 10-32 UNF base			45A-LSD-AD-DxxJ-xxx	
5/32 Pressed-in to	ube receptacles		45A-LSF-AD-DxxJ-xxx	
SOLENOID OPERATO	)R ►	D <u>xx</u> J- <u>x</u> <u>xx</u> .		700
XX         Voltage           AA         120/60, 110/5		anval operator	XX Electrical connection FM Plug-in	900
AB         240/60, 220/5           DA         24 VDC (5.4W)           FA         12 VDC (1.8W)           FB         24 VDC (1.8W)	/50 I Non /) 2 Lock /)	n-locking	FN         Plug-in with diode           FP         Plug-in with M.O.V.	82
FE         12 VDC (2.4W)           FF         24 VDC (2.4W)	/)			6300
* Other options available	e, see page 361.			6500
OPTIONS				6600
45A- L SA-A D -DxxJ-xx	Side cylinder ports with flow controls			1300
M	Bottom cylinder ports with flow control	ls		800
0 L M	Base only – no valve Single solenoid - Base mount body Single solenoid - Base mount body wit mple: Base only with flow controls: 45A-0SA-			ISO 1 ISO 2 ISO 3

Example: Base only with flow controls: 45A-0SA-AD End plate kit required : M-45028-01

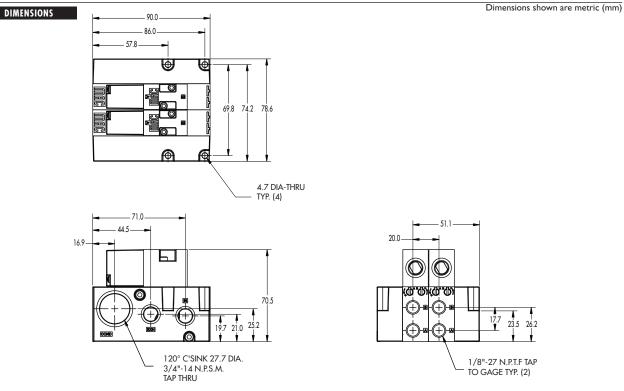
MAC 125A MAC 250A MAC 500A





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	~ Inrush : 10.9 VA Holding : 7.7 VA
: DC	= 1.8 to 12.7 W
Spare parts :	<ul> <li>Inlet isolator : 28477</li> <li>Exhaust isolator : 28476</li> <li>Tie rod (x2): 79244</li> <li>Seal between bases: 16762</li> <li>Seal between valve &amp; base: 16453</li> </ul>
Options :	• BSPP threads

DIMENSIONS

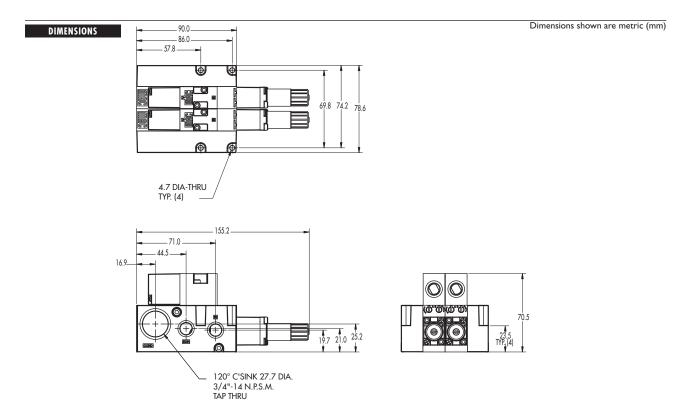


©	Direct so	lenoid and so	lenoid pilot opera	ted valves
Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	# 10-32 - 1/8	″ 0.11 C <sub>v</sub>	Manifold base plug-in with regulator &	
OPERATIONAL BENEFITS	5/32 Pressed-intube re	cepracies	flow controls	
<ol> <li>Balanced poppet, immunipressure.</li> <li>Short stroke with high flow</li> <li>The patented solenoid de</li> </ol>	Ν.			35
forces. 4. Powerful return spring. 5. Manual operator standar 6. Burn-out proof solenoid o	d on all valves.		and and and	100
	TAC service.		10 A	200
				55
				56 57
HOW TO ORDER	Port size		Single operator	58
				59
Valve less base			45A-L00-00-D <b>XXJ-XXX</b>	
1/8" NPTF base			45A-LSA-AK-DxxJ-xxx	45
# 10-32 UNF base			45A-LSD-AK-DxxJ-xxx	
5/32 Pressed-in tul	pe receptacles		45A-LSF-AK-DxxJ-xxx	
SOLENOID OPERATOR	>	D <u>xx</u> J-x <u>xx</u> .		700
XX Voltage	r X	Manual operator	XX Electrical connection	900
AA 120/60, 110/50		No operator	FM Plug-in	
AB 240/60, 220/50 DA 24 VDC (5.4W)	1		FN         Plug-in with diode           FP         Plug-in with M.O.V.	82
FA         12 VDC (1.8W)           FB         24 VDC (1.8W)           FE         12 VDC (2.4W)				
FE         12 VDC (2.4W)           FF         24 VDC (2.4W)				6300
<ul> <li>Other options available,</li> <li>Note : Bottom cylinder port</li> </ul>	see page 361. s only available with the regulate	or & flow controls option.		6500
OPTIONS				6600
45A-LSA-AK-DXXJ-XXX	egulator with adjusting knol	o & flow controls		1300
FR	egulator with slotted stem & egulator with locking slotted	flow controls		800
LS	ase only – no valve ingle solenoid - Base mount ingle solenoid - Base mount	body body with gage port		ISO 1 ISO 2
	ole: Base only with regulator and ate kit required : M-45028-01			ISO 3 MAC 125A MAC 250A MAC 500A
		85	Consult "Precautions" page 364 before use installation or se	





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	~ Inrush : 10.9 VA Holding : 7.7 VA
: DC	= 1.8 to 12.7 W
Spare parts :	<ul> <li>Inlet isolator : 28477</li> <li>Exhaust isolator : 28476</li> <li>Tie rod (x2): 79244</li> <li>Seal between bases: 16762</li> <li>Seal between valve &amp; base: 16453</li> </ul>
Options :	• BSPP threads





Individual mounting Series inline 35 Manifold mounting stacking 100 200 55 **Optional integral exhaust** 56 flow controls 57 58 Ext. pilot port 59 **Pilot housing** Sealed solenoid enclosure 45 ∉хн ĺρ NNNN 700 Þ 900 Bonded flow seal spool Muffled pilot exh. Manual operator <sup>/</sup>Air/spring return <sup>/</sup>Filtered pilot supply 82 6300 **SERIES FEATURES** 6500  $\bullet$  The patented MACSOLENOID  $^{\ensuremath{\mathbb{R}}}$  with its non-burn out feature on AC service. 6600 • Air/spring return for consistent shifting on single solenoid internal pilot valves. • Use on lube or non-lube service. 1300 • Optional integral adjustable exhaust flow controls with a single common exhaust port. • Optional low wattage DC solenoids down to 1 watt. 800 • Various types of manual operators and solenoid enclosures. **ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A** 

**MAC 500A** 

©
Series <b>700</b>



# **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.

<b>Series 700</b>	Direct solen	oidand s	olenoid	pilot operate	ed valves
Function	Port size	Flow (Max)	Individual	mounting	Series
4/2	1/8" - 1/4"	0.7 C <sub>v</sub>	inline		
OPERATIONAL BENEFITS 1. Balanced spool, immune to vari 2. Short stroke with high flow. 3. The piston (booster) provides ma forces.	·				35
<ol> <li>Powerful return force thanks to the mechanical and air springs.</li> <li>Bonded spool with minimum friglass-like finished bore.</li> <li>Wiping effect eliminates sticking</li> <li>Pilot valve with balanced popper and consistent response times.</li> <li>Long service life.</li> </ol> HOW TO ORDER	iction, shifting in a g.				100 200 55 56 57
Port size	Pilot air	Si	ngle operator	Double operator	58 59
		<b>م</b> ليا ا			57
1/8" NPTF	Internal		I 1C-11-PI-XXYZZ	721C-11-PI- <b>XXYZZ</b>	
1/4" NPTF			11C-12-PI- <b>XXYZZ</b>	721C-12-PI- <b>XXYZZ</b>	45
1/8" NPTF 1/4" NPTF	External		1C-11-PE- <b>XXYZZ</b> 1C-12-PE- <b>XXYZZ</b>	721C-11-PE- <b>XXYZZ</b> 721C-12-PE- <b>XXYZZ</b>	
How to order valve wi	TH FLOW CONTROLS				_
Port size	Pilot air	Si	ngle operator	Double operator	700
		▲ Ľ			900
1/8" NPTF	Internal	7	12C-11-PI- <b>xxyzz</b>	722C-11-PI- <b>XXYZZ</b>	
1/4" NPTF		7	12C-12-PI- <b>xxyzz</b>	722C-12-PI- <b>XXYZZ</b>	82
1/8" NPTF	External	71	2C-11-PE- <b>xxyzz</b>	722C-11-PE- <b>XXYZZ</b>	
1/ <b>4" NPTF</b>		71	2C-12-PE- <b>XXYZZ</b>	722C-12-PE- <b>XXYZZ</b>	6300
SOLENOID OPERATOR >		<u> </u>			6500
W W-I				FI	6600
XX Voltage		<b>lanual operator</b>	ZZ JB	Electrical connection	0000
11 120/60, 110/50	<u>I IN</u>	-	JD	Rectangular connector	

Rectangular connector with light Square connector 240/60, 220/50 24/50, 24/60 24 VDC (2.5 W) Locking 12 2 JD 22 JA Square connector with light Flying leads (18") Conduit 1/2" NPS 59 JC 24 VDC (17.1 W) 24 VDC (8.5 W) 87 BA CA 61 Other options available, see page 357. OPTIONS 7XXC-XX-PX-XXYZZ

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

1300

800

**ISO 1** 

**ISO 2** 

**ISO 3** 

MAC 125A MAC 250A MAC 500A





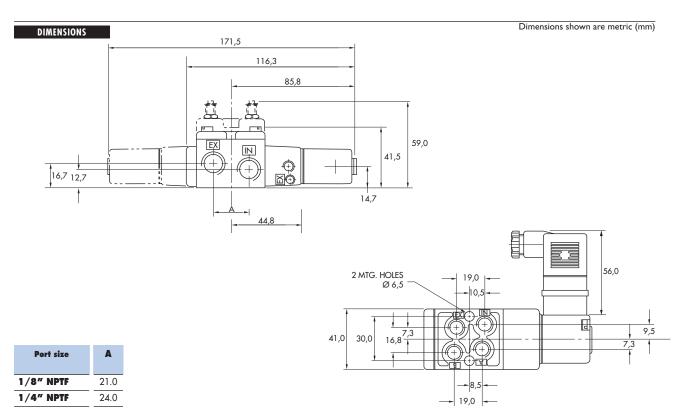
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator : 20 to 150 PSI double operator : 10 to 150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator : 20 to 150 PSI Double operator : 10 to 150 PSI
Lubrication :	Not required, 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, $\Delta P=1bar$ ) :	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

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.



Series 700

Function	Port size Flo	ш (Max) Manifold	mounting	Series
4/2	1/8" - 1/4" 0.	B C <sub>v</sub> stacking		
DPERATIONAL BENEFITS				
<ol> <li>Balanced spool, immune to variat</li> <li>Short stroke with high flow.</li> <li>The piston (booster) provides may forces.</li> </ol>				35
<ul> <li>Powerful return force thanks to the mechanical and air springs.</li> <li>Bonded spool with minimum frict glass-like finished bore.</li> </ul>			Real Provide American Ame American American Am American American A	100
<ol> <li>Giass-like finished bore.</li> <li>Wiping effect eliminates sticking.</li> <li>Pilot valve with balanced poppet,</li> </ol>	high flow, short			200
and consistent response times. 3. Long service life.				55 56
HOW TO ORDER				57
Port size	Pilot air	Single operator	Double operator	58 59
				37
1/8" NPTF	Internal	713C-11-PI-XXYZZ		45
1/4" NPTF		713C-12-PI- <b>XXYZZ</b>	723C-12-PI- <b>XXYZZ</b>	
IOW TO ORDER VALVE WIT	h flow controls			
Port size	Pilot air	Single operator	Double operator	700
				900
1/8″ NPTF	Internal			900
1/8" NPTF 1/4" NPTF	Internal		724C-11-PI-XXYZZ 724C-12-PI-XXYZZ	
1/4" NPTF	Internal	714C-11-PI-XXYZZ		900 82
1/4" NPTF	Internal	714C-11-PI-XXYZZ		
1/4" NPTF		714C-11-PI-XXYZZ		- 82 6300
1/4" NPTF SOLENOID OPERATOR ➤ XX Voltage 11 120/60, 110/50	Y Manua 1 Non-locki	714C-11-PI-XXYZZ       714C-12-PI-XXYZZ       XX Y ZZ*       I operator       ZZ       ng     JB	724C-12-PI-xxyzz Electrical connection Rectangular connector	82
1/4" NPTF SOLENOID OPERATOR > XX Voltage	Y Manua	714C-11-PI-XXYZZ       714C-12-PI-XXYZZ       XX     Y       ZZ       I operator       ZZ	724C-12-PI-xxyzz Electrical connection Rectangular connector Rectangular connector with light Square connector	82 6300 6500
1/4" NPTF SOLENOID OPERATOR ➤ XX Voltage 11 120/60, 110/50 12 240/60, 220/50 22 24/50, 24/50 59 24 VDC (2.5 W)	Y Manua 1 Non-locki	714C-11-PI-XXYZZ 714C-12-PI-XXYZZ XX Y ZZ* I operator ZZ JD JA JC	724C-12-PI-xxyzz         Electrical connection         Rectangular connector         Rectangular connector with light         Square connector with light	- 82 6300
1/4" NPTF SOLENOID OPERATOR ➤ XX Voltage 11 120/60, 110/50 12 240/60, 220/50 22 24/50, 24/60	Y Manua 1 Non-locki	714C-11-PI-XXYZZ       714C-12-PI-XXYZZ       XX Y ZZ*       I operator       ZZ       JB       JD       JA	724C-12-PI-xxyzz Electrical connection Rectangular connector Rectangular connector with light Square connector	82 6300 6500

\* 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). M-01002-01 (for MB option) required in addition to one of the above end plate kits.

800

**ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A** 

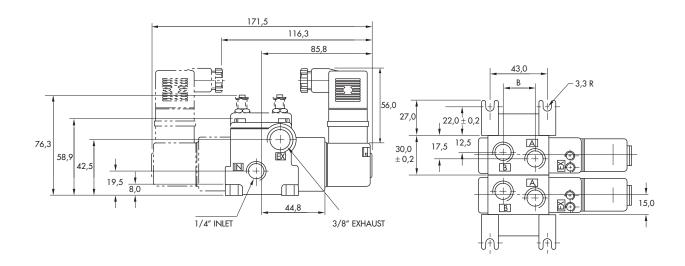




TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator : 20 to 150 PSI double operator : 10 to 150 PSI External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator : 20 to 150 PSI Double operator : 10 to 150 PSI
Lubrication :	Not required, 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" : (0.7 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 : Options :	<ul> <li>Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.</li> <li>Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363.</li> <li>Valve cover plate with integral flow controls : N-07004. • Inlet &amp; exhaust isolator : N-07005. • Inlet isolator : N-07006.</li> <li>Exhaust isolator : N-07007.</li> <li>BSPP threads.</li> </ul>
	• Dorr inredus. Dimensions shown are metric (mr

DIMENSIONS

Dimensions shown are metric (mm)



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



Individual mounting Series inline 35 Manifold mounting stacking 100 200 Sealed solenoid enclosure 55 56 Manual operator 57 A **Balanced** poppet 58 59 þ JUUC 45 Piston 700 assembly 900 82 Air/spring return Bonded flow seal spool 6300 **SERIES FEATURES** 6500  $\bullet$  The patented MACSOLENOID  $^{\circledast}$  with its non-burn out feature on AC service. 6600 • Air/spring return on single solenoid valves. • Use for lube or non-lube service. 1300 • Optional low wattage DC solenoids down to 1 watt. • Various types of manual operators and electrical enclosures. 800 **ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A** 

**MAC 500A** 





# 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 solenaid models, the Inlet pressure must be a minimum of 25 PSI on singles or 10 PSI on doubles.

© Contraction of the series 900	Direct sole	enoidandsol	enoid pilot operati	ed valves
Function	Port size	Flow (Max)	Individual mounting	Series
4/2	1/8" - 1/4"	1.2 C <sub>v</sub>	inline	
<ol> <li>OPERATIONAL BENEFITS</li> <li>Balanced spool, immune to v</li> <li>Short stroke with high flow.</li> <li>Large spool area provides m forces.</li> <li>Powerful return force thanks mechanical and air springs.</li> <li>Bonded spool with minimum glass-like finished bore.</li> <li>Wiping effect eliminates stick</li> <li>Pilot valve with balanced pop and consistent response time</li> <li>Long service life.</li> </ol>	aximum shifting to the combination of 1 friction, shifting in a king. ppet, high flow, short			35 100 200 55 56
HOW TO ORDER				57
Port size	•	Single operator	Double operator	59
1/8" NP1 1/4" NP1	IF	911B-PM-XXYZZ 912B-PM-XXYZZ	921B-PM-XXYZZ 922B-PM-XXYZZ	45
SOLENOID OPERATOR >		<u> </u>		
XX         Voltage           11         120/60, 110/50           12         240/60, 220/50           22         24/50, 24/60	Y 1 2	Manual operator Non-locking Locking	ZZ         Electrical connection           JB         Rectangular connector           JD         Rectangular connector with light           JA         Square connector	<b>700</b> 900
59         24 VDC (2.5 W)           87         24 VDC (17.1 W)           61         24 VDC (8.5 W)			JC Square connector with light BA Flying leads (18") CA Conduit 1/2" NPS	82
* Other options available, see	page 357.			02
				6300
				6500
				6600
				1300
				800

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

ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A





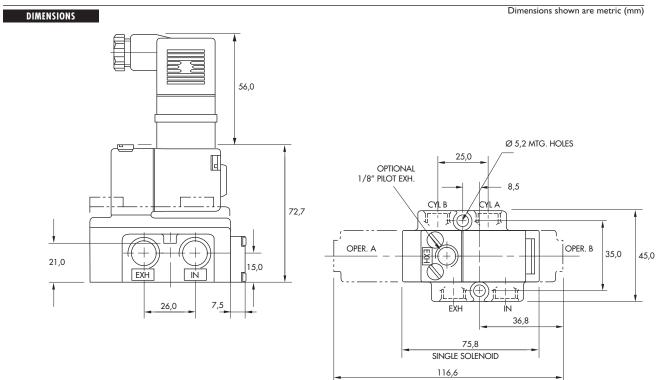
TECHNICAL DATA			
Fluid :	Compressed air, vacuu	m, inert gases	
Pressure range :	Single operator : 25 to	150 PSI Double of	perator : 10 to 150 PSI
Lubrication :	Not required, if used s	select a medium aniline p	oint lubricant (between 180°F to 210°F)
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to	50°C)	
Flow (at 6 bar, $\Delta P=1bar)$ :	1/8" : (0.8 C <sub>v</sub> ), 1/4" :	: (1.2 C <sub>v</sub> )	
Coil :	General purpose class	A, continuous duty, enca	psulated
Voltage range :	-15% to +10% of nomi	nal 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

 $\bullet$  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.



© Contraction of the series 900	Direct sol	enoid and sole	noid pilot operat	ed valves
Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	1/8″ - 1/4″ - 3	/8″ 1.4 C <sub>v</sub>	stacking	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune</li> <li>2. Short stroke with high flo</li> <li>3. Large spool area provide forces.</li> <li>4. Powerful return force that mechanical and air sprin</li> <li>5. Bonded spool with minir</li> </ul>	w. s maximum shifting nks to the combination of gs.			35 100
<ul><li>glass-like finished bore.</li><li>6. Wiping effect eliminates</li><li>7. Pilot valve with balanced and consistent response t</li><li>8. Long service life.</li></ul>	sticking. poppet, high flow, short			200 55 56
HOW TO ORDER	in	Single operator	Double operator	57 58
Port	917.G			59
1/8″		913B-PM- <b>XXYZZ</b>	923B-PM- <b>XXYZZ</b>	
1/4″	NPTF	914B-PM- <b>xxyzz</b>	924B-PM- <b>xxyzz</b>	45

# SOLENOID OPERATOR >

Х	X	Y	ZZ	*
		Т		

919B-PM-**XXYZZ** 

XX	Voltage	Ŷ	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			BA	Flying leads (18″)
59	24 VDC (2.5 W)			MA	Common conduit 1" NPS
87	24 VDC (17.1 W)			RA	Conduit 3/8″ NPS
61	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.

3/8" NPTF

<b>ISO</b>	2
<b>ISO</b>	3
MAC	1 <b>25</b> A

6300

6500

6600

1300

800

**ISO 1** 

**MAC 250A MAC 500A** 

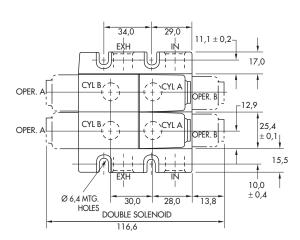
N/A

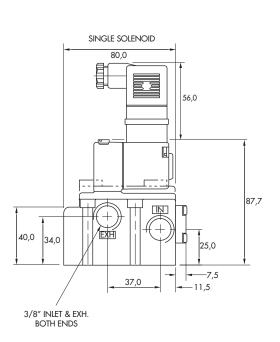




TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Single operator : 25 to 150 PSI Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1bar$ ) :	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 :	<ul> <li>Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.</li> <li>Pilot valve : PME-XXYZZ, including seal 16367. • Mounting screw pilot to main valve : 35208.</li> <li>Pressure seal between valves : 16358. • Tie-rod (x2) : 19615. • Inlet &amp; exhaust isolator : N-09002. • Inlet isolator : N-09004.A</li> <li>Exhaust isolator : N-09003.</li> </ul>
Options :	• BSPP threads. 7,5

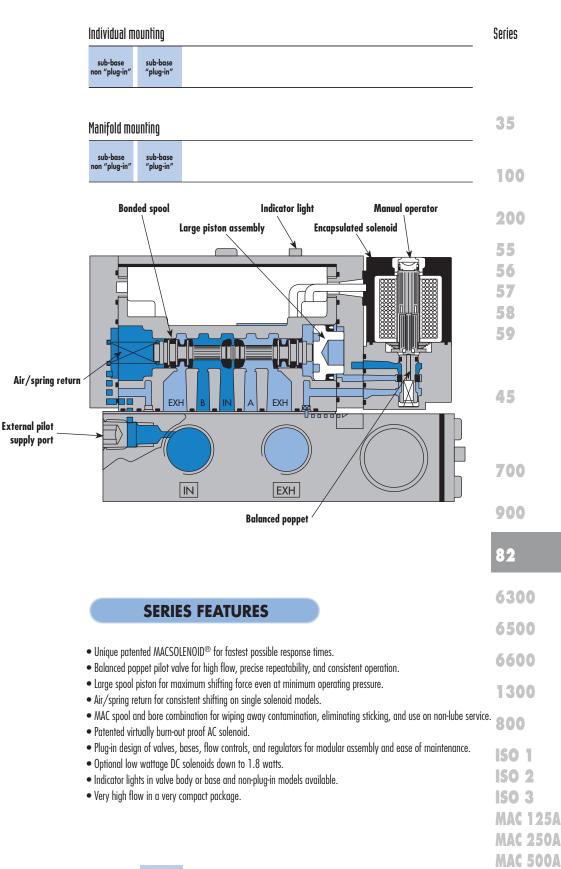
DIMENSIONS





Dimensions shown are metric (mm)

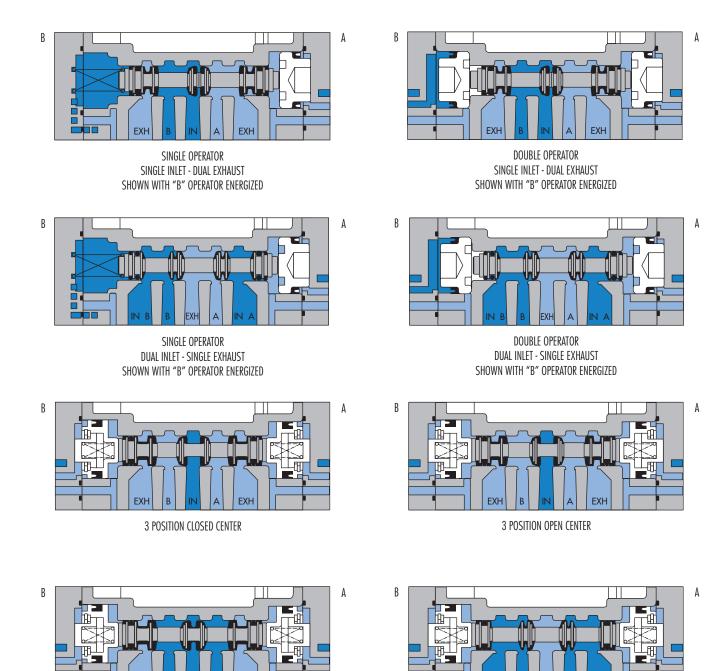








#### **SPOOL CONFIGURATIONS**





**3 POSITION DUAL PRESSURE** 

PRESSURE CENTER

© Series 82		Direct s	olenoid a	nd solend	oid pilot	operated v	alves
Function		Port size	Floш (Max)		Individual mounting		Series
4/2 - 4/3		1/8" - 1/4"	- 3/8″ 1.35 C <sub>v</sub>		sub-base non "plug-in"		
OPERATIONAL BEN	NEFITS						
2. Short stroke wit	h high flow.	variations of pressure. s maximum shifting			61		35
mechanical and	d air springs. with minimum	to the combination of n friction, shifting in a					100
6. Wiping effect e	liminates stic	king. ppet, high flow, short				20	200
and consistent r 8. Long service life	response time					0	55
0. LUIIY SELVICE III	<del>.</del>					. et	56
HOW TO ORDE	ER						57
Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center	58
							59
Valve less	·	82A-AB-000-TM-D <b>xxx-xxx</b>	82A-BB-000-TM-D <b>xxx-xxx</b>	82A-EB-000-TM-D <b>xxx-xxx</b>	82A-FB-000-TM-D <b>xxx-xxx</b>	82A-GB-000-TM-D <b>xxx-xxx</b>	
sub-base 1/8" NPTF	Internal External	82A-AB-AAA-TM-Dxxx-xxx 82A-AB-AAD-TM-Dxxx-xxx	82A-BB-AAA-TM-Dxxx-xxx 82A-BB-AAD-TM-Dxxx-xxx	82A-EB-AAA-TM-Dxxx-xxx 82A-EB-AAD-TM-Dxxx-xxx	82A-FB-AAA-TM-Dxxx-xxx 82A-FB-AAD-TM-Dxxx-xxx	82A-GB-AAA-TM-Dxxx-xxx 82A-GB-AAD-TM-Dxxx-xxx	45
sub-base	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	
1/4" NPTF	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	
sub-base 3/8″ NPTF	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-FB-CAD-TM-Dxxx-xxx	82A-GB-CAA-TM-DXXX-XXX	700
3/8" NPTF	External	82A-AB-CAD-TM-Dxxx-xxx	82A-BB-CAD-TM-Dxxx-xxx	82A-EB-CAD-TM-Dxxx-xxx	82A-FB-CAD-IM-DXXX-XXX	82A-GB-CAD-TM-Dxxx-xxx	2.00
SOLENOID OP	PERATOR >		D <u>XX</u> X-				900
XX Volte AA 120/6	age 60, 110/50		e length Flying leads)	X Manual oper 1 Non-locking		quare connector	82
AB         240/6           AC         24/60           FB         24 VD	0, 220/50 0, 24/50 C (1.8 W) C (5.4 W)	J Conn		2 Locking	KD So JB Re JD Re	quare connector with light extangular connector extangular connector with light ying leads	6300
DF 24 VD	C (12.7 W)					nector shown in photo.	6500
<ul> <li>Other options of</li> </ul>	available, see	e page 361.					6600
							1300
	or dual pres	ssure valves, replace A l lwich regulator, see pre					800
- M 82A-XX-BAA-TM-Dx Re	— - TP (Pip or pilot exha lain exhaust xx-xxx eplace A by	ed pilot exhaust) aust out main exhaust, r t cannot be restricted. A r B for bottom ports (1/ r C for side and bottom	wailable only on single 8″ or 1/4″ only)	pressure valves.	d by TU pilot body.		ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A
	. ,		11		(	are use installation or convise of MAC Values	MAC 500A





Fluid :	Compressed air, vacu	um, inert gases				
ressure range :	Internal pilot : single a	operator and 3 positions :	25-150 PSI	double operator	: 10-150 PSI	
	External pilot : vacuur	m to 150 PSI				
ilot pressure :	Single operator and 3	3 positions : 25-150 PSI [	Double operator : 10-150 P	SI		
ubrication :	Not required, if used	select a medium aniline p	oint lubricant (between 180	)°F to 210°F)		
Itration :	40 µ					
mperature range :	0°F to 120°F (-18°C t	to 50°C)				
ow (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	C <sub>v</sub> )			
oil :	Epoxy encapsulated -	class A wires - Continuou	s duty.			
oltage range :	-15% to +10% of nom		7			
rotection :	Consult factory					
ower:	~ Inrush : 10.9 VA	Holding : 7.7 VA				
	= 1.8 to 12.7 W					
esponse times :	24 VDC (5.4 W)	Energize : 9 ms	De-energize : 6 ms			
	120/60	Energize : 5-12 ms	De-energize :6-13 ms			
Dptions : DIMENSIONS	Mounting screw vo	alve to base (x2) : 35211	3. • Pressure seal between		16446.	hown are metric
·	Mounting screw vo	alve to base (x2) : 35211 ow controls (Part N°. FC8 RATOR	<ol> <li>Pressure seal between</li> </ol>	model. 149,0 DOL	16446.	hown are metric
·	Mounting screw vc     BSPP threads.      Fla     149,0 DOUBLE OPEN	alve to base (x2) : 35211 ow controls (Part N°. FC8 RATOR	<ol> <li>Pressure seal between</li> </ol>	model. 149,0 DOL	16446. Dimensions s JBLE OPERATOR	hown are metric
	Mounting screw vo     BSPP threads.      Fle     149,0 DOUBLE OPEI     120,5 SINGLE C	alve to base (x2) : 35211 ow controls (Part N°. FCE	3. • Pressure seal between 32A-BA) • Explosion-proof	model. 149,0 DOL	Dimensions s	
	Mounting screw vo     BSPP threads. • Fle     149,0 DOUBLE OPEI     120,5 SINGLE C     120,5 SINGLE C	RATOR PERATOR PERATOR 2×0 5,3 2×0 5,3	3. • Pressure seal between 32A-BA) • Explosion-proof S2A-BA) • Explosion-proof OPTIONAL SANDWICH FLOW CONTROLS 1/8-27 NPTF Extend silet tot	149,0 DOI	Dimensions s JBLE OPERATOR SINGLE OPERATOR	
DIMENSIONS $ \begin{array}{c} \downarrow \\ 15,5 \\ 15,5 \\ \downarrow \\ 15,5 \\ \downarrow \\ 15,5 \\ \downarrow \\ 15,5 \\ 15,5 \\ \downarrow \\ 15,5 \\ \downarrow \\ 15,5 \\ 15,5 \\ 15,5 \\ \downarrow \\ 15,5 \\ 15$	Mounting screw vo     BSPP threads. • Fle     149,0 DOUBLE OPEI     120,5 SINGLE C     120,5 SINGLE C	alve to base (x2) : $35211$ ow controls (Part N°. FCE RATOR PERATOR $2 \times 053$ $2 \times 053$ 41,0	3. • Pressure seal between 32A-BA) • Explosion-proof S2A-BA) • Explosion-proof OPTIONAL SANDWICH FLOW CONTROLS 1/8-27 NPTF External pilot port	model.	Dimensions s JBLE OPERATOR SINGLE OPERATOR	

17.0 mm

3/8" NPTF

© Series 82		Direct so	olenoida	nd solend	oid pilot ope	rated v	alves
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"		
<ol> <li>Short stroke with</li> <li>The piston (boost</li> </ol>	immune to v high flow.	variations of pressure. 5 maximum shifting					35
mechanical and 5. Bonded spool w	air springs. rith minimum	to the combination of n friction, shifting in a			THE		100
glass-like finished 6. Wiping effect eli 7 Pilot valve with b	minates stick	king. ppet, high flow, short					200
and consistent re 8. Long service life.	sponse time						55
						,	56
HOW TO ORDER							57
Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center Pres	4/3 sure center	58 59
Valve less k	ase	IN EXH 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-	IN EXH 000-TM-DXXP-XDA	
sub-base	Internal	82A-AA-AAA-TM-DxxP-xDA	82A-BA-AAA-TM-DxxP-xDA	82A-EA-AAA-TM-DxxP-xDA		AAA-TM-DxxP-xDA	45
1/8" NPTF sub-base	External Internal	82A-AA-AAD-TM-DxxP-xDA 82A-AA-BAA-TM-DxxP-xDA	82A-BA-AAD-TM-DXXP-XDA 82A-BA-BAA-TM-DXXP-XDA	82A-EA-AAD-TM-DxxP-xDA 82A-EA-BAA-TM-DxxP-xDA		AAD-TM-DxxP-xDA BAA-TM-DxxP-xDA	
1/4" NPTF	External	82A-AA-BAD-TM-DxxP-xDA	82A-BA-BAD-TM-DxxP-xDA	82A-EA-BAD-TM-DxxP-xDA		BAD-TM-DxxP-xDA	
sub-base	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-D <b>xx</b> P- <b>x</b> DA	700
3/8" NPTF	External	82A-AA-CAD-TM-DxxP-xDA	82A-BA-CAD-TM-D <b>xx</b> P- <b>x</b> DA	82A-EA-CAD-TM-DxxP-xDA	82A-FA-CAD-TM-DxxP-xDA 82A-GA-	CAD-TM-DxxP-xDA	/00
SOLENOID OPE	RATOR >		D <u>XX</u> P-	X DA <sup>*</sup>			900
				1			
<b>XX Voltag</b> <b>AA</b> 120/60	<b>ge</b> , 110/50			X         Manual open           1         Non-locking	rator		82
AB 240/60 AC 24/60,	<u>, 220/50</u> 24/50			2 Locking			6200
FB         24 VDC           DA         24 VDC	(1.8 W)						6300
	(12.7 W)						6500
<ul> <li>Other options av</li> </ul>	railable, see	page 361.					6600
<u>ортіонs</u> 82А- <u>АА</u> -000-ТМ-D <b>ж</b>							1300
- Fo	or light in k or pilot exh	body replace A by C. haust out main exhaust	replace A by D. For lig	ht replace A by F.	ricted (NO flow controls) availe	ible with single	800
pr - Fc - Fc	ressure val or piped pi or dual pre equires sa	ve only. TU replaces TM ilot exhaust replace TM issure valves, replace A ndwich regulator - see	1. by TP. . by C, B by D, E by M,	F by L, G by H.		ible with single	ISO 1 ISO 2 ISO 3
	eplace A b eplace A b	y B for bottom ports (1, y C for side and botton	n ports (1/8″ or 1/4″ o	only) )3	Consult "Promitions" none 364 hefore use instal		MAC 125A MAC 250A MAC 500A



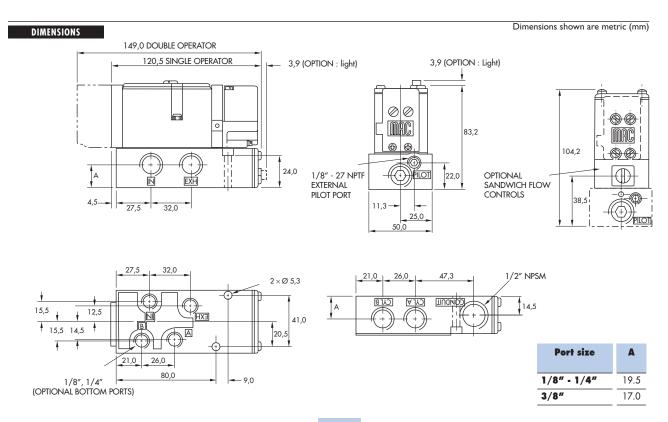


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
Lubrication :	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

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.



© Series 82		Direct so	olenoida	nd solen (	oid pilot	operated	Valves
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"		
<ol> <li>Short stroke wit</li> <li>The piston (boo forces.</li> <li>Powerful return mechanical and</li> </ol>	l, immune to v th high flow. oster) provides force thanks d air springs.	to the combination of					35 100
glass-like finishe 6. Wiping effect e	ed bore. eliminates sticl	n friction, shifting in a king. ppet, high flow, short					200
and consistent r 8. Long service life	response time e.				CICI	))).	55 56
HOW TO ORDE							57
Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center	58 59
Valve less	hase	A B B B IN EXH 82A-AB-000-TM-DXXX-XXX	A A B B TD IN EXH 82A-BB-000-TM-DXXX-XXX	B MD 1 1 1 1 1 1 1 1 1 1 1 1 1	B MD IN EXH B2A-FB-000-TM-DXXX-XXX	B A B A MDD A B A MD	57
sub-base	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	45
1/4" NPTF	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	
sub-base 3/8″ NPTF	Internal External	82A-AB-CKA-TM-Dxxx-xxx 82A-AB-CKD-TM-Dxxx-xxx	82A-BB-CKA-TM-Dxxx-xxx 82A-BB-CKD-TM-Dxxx-xxx	82A-EB-CKA-TM-Dxxx-xxx 82A-EB-CKD-TM-Dxxx-xxx	82A-FB-CKA-TM-Dxxx-xxx 82A-FB-CKD-TM-Dxxx-xxx	82A-GB-CKA-TM-Dxxx-xxx 82A-GB-CKD-TM-Dxxx-xxx	
SOLENOID OP	PERATOR >			- <u>x xx</u> *			700
							900
XX Volte	<b>uge</b> 50, 110/50		e length	X Manual ope			900
AB         240/6           AC         24/60           FB         24 VD	60, 220/50 0, 24/50 IC (1.8 W)	A 18" (I J Conn	Flying leads) ector	1 Non-locking 2 Locking	KD         Sc           JB         Re           JD         Re	quare connector quare connectorwith light ectangular connector ectangular connector with ght	82
	C (5.4 W) C (12.7 W)				<b>BA</b> Fl	ying leads inector shown in photo.	6300
		<sup>*</sup> Other options of	available, see page 361.			постог эпожи игриою.	6500
<b>OPTIONS</b> 82A- <u>AB</u> -000-TM-Dxx	XX-XXY						6600
F r	For pilot exh restricted (N	naust out main exhaust r lo flow controls) availab ilot exhaust replace TM	le with single pressure	Λ pilot body is replace valve only.	d by TU pilot body. Mai	n exhaust cannot be	1300
F	For dual pre	essure valves, replace A ndwich regulator - see	by C, B by D, E by M,				800
82A-XX-BKA-TM-Dx2	xx-xxx Replace K b Replace K b Replace K b Replace K b	y L for bottom cyl. ports y M for bottom inlet por y N for bottom inlet and y P for bottom and end y R for bottom and end	rt d cyl. ports cyl. ports				ISO 1 ISO 2 ISO 3 MAC 125A

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

L

MAC 250A **MAC 500A** 





ressure range : lot pressure : ibrication :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
brication :	External pilot : vacuum to 1 <i>5</i> 0 PSI
	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
la de la	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Itration :	40 µ
emperature range :	0°F to 120°F (-18°C to 50°C)
ow (at 6 bar, ΔP=1bar) :	1/4" (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )
oil :	Epoxy encapsulated - class A wires - Continuous duty.
oltage range :	-15% to +10% of nominal voltage
rotection :	Consult factory
ower :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
esponse times :	24 VDC (5.4 W) Energize : 9 ms De-energize : 6 ms
	120/60 Energize : 5-12 ms De-energize :6-13 ms
DIMENSIONS	Dimensions shown are metric ( 174,7 DOUBLE OPERATOR
32	164,2 SINGLE OPERATOR
46,0	1 1/4" NPSM
	MON EXT. PILOT PORT)
	-5

©		Direct so	olenoida	nd solen(	oid pilot	operated v	/ a   v e s
Function		Port size	Flow (Max)		Manifold mounting		Series
4/2 - 4/3		1/4" - 3/8"	1.35 C <sub>v</sub>		sub-base "plug-in"		
<ol> <li>Short stroke with</li> <li>The piston (book forces.</li> </ol>	l, immune to v h high flow. oster) provides	variations of pressure. s maximum shifting			A.S.	2	35
mechanical and	d air springs. with minimum	to the combination of n friction, shifting in a				6	100
6. Wiping effect e	liminates sticl	king. ppet, high flow, short			0.000	00.	200
and consistent 8. Long service life					200		55
-					DE		56
HOW TO ORD	_						57 58
Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center	50 59
							• 7
Valve less sub-base	hase Internal	82A-AA-000-TM-DxxP-xDA 82A-AA-BKA-TM-DxxP-xDA	82A-BA-000-TM-D <b>xxP-x</b> DA 82A-BA-BKA-TM-D <b>xxP-x</b> DA	82A-EA-000-TM-DxxP-xDA 82A-EA-BKA-TM-DxxP-xDA	82A-FA-000-TM-DxxP-xDA 82A-FA-BKA-TM-DxxP-xDA	82A-GA-000-TM-DxxP-xDA 82A-GA-BKA-TM-DxxP-xDA	45
1/4" NPTF	External	82A-AA-BKD-TM-DAXI + ADA	82A-BA-BKD-TM-DXXP-XDA	82A-EA-BKD-TM-DxxP-xDA	82A-FA-BKD-TM-DxxP-xDA	82A-GA-BKD-TM-DXXP-XDA	40
sub-base	Internal	82A-AA-CKA-TM-D <b>xx</b> P- <b>x</b> DA	82A-BA-CKA-TM-D <b>xx</b> P- <b>x</b> DA	82A-EA-CKA-TM-D <b>xx</b> P- <b>x</b> DA	82A-FA-CKA-TM-D <b>xx</b> P- <b>x</b> DA	82A-GA-CKA-TM-D <b>xx</b> P- <b>x</b> DA	
3/8″ NPTF	External	82A-AA-CKD-TM-DxxP-xDA	82A-BA-CKD-TM-DxxP-xDA	82A-EA-CKD-TM-D <b>xx</b> P- <b>x</b> DA	82A-FA-CKD-TM-DxxP-xDA	82A-GA-CKD-TM-DxxP-xDA	
SOLENOID OF	PERATOR >		D <u>XX</u> P-	¥ DA⁺			700
XX Volt				X Manual oper			900
<b>AA</b> 120/6	0,110/50			Non-locking	rator		
AC 24/60	0, 220/50 ), 24/50			2 Locking			82
DA 24 VD	C (1.8 W) C (5.4 W)						
<ul> <li>DF 24 VD</li> <li>* Other options of</li> </ul>	C (12.7 W)	261					6300
OPTIONS		puge son.					6500
82A-AA-000-TM-D	xP-xDA						6600
	For light in l For pilot ext	body replace A by C. haust out main exhaust	replace A by D. For lic	ht replace A by F			1300
	Use TU pilot	t body for pilot exhaust lve only. TU replaces TN	to main exhaust, main	exhaust cannot be rest	tricted (No flow control	s) available with single	
-	For piped p	ilot exhaust replace TM	by TP.				800
82A-XX-BKA-TM-D	(Requires so xP-xDA Replace K b Replace K b Replace K b Replace K b Replace K b	essure valves, replace A andwich regulator - see by L for bottom cyl. ports by M for bottom inlet po by N for bottom inlet and by P for bottom and end by R for bottom and end by S for selector base wi	pressure regulator sect rt d cyl. ports cyl. ports cyl. ports cyl. ports w/bottom ir	ion)			ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A

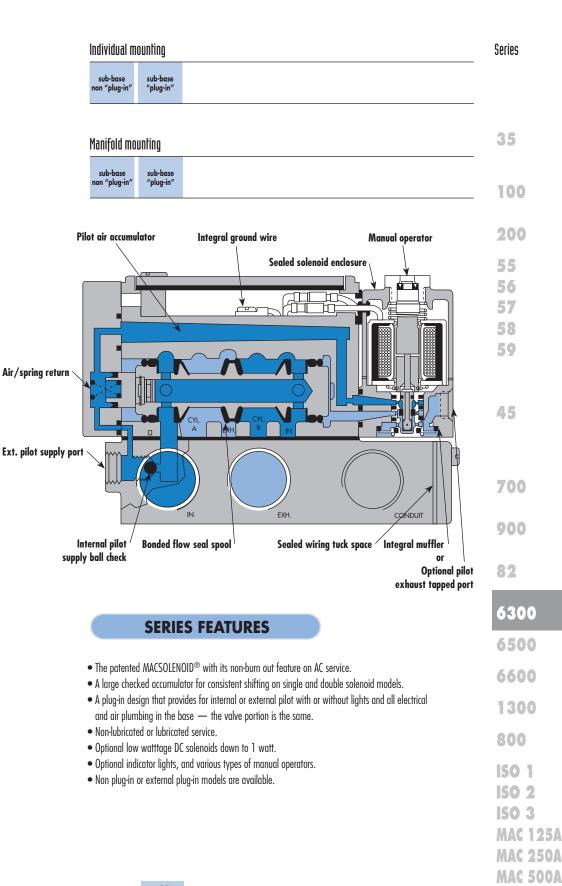




Fluid :	Compressed air, vacuum, inert gases
ressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI
ilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
ubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Itration :	40 µ
emperature range :	0°F to 120°F (-18°C to 50°C)
ow (at 6 bar, ΔP=1bar) :	1/4" (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )
oil :	Epoxy encapsulated - class A wires - Continuous duty.
/oltage range :	-15% to +10% of nominal voltage
rotection :	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
DIMENSIONS	Dimensions shown are metric (
	·
	T74,7 DOUBLE OPERATOR
46,0 46,0 28,0 17, 1/8" (OPTIONAL COMM EXT. PILOT PORT.	174,7 DOUBLE OPERATOR 164,2 SINGLE OPERATOR 164,2 SINGLE OPERATOR 11/4" NPSM OPTIONAL SANDWICH 5 32,0 5,0 164,2 3/8" - 4 PLACES

108

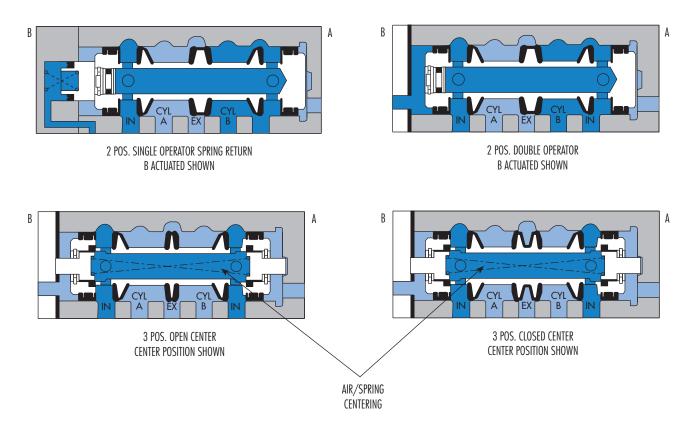








# **SPOOL CONFIGURATIONS**



# **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 larged 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.

# **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
Valve less b	ase	6312D-000-PM- <b>XXYZZ</b>	6322D-000-PM- <b>XXYZZ</b>	6332D-000-PM- <b>XXYZZ</b>	6342D-000-PM- <b>XXYZZ</b>
sub-base	Internal	6312D-131-PM- <b>XXYZZ</b>	6322D-131-PM- <b>XXYZZ</b>	6332D-131-PM- <b>XXYZZ</b>	6342D-131-PM- <b>XXYZZ</b>
1/ <b>4″ NPTF</b>	External	6312D-141-PM- <b>XXYZZ</b>	6322D-141-PM- <b>XXYZZ</b>	6332D-141-PM- <b>XXYZZ</b>	6342D-141-PM- <b>XXYZZ</b>
sub-base	Internal	6312D-231-PM- <b>XXYZZ</b>	6322D-231-PM- <b>XXYZZ</b>	6332D-231-PM- <b>XXYZZ</b>	6342D-231-PM- <b>XXYZZ</b>
3/8″ NPTF	External	6312D-241-PM- <b>XXYZZ</b>	6322D-241-PM- <b>XXYZZ</b>	6332D-241-PM- <b>XXYZZ</b>	6342D-241-PM- <b>XXYZZ</b>
sub-base	Internal	6312D-331-PM- <b>XXYZZ</b>	6322D-331-PM- <b>XXYZZ</b>	6332D-331-PM- <b>XXYZZ</b>	6342D-331-PM- <b>XXYZZ</b>
1/2″ NPTF	External	6312D-341-PM- <b>XXYZZ</b>	6322D-341-PM- <b>XXYZZ</b>	6332D-341-PM- <b>XXYZZ</b>	6342D-341-PM- <b>XXYZZ</b>

Note : Above codes shown are for side ports.

# SOLENOID OPERATOR ►

24/60, 24/50         JA         Square connector           24 VDC (2.5 W)         JC         Square connector           24 VDC (17.1 W)         BA         Flying leads (18")           24 VDC (8.5 W)         Flying leads (18")         Flying leads (18")	Voltage	Y Manual operator	ZZ Electrical connection
24/60, 24/50         JA         Square connector           24 VDC (2.5 W)         JC         Square connector           24 VDC (17.1 W)         BA         Flying leads (18")           24 VDC (8.5 W)         Flying leads (18")         Flying leads (18")	120/60, 110/50	1 Non-locking	JB Rectangular connector
24 VDC (2.5 W)         JC         Square connectorwith light           24 VDC (17.1 W)         BA         Flying leads (18")           24 VDC (8.5 W)         Flying leads (18")         Flying leads (18")	240/60, 220/50	2 Locking	JD Rectangular connector with light
24 VDC (17.1 W) BA Flying leads (18") 4 VDC (8.5 W)	24/60, 24/50	•	JA Square connector
24 VDC (8.5 W)	24 VDC (2.5 W)		JC Square connectorwith light
24 VDC (8.5 W)	24 VDC (17.1 W)		BA Flying leads (18")
	24 VDC (8.5 W)		
Note : Photo shown with JC connector.	i		Note : Photo shown with JC connector.

<u>XX Y ZZ</u>\*

\* Other options available, see page 357.

OPTIONS	1300
6312D-XXX-PM-xxyzz - For piped pilot exhaust replace M by P.	800
<ul> <li>For piped pilot exhaust replace M by P.</li> <li>For bottom cylinder ports (excluding 1/2"), replace by 4.</li> <li>For dual pressure valves (see page 293 for use with sandwich regulators), replace by 5.</li> </ul>	ISO 1
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.	ISO 2 ISO 3
	MAC 125A

35

100

200

55

56

57

900

**MAC 250A MAC 500A** 

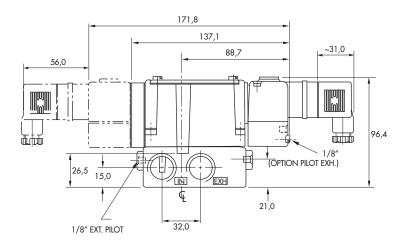




Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
Lubrication :	Not required, 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

DIMENSIONS

Dimensions shown are metric (mm)



Series 6300	

Function	Port size	Floш (Max)	Individual mounting	Series
4/2 - 4/3	1/4" - 3/8" - 1/2"	3.0 C <sub>v</sub>	sub-base "plug-in"	
OPERATIONAL BENEFITS				
1. Balanced spool, immun	e to variations of			35
pressure. 2. Short stroke with high fl	low.			
3. High shifting forces.				
<ol> <li>Checked accumulator g pilot pressure.</li> </ol>	guarantees maximum			100
5. Powerful return force the	anks to the			
combination of mechan	nical and air springs.			
6. Bonded spool with mini			0	200
in a glass-like finished b			· · · · · ·	2 C
7. Wiping effect eliminate 8. Pilot valve with balance				55

 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
Valve less b	ase	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
sub-base	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
1/ <b>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
sub-base	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
3/8″ NPTF	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
sub-base	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
1/2″ NPTF	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.

		<b>X Y</b> DA		900
				82
XX	Voltage	Y	Manual operator	
	120/60, 110/50	1	Non-locking	6300
	240/60, 220/50 24/60, 24/50	2	Locking	0500
	24/60, 24/50 24 VDC (2.5 W)			4500
87	24 VDC (17.1 W)			6500
61	24 VDC (8.5 W)			
Other on	otions available, see page 357.			6600
	-XXX-PMXXYDA			1300
03110-	- For piped pilot exhaust replace M by P.			800
	- For bottom ports (excluding 1/2"), replace     - For side ports with lights on base, replace b	oy 2 (sgl. ligh	nt), by 5 (sgl. light), by 6 (dbl. light). nt), by 3 (dbl. light). page 293 for use with sandwich regulators), replace by 6.	ISO 1 ISO 2
√ote : 1. Tł	he valve less base is always the same for internal or external pilo	ot. These option	ns are effected in the base.	<b>ISO 3</b>
2. To	o order bases without the valve, choose the base from the above	table, then add	d 6300D as a prefix. Example 6300D-111.	MAC 125A
				MAC 250A
				MAC 500A

56

57





Fluid :	Compressed air, vacu	um, inert gases		
Pressure range :	Internal pilot : single c	pperator and 3 positions :	25-150 PSI double operator : 10-150 PSI	
	External pilot : vacuur	n to 1 <i>5</i> 0 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 p	oint lubricant (between 180°F to 210°F)	
Filtration :	40 µ			
Temperature range :	0°F to 120°F (-18°C to	o 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> )			
Coil :	Epoxy encapsulated -	class A wires - Continuou	s duty.	
Voltage range :	-15% to +10% of nom	inal 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	

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.

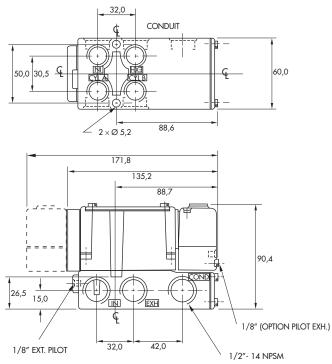
• Mounting screw valve to base (x4) : 35303.

Options :

• BSPP threads.

# DIMENSIONS

Dimensions shown are metric (mm)



OPERATIONAL BENEFITS				<u> </u>
4/2 - 4/3	3/8" - 1/2"	3.0 C <sub>v</sub>	sub-base non "plug-in"	
Function	Port size	Floш (Max)	Manifold mounting	Series
© Beries 6300	Direct sol	enoid and	solenoid pilot	operated valves

- 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
Valve less b	ase	6312D-000-PM- <b>XXYZZ</b>	6322D-000-PM- <b>XXYZZ</b>	6332D-000-PM- <b>XXYZZ</b>	6342D-000-PM- <b>XXYZZ</b>	6352D-000-PM- <b>XXYZZ</b>
sub-base	Internal	6312D-531-PM- <b>XXYZZ</b>	6322D-531-PM- <b>XXYZZ</b>	6332D-531-PM- <b>XXYZZ</b>	6342D-531-PM- <b>XXYZZ</b>	6352D-531-PM- <b>XXYZZ</b>
3/8″ NPTF	External	6312D-541-PM- <b>XXYZZ</b>	6322D-541-PM- <b>XXYZZ</b>	6332D-541-PM- <b>XXYZZ</b>	6342D-541-PM- <b>XXYZZ</b>	6352D-541-PM- <b>XXYZZ</b>
sub-base	Internal	6312D-631-PM- <b>XXYZZ</b>	6322D-631-PM- <b>XXYZZ</b>	6332D-631-PM- <b>XXYZZ</b>	6342D-631-PM- <b>XXYZZ</b>	6352D-631-PM- <b>XXYZZ</b>
1/2″ NPTF	External	6312D-641-PM- <b>XXYZZ</b>	6322D-641-PM- <b>XXYZZ</b>	6332D-641-PM- <b>XXYZZ</b>	6342D-641-PM- <b>XXYZZ</b>	6352D-641-PM- <b>XXYZZ</b>

<u>XX Y ZZ</u>`

Note : Above codes shown are for side cylinder ports.

# SOLENOID OPERATOR ►

						900
xx	Voltage	Y	Manual operator	ZZ	Electrical connection	
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector	82
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light	
22	24/60, 24/50		ž	JA	Square connector	-
59	24 VDC (2.5 W)	-		JC	Square connector with light	
87	24 VDC (17.1 W)	-		BA	Flying leads (18″)	- 630
61	24 VDC (8.5 W)	-				-
thore	notions available, see page 357	-		Note : Ph	oto shown with JC connector.	650

Other options available, see page 357.

#### OPTIONS

6312D-XXX-PM-xxyzz
--------------------

- 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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5

700

6600

1300

800

**ISO 1** 

ISO 2

**ISO 3** 

**MAC 125A** 





Fluid :	Compressed air, vacuum, inert gases
ressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
•	External pilot : vacuum to 150 PSI
ilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
ubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Itration :	40 µ
emperature range :	0°F to 120°F (-18°C to 50°C)
low (at 6 bar, ΔP=1bar) :	3/8" : (2.6 C <sub>v</sub> ), 1/2" (3.0 C <sub>v</sub> )
oil :	Epoxy encapsulated - class A wires - Continuous duty.
oltage range :	-15% to +10% of nominal voltage
rotection :	Consult factory
ower:	~ 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
Options :	
DIMENSIONS	· · · · · · · · · · · · · · · · · · ·
DIMENSIONS	
DIMENSIONS	· · · · · · · · · · · · · · · · · · ·
DIMENSIONS	
DIMENSIONS	56,0 56,0 201,4 112,1 53,0 44,0 21,0 21,0 21,0 201,4 20,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
DIMENSIONS	56,0 56,0 201,4 53,0 44,0 21,0 29,0 29,0 29,0 35,
DIMENSIONS	56,0 56,0 201,4 53,0 44,0 21,0 21,0 21,0 21,0 20,0 20,4 0 0 0 0 0 0 0 0
DIMENSIONS	$56.0 + 201.4 + 1/2^{10} + 1/2^{$
DIMENSIONS	$\begin{array}{c} & & & & & & & \\ \hline & & & & & \\ \hline & & & &$
DIMENSIONS	$\begin{array}{c} & & & & & & & \\ \hline & & & & & \\ \hline & & & &$
DIMENSIONS	$\begin{array}{c} & & & & & & & & & \\ \hline & & & & & & & \\ \hline & & & &$
DIMENSIONS	$\frac{56,0}{12,0}$
DIMENSIONS	$\frac{56,0}{44,0} \xrightarrow{201,4} \xrightarrow{-31,0}{112,1}$

119,0

-

∑ 2ר6,5

# 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
Valve less b	ase	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
sub-base	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
3/8″ NPTF	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
sub-base	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
1/ <b>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.

#### XX Y DA \* SOLENOID OPERATOR ► 900 XX Voltage **Manual operator** 120/60, 110/50 240/60, 220/50 24/60, 24/50 Non-locking Locking 82 11 1 12 22 59 24 VDC (2.5 W) 6300 24 VDC (17.1 W) 24 VDC (8.5 W) 87 61 6500

Other options available, see page 357.

#### OPTIONS

# 

631 ID-XXX-PM-XXYDA	
- For piped pilot exhaust replace M by P.	1300
<ul> <li>For bottom cylinder ports, replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).</li> <li>For side cylinder ports with light, replace by 2 (sgl. light), by 3 (dbl. light).</li> <li>For bottom and side cylinder ports, replace by 7 (no light), by 8 (sgl. light), by 9 (dbl. light).</li> </ul>	800
<ul> <li>For lights on valve body, replace by 3.</li> <li>For dual pressure valves with lights on valve body (see page 293 for use with sandwich regulators), replace by 6.</li> </ul>	ISO 1
MODIFICATIONS - MOD 0210 Bottom inlet port in addition to side inlet port - TO ORDER : 6311D-511-PM-111DA MOD 0210	ISO 2
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.	ISO 3
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	MAC 125A
valves in the manifold whether single or double solenoid.	MAC OFOR

<sup>4.</sup> Manifolds for solenoid and remote air operated valves must be ganged separately.

100

200

55 56

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700

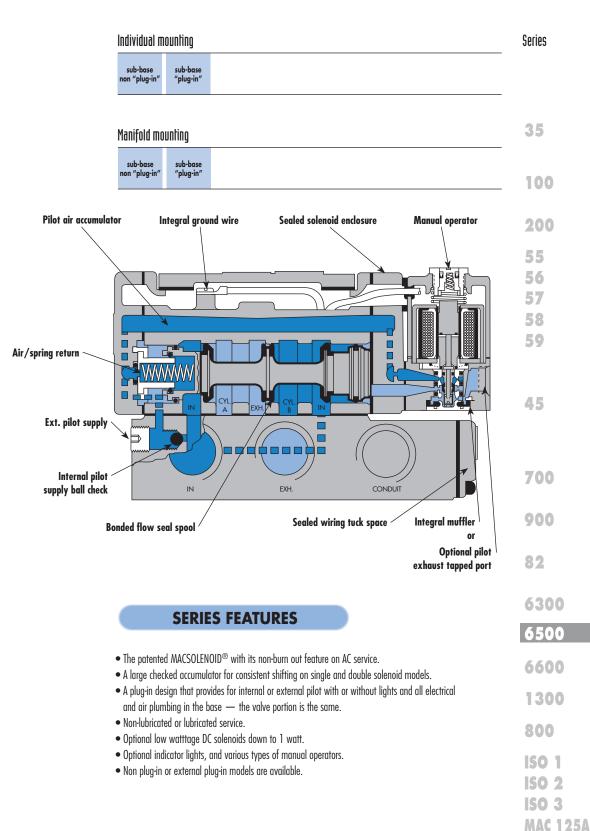




luid :	Compressed air, vacuum, inert gases						
essure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI						
	External pilot : vacuum to 150 PSI						
ot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI						
brication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)						
Itration :	40 µ						
mperature range :	0°F to 120°F (-18°C to 50°C)						
ow (at 6 bar, ΔP=1bar) :	3/8" : (2.6 C <sub>v</sub> ), 1/2" (3.0 C <sub>v</sub> )						
oil :	Epoxy encapsulated - class A wires - Continuous duty.						
oltage range :	-15% to +10% of nominal voltage						
rotection :	Consult factory						
ower:	~ 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						
	• BSPP threads.						
DIMENSIONS	• BSPP threads. Dimensions shown are metric 410 101,0 1/2" (OPTION) 5.0 10,0						
Options : DIMENSIONS	Dimensions shown are metr 41,0 1/2" (OPTION) 5,0 18,0 18,0 101,0 100,0						

1/8" COMMON EXT PILOT (OPTION)



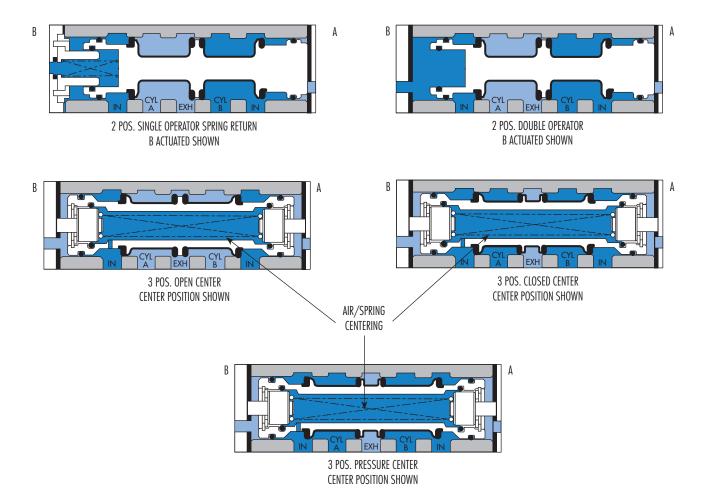


MAC 250A MAC 500A





# **SPOOL CONFIGURATIONS**



# **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 larged 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

4/2 - 4/3	3/8" - 1/2" - 3/4"	5.1 C <sub>v</sub>	sub-base non "plug-in"	
Function	Port size	Flow (Max)	Individual mounting	Series
© Series 6500	Direct soler	ioidandso	olenoid pilot oper	ated valves

- 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
Valve less b	ase	6512B-000-PM- <b>XXYZZ</b>	6522B-000-PM- <b>XXYZZ</b>	6532B-000-PM- <b>XXYZZ</b>	6542B-000-PM- <b>XXYZZ</b>	6552B-000-PM- <b>XXYZZ</b>
sub-base	Internal	6512B-131-PM- <b>XXYZZ</b>	6522B-131-PM- <b>XXYZZ</b>	6532B-131-PM- <b>XXYZZ</b>	6542B-131-PM- <b>XXYZZ</b>	6552B-131-PM- <b>XXYZZ</b>
3/8″ NPTF	External	6512B-141-PM- <b>XXYZZ</b>	6522B-141-PM- <b>XXYZZ</b>	6532B-141-PM- <b>XXYZZ</b>	6542B-141-PM- <b>XXYZZ</b>	6552B-141-PM- <b>XXYZZ</b>
sub-base	Internal	6512B-231-PM- <b>XXYZZ</b>	6522B-231-PM- <b>XXYZZ</b>	6532B-231-PM- <b>XXYZZ</b>	6542B-231-PM- <b>XXYZZ</b>	6552B-231-PM- <b>XXYZZ</b>
1/2″ NPTF	External	6512B-241-PM- <b>XXYZZ</b>	6522B-241-PM- <b>XXYZZ</b>	6532B-241-PM- <b>XXYZZ</b>	6542B-241-PM- <b>XXYZZ</b>	6552B-241-PM- <b>XXYZZ</b>
sub-base	Internal	6512B-331-PM- <b>XXYZZ</b>	6522B-331-PM- <b>XXYZZ</b>	6532B-331-PM- <b>XXYZZ</b>	6542B-331-PM- <b>XXYZZ</b>	6552B-331-PM- <b>XXYZZ</b>
3/4″ NPTF	External	6512B-341-PM- <b>XXYZZ</b>	6522B-341-PM- <b>XXYZZ</b>	6532B-341-PM- <b>XXYZZ</b>	6542B-341-PM- <b>XXYZZ</b>	6552B-341-PM- <b>XXYZZ</b>

<u>XX Y ZZ</u>\*

Note : Above codes shown are for side ports.

# SOLENOID OPERATOR ►

x	Voltage	Y	Manual operator	ZZ	Electrical connection	82
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector	
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light	_ 630
22	24/60, 24/50		ž	JA	Square connector	
59	24 VDC (2.5 W)			JC	Square connector with light	
37	24 VDC (17.1 W)			BA	Flying leads (18")	- 650
51	24 VDC (8.5 W)				noto shown with JC connector.	

#### OPTIONS

#### 6512B-XX<u>X</u>-P<u>M-xxyzz</u>

For piped pilot exhaust replace M by P.

- - For dual pressure valve, replace by 4.

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

te :	1. The valve less base is always the same for	<b>ISO</b> 1
	internal or external pilot. These options are	<b>ISO 2</b>
	effected in the base.	
	<ol><li>Bottom ports : Refer to modification table.</li></ol>	<b>ISO 3</b>
	3. To order bases without the valve, choose the	19V J
	base from the above table, then add 6500B as a	MAG 10
	prefix. Example 6500B-131.	MAC 12

25A **MAC 250A MAC 500A** 

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900

1300





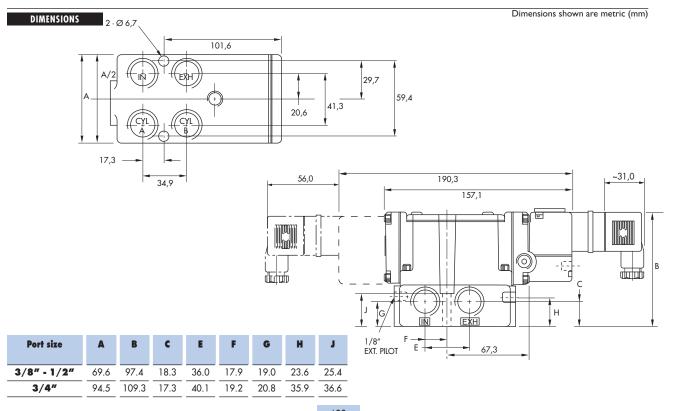
TECHNICAL DATA		
Fluid :	Compressed air, vacuum, inert gases	-
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI	
	External pilot : vacuum to 1.50 PSI	
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI	
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, $\Delta P=1bar$ ) :	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.



°
Series 6500

		Port size	Flow (Max)		Individual mounting		Series
/2 - 4/3		3/8" - 1/2"	- 3/4″ 5.1 C <sub>v</sub>		sub-base "plug-in"		
PERATIONAL BEN	IEFITS						
<ul> <li>Balanced spool pressure.</li> <li>Short stroke with</li> <li>High shifting for</li> </ul>	h high flow.	ariations of					35
Checked accum pilot pressure. Powerful return	nulator guaran force thanks to	to the			0		100
combination of Bonded spool v in a glass-like fi	with minimum inished bore.	friction, shifting			De e	1. 0	200
. Wiping effect e . Pilot valve with					0		55
short and consis						N	56
HOW TO ORDE	R					p.	57
	Pilot gir	<b>a</b> / <b>a</b>		6/0	<b>5</b> / <b>0</b>	<b>6</b> / <b>0</b>	58
Port size	Pilot dir	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center	59
							97
Valve less b	ase	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	
sub-base	Internal	6511B-111-PM- <b>XXY</b> DA	6521B-111-PM- <b>XXY</b> DA	6531B-111-PM- <b>ххү</b> DA	6541B-111-PM- <b>XXY</b> DA	6551B-111-PM- <b>XXY</b> DA	45
3/8" NPTF	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	
	Internal	6511B-211-PM- <b>XXY</b> DA	6521B-211-PM- <b>XXY</b> DA	6531B-211-PM-XXYDA	6541B-211-PM-XXYDA	6551B-211-PM-XXYDA	
sub-base	<b>F</b>				6541B-221-PM- <b>XXY</b> DA	6551B-221-PM- <b>XXY</b> DA	
1/2" NPTF	External	6511B-221-PM-XXYDA	6521B-221-PM-XXYDA	6531B-221-PM-XXYDA			
1/2" NPTF sub-base	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	700
1/2" NPTF	· ·						700
1/2" NPTF sub-base 3/4" NPTF	Internal External	6511B-311-PM- <b>XXY</b> DA	6521B-311-PM- <b>XXYD</b> A 6521B-321-PM- <b>XXYD</b> A	6531B-311-PM- <b>XXY</b> DA	6541B-311-PM- <b>XXY</b> DA	6551B-311-PM- <b>XXY</b> DA	
1/2" NPTF sub-base 3/4" NPTF	Internal External es shown are	6511B-311-PM- <b>xxy</b> DA 6511B-321-PM- <b>xxy</b> DA	6521B-311-PM- <b>XXYD</b> A 6521B-321-PM- <b>XXYD</b> A	6531B-311-PM- <b>ххү</b> DA 6531B-321-PM- <b>ххү</b> DA	6541B-311-PM- <b>XXY</b> DA	6551B-311-PM- <b>XXY</b> DA	700 900
1/2" NPTF sub-base 3/4" NPTF Note : Above code	Internal External es shown are	6511B-311-PM- <b>xxy</b> DA 6511B-321-PM- <b>xxy</b> DA	6521B-311-PM- <b>XXYDA</b> 6521B-321-PM- <b>XXYDA</b> ts.	6531B-311-PM- <b>ххү</b> DA 6531B-321-PM- <b>ххү</b> DA	6541B-311-PM- <b>XXY</b> DA	6551B-311-PM- <b>XXY</b> DA	
1/2" NPTF sub-base 3/4" NPTF Note : Above code	External External es shown are PERATOR >	6511B-311-PM- <b>xxy</b> DA 6511B-321-PM- <b>xxy</b> DA	6521B-311-PM- <b>XXYDA</b> 6521B-321-PM- <b>XXYDA</b> ts.	6531B-311-PM- <b>ххү</b> DA 6531B-321-PM- <b>ххү</b> DA	6541B-311-PM- <b>хх</b> үDA 6541B-321-PM- <b>хх</b> үDA	6551B-311-PM- <b>XXY</b> DA	900
1/2" NPTF sub-base 3/4" NPTF Note : Above code COLENOID OP XX Volte 11 120/6	Internal External es shown are PERATOR > age 0, 110/50	6511B-311-PM- <b>xxy</b> DA 6511B-321-PM- <b>xxy</b> DA	6521B-311-PM- <b>XXYDA</b> 6521B-321-PM- <b>XXYDA</b> ts.	6531B-311-PM-xxyDA 6531B-321-PM-xxyDA DA * Y Manual oper I Non-locking	6541B-311-PM- <b>хх</b> үDA 6541B-321-PM- <b>хх</b> үDA	6551B-311-PM- <b>XXY</b> DA	900 82
1/2" NPTF sub-base 3/4" NPTF Note : Above code SOLENOID OP XX Volte 11 120/6 12 240/6	Internal External es shown are PERATOR > 0, 110/50 0, 220/50	6511B-311-PM- <b>xxy</b> DA 6511B-321-PM- <b>xxy</b> DA	6521B-311-PM- <b>XXYDA</b> 6521B-321-PM- <b>XXYDA</b> ts.	6531B-311-PM-xxyDA 6531B-321-PM-xxyDA DA * Y Manual oper	6541B-311-PM- <b>хх</b> үDA 6541B-321-PM- <b>хх</b> үDA	6551B-311-PM- <b>XXY</b> DA	900
1/2" NPTF sub-base 3/4" NPTF lote : Above code OLENOID OP XX Volte 11 120/6 12 240/6 22 24/60 59 24 VDE	Internal External es shown are PERATOR > age 0, 110/50	6511B-311-PM- <b>xxy</b> DA 6511B-321-PM- <b>xxy</b> DA	6521B-311-PM- <b>XXYDA</b> 6521B-321-PM- <b>XXYDA</b> ts.	6531B-311-PM-xxyDA 6531B-321-PM-xxyDA DA * Y Manual oper I Non-locking	6541B-311-PM- <b>хх</b> үDA 6541B-321-PM- <b>хх</b> үDA	6551B-311-PM- <b>XXY</b> DA	900 82

\* Other options available, see page 357.

0PTI( 651]B-X	XX-PM-xxYDA - For piped pilot exhaust replace M - For dual pressure valve replace by by 5 (sgl. light), by 6 (dbl. light). - For lights on base, replace by 2 (sg - For lights on valve body, replace b	-		1300 800 ISO 1 ISO 2
	MODIFICATIONS	,	Note : 1. The valve less base is always the same for internal or external pilot. These options are	150 3
MOD. Nº	DESCRIPTION	MODEL AVAILABILITY	effected in the base. 2. Bottom ports : Refer to modification table.	MAC 125A
0002	Bottom inlet, exh. & cyl. ports (no side ports)	Available on individual base 3/8" & 1/2" only	3. To order bases without the valve, choose the	MAC 250A
0004	Full side porting and additional bottom inlet, exh. & cyl. ports	Available on individual base 3/8" only	base from the above table, then add 6500B as a prefix. Example 6500B-111.	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=1ba	r): 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
Options : DIMENSIONS	BSPP threads.  Dimensions shown are metric (mm)
	93,9 41,3 29,7 59,4 59,4
Port size	A B C D E F G H J $190.3$
3/8" - 1/2"	69.6 97.4 18.3 40.6 36.0 17.9 19.0 23.6 25.4
3/4"	94.5         109.3         17.3         46.7         40.1         19.2         20.8         35.9         36.6
· · · · · · · · · · · · · · · · · · ·	

©
Series 6500

A + A d 3 $3/8 + 1/2' + 3/4''$ $5.1 \text{ G}_{0}$ <b>PUIDUE UIEDE Example of the set of th</b>	unction		Port size	Flow (Max)		Manifold mounting		Series
Belanced spool, immune to variations of presses.     35       Shot stack with high flow.     100       Rocked accountion of mechanics of and in springs.     36       Shodd shoot with minimum friction, shings     36       Nor stack finished box.     100       Wigh effect leftminum friction, shings     100       Shodd shoot with biolanced poper, high flow, shot and constant response limits.     100       Nor anstant response limits.     1000	/2 - 4/3		3/8" - 1/2"	- 3/4″ 5.1 C <sub>v</sub>				
pressure.     000       Stort at King high Rux.     000       Checked accountation for machanical and air spings.     000       Stord at Space with high Rux.     000       Stord at Rux.	ERATIONAL BEN	EFITS						
Chicked accumulator guarantees maximum       100         Powerful return force thanks to the combination of mechanical and air springs.       100         Bonded spool with minimum fiction, shifting in a glassifie finitheet bestweet.       100         Withing affect eliminetee striking.       100         Pilot return for thanks to the combination of mechanical and air springs.       100         Stort of Constraint engonse liminetee striking.       100         Pilot velow with bolanced poppet, high flow, short of constraint engonse liminetees striking.       100         Pilot velow with bolanced poppet, high flow, short of constraint engonse liminetees striking.       100         Pilot velow with bolanced poppet, high flow, short of constraint engonse liminetees strike for the strike of t	pressure. Short stroke wit	h high flow.	ariations of			Æ	31	35
combinition of mechanical and air spring. Mained spectration, shifting an aglass-like finithed bore. Mained state finithed bore.       200         Mained spectration, shifting an aglass-like finithed bore. Mained state response times.       200         Div volve with bolenced popper, high flow, hor volve with volve with light 1000 km, xxrzz dosza kal PM-xxrzz dosza kal PM-xxrz dosza kal PM-xxrzz dosza kal PM-xxrz dos	Checked accum pilot pressure.	ulator guarar				1		100
Vibil value with balanced popping, high flow, hort and consistent response times. 56 <b>DV TO ODDER Prist size Pint int 4/2 4/2 4/3 4/3 4/3 4/3 6/3 Vibil value Pint size Pint int 4/2 4/2 1000 bile operator /b>	combination of Bonded spools n a glass-like fi	mechanical o with minimum nished bore.	and air springs. friction, shifting			The second	500	200
abort and consistent response times.       56 <b>DVUT 10 OBDET 1 Part size Pile or 1</b>								55
Port size         Piist sir         4/2         4/2         4/2         4/3         4/3         4/3         4/3         Pressure center         58           y w v less base         65128-000 PM: xyrzz         65228-000 PM: x							1 And	56
Single operator         Double operator         Closed center         Open center         Pressure center         59           Arget A	HOW TO ORDE	R					-	57
Single operator       Double operator       Closed center       Open center       Pressure center       59         Arge Arge Arge Arge Arge Arge Arge Arge			4/2	4/2	4/3	4/3	4/3	
Image: Application of the set of th	POTT SIZE	riioi uii			•			
sub-base         Internal         65128-431-PM-XXYZZ         65228-431-PM-XXYZZ         65328-431-PM-XXYZZ         65428-431-PM-XXYZZ         65528-431-PM-XXYZZ         65528-531-PM-XXYZZ								97
3/8" NPTF       External       65128-441-PM-xxyzz       65228-441-PM-xxyzz       65328-441-PM-xxyzz       65528-441-PM-xxyzz       65528-441-PM-xxyzz       65528-441-PM-xxyzz       65528-531-PM-xxyzz       65528-631-PM-xxyzz       65528-641-PM-xxyzz       65528-641-PM-xyzyzz       65528-641-PM-xyzzz	Valve less b	ase		6522B-000-PM- <b>XXYZZ</b>		6542B-000-PM- <b>XXYZZ</b>	6552B-000-PM- <b>XXYZZ</b>	
sub-baseInternal6512b-531-PM-xxrzz6522b-531-PM-xxrzz6522b-531-PM-xxrzz6552b-631-PM-xxrzz6552b-631-PM-xxrzz6552b-631-PM-xxrzz6552b-631-PM-xxrzz6552b-641-PM-xxrzz652B-641-								45
1/2" NPTF       External       65128-541-PM-XXYZZ       65228-541-PM-XXYZZ       65328-541-PM-XXYZZ       65528-541-PM-XXYZZ       65528-531-PM-XXYZZ       65528-631-PM-XXYZZ       65528-631-PM-XXYZZ       65528-631-PM-XXYZZ       65528-631-PM-XXYZZ       65528-641-PM-XXYZZ	,							
sub-base       Internal       65128-631-PM-XXYZZ       65328-631-PM-XXYZZ       65328-631-PM-XXYZZ       65528-631-PM-XXYZZ       65528-631-PM-XXYZZ       65528-631-PM-XXYZZ       65528-631-PM-XXYZZ       65528-631-PM-XXYZZ       65528-641-PM-XXYZZ								
3/4" NPTF External 65128-641-PM-XXYZZ 65228-641-PM-XXYZZ 65328-641-PM-XXYZZ 65328-641-PM-XXYZZ 65528-641-PM-XXYZZ 65528-641-PM-XXYZZ 65528-641-PM-XXYZZ 65528-641-PM-XXYZZ 900   obte : Above codes shown are for side cylinder ports. XX YZZ' 900 82   XX Voltage Y Manual operator ZZ Electrical connection 82   11 120/60, 110/50 1 Non-locking JB Rectangular connector 6300   12 240/60, 220/50 2 Locking JD Rectangular connector 6300   22 24/60, 24/50 2 Locking JA Square connector 6300   59 24 VDC (17.1 W) JA Square connector 6500 6500   61 24 VDC (8.5 W) Note : Photo shown with JC connector. 66000   OPTIONS   65128-XXXPPM_XXYZZ	,							
0/2       WTT       Extendit       00120 041 mm XM12       00220 041 mm XM12       00320 041 mm XM12       03300       00300       00300       0300 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>700</td>								700
XX         Voltage         Y         Manual operator         ZZ         Electrical connection           11         120/60, 110/50         1         Non-locking         JB         Rectangular connector         6300           12         240/60, 220/50         2         Locking         JD         Rectangular connector         6300           22         24/60, 24/50         3A         Square connector         JC         Square connector         6300           59         24 VDC (2.5 W)         JA         Square connector         JC         Square connector         6500         6500         6500         6500         6500         6500         6512B-XXX-PM-XXYZZ         I300         6512B-XXX-PM-XXYZZ         I300         1300	ote : Above code	es shown are				0042010411111777122	00020-041111-04122	
XX         Voltage         Y         Manual operator         ZZ         Electrical connection           11         120/60, 110/50         1         Non-locking         JB         Rectangular connector         6300           12         240/60, 220/50         2         Locking         JD         Rectangular connector         6300           22         24/60, 24/50         3A         Square connector         JC         Square connector         6300           59         24 VDC (2.5 W)         JA         Square connector         JC         Square connector         6500         6500         6500         6500         6500         6500         6512B-XXX-PM-XXYZZ         I300         6512B-XXX-PM-XXYZZ         I300         1300				]	·			00
11       120/60, 110/50       1       Non-locking       JB       Rectangular connector         12       240/60, 220/50       2       Locking       JD       Rectangular connector with light       6300         22       24/60, 24/50       JA       Square connector       JC       Square connector       6500         59       24 VDC (2.5 W)       BA       Flying leads (18")       6500       6500       6500         61       24 VDC (8.5 W)       Note : Photo shown with JC connector.       6600       6500       6500       6500       6600         OPTIONS         6512B-XXX-PM-xxyzz	XX Volte	ige		Y Manual opera	ator	ZZ Electrical co	nnection	04
22       24/60, 24/50       JA       Square connector         59       24 VDC [2.5 W)       JC       Square connectorwith light       6500         87       24 VDC (17.1 W)       BA       Flying leads (18'')       6500         61       24 VDC (8.5 W)       Note : Photo shown with JC connector.       6600         0ther options available, see page 357.       1300         6512B-XXX-PM-XXYZZ       1300	11 120/6	0, 110/50						
59       24 VDC (2.5 W)       JC       Square connectorwith light         87       24 VDC (17.1 W)       BA       Flying leads (18")       6500         61       24 VDC (8.5 W)       Note : Photo shown with JC connector.       6600         Other options available, see page 357.       6512B-XXX-PM-XXYZZ       1300				2 Locking				6300
61     24 VDC (8.5 W)       Other options available, see page 357.     6600       OPTIONS     1300	59 24 VD	C (2.5 W)				JC Square connector	rwith light	6500
Other options available, see page 357. 6600 OPTIONS 6512B-XXX-PM-xxyzz						/ 0 /		0500
6512B-XXX-PM-XXYZZ			page 357.			Note : Photo shown with JC	connector.	6600
		¥77						1300
	0.5120-7/7-1/1-7/		d pilot exhaust replace	M by P.				800

- For dual pressure valve, replace by 4.

	MODIFICATIONS	
MOD. N°	DESCRIPTION	MODEL AVAILABILITY
0112	Side inlet & exhaust with bottom cyl. ports (No end cyl. ports)	Available on all manifold models
0210	Porting as ordered in model number plus an additional bottom inlet	Available on all manifold models
0364	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.
   ISO 1

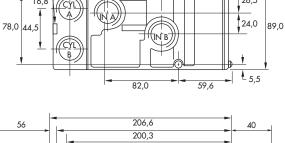
   2. Bottom ports : Refer to modification table.
   ISO 2

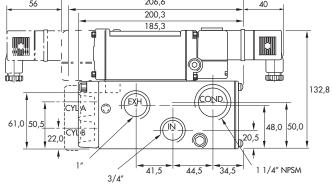
   3. To order manifolds without the valve, choose the manifold from the above table, then add 6500B
   ISO 3
  - manitold trom the above table, then add 650 as a prefix. Example 6500B-431.





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 :	<ul> <li>Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.</li> <li>Pilot valve : PME-XXYZZ, including seal 16337.</li> <li>Pressure seal between valve and base : 16246.</li> <li>Mounting screw valve to base (x4) : 32201.</li> <li>Tie-rod (x2) : 19540.</li> <li>Fastening kit : N-65002-01</li> <li>Inlet isolator : 28309.</li> <li>Exhaust isolator : 28310.</li> <li>Blank station cover plate : N-65009.</li> </ul>
Options :	• BSPP threads.
DIMENSIONS	Dimensions shown are metric (m
	1/8" EXT. PILOT /- 2 × Ø 6,7
	42,3 → 60,0 → 79,0 → 16,8 (1) ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓





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Series 6500

unction		Port size	Flow (Max)		Manifold mounting		Series
/2 - 4/3		3/8" - 1/2"	- 3/4″ 5.1 C <sub>v</sub>		sub-base "plug-in"		
ERATIONAL BEN	IEFITS						
Balanced spool pressure. Short stroke wit High shifting fo	h high flow.	rariations of					35
Checked accum pilot pressure. Powerful return	nulator guarar force thanks t					10	100
	with minimum	and air springs. 1 friction, shifting			Dinar (C	5.	200
Niping effect e		king. opet, high flow,					55
hort and consi							56
HOW TO ORDE	R						57
			- /-	- /-	- 1-	- 14	58
Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center	
							59
Valve less b	ase	6511B-000-PM-XXYDA	6521B-000-PM-XXYDA	6531B-000-PM- <b>XXY</b> DA	6541B-000-PM- <b>XXY</b> DA	6551B-000-PM- <b>XXY</b> DA	
sub-base	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	45
8" NPTF	External	6511B-421-PM- <b>XXY</b> DA	6521B-421-PM- <b>ххү</b> DA	6531B-421-PM- <b>xxy</b> DA	6541В-421-РМ- <b>ххү</b> DA	6551B-421-PM- <b>xxy</b> DA	
sub-base	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	
2″ NPTF	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	
sub-base	Internal	6511B-611-PM- <b>XXY</b> DA	6521В-611-РМ- <b>ххү</b> DA	6531B-611-PM- <b>XXY</b> DA	6541B-611-PM- <b>XXY</b> DA	6551B-611-PM- <b>XXY</b> DA	700
<b>/4″ NPTF</b>	External	6511B-621-PM- <b>XXY</b> DA	6521В-621-РМ- <b>ххү</b> DA	6531B-621-PM- <b>XXY</b> DA	6541B-621-PM- <b>ххү</b> DA	6551B-621-PM- <b>XXY</b> DA	/00
: Above code	es shown are	for side cylinder ports with	nout lights.				
			VVV				900
lenoid op	ERATOR >		<u>XX</u> Y	DA			
				7			82
XX Volte	Ide			Y Manual ope	rator		
	0, 110/50			Non-locking			
12 240/6	0, 220/50			2 Locking			6300
	, 24/50 C (2.5 W)						6500
87 24 VD	C (17.1 W)						0500
61 24 VD	C (8.5 W)						

	ions available, see page 357.			6600
OPTIC	DNS			1300
651 <u>1</u> B-XX	XX-PM-XXYDA - For piped pilot exhaust replace M by P. - For lights on valve body, replace by 3.	For dual pressure valv	e replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).	800
	- For lights on valve body, replace by 5.	- For lights on manifold	, replace by 2 (sgl. light), by 3 (dbl. light).	ISO 1
	MODIFICATIONS		Note : 1. The valve less base is always the same for	100 0
MOD. N°	MODIFICATIONS DESCRIPTION	MODEL AVAILABILITY	internal or external pilot. These options are effected in the manifold.	ISO 2
MOD. N° 0112		MODEL AVAILABILITY Available on all manifold models	internal or external pilot. These options are effected in the manifold. 2. Bottom ports : Refer to modification table.	ISO 2 ISO 3
	DESCRIPTION		internal or external pilot. These options are effected in the manifold.	
0112	DESCRIPTION           Side inlet & exhaust with bottom cyl. ports (No end cyl. ports)           Porting as ordered in model number plus an additional	Available on all manifold models	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	150 3





Fluid :	Compressed air, vacuum, inert gases
ressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI
lot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
ubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Itration :	40 µ
emperature range :	0°F to 120°F (-18°C to 50°C)
low (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> )
oil :	Epoxy encapsulated - class A wires - Continuous duty
oltage range :	-15% to +10% of nominal voltage
rotection :	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
Intions :	<ul> <li>Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01</li> <li>Inlet isolator : 28309. • Exhaust isolator : 28310. • Blank station cover plate : N-65009.</li> <li>BSPP threads</li> </ul>
Options : DIMENSIONS	<ul> <li>Inlet isolator : 28309.</li> <li>Exhaust isolator : 28310.</li> <li>Blank station cover plate : N-65009.</li> <li>BSPP threads.</li> </ul>
·	<ul> <li>Inlet isolator : 28309.</li> <li>Exhaust isolator : 28310.</li> <li>Blank station cover plate : N-65009.</li> <li>BSPP threads.</li> </ul>
	<ul> <li>Inlet isolator : 28309.</li> <li>Exhaust isolator : 28310.</li> <li>BSPP threads.</li> </ul> Dimensions shown are metric 1/8"

41,5

O

44,5

20,5

34,5

Å

48,0 50,0

11/4" NPSM

CYLA

1″

22,0 CYL B

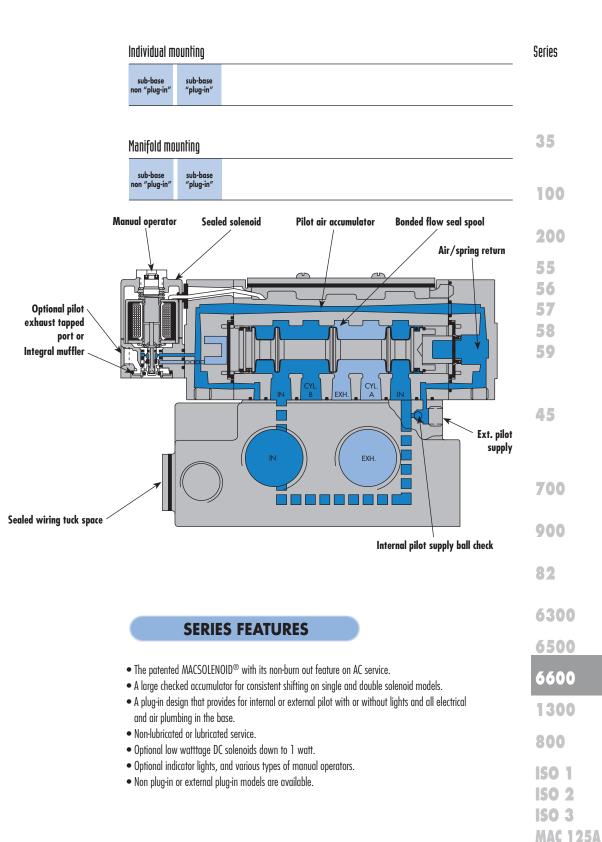
i,

61,0 50,5

0

3/4″



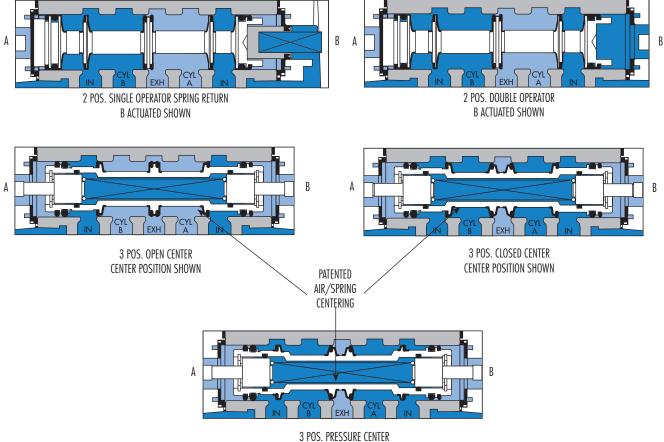


MAC 250A MAC 500A





# **SPOOL CONFIGURATIONS**



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 larged 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.

	D	į	٢
m			
Geries 6600			

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

#### **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
Valve less b	ase	6612A-000-PM- <b>XXYZZ</b>	6622A-000-PM- <b>XXYZZ</b>	6632A-000-PM- <b>XXYZZ</b>	6642A-000-PM- <b>XXYZZ</b>	6652A-000-PM- <b>XXYZZ</b>
sub-base	Internal	6612A-231-PM- <b>XXYZZ</b>	6622A-231-PM- <b>XXYZZ</b>	6632A-231-PM- <b>XXYZZ</b>	6642A-231-PM- <b>XXYZZ</b>	6652A-231-PM- <b>XXYZZ</b>
3/4″ NPTF	External	6612A-241-PM- <b>XXYZZ</b>	6622A-241-PM- <b>XXYZZ</b>	6632A-241-PM- <b>XXYZZ</b>	6642A-241-PM- <b>XXYZZ</b>	6652A-241-PM- <b>XXYZZ</b>
sub-base	Internal	6612A-331-PM- <b>XXYZZ</b>	6622A-331-PM- <b>XXYZZ</b>	6632A-331-PM- <b>XXYZZ</b>	6642A-331-PM- <b>XXYZZ</b>	6652A-331-PM- <b>XXYZZ</b>
1" NPTF	External	6612A-341-PM- <b>XXYZZ</b>	6622A-341-PM- <b>XXYZZ</b>	6632A-341-PM- <b>XXYZZ</b>	6642A-341-PM- <b>XXYZZ</b>	6652A-341-PM- <b>XXYZZ</b>

<u>XX Y ZZ</u>\*

Note : Above codes shown are for side ports.

# SOLENOID OPERATOR >

						000
						900
XX	Voltage	Y	Manual operator	ZZ	Electrical connection	
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector	82
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 connectorwith light	
87	24 VDC (17.1 W)			BA	Flying leads (18")	630
61	24 VDC (8.5 W)			Note : Pho	oto shown with JC connector.	

Note :

\* Other options available, see page 357.

#### OPTIONS

# 6612A-XX<u>X</u>-P<u>M</u>-**xxyzz**

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

	MODIFICATIONS	
MOD. N°	DESCRIPTION	MODEL AVAILABILITY
0002	Bottom inlet, exh. & cyl ports (side ports plugged)	3/4" individual base
0004	Full side porting and additional. Bottom inlet, exh. & cyl ports	3/4" individual base
0112	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

	1300
: 1. The valve less base is always the same for internal or external pilot. These options are effected in	800
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.	ISO 1 ISO 2
<ol> <li>2 position and 3 position valve bodies are not interchangeable.</li> </ol>	ISO 3 MAC 125A MAC 250A

35

100

200

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56

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700

6500

6600

**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 1.50 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

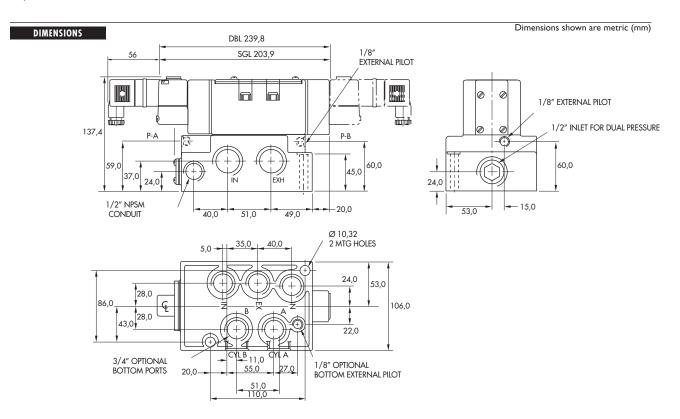
Spare parts :

• Solenoid operator (power  $\geq 4$  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.

Options :

BSPP threads.



©
H
Series 6600

Function	Port size	Flow (Max)	Individual mounting	Series
4/2 - 4/3	3/4" - 1"	9.6 C <sub>v</sub>	sub-base "plug-in"	
OPERATIONAL BENEFITS				

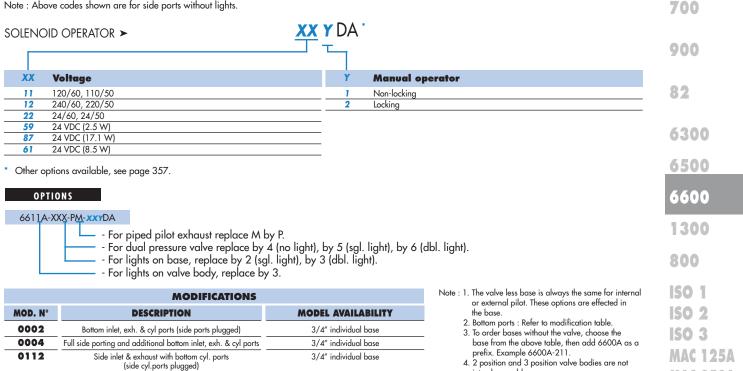
#### 1. Balanced spool, immune to variations of pressure.

- 2. Short stroke with high flow.
- 3. 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
Valve less b	ase	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
sub-base	Internal	6611A-211-PM- <b>XXY</b> DA	6621A-211-PM- <b>XXY</b> DA	6631A-211-PM- <b>XXY</b> DA	6641A-211-PM- <b>XXY</b> DA	6651A-211-PM- <b>XXY</b> DA
3/4″ NPTF	External	6611A-221-PM- <b>XXY</b> DA	6621A-221-PM- <b>XXY</b> DA	6631A-221-PM- <b>XXY</b> DA	6641A-221-PM- <b>XXY</b> DA	6651A-221-PM- <b>XXY</b> DA
sub-base	Internal	6611A-311-PM- <b>XXY</b> DA	6621A-311-PM- <b>XXY</b> DA	6631A-311-PM- <b>XXY</b> DA	6641A-311-PM- <b>XXY</b> DA	6651A-311-PM- <b>XXY</b> DA
1" NPTF	External	6611A-321-PM- <b>XXY</b> DA	6621A-321-PM- <b>XXY</b> DA	6631A-321-PM- <b>XXY</b> DA	6641A-321-PM- <b>XXY</b> DA	6651A-321-PM- <b>XXY</b> DA

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



TO ORDER - Add the appropriate modification number after the valve number; EXAMPLE : 6611A-211-PM-111DA MOD 0002

interchangeable

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200

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**MAC 250A** 

**MAC 500A** 





Fluid :	Compressed air, vacuu	m, inert gases				
Pressure range :		perator and 3 positions : 2	25-150 PSI	double operator : 1	10-150 PSI	
	External pilot : vacuum	to 150 PSI				
Pilot pressure :	Single operator and 3	positions : 25-150 PSI D	ouble operator : 10-150 PS	ji		
ubrication :	Not required, if used s	elect a medium aniline po	int lubricant (between 180°	F to 210°F)		
iltration :	40 µ					
emperature 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 - c	class A wires - Continuous	duty			
Voltage range :	-15% to +10% of nomir	nal 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 :	<ul> <li>Solenoid operator (p</li> <li>Pilot valve : PME-XX</li> </ul>	oower ≥ 4 W) : D1-XXBE YDA-BE, including seal 1	, cover mounting screws 3 6337. • Pressure seal bet	35206 and seal 16: ween valve and ba	234. 1se : 16436.	
		ve to base (x4) : 35416.				
Options :	• BSPP threads.					
					Dimensions shown are m	etric (mr
DIMENSIONS						
DIMENSIONS		239.8				
DIMENSIONS	-	239,8 203,9	1/8″	PILOT		
DIMENSIONS		,		PILOT		
DIMENSIONS		,		PILOT	1/8" EXTERNAL PILOT	

137,4 P-B P./ ÷ (Ŧ 60,0 59,0 60,0 45,0 37,0 EXH íЙ 24,0 24,0 t 1/2" NPSM . CONDUIT - 15,0 20,0 -53,0 51,0 40,0 49,0 Ø 10,32 2 MTG HOLES 35,0 40,0 5,0 -24,0 53,0 28,0 86,0 Æ 106,0 43,0 22,0 YLB 11,0 55,0 3/4" OPTIONAL BOTTOM PORTS 1/8" OPTIONAL BOTTOM EXTERNAL PILOT <u>27,0</u> 20,0-

BBB	Direct	solenoid
eries 6600		

Function		Port size	Floш (Max)		Manifold mounting		Series
/2 - 4/3		3/4" - 1" - 1	1/4" 9.6 C <sub>v</sub>		sub-base non "plug-in"		
PERATIONAL BEI	NEFITS						
Balanced spoo		rariations of				-	35
pressure. Short stroke wit High shifting fo					-		
	nulator guarar	ntees maximum to the			A	T.	100
combination of	mechanical with minimum	and air springs. friction, shifting				00	200
Wiping effect e	eliminates stick						55
		opet, high flow,				0	56
short and consi		e imes.					
HOW TO ORD	ER						57
Port size	Pilot air	4/2	4/2	4/3	4/3	4/3	58
		Single operator	Double operator	Closed center	Open center	Pressure center	59
Valve less k	ase	6612A-000-PM- <b>XXYZZ</b>	6622A-000-PM- <b>XXYZZ</b>	6632A-000-PM- <b>XXYZZ</b>	6642A-000-PM- <b>XXYZZ</b>	6652A-000-PM- <b>XXYZZ</b>	
sub-base	Internal	6612A-431-PM- <b>XXYZZ</b>	6622A-431-PM- <b>XXYZZ</b>	6632A-431-PM- <b>XXYZZ</b>	6642A-431-PM- <b>XXYZZ</b>	6652A-431-PM- <b>XXYZZ</b>	45
/4" NPTF	External	6612A-441-PM- <b>XXYZZ</b>	6622A-441-PM- <b>XXYZZ</b>	6632A-441-PM- <b>XXYZZ</b>	6642A-441-PM- <b>XXYZZ</b>	6652A-441-PM- <b>XXYZZ</b>	
sub-base	Internal	6612A-531-PM- <b>XXYZZ</b>	6622A-531-PM- <b>XXYZZ</b>	6632A-531-PM- <b>XXYZZ</b>	6642A-531-PM- <b>XXYZZ</b>	6652A-531-PM- <b>XXYZZ</b>	
1" NPTF	External	6612A-541-PM- <b>XXYZZ</b>	6622A-541-PM- <b>XXYZZ</b>	6632A-541-PM- <b>XXYZZ</b>	6642A-541-PM- <b>XXYZZ</b>	6652A-541-PM- <b>XXYZZ</b>	
sub-base	Internal	6612A-631-PM- <b>XXYZZ</b>	6622A-631-PM- <b>XXYZZ</b>	6632A-631-PM- <b>XXYZZ</b>	6642A-631-PM- <b>XXYZZ</b>	6652A-631-PM- <b>XXYZZ</b>	700
1/4" NPTF	External	6612A-641-PM- <b>XXYZZ</b>	6622A-641-PM- <b>XXYZZ</b>	6632A-641-PM- <b>XXYZZ</b>	6642A-641-PM- <b>XXYZZ</b>	6652A-641-PM- <b>XXYZZ</b>	200
te : Above cod	les shown are	for side ports.					000
DLENOID OF			XXY	(77)			900
				· T			
							82
XX Volte	-		Y Manual oper	ator	ZZ Electrical	connection	
	50, 110/50 50, 220/50		INon-locking2Locking		JB Rectangular co	onnector onnector with light	6300
	), 24/50	·	Locking		JA Square connect		0300
59 24 VD	C (2.5 W)				JC Square connec	ctorwith light	6500
	C (17.1 W) C (8.5 W)				BA Flying leads (1	· ·	
	available, see	page 357			Note : Photo shown with	JC connector.	6600
	avallable, see	page 557.					
OPTIONS							1300
612A-XXX-P <u>M-</u> x	For pipe	d pilot exhaust replace	M by P.			se is always the same for internal These options are effected in the	800
	For dual	pressure valve, replace	e by 4.		2. Bottom ports : Re	fer to modification table.	100 -
		MODIFICATI	IONS		manifold from the	ds without the valve, choose the e above table, then add 6600A	<b>ISO 1</b>
IOD. Nº		DESCRIPTION		AVAILABILITY	as a prefix. Exan 4 When ordering c	nple 6600A-431. In external pilot connection for	<b>ISO 2</b>
0210		1 1/4" Bottom inlet		availabili i inifold base	manifold bases, a	a common external pilot port is	ISO 3
0364		tom inlet, 3/4" or 1" Bottom cyl.		inifold base		onnection only is required for he manifold whether single or	
0112		on mer, 5/4 or r bollom cyr.		tanifald have	double solenoid.		MAC 125

	MODIFICATIONS		
MOD. N°	DESCRIPTION	MODEL AVAILABILITY	
0210	1 1/4" Bottom inlet	Manifold base	
0364	1 1/4" Bottom inlet, 3/4" or 1" Bottom cyl.	Manifold base	
0112	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

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

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

**MAC 250A** 

**MAC 500A** 





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						
ubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)						
iltration :	40 µ						
emperature range :	0°F to 120°F (-18°C to 50°C)						
low (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> )						
loil :	Epoxy encapsulated - class A wires - Continuous duty						
/oltage 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						
Options : DIMENSIONS	Dimensions shown are metric (mi						
	1.07.6 F MOTON CLUBER POOTS ANALARI (50 TOTAL) TO A						

1 1/4" BOTTOM INLET PORT (OPTIONAL)

30.0

z

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# **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.
- Wiping effect eliminates sticking.
   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
Valve less b	ase	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
sub-base	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
3/4″ NPTF	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
sub-base	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
1″ NPTF	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
sub-base	Internal	6611A-611-PM- <b>XXY</b> DA	6621A-611-PM- <b>XXY</b> DA	6631A-611-PM- <b>XXY</b> DA	6641А-611-РМ- <b>ххү</b> DA	6651A-611-PM- <b>xxy</b> DA
1 1/4" NPTF	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 >	XX Y DA		900
XX Ve	ltage	T	operator	82
	0/60, 110/50	1 Non-locking	-	
	0/60, 220/50	2 Locking	·	6300
	/60, 24/50			
<b>59</b> 24	VDC (2.5 W)			6500
	VDC (17.1 W)			6500
<b>61</b> 24	VDC (8.5 W)			
0PTI01 6611A-XX	NS X-PM-xxyDA - For piped pilot exhaust replace M by P For lights on valve body, replace by 3.		replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light). replace by 2 (sgl. light), by 3 (dbl. light).	1300 800
			Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.	<b>ISO 1</b>
	MODIFICATIONS		<ol> <li>Bottom ports : Refer to modification table.</li> <li>To order manifolds without the valve, choose the manifold</li> </ol>	<b>ISO 2</b>
MOD. N°	DESCRIPTION	MODEL AVAILABILITY	from the above table, then add 6600A as a prefix.	
0210	1 1/4" Bottom inlet	Manifold base	Example 6600A-411.	<b>ISO 3</b>
0364	1 1/4" Bottom inlet, 3/4" or 1" Bottom cyl.	Manifold base	<ul> <li>4. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One</li> </ul>	MAC 125A
0112	Side inlet & exhaust with bottom cyl. ports (side cyl.ports plugged)	1" Manifold base	connection only is required for all the valves in the manifold whether single or double solenoid.	MAC 125A MAC 250A
	Add the appropriate modification number after the v	alve number;	<ul> <li>5. 2 position and 3 position valve bodies are not interchangeable.</li> </ul>	MAC 500A

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



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

d valves

Series

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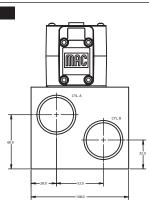


Fluid :	Compressed air, vacuu	ım, inert gases		
Pressure range :	Internal pilot : single o	perator and 3 positions : 2	25-150 PSI	double operator : 10-150 PSI
	External pilot : vacuum	n to 150 PSI		
Pilot pressure :	Single operator and 3	positions : 25-150 PSI D	ouble operator : 10-150	PSI
Lubrication :	Not required, if used	select a medium aniline po	vint lubricant (between 18	30°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	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 nomi	nal voltage		
Protection :	Consult factory			
_	~ Inrush : 14.8 VA	Holding : 10.9 VA		
Power:				
Power :	= 1 to 17.1 W			
Power : Response times :	= 1 to 17.1 W 24 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms	

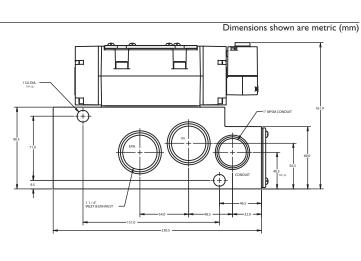
• Inlet & exhaust isolator : 28367.

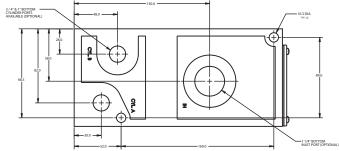
Options :

DIMENSIONS



• BSPP threads.







Individual mounting Series sub-base "plug-in" 35 100 Moisture and dust seal 200 **Pilot valve** Pilot air accumulator **Manual operator** Internal pilot supply (100 series) Ext. pilot supply 55 check valve 56 57 58 59 **Combination** air EXH. EXH. 45 and spring return EXH. 700 D 900 Electrical plug in Conduit 82 6300 **SERIES FEATURES** 6500 • The patented MACSOLENOID® with its non-burn out feature on AC service. 6600 • 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 1300 and all electrical in the base. • Non-lubricated or lubricated service. 800 • Optional indicator lights, and various types of manual operators. **ISO 1 ISO 2 ISO 3 MAC 125A MAC 250A** 

**MAC 500A** 





# **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 extrenal 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**

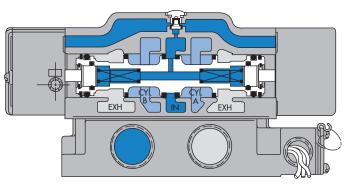
Single solenoid pilot or single air pilot operated models contain a combination spring and air assisted differential return. Supplied from the accumulator it balances the shifting forces for consistent operation and positive spool return.

#### 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 electricial 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

H	
Series 1300	

Function	Port size	Flow (Max)	Individual mounting	Series
4/2 - 4/3	3/4" - 1" - 1 1/4" - 1 1/	2″ 15.9 C <sub>v</sub>	sub-base "plug-in"	
OPERATIONAL BENEFITS				
1. Balanced spool, immune	e to variations of			35
pressure. 2. Short stroke with high flo	ow.		-	
<ol> <li>High shifting forces.</li> </ol>			and.	
4. Checked accumulator g	uarantees maximum		11 Maria	100
pilot pressure. 5. Powerful return force the	rake to the			0
combination of mechan				
6. Bonded spool with mini	imum friction, shifting			200
in a glass-like finished b				
7. Wiping effect eliminates 8. Pilot valve with balance				55

 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
Valve less base	1301G- <b>XXY</b> D- <b>XX</b>	1303G- <b>XXY</b> D-XX	1307G- <b>xxy</b> D- <b>xx</b>	1308G- <b>XXY</b> D- <b>XX</b>
Sub base 3/4" NPTF	1321G- <b>XXY</b> D- <b>XX</b>	1323G- <b>XXY</b> D- <b>XX</b>	1327G- <b>XXY</b> D- <b>XX</b>	1328G- <b>xxy</b> D- <b>xx</b>
Sub base 1" NPTF	1331G- <b>xxy</b> D- <b>xx</b>	1333G- <b>XXY</b> D- <b>XX</b>	1337G- <b>XXY</b> D- <b>XX</b>	1338G- <b>xxy</b> D- <b>xx</b>
Sub base 1 1/4" NPTF	1351G- <b>xxy</b> D- <b>xx</b>	1353G- <b>xxy</b> D- <b>xx</b>	1357G- <b>xxy</b> D- <b>xx</b>	1358G- <b>xxy</b> D- <b>xx</b>
Sub base 1 1/2" NPTF	1361G- <b>xxy</b> D- <b>xx</b>	1363G- <b>XXY</b> D- <b>XX</b>	1367G- <b>xxy</b> D- <b>xx</b>	1368G- <b>xxy</b> D- <b>xx</b>

#### SOLENOID OPERATOR ►

X	Χ	Y	D-	X	<b>X</b> *
	Ŀ.	т		Т	<u> </u>

 XX Voltage	Đ	Y	Manual oper	ator	<b>X</b>	Pilot air		x	Indicator light	900
11 120/60,	110/50	1	Non-locking		1	Internal		5	With light in base	
12 240/60,2		2	Locking		2	External			-	- 00
22 24/60, 2										82
59 24 VDC (2										
87 24 VDC ( 61 24 VDC (8										
	5.5 (V)									6300
ther options ava	ilable, see page 35	7.								
										6500
Bases				Ligł	ht opt	ions				0500
10952-0005	3/4" BASE ASS'Y	' - SGL. (N	PTF)	XX =	1	1 - 110V-120V				6600
10952-0006	3/4" BASE ASS'Y	' - DBL. (NF	PTF)		1	2 - 220V-240V				0000
10952-XX05	3/4" BASE ASS'Y				6	1 - 24V-28V				
10952-XX06	3/4" BASE ASS'Y									1300
10953-0005 10953-0006	1" BASE ASS'Y -		1							
10953-0006 10953-XX05	1" BASE ASS'Y - 1" BASE ASS'Y -									800
10953-XX06	1" BASE ASS'Y -									000
10954-0005	1 1/4" BASE ASS									
10954-0006	1 1/4" BASE ASS									ISO 1
10954-XX05	1 1/4" BASE ASS	5'Y - SGL	W/LIGHT (NPTF)							
10954-XX06			W/LIGHT (NPTF)		ODTC					<b>ISO 2</b>
10955-0005	1 1/2" BASE ASS					available only on 3				ISO 3
10955-0006	1 1/2" BASE ASS					specify MOD 00				130 3
10955-XX05 10955-XX06	1 1/2" BASE ASS 1 1/2" BASE ASS					ports specify MOI				MAC 12
10755-7700	I I/Z DAJE AJJ	0 I - DDL	W/LIGHT (INFIF)	EXAMPLE :	1321G	-111D-1 <b>MOD 0</b>	002			
										MAC 25

56

57

700

**MAC 500A** 





Fluid :	Compressed air, vacu	um, inert gases					
Pressure range :	Internal pilot : single c	perator and 3 positions : 2	25-150 PSI double operator : 10-150 PSI				
	External pilot : vacuun	n to 150 PSI					
Pilot pressure :	Single operator and 3	positions : 25-150 PSI D	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" : (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> )						
Coil :	Epoxy encapsulated -	class A wires - Continuous	s duty				
Voltage range :	-15% to +10% of nom	inal voltage					
Protection :	Consult factory						
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA					
Power :	= 1 to 17.1 W						
Power :	= 1 10 17.1 VV						
Power : Response times :	24 VDC (8.5 W)	Energize : 20 ms	De-energize : 28 ms				

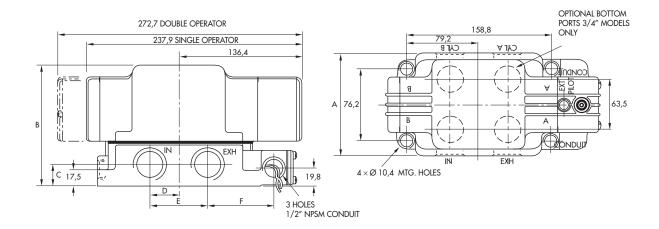
Prior valve : 150B-XXBD, including mounting
Mounting screw valve to base (x4) : 32396.

Options :

• BSPP threads. • Lights in base.

DIMENSIONS

Dimensions shown are metric (mm)



Port size	A	B	C	D	E	F
3/4", 1" NPTF	111.3	132.4	23.8	31.7	63.5	71.4
1 1/4" NPTF	1143	148.3	30.2	38.1	76.2	65.0
1 1/2" NPTF				35.0	69.9	68.0



Individual mounting Series inline 35 Manifold mounting stacking body with 3 commor stacking body with 3 common stacking body stacking body with 1 common stacking body vith 3 co with 3 co orts with C. C. & ports with ports and integral F.C. port (inlet) ports (inlet & exho 100 integral exh. F. C. 200 Manual operator 55 Sealed solenoid Bonded spool **Piston assembly Piston adapter** One piece body enclosure 56 57 58 59 45 Air/spring return OPER. "B" OPER. "A Optional Internal pilot supply pilot exhaust 700 tapped port **External pilot option** or Integral 900 muffler 82 6300 **SERIES FEATURES** 6500 • The patented MACSOLENOID® with its non-burn out feature on AC service. 6600 • Air/spring return on single solenoid valves. • Use for lube or non-lube service. 1300 • Optional common conduit stacking valve with integral wiring space and indicator lights • Optional integral individual exhaust flow controls. 800 • Optional low wattage DC solenoids down to 1 watt. • Various types of manual operators and solenoid enclosures. **ISO 1 ISO 2 ISO 3 MAC 125A** 

MAC 250A MAC 500A

°
H
Series 800



# **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 Kid, 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 :**

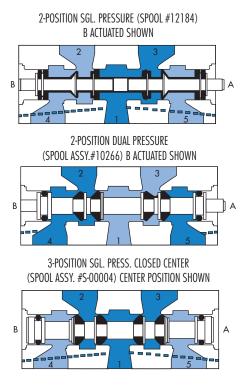
Use an External Pilot model as described under "External Pilot Applications", (Individual valve or Stacking).

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.

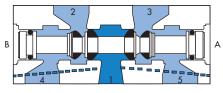
# **SELECTOR APPLICATIONS :**

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.

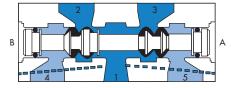
#### **SPOOL CONFIGURATIONS**



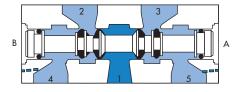
3-POSITION SGL. PRESS. OPEN CENTER (SPOOL ASSY.#S-00003) CENTER POSITION SHOWN



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



tion	Port size	Flow (Max)	Individual mounting			Series	
- 5/3	1/4″	1.4 C <sub>v</sub>	inline				
ATIONAL BENEFITS lanced spool, immune ort stroke with high flov e piston (booster) provi ces.	to variations of pressure. v. des maximum shifting						35
werful return force than chanical and air spring nded spool with minim	ks to the combination of gs. num friction, shifting in a				-		100
	poppet, high flow, short			200	0.0		200
d consistent response ti ng service life.	mes.			1	1 100	7	55
OW TO ORDER				200			56 57
ort size Pilot ai	r 5/2 Single operator	5/2 Double operator	5/3 Closed center	0.	5/3 pen center	5/3 Pressure center	58
				e ا			59
4" NPTF Interna		821C-PM- <b>XXYZZ</b> -152	415 825C-PM- <b>XXYZZ-</b> 552	8250	-PM- <b>XXYZZ</b> -652	<u>415</u> 825C-PM- <b>XXYZZ-</b> 852	
Externo		822C-PM-xxyzz-112	826C-PM- <b>XXYZZ</b> -512		-PM- <b>XXYZZ</b> -612	826C-PM- <b>XXYZZ</b> -812	45
NOID OPERATOR	>	<u>XX Y</u>	ZZ				
X Voltage 1 120/60, 110/50		Y Manual opera 1 Non-locking	itor	ZZ JB	Electrical co Rectangular conn		700
2 240/60, 220/50 2 24/60, 24/50 9 24 VDC (2.5 W) 7 24 VDC (17.1 W) 1 24 VDC (8.5 W)		2 Locking		JD JA JC BA CA	Rectangular conn Square connector Square connector Flying leads (18") Conduit 1/2" NP	ector with light with light	900
her options available,	see page 357.		-				82
IFICATIONS - N° 1	<b>358 -</b> 3/8" inlet and cylinde <b>080 -</b> NAMUR interface.						6300
options	rt n° <b>EXAMPLE :</b> 811C-P <i>I</i>	M-111CA-152 Mod. 0358					6500
811C-PM-111CA-152 - For 2 position dual pressure : replace by 2.							6600
	For 2 position dual pressu						
	For 2 position dual pressu	Te . Teplace by 2.					1300

**MAC 500A** 



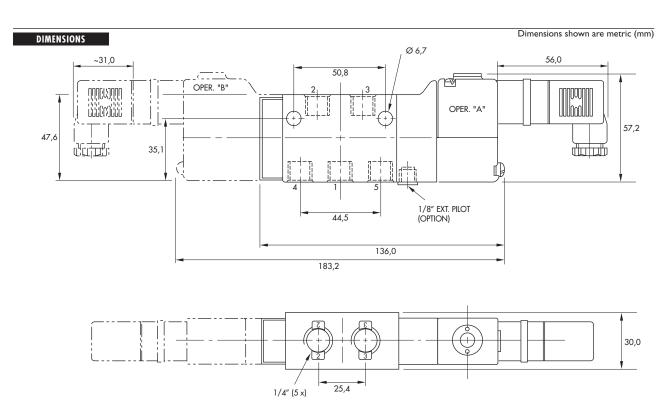


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 200 PSI
Pilot pressure :	Single operator and 3 positions : 20-150 PSI Double operator : 10-150 PSI
Lubrication :	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, $\Delta P=1bar)$ :	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

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



ON	Port size	Flow (Max)		Manifold Mounting		Series
2 - 5/3	1/4″	1.4 C <sub>v</sub>		stacking body with 1 common port (inlet)		
RATIONAL BENEFITS alanced spool, immune to v hort stroke with high flow. he piston (booster) provides prces.					3	35
rces. owerful return force thanks t echanical and air springs. onded spool with minimum						100
lass-like finished bore. Viping effect eliminates stick ilot valve with balanced pop	king. opet, high flow, short				000	200
and consistent response time: ong service life.	š.			1	A.	55 56
HOW TO ORDER						57
Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center	58 59
						37
1/4" NPTF	811C-PM- <b>XXYZZ</b> -132	821C-PM- <b>XXYZZ</b> -132	825C-PM- <b>XXYZZ</b> -532	825C-PM- <b>XXYZZ</b> -632	825C-PM- <b>XXYZZ</b> -832	
LENOID OPERATOR >		<u></u> X Y	<b>ZZ</b> *			45
XX         Voltage           11         120/60, 110/50		Y Manual opera	itor	ZZ Electrical con		700
12 240/60, 220/50		Non-locking     Locking		JB Rectangular conne JD Rectangular conne	ector with light	700
<b>22</b> 24/60, 24/50 <b>59</b> 24 VDC (2.5 W)			-	RAConduit 3/8" NP3BAFlying leads (18")	›	
87 24 VDC (17.1 W) 61 24 VDC (8.5 W)						900
Other options available, see	page 357.					00
	MANIFOLD E	ND PLATE KITS (NPTF)	•			82
INT. PILOT - PART N°.	EXT. PILOT - PAR		MODELS USED WIT	н		6300
M-08001-01-01	M-08001-02-01	·	1 com. port models, stacks			0300
M-00005-01-01	M-00005-02-01	3 com. port or	1 com. port models, stacks	ot 17 or more valves		6500
dd letter <b>P</b> at end of part N <sup>e</sup> te : (1) end plate kit required		PLE : M-08001-01-01P				6600
OPTIONS						1300
OPTIONS 811C-PM-111BA-132						
811C-PM-111BA-132	2 position dual pressure	ə : replace by 2.				800
811C-PM-111BA- <u>1</u> 32	2 position dual pressure	e : replace by 2.				008
811C-PM-111BA- <u>1</u> 32 - For 825C-PM-111BA- <u>8</u> 32			place by 7.			800 ISO 1
811C-PM-111BA- <u>1</u> 32 - For 825C-PM-111BA- <u>8</u> 32	2 position dual pressure 3 position dual pressure		place by 7.			
811C-PM-111BA- <u>1</u> 32 - For 825C-PM-111BA- <u>8</u> 32			place by 7.			150 1
811C-PM-111BA- <u>1</u> 32 - For 825C-PM-111BA- <u>8</u> 32			place by 7.			ISO 1 ISO 2

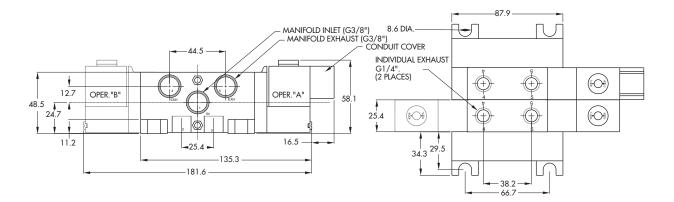
**MAC 500A** 





l:	Compressed air, vacu	um, inert gases					
ressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI						
	External pilot : vacuur	n to 200 PSI					
ot pressure :	Single operator and 3	positions : 20-150 PSI	Double operator : 10-150	PSI			
rication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)						
ration :	40 µ						
nperature range :	0°F to 120°F (-18°C to 50°C)						
ow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C <sub>v</sub> )						
coil :	General purpose - cla	ss A wires - Continuous d	uty - Encapsulated				
/oltage range :	-15% to +10% of nom	inal voltage					
rotection :	Consult factory						
ower:	~ Inrush : 14.8 VA	Holding : 10.9 VA					
	= 1 to 17.1 W						
esponse times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms				
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms				

DIMENSIONS



ports (inlet & exhausts

35

100

200

55

56 57

6600

1300

800

**ISO** 1

**ISO 2** 

ISO 3 MAC 125A MAC 250A

- 1. Balanced spool, immune to variations of pressure.
- 2. Short stroke with high flow.
- 3. The piston (booster) provides maximum shifting forces.
- 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.
- 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	58 59
1/4" NPTF	811C-PM- <b>XXYZZ</b> -122	821C-PM- <b>XXYZZ</b> -122	825C-PM- <b>xxyzz</b> -522	825C-PM- <b>XXYZZ</b> -622	825C-PM- <b>XXYZZ</b> -822	
3/8" NPTF	811C-PM- <b>XXYZZ</b> -123	821C-PM- <b>XXYZZ-</b> 123	825C-PM- <b>xxyzz</b> -523	825C-PM- <b>xxyzz</b> -623	825C-PM- <b>XXYZZ</b> -823	45

#### SOLENOID OPERATOR ►

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XX	Voltage	Ŷ	Manual operator	ZZ	Electrical connection	7
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			RA	Conduit 3/8" NPS	9
59	24 VDC (2.5 W)			BA	Flying leads (18″)	
87	24 VDC (17.1 W)				· ·	-
61	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  ${\bf P}$  at end of part N°. for BSPP threads;  ${\bf EXAMPLE}$  : M-08001-01-01 ${\bf P}$  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.

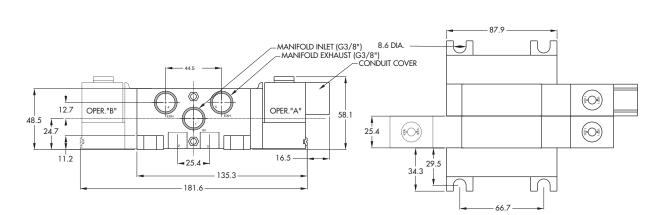
Consult "Precautions" page 364 before use, installation or service of MAC Valves





ressure range :		um, inert gases					
	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI						
	External pilot : vacuur	n to 200 PSI					
pressure :	Single operator and 3	positions : 20-150 PSI	Double operator : 10-150 PS	SI			
ation :	Not required, if used	select a medium aniline p	oint lubricant (between 180	°F to 210°F)			
tion :	40 µ						
erature range :	0°F to 120°F (-18°C to 50°C)						
r (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C <sub>v</sub> ), 3/8″	1/4" : (1.4 C <sub>v</sub> ), 3/8" : (1.4 C <sub>v</sub> )					
:	General purpose - cla	ss A wires - Continuous d	uty - Encapsulated				
age range :	-15% to +10% of nom	inal voltage					
ection :	Consult factory						
ver :	~ Inrush : 14.8 VA	Holding : 10.9 VA					
	= 1 to 17.1 W						
onse times :	24 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms				
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms				

DIMENSIONS



© <b>Olympic Series 800</b>	Direct sole	enoidands	olenoid pilot ope	rated valves
Function	Port size	Flow (Max)	Manifold mounting	Series
5/2 - 5/3	1/4" - 3/8"	1.4 C <sub>v</sub>	stacking body with 3 common ports and integral F.C.	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune to</li> <li>2. Short stroke with high flow.</li> <li>3. The piston (booster) provid forces.</li> <li>4. Powerful return force thank mechanical and air spring.</li> <li>5. Bonded spool with minimum</li> </ul>	es maximum shifting ts to the combination of s.			35
glass-like finished bore. 6. Wiping effect eliminates sti				200

- 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
				$ \begin{array}{c} B \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\$	
1/4" NPTF	811C-PM- <b>XXYZZ</b> -192	821C-PM- <b>xxyzz</b> -192	825C-PM- <b>xxyzz</b> -592	825C-PM- <b>xxyzz</b> -692	825C-PM- <b>XXYZZ</b> -892
3/8″ NPTF	811C-PM- <b>XXYZZ</b> -193	821C-PM- <b>xxyzz</b> -193	825C-PM- <b>xxyzz</b> -593	825C-PM- <b>xxyzz</b> -693	825C-PM- <b>xxyzz</b> -893

#### SOLENOID OPERATOR ➤

ENOID C	DPERATOR >		<u>XX Y ZZ</u> .		
X Vol	Itage	Y	Manual operator	ZZ	Electrical connection
<b>2</b> 240 <b>2</b> 24/ <b>59</b> 24	/60, 110/50 /60, 220/50 60, 24/50 /DC (2.5 W) /DC (17.1 W)	1 2	Non-locking Locking	JB JD RA BA	Rectangular connector Rectangular connector with light Conduit 3/8″ NPS Flying leads (18″)
24	/DC (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			
dd letter <b>P</b> at end of part N°.	for BSPP threads; <b>EXAMPLE</b> : M·				

\* Add letter  ${\bf P}$  at end of part N°. for BSPP threads;  ${\bf EXAMPLE}$  : M-08001-01-01  ${\bf P}$ Note : (1) end plate kit required per stack.

OPTIONS	1300
811C-PM-111RA-192	800
- For 2 position dual pressure : replace by 2. 825C-PM-111RA-892	ISO 1 ISO 2
- For 3 position dual pressure, pressure center: replace by 7.	ISO 3
	MAC 125A Mac 250A

55

56 57

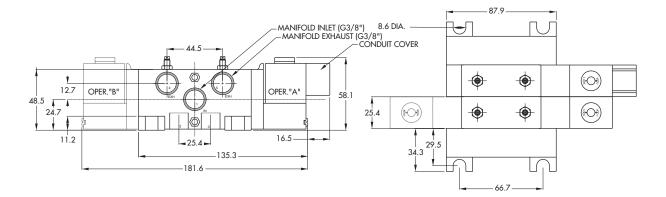
**MAC 500A** 





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 :	<ul> <li>Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.</li> <li>Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.</li> <li>Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.</li> </ul>					
Options :	• BSPP threads. • Dual inlet block: M-08003.					

DIMENSIONS



B	Direct	solenoid	an d	solenoid
Series 800				
Function	Deck oize	Clow ()	1-1-1	Manifold

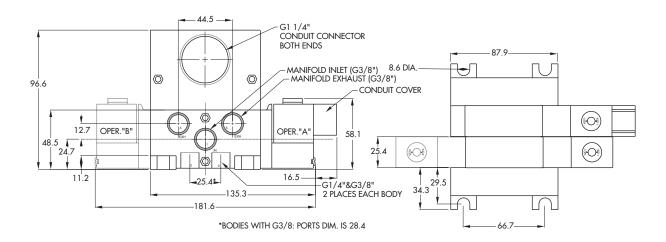
unction	Port size	Flow (Max)		Manifold mounting		Series
5/2 - 5/3	1/4″ - 3/8″	1.4 C <sub>v</sub>		stacking body with 3 common ports with common conduit		
PERATIONAL BENEFITS Balanced spool, immune to ve Short stroke with high flow. The piston (booster) provides	·					35
forces. Powerful return force thanks to mechanical and air springs. Bonded spool with minimum				and the second s	ø.	100
glass-like finished bore. Wiping effect eliminates stick Pilot valve with balanced pop	ing.					200
and consistent response times Long service life.				2 co co a	O J II	55 56
HOW TO ORDER						57
Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center	58 59
						w #
1/ <b>4″ NPTF</b>	811C-PM- <b>XXYZZ</b> -142	821C-PM- <b>xxyzz</b> -142	825C-PM- <b>xxyzz</b> -542	825C-PM- <b>xxyzz</b> -642	825C-PM- <b>XXYZZ</b> -842	
3/8" NPTF	811C-PM- <b>XXYZZ</b> -143	821C-PM- <b>XXYZZ</b> -143	825C-PM- <b>xxyzz</b> -543	825C-PM- <b>XXYZZ</b> -643	825C-PM- <b>XXYZZ</b> -843	45
DLENOID OPERATOR >			<b>ZZ</b> <sup>*</sup>	_		
XX Voltage		Y Manual oper	ator	ZZ Electrical co	nnection	700
11         120/60, 110/50           12         240/60, 220/50		1 Non-locking 2 Locking		DA Common condui	ł	
22 24/60, 24/50		Locking				900
59         24 VDC (2.5 W)           87         24 VDC (17.1 W)						
61 24 VDC (8.5 W)						82
Other options available, see	page 357.					UA
	MO	DIFICATIONS				6300
MOD. N°	DESCRIPTION		MODEL AVAILA	BILITY		0300
0387	Indicator light 24 VI					6500
0295	Indicator light 120 V/6 Indicator light 240 V/6		Single & double s	olenoid		
<b>ORDER</b> - Add the appropr	_		VAADIE . 911C.PM-111	DA 142 MOD 0205		6600
						1300
INT. PILOT - PART N°.	EXT. PILOT - PAR	ND PLATE KITS (NPTF) r n°.	MODELS USED WITI	1		
M-08002-01-01	M-08002-02-01		onduit models, stacks of 1 th			800
M-00007-01-01	M-00007-02-01	Com. cc	onduit models, stacks of 17 c	r more valves		150 1
Add letter <b>P</b> at end of part N°	. for BSPP threads; <b>EXAM</b>	PLE : M-08002-01-01P				
ote : (1) end plate kit required						
OPTIONS						ISO 3
811C-PM-111DA- <u>1</u> 42		825C-F	PM-111DA- <u>8</u> 42			MAC 125A
T	osition dual pressure : re		T	ion dual pressure, pressu	vre center : replace by 7.	MAC 250/ MAC 500/
		1	53	Consult "Precautions" page 364 bef	ore use, installation or service of MAC Valves	





Fluid :	Compressed air, vacu	um, inert gases		
Pressure range :	Internal pilot : single o	operator and 3 positions :	20-150 PSI	double operator : 10-150 PSI
	External pilot : vacuur	n to 200 PSI		
Pilot pressure :	Single operator and 3	positions : 20-150 PSI	Double operator : 10-150 P	SI
ubrication :	Not required, if used	select a medium aniline p	oint lubricant (between 180	)°F to 210°F)
tration :	40 µ			
mperature range :	0°F to 120°F (-18°C t	o 50°C)		
ow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C <sub>v</sub> ), 3/8"	: (1.4 C <sub>v</sub> )		
il :	General purpose - cla	ss A wires - Continuous d	uty - Encapsulated	
ltage range :	-15% to +10% of nom	inal voltage		
otection :	Consult factory			
ower:	~ 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	

DIMENSIONS



© <b>Constant</b> Series 800	Direct sole	noid and sol	enoid pilot opera	ted valves
Function	Port size	Flow (Max)	Manifold mounting	Series
5/2 - 5/3	1/4" - 3/8"	1.4 C <sub>v</sub>	stacking body with 3 common ports with C. C. & integral exh. F. C.	
<ol> <li>Short stroke with high f</li> <li>The piston (booster) proforces.</li> <li>Powerful return force th mechanical and air spr</li> </ol>	ovides maximum shifting anks to the combination of ings.			35
glass-like finished bore. 6. Wiping effect eliminate	es sticking. ed poppet, high flow, short			200 55 56

## HOW TO ORDER

5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center	58 59
811C-PM- <b>XXYZZ</b> -162	821C-PM- <b>XXYZZ</b> -162	825C-PM- <b>xxyzz</b> -562	825C-PM- <b>XXYZZ</b> -662	825C-PM- <b>XXYZZ</b> -862	
811C-PM- <b>XXYZZ-</b> 163	821C-PM- <b>XXYZZ-</b> 163	825C-PM- <b>xxyzz</b> -563	825C-PM- <b>xxyzz</b> -663	825C-PM- <b>xxyzz</b> -863	45
	Single operator A TTE TTE TTE TTE TTE TTE TTE	Single operator         Double operator           A         3         2         B           Image: Image operator         A         3         2         B           Image: Image operator         A         3         2         B           Image: Image operator         A         3         2         B           Image: Image operator         A         3         2         B           Image: Image operator         A         3         2         B           Image: Image operator         A         3         2         B           Image: Image operator         A         3         2         B           Image: Image operator         A         3         2         B           Image: Image operator         A         A         3         2         B           Image: Image operator         A	Single operatorDouble operatorClosed center $A$ $3$ $2$ $B$ $rrsp$ $811C$ -PM-xxyzz-162821C-PM-xxyzz-162825C-PM-xxyzz-562	Single operatorDouble operatorClosed centerOpen center $A$ $3$ $2$ $B$ $T$ </th <th>Single operatorDouble operatorClosed centerOpen centerPressure centerA32BB23AImage: Construction of the state of t</th>	Single operatorDouble operatorClosed centerOpen centerPressure centerA32BB23AImage: Construction of the state of t

<u>XX Y ZZ</u>\*

#### SOLENOID OPERATOR ►

XX	Voltage	Y	Manual operator	ZZ	Electrical connection	70
11	120/60, 110/50	1	Non-locking	DA	Common conduit	
12	240/60, 220/50	2	Locking			-
22	24/60, 24/50					000
59	24 VDC (2.5 W)					30
87	24 VDC (17.1 W)					
61	24 VDC (8.5 W)					
Other	portions available see page 357					82

\* Other options available, see page 357.

	MODIFICATIONS				
MOD. N°	DESCRIPTION	MODEL AVAILABILITY			
0387	Indicator light 24 VDC				
0295	Indicator light 120 V/60/50	Single & double solenoid			
0296	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)*			1300
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	800
M-00007-01-01	M-00007-02-01	Com. conduit models, stacks of 17 or more valves	
	or BSPP threads; <b>EXAMPLE</b> : M-08	2002 01 01 <b>B</b>	ISO 1
a letter <b>P</b> at end of part N°. t e : (1) end plate kit required p		3002-01-01 <b>P</b>	150 2

OPTIONS

# 811C-PM-111DA-<u>1</u>62

- For 2 position dual pressure : replace by 2.

825C-PM-111DA-<u>8</u>62

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

00 0

**MAC 250A MAC 500A** 

**MAC 125A** 

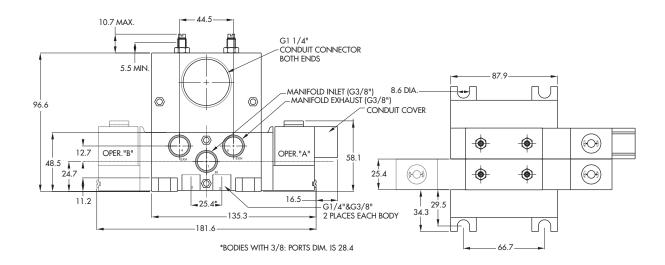
57





Fluid :				
	Compressed air, vacuu	um, inert gases		
•	Internal pilot : single o External pilot : vacuun	operator and 3 positions : n to 200 PSI	20-150 PSI	double operator : 10-150 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 p	oint lubricant (between 18	0°F to 210°F)
Filtration :	40 µ			
Temperature range :	0°F to 120°F (-18°C to	o 50°C)		
Flow (at 6 bar, $\Delta P$ =1bar) :	1/4" : (1.4 C <sub>v</sub> ), 3/8"	: (1.4 C <sub>v</sub> )		
Coil :	General purpose - cla	ss A wires - Continuous d	uty - Encapsulated	
Voltage range :	-15% to +10% of nom	inal 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	

DIMENSIONS





Individual mounting Series valve only 35 Manifold mounting valve only 100 200 Bonded flow seal spool Pilot air accumulator **Manual operator** 55 56 Air/spring return ſШ 57 58 59 (WWWWWW) **External pilot port** 45 Æ Ð 700 900 82 6300 **SERIES FEATURES** 6500 • Fastest available response time with patented MACSOLENOID®. 6600 • 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. 1300 • Large spool piston for high shifting force even at minimum operating pressure • Air/spring return for consistent shifting on single solenoid models. 800 • Patented virtually burn-out proof AC solenoid. • Optional low wattage DC solenoids down to 1.0 watt. **ISO** 1 • Various manual operators & electrical connectors are available. **ISO 2** • Muffled or threaded pilot exhaust ports. • Internal of external pilot models available. **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 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 (soleneoid 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

© Contraction of the series is a series is	Direct sole	noidands	olenoid pilot operatei	d valves
	Real size	Dem (Men)	la dividual manakina () Marifald manakina	Opring
Function	Port size	Floш (Max)	Individual mounting & Manifold mounting	Series
5/2 - 5/3	1/4" - 3/8"	1.6 C <sub>v</sub>	valve only	
OPERATIONAL BENEFITS				
<ol> <li>Balanced spool, immune to</li> <li>Short stroke with high flow.</li> <li>The piston (booster) provide</li> </ol>	·			35
forces. 4. Powerful return force thanks mechanical and air springs	s to the combination of			100
5. Bonded spool with minimu glass-like finished bore.				

- 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	59
		$\begin{array}{c c} 14 & 4 & 2 & 12 \\ \hline \square & & & & \\ \hline \square & & & & \\ \hline \square & & & & \\ \hline & & & & \\ \hline & & & & \\ \hline & & & &$	$\begin{array}{c} 14 \\ \hline \\ $	$\begin{array}{c c} 14 & 4 & 2 & 12 \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \\ \hline \\$	
Internal	MV-A1C-A111-PM-XXYZZ	MV-A1C-A211-PM-XXYZZ	MV-A1C-A312-PM-XXYZZ	MV-A1C-A311-PM-XXYZZ	45
External	MV-A1C-A121-PM-XXYZZ	MV-A1C-A221-PM-XXYZZ	MV-A1C-A322-PM-XXYZZ	MV-A1C-A321-PM-XXYZZ	

#### DUAL PRESSURE VALVES

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

#### SOLENOID OPERATOR ►

SOLENC	DID OPERATOR >	<u>XX Y ZZ</u> `		6300
XX	Voltage	Y Manual operator	ZZ Electrical connection	6500
11 12 22 59 87 61	120/60, 110/50 240/60, 220/50 24/60, 24/50 24 VDC (2.5 W) 24 VDC (17.1 W) 24 VDC (8.5 W)	1 Non-locking 2 Locking	JB     Rectangular connector       JD     Rectangular connector with light       JA     Square connector       JC     Square connector with light       BA     Flying leads (18")	6600 1300
* Other Note : ISC	pptions available, see page 357. ) valves are delivered w/o base. See pa	 ge 281 for base code.	Note : Photo shown with JC connector.	800 ISO 1

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.

**ISO 2 ISO 3 MAC 125A MAC 250A MAC 500A** 

200

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58



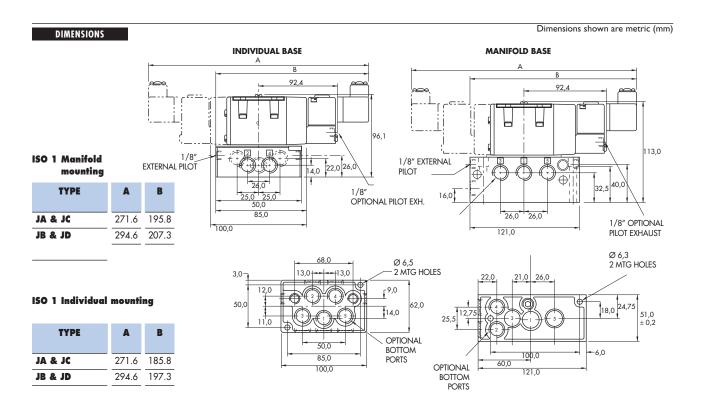


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
Lubrication :	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, $\Delta P=1 bar$ ) :	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

• Solenoid operator (power  $\geq 4$  W) : D1-XXAA, cover mounting screws 35206 and seal 16234.

• Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16344.

• Mounting screw valve to base (x4) : 35304.





Individual mounting Series valve only 35 Manifold mounting valve only 100 200 Bonded flow seal spool Pilot air accumulator Manual operator 55 56 Air/spring return 57 58 59 **External pilot port** 45 Æ 700 900 82 6300 **SERIES FEATURES** 6500 • Fastest available response time with patented MACSOLENOID®. 6600 • 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. 1300 • Large spool piston for high shifting force even at minimum operating pressure • Air/spring return for consistent shifting on single solenoid models. 800 • Patented virtually burn-out proof AC solenoid. • Optional low wattage DC solenoids down to 1.0 watt. **ISO 1** • Various manual operators & electrical connectors are available. **ISO 2** • Muffled or threaded pilot exhaust ports. • Internal of external pilot models available. **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 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 (soleneoid 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

© Contraction of the series iso 2	Direct sole	noid and	d sole	noid pil	ot operated	valves
Function	Port size	Floш (Max)		Individual mountin	ng & Manifold mounting	Series
5/2 - 5/3	3/8" - 1/2"	3.0 C <sub>v</sub>		valve only		
OPERATIONAL BENEFITS 1. Balanced spool, immune to va 2. Short stroke with high flow. 3. The piston (booster) provides r forces.	·					35
<ol> <li>Forces.</li> <li>Powerful return force thanks to mechanical and air springs.</li> <li>Bonded spool with minimum f</li> </ol>				- L		100
<ol> <li>Boldea spool with minimum a glass-like finished bore.</li> <li>Wiping effect eliminates sticki</li> <li>Pilot valve with balanced pop</li> </ol>	ing.			2 al		200
and consistent response times. 8. Long service life.						55 56
how to order SINGLE PRESSURE VALVES				( DI	1/	57 58
Pilot air	5/2 Single operator	5/2 Double operat	for	5/3 Closed center	5/3 Open center	59
					$\begin{array}{c c} 14 & 4 & 2 & 12 \\ \hline 175 \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\$	
Internal External	MV-A2B-A111-PM-XXYZZ MV-A2B-A121-PM-XXYZZ	MV-A2B-A211-PM-J MV-A2B-A221-PM-J		A2B-A312-PM- <b>xxyzz</b>	MV-A2B-A311-PM- <b>XXYZZ</b> MV-A2B-A321-PM- <b>XXYZZ</b>	45
DUAL PRESSURE VALVES						
Pilot air	5/2 Single oper	rator	5/2 Double ope	rator	5/3 Pressure center	700
Internal port 3	MV-A2B-A131-P/		MV-A2B-A231-F		<u>ه په مع</u> MV-A2B-A331-PM- <b>xxyzz</b>	900
Internal port 5	MV-A2B-A135-P/		MV-A2B-A232-F		MV-A2B-A332-PM- <b>XXYZZ</b>	82
External SOLENOID OPERATOR >	MV-A2B-A141-P/		MV-A2B-A241-F	M-xxyzz	MV-A2B-A341-PM-XXYZZ	6300
XX Voltage 11 120/60, 110/50	Y 1	Manual operator	r		rical connection	6500
12 240/60, 220/50	2	Locking		JD Rectang	gular connector with light	6600
59 24 VDC (2.5 W)				JC Square	connector connector with light	1200
87 24 VDC (17.1 W) 61 24 VDC (8.5 W)					eads (18″) n with JC connector.	1300
* Other options available, see p Note : ISO valves are delivered v		ase code.				800
OPTIONS						
MV-A2B-A111-PM-xxyzz						150 2
	CNOMO pilot, consult factory	,		١		
	universal spool replace by 6 ( use with single pressure sand		-	1)		MAC 125A
						MAC 250A
		163		Consult "Precautions" r	name 364 hefore use installation or service of MAC Valv	MAC 500A



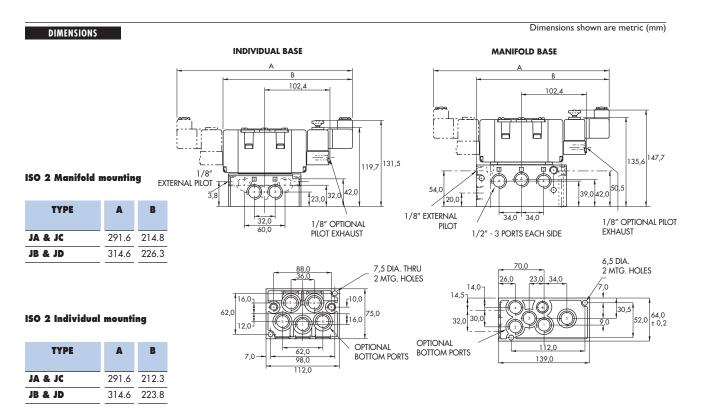


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
Lubrication :	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, $\Delta P=1 bar$ ) :	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

• Solenoid operator (power  $\geq 4$  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.





Individual mounting Series valve only 35 Manifold mounting valve only 100 Bonded flow seal spool Pilot air accumulator Manual operator 200 55 Air/spring return 56 57 58 59 External pilot port 45 Œ Æ 700 900 82 6300 **SERIES FEATURES** 6500 • Fastest available response time with patented MACSOLENOID®. 6600 • 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. 1300 • Large spool piston for high shifting force even at minimum operating pressure • Air/spring return for consistent shifting on single solenoid models. 800 • Patented virtually burn-out proof AC solenoid. • Optional low wattage DC solenoids down to 1.0 watt. **ISO 1** • Various manual operators & electrical connectors are available. **ISO 2** • Muffled or threaded pilot exhaust ports. • Internal of external pilot models available. 150 2 **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 (soleneoid 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

© Series ISO 3	Direct sole	noid a	ind so	lenoid pil	ot operated	valves
Function	Port size	Flow (Max	[]	Individual mounti	ng & Manifold mounting	Series
5/2 - 5/3	1/2" - 3/4"	6.3 C <sub>v</sub>		valve only		
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune to vo</li> <li>2. Short stroke with high flow.</li> <li>3. The piston (booster) provides forces.</li> <li>4. Powerful return force thanks to mechanical and air springs.</li> <li>5. Bonded spool with minimum glass-like finished bore.</li> <li>6. Wiping effect eliminates sticki</li> <li>7. Pilot valve with balanced pop and consistent response times</li> <li>8. Long service life.</li> </ul> HOW TO ORDER	maximum shifting o the combination of friction, shifting in a ing. .pet, high flow, short				A A A A A A A A A A A A A A A A A A A	35 100 200 55 56 57 58
Pilot air	5/2 Single operator	5/. Double o	perator	5/3 Closed center	5/3 Open center	59
Internal External	14         4         2         12           Image: Constraint of the state of the sta	14 T D T D T D T D T D T D T D T D		14         12           175         12      <	MV-A3B-A321-PM-xxyzz           MV-A3B-A321-PM-xxyzz	45
DUAL PRESSURE VALVES					- 12	
Pilot air	5/2 Single oper			5/2 De operator	5/3 Pressure center	700
Internal port 3		PM- <b>xxyzz</b>		4 2 12 3 √ 1 0 3 -A231-PM-xxyzz -A232-PM-xxyzz	MV-A3B-A331-PM- <b>XXYZZ</b>	900
External	MV-A3B-A141-P			-A241-PM- <b>XXYZZ</b>	MV-A3B-A341-PM-XXYZZ	82
SOLENOID OPERATOR ➤		<b>XX</b>	Y <u>ZZ</u> ⁺			6300
XX Voltage	Y	Manual ope	rator		rical connection	6500
11         120/60, 110/50           12         240/60, 220/50           22         24/60, 24/50	2	Non-locking Locking		JD Rectanç	gular connector gular connector with light connector	6600
59         24 VDC (2.5 W)           87         24 VDC (17.1 W)           61         24 VDC (8.5 W)				JC Square BA Flying I	connector with light eads (18″)	1300
				Note : Photo show	n with JC connector.	
* Other options available, see p Note : ISO valves are delivered	page 357. w/o base. See page 281 for bo	ase code.				800

# OPTIONS

- MV-A3B-A1<u>1</u>1-<u>PM-xxyzz</u>
  - 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.

150 2

**ISO 3** 

**MAC 125A** 

**MAC 250A** 



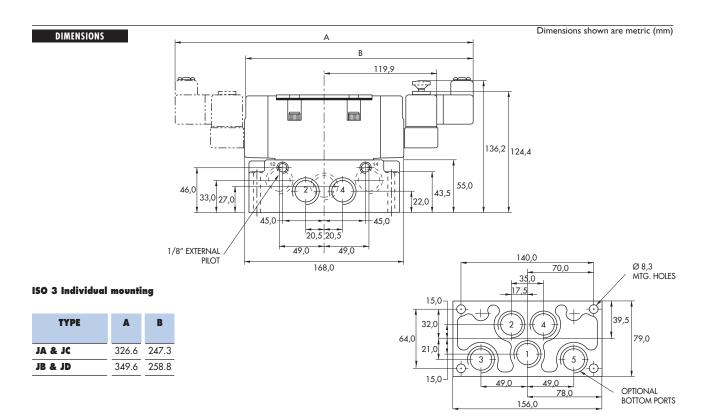


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
Lubrication :	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, $\Delta P=1bar)$ :	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

 $\bullet$  Solenoid operator (power  $\geq 4$  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).





Individual mounting	Series
valve only	
	35
Manifold mounting	
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 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**

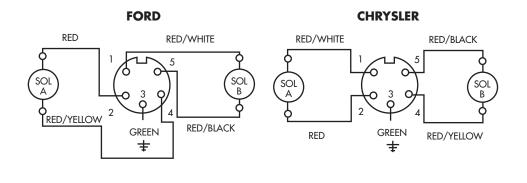
An external pilot supply is only required when the main valve pressure is less than 25 psi on single solenoid or 3 position valves and less than 10 psi on double solenoid 2 position valves. Pipe the external pilot supply to the External Pilot Port supplied in the valve base or manifold.

#### **VACUUM APPLICATIONS**

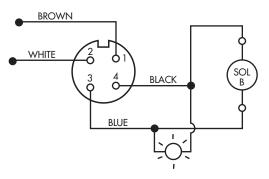
(2-Pos. Valves Only) - Use an External Pilot model as described above and also connect the vacuum source to the Exhaust Port and leave the Inlet Port open to atmosphere. The Inlet port may be connected to a pressure source to provide a selector application (vacuum/pressure).

#### **SELECTOR APPLICATIONS**

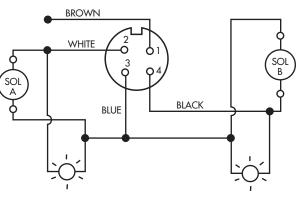
Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot Model and connect the higher pressure to the Inlet Port and the lower to Port EA or EB depending on which cylinder port is to be active.



4 PIN CONNECTOR : SINGLE



4 PIN CONNECTOR : DOUBLE



Series MAC 125				
Function	Port size	Flow (Max)	Individual mounting & Manifold mounting	Series
5/2 - 5/3	1/4" - 3/8"	2.5 C <sub>v</sub>	valve only	

- 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 glasslike finished bore.Wiping effect eliminates sticking.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
5 PIN	Internal	MAC125A-V1A2-PM-XXY-DA	MAC125A-V2A2-PM-XXY-DA	MAC125A-V5A2-PM-XXY-DA	MAC125A-V6A2-PM-XXY-DA
(Ford wired)	External	MAC125A-V1A4-PM-XXY-DA	MAC125A-V2A4-PM-XXY-DA	MAC125A-V5A4-PM-XXY-DA	MAC125A-V6A4-PM-XXY-DA
5 PIN	Internal	MAC125A-V1B2-PM-XXY-DA	MAC125A-V2B2-PM-XXY-DA	MAC125A-V5B2-PM-XXY-DA	MAC125A-V6B2-PM-XXY-DA
Chrysler wired)	External	MAC125A-V1B4-PM-XXY-DA	MAC125A-V2B4-PM-XXY-DA	MAC125A-V5B4-PM-XXY-DA	MAC125A-V6B4-PM-XXY-DA
4 PIN	Internal	MAC125A-V1G2-PM-XXY-DA	MAC125A-V2G2-PM-XXY-DA	MAC125A-V5G2-PM-XXY-DA	MAC125A-V6G2-PM-XXY-DA
MICRO	External	MAC125A-V1G4-PM-XXY-DA	MAC125A-V2G4-PM-XXY-DA	MAC125A-V5G4-PM-XXY-DA	MAC125A-V6G4-PM-XXY-DA
3 PIN	Internal	MAC125A-V1E2-PM-XXY-DA	MAC125A-V2E2-PM-XXY-DA	MAC125A-V5E2-PM-XXY-DA	MAC125A-V6E2-PM-XXY-DA
(Ford wired)	External	MAC125A-V1E4-PM-XXY-DA	MAC125A-V2E4-PM-XXY-DA	MAC125A-V5E4-PM-XXY-DA	MAC125A-V6E4-PM-XXY-DA
5 PIN MICRO	Internal	MAC125A-V1F2-PM-XXY-DA	MAC125A-V2F2-PM-XXY-DA	MAC125A-V5F2-PM-XXY-DA	MAC125A-V6F2-PM-XXY-DA
(Chrysler wired)	External	MAC125A-V1F4-PM-xxy-DA	MAC125A-V2F4-PM-XXY-DA	MAC125A-V5F4-PM-xxy-DA	MAC125A-V6F4-PM-XXY-DA

## DUAL PRESSURE VALVES (WITH LIGHTS)

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

_				
xx	Voltage	Y	Manual operator	150 2
11	120/60, 110/50	1	Non-locking	ISO 3
12	240/60, 220/50	2	Locking	
22	24/60, 24/50			MAC 125A
59	24 VDC (2.5 W)	•		
87	24 VDC (17.1 W)			MAC 250A
61	24 VDC (8.5 W)			MAG 6004
* Other	antions available, see page 357	-		MAC 500A

Other options available, see page 357.

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

171

100

200

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56 57

58

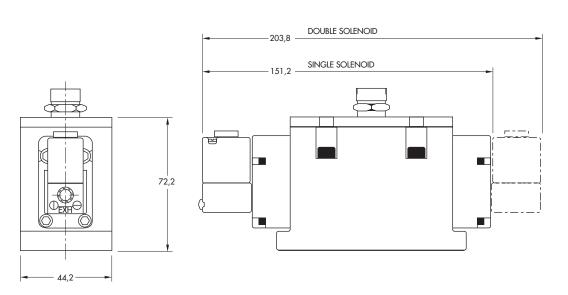




TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
Lubrication :	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, $\Delta P=1 bar$ ) :	1/4" : (2.2 C <sub>v</sub> ), 3/8" : (2.5 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

- 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





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

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

**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**

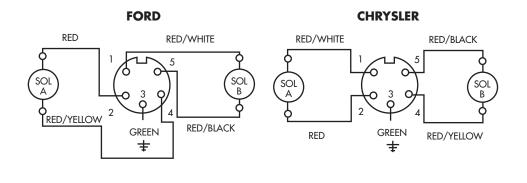
An external pilot supply is only required when the main valve pressure is less than 25 psi on single solenoid or 3 position valves and less than 10 psi on double solenoid 2 position valves. Pipe the external pilot supply to the External Pilot Port supplied in the valve base or manifold.

#### **VACUUM APPLICATIONS**

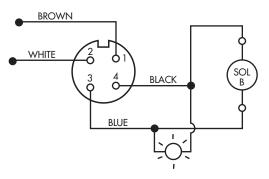
(2-Pos. Valves Only) - Use an External Pilot model as described above and also connect the vacuum source to the Exhaust Port and leave the Inlet Port open to atmosphere. The Inlet port may be connected to a pressure source to provide a selector application (vacuum/pressure).

#### **SELECTOR APPLICATIONS**

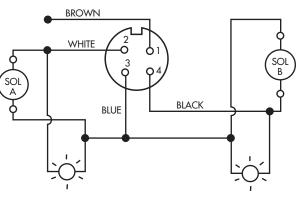
Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot Model and connect the higher pressure to the Inlet Port and the lower to Port EA or EB depending on which cylinder port is to be active.



4 PIN CONNECTOR : SINGLE



4 PIN CONNECTOR : DOUBLE



© Contraction of the series mac 250	Direct sole	noid and sole	enoid pilot operate	d valves
Function	Port size	Flow (Max)	Individual mounting & Manifold mounting	Series
5/2 - 5/3	1/2" - 3/4" - 1"	7.0 C <sub>v</sub>	valve only	
OPERATIONAL BENEFITS 1. Balanced spool, immun 2. Short stroke with high fl 3. High shifting forces. 4. Checked accumulator g pressure				35
	mum friction, shifting in a			100 200
8. Pilot valve with balance short and consistent res	ed poppet, high flow,			55

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
5 PIN	Internal	MAC250A-V1A2-PM-XXY-DA	MAC250A-V2A2-PM-XXY-DA	MAC250A-V5A2-PM-XXY-DA	MAC250A-V6A2-PM-XXY-DA
(Ford wired)	External	MAC250A-V1A4-PM-XXY-DA	MAC250A-V2A4-PM-XXY-DA	MAC250A-V5A4-PM-XXY-DA	MAC250A-V6A4-PM-XXY-DA
5 PIN	Internal	MAC250A-V1B2-PM-XXY-DA	MAC250A-V2B2-PM-XXY-DA	MAC250A-V5B2-PM-XXY-DA	MAC250A-V6B2-PM-XXY-DA
Chrysler wired)	External	MAC250A-V1B4-PM-XXY-DA	MAC250A-V2B4-PM-XXY-DA	MAC250A-V5B4-PM-XXY-DA	MAC250A-V6B4-PM-XXY-DA
4 PIN	Internal	MAC250A-V1G2-PM-XXY-DA	MAC250A-V2G2-PM-XXY-DA	MAC250A-V5G2-PM-XXY-DA	MAC250A-V6G2-PM-XXY-DA
MICRO	External	MAC250A-V1G4-PM-XXY-DA	MAC250A-V2G4-PM-XXY-DA	MAC250A-V5G4-PM-XXY-DA	MAC250A-V6G4-PM-XXY-DA
3 PIN	Internal	MAC250A-V1E2-PM-XXY-DA	MAC250A-V2E2-PM-XXY-DA	MAC250A-V5E2-PM-XXY-DA	MAC250A-V6E2-PM-XXY-DA
(Ford wired)	External	MAC250A-V1E4-PM-XXY-DA	MAC250A-V2E4-PM-XXY-DA	MAC250A-V5E4-PM-XXY-DA	MAC250A-V6E4-PM-XXY-DA
5 PIN MICRO	Internal	MAC250A-V1F2-PM-XXY-DA	MAC250A-V2F2-PM-XXY-DA	MAC250A-V5F2-PM-XXY-DA	MAC250A-V6F2-PM-XXY-DA
Chrysler wired)	External	MAC250A-V1F4-PM-XXY-DA	MAC250A-V2F4-PM-XXY-DA	MAC250A-V5F4-PM-XXY-DA	MAC250A-V6F4-PM-XXY-DA

# DUAL PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure center
5 PIN (Ford wired)	External	MAC250A-V3A4-PM-XXY-DA	MAC250A-V4A4-PM-XXY-DA	MAC250A-V7A4-PM-XXY-DA
5 PIN (Chrysler wired)	External	MAC250A-V3B4-PM-XXY-DA	MAC250A-V4B4-PM-XXY-DA	MAC250A-V7B4-PM-XXY-DA
4 PIN MICRO	External	MAC250A-V3G4-PM-XXY-DA	MAC250A-V4G4-PM-XXY-DA	MAC250A-V7G4-PM-XXY-DA
3 PIN (Ford wired)	External	MAC250A-V3E4-PM-XXY-DA	MAC250A-V4E4-PM-XXY-DA	MAC250A-V7E4-PM-XXY-DA
5 PIN MICRO (Chrysler wired)	External	MAC250A-V3F4-PM-XXY-DA	MAC250A-V4F4-PM-XXY-DA	MAC250A-V7F4-PM-XXY-DA
SOLENOID OPERATOR >		<u>xx</u> <u>Y</u> [	DA *	

		τ.,	
XX	Voltage	Ŷ	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)	-	
		-	

<sup>\*</sup> Other options available, see page 357.

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

175

56 57

58

**ISO 2** 

**ISO 3** 

**MAC 125A** MAC 2504 **MAC 500A** 

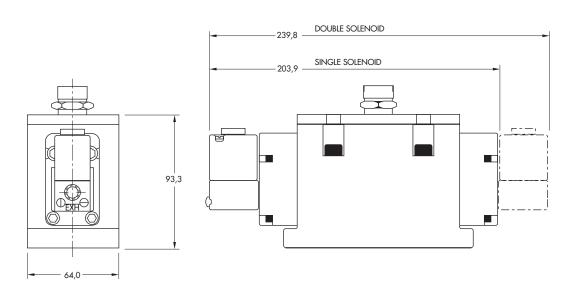




TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI
Lubrication :	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, $\Delta P=1bar)$ :	1/2" : (6.3 C <sub>v</sub> ), 3/4" : (6.4 C <sub>v</sub> ), 1" : (7.0 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

- 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





Individual mounting

valve only

	Series
	35
	55
	100
	200
	55 54
	56 57
	58
	59
	45
	700
	900
	82
	6300
	6500
	6600
	1300
	800
	ISO 1 ISO 2
	150 3
	MAC 125A
	MAC 250A
Consult "Processions" page 364 before use installation or course of MAC Values	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**

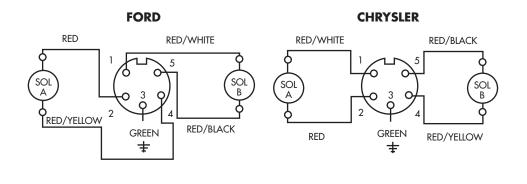
An external pilot supply is only required when the main valve pressure is less than 25 psi on single solenoid or 3 position valves and less than 10 psi on double solenoid 2 position valves. Pipe the external pilot supply to the External Pilot Port supplied in the valve base or manifold.

#### **VACUUM APPLICATIONS**

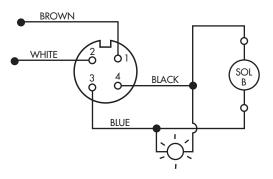
(2-Pos. Valves Only) - Use an External Pilot model as described above and also connect the vacuum source to the Exhaust Port and leave the Inlet Port open to atmosphere. The Inlet port may be connected to a pressure source to provide a selector application (vacuum/pressure).

#### **SELECTOR APPLICATIONS**

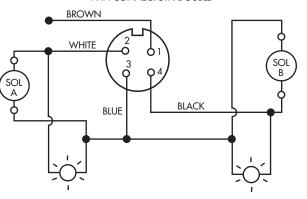
Use an External Pilot Model as described above if both pressures are below the minimum, otherwise use an Internal Pilot Model and connect the higher pressure to the Inlet Port and the lower to Port EA or EB depending on which cylinder port is to be active.



4 PIN CONNECTOR : SINGLE



4 PIN CONNECTOR : DOUBLE



Series MAC 500	Direct sole	enoidandso	olenoid pilot oper	ated valves
Function	Port size	Flow (Max)	Individual mounting	Series
5/2 - 5/3	1" - 1 1/4"	11.2 C <sub>v</sub>	valve only	
OPERATIONAL BENEFITS 1. Balanced spool, immune to 2. Short stroke with high flow 3. High shifting forces.				35
<ol> <li>Checked accumulator guar pressure</li> <li>Powerful return force thank machine and air arrive</li> </ol>	ks to the combination of			100

- mechanical and air springs. 6. Bonded spool with minimum friction, shifting in a
- glasslike finished bore.Wiping effect eliminates sticking.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
5 PIN	Internal	MAC500A-V1A2-PM-XXY-DA	MAC500A-V2A2-PM-XXY-DA	MAC500A-V5A2-PM-XXY-DA	MAC500A-V6A2-PM-XXY-DA
(Ford wired)	External	MAC500A-V1A4-PM-XXY-DA	MAC500A-V2A4-PM-XXY-DA	MAC500A-V5A4-PM-XXY-DA	MAC500A-V6A4-PM-XXY-DA
5 PIN	Internal	MAC500A-V1B2-PM-XXY-DA	MAC500A-V2B2-PM-XXY-DA	MAC500A-V5B2-PM-XXY-DA	MAC500A-V6B2-PM-XXY-DA
(Chrysler wired)	External	MAC500A-V1B4-PM-XXY-DA	MAC500A-V2B4-PM-XXY-DA	MAC500A-V5B4-PM-XXY-DA	MAC500A-V6B4-PM-XXY-DA
4 PIN	Internal	MAC500A-V1G2-PM-XXY-DA	MAC500A-V2G2-PM-XXY-DA	MAC500A-V5G2-PM-XXY-DA	MAC500A-V6G2-PM-XXY-DA
MICRO	External	MAC500A-V1G4-PM-XXY-DA	MAC500A-V2G4-PM-XXY-DA	MAC500A-V5G4-PM-XXY-DA	MAC500A-V6G4-PM-XXY-DA
3 PIN	Internal	MAC500A-V1E2-PM-XXY-DA	MAC500A-V2E2-PM-XXY-DA	MAC500A-V5E2-PM-XXY-DA	MAC500A-V6E2-PM-XXY-DA
(Ford wired)	External	MAC500A-V1E4-PM-XXY-DA	MAC500A-V2E4-PM-XXY-DA	MAC500A-V5E4-PM-XXY-DA	MAC500A-V6E4-PM-XXY-DA
5 PIN MICRO	Internal	MAC500A-V1F2-PM-XXY-DA	MAC500A-V2F2-PM-XXY-DA	MAC500A-V5F2-PM-XXY-DA	MAC500A-V6F2-PM-XXY-DA
(Chrysler wired)	External	MAC500A-V1F4-PM-XXY-DA	MAC500A-V2F4-PM-XXY-DA	MAC500A-V5F4-PM-XXY-DA	MAC500A-V6F4-PM-XXY-DA

## DUAL PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	6300
				6500
5 PIN (Ford wired)	External	MAC500A-V3A4-PM-XXY-DA	MAC500A-V4A4-PM-XXY-DA	- 6600
5 PIN (Chrysler wired)	External	MAC500A-V3B4-PM-XXY-DA	MAC500A-V4B4-PM-XXY-DA	
4 PIN MICRO	External	MAC500A-V3G4-PM-XXY-DA	MAC500A-V4G4-PM-XXY-DA	1300
3 PIN (Ford wired)	External	MAC500A-V3E4-PM-XXY-DA	MAC500A-V4E4-PM-XXY-DA	1500
5 PIN MICRO (Chrysler wire	d) External	MAC500A-V3F4-PM-XXY-DA	MAC500A-V4F4-PM-XXY-DA	800
SOLENOID OPERATOR > XX Y DA *				150 1
XX Voltage			Y Manual operator	ISO 2
11 120/60, 110/50			1 Non-locking	ISO 3
<b>12</b> 240/60, 220/50 <b>22</b> 24/60, 24/50			2 Locking	MAC 125
59 24 VDC (2.5 W)				
87 24 VDC (17.1 W)				<u>MAC 250</u>
61 24 VDC (8.5 W)				MAC 500

<sup>\*</sup> Other options available, see page 357.

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

179

200

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58

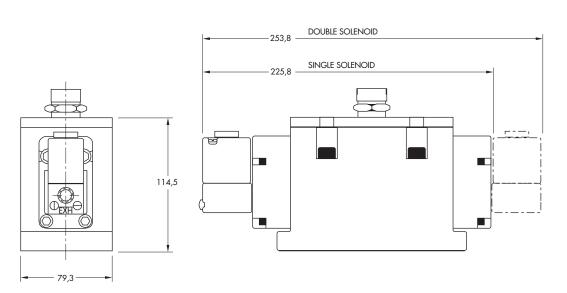




TECHNICAL DATA				
Fluid :	Compressed air, vacuum, inert gases			
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI			
	External pilot : vacuum to 150 PSI			
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 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, $\Delta P=1bar$ ) :	1" : (11.0 C <sub>v</sub> ), 1 1/4" : (11.2 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			

- 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





# Section 2 Remote air valves



Function	Port size	Flow (Max)
3/2 - 2/2	1/8" - 1/4"	0.18 C <sub>v</sub>
3/2 - 2/2	1/8″	0.18 C <sub>v</sub>
3/2 - 2/2	1/4" - 3/8"	2.5 C <sub>v</sub>
3/2 - 2/2	3/8" - 1/2" - 3/4"	6.2 C <sub>v</sub>
3/2 - 2/2	1/2" - 3/4" - 1"	17.4 C <sub>v</sub>
3/2 - 2/2	1" - 1 1/4" - 1 1/2"	33.5 C <sub>v</sub>
3/2 - 2/2	2" - 2 1/2"	65.0 C <sub>v</sub>
4/2	1/8" - 1/4"	0.7 C <sub>v</sub>
4/2	1/8" - 1/4"	0.8 C <sub>v</sub>
4/2	1/8" - 1/4"	1.4 C <sub>v</sub>
4/2 - 4/3	1/8" - 1/4" - 3/8"	1.35 C <sub>v</sub>
4/2 - 4/3	1/4" - 3/8"	1.35 C <sub>v</sub>
4/2 - 4/3	1/4" - 3/8" - 1/2"	3.0 C <sub>v</sub>
4/2 - 4/3	3/8" - 1/2" - 3/4"	5.1 C <sub>v</sub>
4/2 - 4/3	3/4" - 1"	9.6 C <sub>v</sub>
4/2 - 4/3	3/4" - 1" - 1 1/4" - 1 1/2"	15.9 C <sub>v</sub>
5/2 - 5/3	1/4″	1.4 C <sub>v</sub>
5/2 - 5/3	1/4" - 3/8"	1.6 C <sub>v</sub>
5/2 - 5/3	3/8" - 1/2"	3.0 C <sub>v</sub>
5/2 - 5/3	1/2" - 3/4"	6.3 C <sub>v</sub>

Ind	dividual mo	ounting		Manifold mo	unting		Series			
	Inline	sub-base	valve only	stacking	sub-base	valve only				
ł	P. 187									
_					P. 189			1100		
ł	P. 193							55		
ł	P. 197							56		
ł	P. 201							57		
ł	P. 205							58		
ł	P. 209							59		
ł	P. 213									
_				P. 215				700		
ł	P. 219			P. 221				900		
_		P. 225								
					P. 227			82		
		P. 231			P. 233			6300		
		P. 237			P. 239			6500		
		P. 243			P. 245			6600		
		P. 249						2700		
ł	P. 253							1800		
_			P. 257			P. 257		ISO 1		
_			P. 261			P. 261		ISO 2		
_			P. 265					ISO 3		



R

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Π (	) [	6	3	į	ſ	V	3	V	e	G
	Individual m	nounting						 	Series	
	Manifold mo	ounting						 	110	0
	sub-base								55	
									56	
									57 58	
									59	
									700	
									900	
									82	
									630	0
									650	0
									660	
									270	
									180	0

**ISO 1** 

**ISO 2** 

**ISO 3** 

<b>® Contractions R R Series 1100</b>	e M	ote a	ir va	IV e s
Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.18 C <sub>v</sub>	Inline	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced poppet, immune to varia pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. Powerful return spring.</li> <li>4. Maximum shifting forces.</li> </ul> HOW TO ORDER	ations of			1100 55 56 57 58 59
Port size		Universal valve	NC only value	
1/8" NPTF 1/4" NPTF		2 10 3V 1111A-111 1113A-111	   	900
Air pilot port : 1/8" NPTF.				82
				6300
				6500
				6600
				2700
				1800
				ISO 1
				ISO 2
				ISO 3





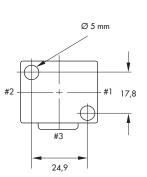
# TECHNICAL DATA

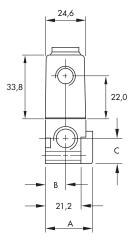
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	20 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 140°F (-18°C to 60°C)
Flow (at 6 bar, $\Delta P=1bar$ ) :	0.18 C <sub>v</sub>

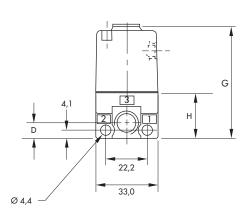
Options :

• BSPP threads.

DIMENSIONS







1/8″	28.4	12.7	14.0	8.0	60.1	23.2
1/4″	29.8	13.3	12.7	9.9	60.9	24.1

ереника Reт Series 1100	1012	air Va	l v e s						
Function Port size	Flow (Max)	Manifold mounting	Series						
3/2 NO-NC, 2/2 NO-NC 1/8"	0.18 C <sub>v</sub>	0.18 C <sub>v</sub> 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.									
			56 57 58						
HOW TO ORDER		- Cer	59						
Port size	Universal valve	NC only valve							
	CYL IN V VEXH		700						
Valve less base Sub-base 1/8" NPTF	1130A-111 1132A-111	1170A-111 1172A-111	900						
Air pilot port : 1/8" NPTF. End plate kit (1/4" ports) : A2-5004-01. OPTIONS			82						
11X2A-111 	nally closed.		6300						
- Replace by 4 for 2-way norm	nally open.		6500						
			6600						
			2700						
			1800						
			ISO 1						
			150 2						
			ISO 3						





# TECHNICAL DATA

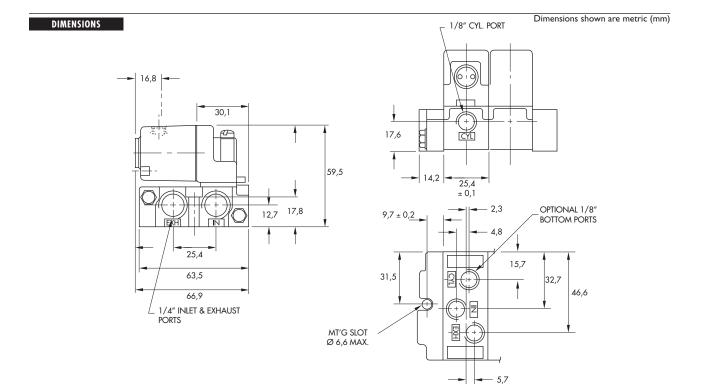
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	20 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 140°F (-18°C to 60°C)
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.18 C <sub>v</sub> )

Spare parts :

Options :

• Function plate : A2-7009. • Pressure seal between bases : 16226. • Tie-rod (x2) : 19546.

• BSPP threads.





R	e	Π	0	ľ	е	đ	į	ſ	V	g	V	6	5
			In	dividual m	ounting							Series	
				Inline									
												110	0
												55	
												56	
												57	
												58	
												59	
												700	)
												900	)
												82	

R Series <b>55</b>										
Function	Port size	Flow (Max)		lividual mounting		Series				
3/2 NO-NC, 2/2 NO-NC	1/4" - 3/8"	2.5 C <sub>v</sub>								
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.										
Port size	Air spring		NC valve		NO valve					
						700				
1/4" NPTF 3/8" NPTF 1/4" NPTF	Internal External		55B-11-RA 55B-12-RA 55B-11-RE		55B-22-RA 55B-22-RA 55B-22-RA					
3/8" NPTF Air pilot port : 1/8" NPTF.			55B-12-RE		55B-22-RE	82				
Note: Designation "RE" required on "RE" provides an external pilot port a supplies the air spring, it must not ex	and should have a pressure range	e of 25-100 PSI. Since				6300 6500 6600 2700 1800 ISO 1 ISO 2				





# 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>)

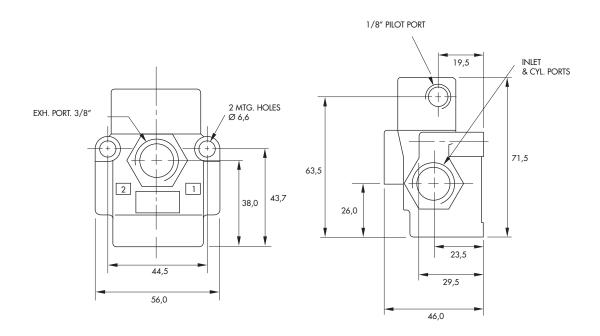
Spare parts :

Options :

• BSPP threads.

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

DIMENSIONS





R	е	Π	0	ŀ	e		9	i	ſ		V	3	V	e	S
	Individual mounting											Series			
														110	0
														55	

**ISO 1** 

150 2

No-NC, $2/2$ NO-NC $3/8" - 1/2" - 3/4"$ 6.2 CybillionDETAILOUAL EXHETIS1. Balanced spool, immune to variations of pressure.11002. Short strake with high flow.3. The piston (booster) provides maximum shifting froms.555. Bonded spool with minimum friction, shifting in a glasslike finished bore.55Viprig effect eliminates sticking.No value557. Low leakage rate. $-e \sum_{init v \in W} \frac{1}{1 + e^{it}}$ 56Total of a springNO valueOut of a size in the springNC valueNO valueTotal of a springNC valueNO valueTotal of a size in the springNC valueNO valueNO valueTotal of a size in the springNC valueNO valueNO valueOut of a size in the springNC valueNO valueSolo C-52 RE <th>© <b>Olympic Series 56</b></th> <th>R</th> <th>e</th> <th>m</th> <th>0</th> <th>ţ</th> <th>е</th> <th>a</th> <th>į</th> <th>ſ</th> <th>V</th> <th>g</th> <th> </th> <th>V</th> <th>e</th> <th>S</th>	© <b>Olympic Series 56</b>	R	e	m	0	ţ	е	a	į	ſ	V	g		V	e	S
Image: Section of the sectin of the section of the	Function		Port siz	£6		Flow (M	1ax]		Ir	ndividual mou	Inting				Series	
1 Belanced spool, timune to vortiotions of pressure11002 Short strick with high flow.553 Dipot (booter) provides maximum friction, shifting income characterize with high ressure.10003 Dipot decay spool with minimum friction, shifting in a gasking finished bore.10003 Dipot decay spool with minimum friction, shifting in a gasking finished bore.10003 Dipot decay spool with minimum friction, shifting in a gasking finished bore.10004 Dipot decay spool with minimum friction, shifting in a gasking finished bore.10003 Dipot decay spool with minimum friction, shifting in a gasking finished bore.10004 Dipot decay spool with minimum finished bore.10004 Dipot decay spool with minimum finished bore.10005 Dipot decay spoil with minimum finished bore.10005 Dipot decay spoil with minim with pressures of vocuum to 25 PSI.6 Dipot decay spoil with minim with pressure spool decay spoil pressure.6 Dipot decay spoil with minimim with pressure spool decay spoil pressure.6 Dipot decay	3/2 NO-NC, 2/2 NO-	NC	3/8"	- 1/2"	- 3/4"	6.2 0	' <b>v</b>			Inline						
Port sizeAir springNC valveNO valveEEE <th><ol> <li>pressure.</li> <li>Short stroke with high flow</li> <li>The piston (booster) provid shifting forces.</li> <li>Powerful return thanks to th mechanical and air spring</li> <li>Bonded spool with minimu in a glass-like finished bori</li> <li>Wiping effect eliminates st 7. Low leakage rate.</li> </ol></th> <th>w. des maxim the combir gs. um friction re.</th> <th>mum ination of</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>A CONTRACTOR</th> <th></th> <th></th> <th></th> <th></th> <th>55 56 57 58</th> <th>00</th>	<ol> <li>pressure.</li> <li>Short stroke with high flow</li> <li>The piston (booster) provid shifting forces.</li> <li>Powerful return thanks to th mechanical and air spring</li> <li>Bonded spool with minimu in a glass-like finished bori</li> <li>Wiping effect eliminates st 7. Low leakage rate.</li> </ol>	w. des maxim the combir gs. um friction re.	mum ination of							A CONTRACTOR					55 56 57 58	00
$\frac{-1}{10^{4} \text{ H}_{2}^{4} \text{ H}_{2}^{4}}{\frac{-2}{10^{4} \text{ H}_{2}^{4} \text{ H}_{2}^{4}}{\frac{-2}{10^{4} \text{ H}_{2}^{4} \text{ H}_{2}^{4}}}$ $\frac{3/8'' \text{ NPTF}}{1/2'' \text{ NPTF}} \frac{56C-52 \cdot \text{RA}}{56C-63 \cdot \text{RA}} \frac{56C-83 \cdot \text{RA}}{56C-83 \cdot \text{RA}}$ 900 $\frac{3/4'' \text{ NPTF}}{\frac{56C-52 \cdot \text{RE}}{56C-57 \cdot \text{RA}}} \frac{56C-83 \cdot \text{RE}}{56C-87 \cdot \text{RA}}$ $\frac{3/8'' \text{ NPTF}}{\frac{56C-52 \cdot \text{RE}}{56C-57 \cdot \text{RE}}} \frac{56C-83 \cdot \text{RE}}{56C-87 \cdot \text{RE}}$ 82 $\frac{3/4'' \text{ NPTF}}{\frac{56C-57 \cdot \text{RE}}{56C-57 \cdot \text{RE}}} \frac{56C-87 \cdot \text{RE}}{56C-87 \cdot \text{RE}}$ 6300 $\frac{6500}{100}$ 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 port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure range of 25-100 PSI. Since the external pilot port and should have a pressure pilot port and pilot po	Port size			Air	r spring			NC v	alve			NO valv	e		37	
No         No<											-				700	)
1/2" NPTF       External       56C-53-RE       56C-83-RE       82         3/4" NPTF       56C-57-RE       56C-87-RE       6300         Air pilot port : 1/8" NPTF.       6300       6500         Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 25 PSI.       6500         RE" provides an external pilot port and should have a pressure range of 25-100 PSI. Since the external       6500         pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.       6600         2700       1800	1/2" NPTF			þ	nternal			56C-:	52-RA 53-RA			56C-82-R 56C-83-R	▼ex A A		900	
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. 6600 2700 1800	1/2″ NPTF			E	:xternal			56C-	53-RE			56C-83-R	E		82	
'RE" provides an external pilot port and should have a pressure range of 25-100 PSI. Since the external       6500         silot supplies the air spring, it must not exceed the remote air pilot signal pressure.       6600         2700       1800	Air pilot port : 1/8" NPTF.														630	00
6600 2700 1800	"RE" provides an external pil	ilot port ar	ind should	l have a pre	ressure ranç	ge of 25-10	00 PSI. Si	f vacuum to 2 ince the exter	25 PSI. mal						650	00
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															270	00
ISO 1															180	00
															150	1
150 2															150	2
150 3															150	3
															194	





# 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.

• BSPP threads.

Options :

Dimensions shown are metric (mm) DIMENSIONS 1/8" REMOTE PILOT 37,5 Ø 8,6 MOUNTING HOLES PILOT EXHAUST OR REMOTE PILOT + 102,5 80,0 64,4 2 43,6 26,3 35,5 28,6 57,2 39,0 38,0 73,5 EXHAUST PORT 3/4" 76,0



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	Inc	dividual ı	nounting							Series	
		Inline					 		 	110	0
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- ISO 1
  - ISO 2 ISO 3

© R Series <b>57</b>	e m o l'	e a	i ſ	v a l	V e s
Function	Port size F	Пош (Max)	Individual mounti	ng	Series
3/2 NO-NC, 2/2 NO-NC	1/2" - 3/4" - 1"	17.4 C <sub>v</sub>	Inline		
<ol> <li>DPERATIONAL BENEFITS</li> <li>Balanced spool, immune to variation pressure.</li> <li>Short stroke with high flow.</li> <li>The piston (booster) provides maxim shifting forces.</li> <li>Powerful return thanks to the combin mechanical and air springs.</li> <li>Bonded spool with minimum friction, in a glass-like finished bore.</li> <li>Wiping effect eliminates sticking.</li> <li>Low leakage rate.</li> </ol>	ium nation of				1100 55 56 57 58
HOW TO ORDER					59
Port size	Air spring	NC	ralve	NO valve	
		12			700
1/2" NPTF 3/4" NPTF 1" NPTF	 Internal	57D-	IN <sup>©</sup> ♥ EX 51-RA 52-RA 53-RA	57D-81-RA 57D-82-RA 57D-83-RA	900
1/2" NPTF 3/4" NPTF	 External	57D-	51-RE	57D-81-RE 57D-82-RE	82
1" NPTF			53-RE	57D-83-RE	
Air pilot port : 1/8″ NPTF.					6300
Note: Designation "RE" required on re "RE" provides an external pilot port an	nd should have a pressure range of	f 25-75 PSI. Since the extern			6300 6500
Note: Designation "RE" required on re "RE" provides an external pilot port an	nd should have a pressure range of	f 25-75 PSI. Since the extern			
Note: Designation "RE" required on re "RE" provides an external pilot port an	nd should have a pressure range of	f 25-75 PSI. Since the extern			6500
Note: Designation "RE" required on re "RE" provides an external pilot port an	nd should have a pressure range of	f 25-75 PSI. Since the extern			6500 6600
Note: Designation "RE" required on re "RE" provides an external pilot port an	nd should have a pressure range of	f 25-75 PSI. Since the extern			6500 6600 2700
Air pilot port : 1/8" NPTF. Note: Designation "RE" required on re "RE" provides an external pilot port an supplies the air spring, it must not exce	nd should have a pressure range of	f 25-75 PSI. Since the extern			6500 6600 2700 1800





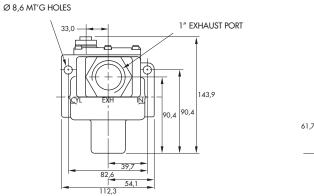
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	25 - 150 PSI ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1bar)$ :	1/2" : (11.0 C <sub>v</sub> ), 3/4" : (15.3 C <sub>v</sub> ), 1" : (17.4 C <sub>v</sub> )

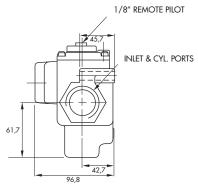
Options :

• BSPP threads.

• Remote air pilot block : R-59003. • Check valve : 70019.

## DIMENSIONS







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				Inline					 		 	110	0

**ISO 1** 

150 2

**ISO 3** 

© R Series <b>58</b>	e	m	0	ţ	е	đ	İ	ſ	V	đ		V	e	5
Function	Port siz	e		Floш (М	1ax)		Indivi	idual mounl	ing				Series	
3/2 NO-NC, 2/2 NO-NC	1" - 1	1/4" ·	11/2	33.5			In	line						
<ol> <li>OPERATIONAL BENEFITS</li> <li>Balanced spool, immune to variati pressure.</li> <li>Short stroke with high flow.</li> <li>The piston (booster) provides max shifting forces.</li> <li>Powerful return thanks to the comb mechanical and air springs.</li> <li>Bonded spool with minimum friction in a glass-like finished bore.</li> <li>Wiping effect eliminates sticking.</li> <li>Low leakage rate.</li> </ol>	imum pination of									8			110 55 56 57 58	0
HOW TO ORDER														
HOW TO ORDER Port size		Air	spring			NC valve			N	0 valve			59	
		Air	• spring			CYL			N D					)
Port size 1" NPTF 1 1/4" NPTF 1 1/2" NPTF			• <b>spring</b> nternal						D 58 58	CYL	ي ۲		59	
Port size		Ir				IE IE 58D-51-RA 58D-52-RA			DE 58 58 58 58 51 51	<b>CYL</b> <b>IN O</b> BD-81-RA BD-82-RA	य ww x		59 700	
Port size           1" NPTF           1 1/4" NPTF           1 1/2" NPTF           1 1/2" NPTF           1 1/4" NPTF           1 1/4" NPTF		Ir	nternal						DE 58 58 58 58 51 51	CYL T N T BD-81-RA BD-82-RA BD-83-RA BD-83-RA BD-81-RE BD-82-RE	ज *** *		59 700 900	)
Port size           1" NPTF           1 1/4" NPTF           1 1/2" NPTF           1 1/2" NPTF           1 1/4" NPTF           1 1/4" NPTF           1 1/2" NPTF           Air pilot port : 1/8" NPTF.           Note: Designation "RE" required on "RE" provides an external pilot port of the state of the stat	and should	Ir E: pilot mode have a pre	nternal xternal Is with mc	ige of 25-75			· · · · · · · · · · · · · · · · · · ·		DE 58 58 58 58 51 51	CYL T N T BD-81-RA BD-82-RA BD-83-RA BD-83-RA BD-81-RE BD-82-RE	۲ WW X		59 700 900 82	0
In Mathematical System           1 NPTF           1 1/4" MPTF           1 1/2" MPTF           1 1/4" MPTF           1 1/4" MPTF           1 1/2" MPTF           Air pilot port : 1/8" MPTF.           Note: Designation "RE" required on	and should	Ir E: pilot mode have a pre	nternal xternal Is with mc	ige of 25-75			· · · · · · · · · · · · · · · · · · ·		DE 58 58 58 58 51 51	CYL T N T BD-81-RA BD-82-RA BD-83-RA BD-83-RA BD-81-RE BD-82-RE	۲ ۲ ۲		59 700 900 82 630	0
Port size           1" NPTF           1 1/4" NPTF           1 1/2" NPTF           1 1/2" NPTF           1 1/4" NPTF           1 1/4" NPTF           1 1/2" NPTF           Air pilot port : 1/8" NPTF.           Note: Designation "RE" required on "RE" provides an external pilot port of the state of the stat	and should	Ir E: pilot mode have a pre	nternal xternal Is with mc	ige of 25-75			· · · · · · · · · · · · · · · · · · ·		DE 58 58 58 58 51 51	CYL T N T BD-81-RA BD-82-RA BD-83-RA BD-83-RA BD-81-RE BD-82-RE	x x		59 700 900 82 630 650	
Port size           1" NPTF           1 1/4" NPTF           1 1/2" NPTF           1 1/2" NPTF           1 1/4" NPTF           1 1/4" NPTF           1 1/2" NPTF           Air pilot port : 1/8" NPTF.           Note: Designation "RE" required on "RE" provides an external pilot port of the state of the stat	and should	Ir E: pilot mode have a pre	nternal xternal Is with mc	ige of 25-75			· · · · · · · · · · · · · · · · · · ·		DE 58 58 58 58 51 51	CYL T N T BD-81-RA BD-82-RA BD-83-RA BD-83-RA BD-81-RE BD-82-RE	3 WW x		59 700 900 82 630 650 660	
Port size           1" NPTF           1 1/4" NPTF           1 1/2" NPTF           1 1/2" NPTF           1 1/4" NPTF           1 1/4" NPTF           1 1/2" NPTF           Air pilot port : 1/8" NPTF.           Note: Designation "RE" required on "RE" provides an external pilot port of the state of the stat	and should	Ir E: pilot mode have a pre	nternal xternal Is with mc	ige of 25-75			· · · · · · · · · · · · · · · · · · ·		DE 58 58 58 58 51 51	CYL T N T BD-81-RA BD-82-RA BD-83-RA BD-83-RA BD-81-RE BD-82-RE	x		59 700 900 82 630 650 660 270	
Port size           1" NPTF           1 1/4" NPTF           1 1/2" NPTF           1 1/2" NPTF           1 1/4" NPTF           1 1/4" NPTF           1 1/2" NPTF           Air pilot port : 1/8" NPTF.           Note: Designation "RE" required on "RE" provides an external pilot port of the state of the stat	and should	Ir E: pilot mode have a pre	nternal xternal Is with mc	ige of 25-75			· · · · · · · · · · · · · · · · · · ·		DE 58 58 58 58 51 51	CYL T N T BD-81-RA BD-82-RA BD-83-RA BD-83-RA BD-81-RE BD-82-RE	X X 		59 700 900 82 630 650 650 270 180	) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) )





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) :	Norm. Closed :1" (18.7 Cv), 1 1/4" (23.0 Cv), 1 1/2" (24.9 Cv), Norm. Open : 1" (20.8Cv), 1 1/4" (23.8 Cv), 1 1/2" (26.0 Cv)

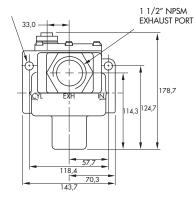
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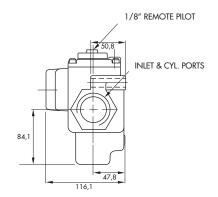
- Remote air pilot block : R-59003. Check valve : 70019.
- BSPP threads.

## DIMENSIONS

Dimensions shown are metric (mm)

### Ø 13,5 MT'G HOLES







R	e	Π	0	ŀ	9	đ	į	ſ	V	9	V	e	5
			Indiv	idual mo	unting							Series	

Inline

9	Series
	1100
	55
	56
	57
	58
	59
	700
	900
	82
	6300
	6500
	6600
	2700
	1800
	ISO 1
	150 2
	150 3

R Series <b>59</b>	e m	0	ľ	е	đ	į	ſ	V	3	V	e	5
Function P	Port size		Flow	(Max)		Ind	ividual moun	ting			Series	
3/2 NO-NC, 2/2 NO-NC 2	2″ - 2 1/2"		65.	o c <sub>v</sub>			Inline					
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune to variations pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The piston (booster) provides maximum shifting forces.</li> <li>4. Powerful return thanks to the combinat mechanical and air springs.</li> <li>5. Bonded spool with minimum friction, st in a glass-like finished bore.</li> <li>6. Wiping effect eliminates sticking.</li> <li>7. Low leakage rate.</li> </ul>	n tion of										110 55 56 57 58 59	0
Port size			A	ir spring				NC valv	/e		97	
								INÓ			700	)
2" NPTF 2 1/2" NPTF				Internal				59B-52-R 59B-53-R			900	)
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2 1/2" NPTF								59B-53-R	RA RE		900 82	)
2 1/2" NPTF 2" NPTF 2 1/2" NPTF	should have a p	ressure ran	ain valve   nge of 25	External pressures of va -75 PSI. Since	acuum to 25 P the external p	SI.		59B-53-F 59B-52-F	RA RE		82	0
2 1/2" NPTF 2" NPTF 2 1/2" NPTF Air pilot port : 1/8" NPTF. Note: Designation "RE" required on rema "RE" provides an external pilot port and	should have a p	ressure ran	ain valve   nge of 25	External pressures of va -75 PSI. Since	acuum to 25 P the external p	SI.		59B-53-F 59B-52-F	RA RE		82 630	0
2 1/2" NPTF 2" NPTF 2 1/2" NPTF Air pilot port : 1/8" NPTF. Note: Designation "RE" required on rema "RE" provides an external pilot port and	should have a p	ressure ran	ain valve   nge of 25	External pressures of va -75 PSI. Since	acuum to 25 P the external p	SI.		59B-53-F 59B-52-F	RA RE		82 630 650	0
2 1/2" NPTF 2" NPTF 2 1/2" NPTF Air pilot port : 1/8" NPTF. Note: Designation "RE" required on rema "RE" provides an external pilot port and	should have a p	ressure ran	ain valve   nge of 25	External pressures of va -75 PSI. Since	acuum to 25 P the external p	SI.		59B-53-F 59B-52-F	RA RE		82 630 650 660	
2 1/2" NPTF 2" NPTF 2 1/2" NPTF Air pilot port : 1/8" NPTF. Note: Designation "RE" required on rema "RE" provides an external pilot port and	should have a p	ressure ran	ain valve   nge of 25	External pressures of va -75 PSI. Since	acuum to 25 P the external p	SI.		59B-53-F 59B-52-F	RA RE		82 630 650 660 270	
2 1/2" NPTF 2" NPTF 2 1/2" NPTF Air pilot port : 1/8" NPTF. Note: Designation "RE" required on rema "RE" provides an external pilot port and	should have a p	ressure ran	ain valve   nge of 25	External pressures of va -75 PSI. Since	acuum to 25 P the external p	SI.		59B-53-F 59B-52-F	RA RE		82 630 650 660 270 180	





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> )

Options :

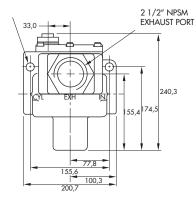
• BSPP threads.

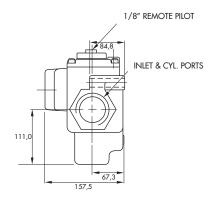
• Remote air pilot block : R-59003. • Check valve : 70019.

## DIMENSIONS

Dimensions shown are metric (mm)

### Ø 13,5 MT'G HOLES







R	6	Ш	0	ľ	6	g	į	ſ	V	g	V	6	S

Individual r	nounting	Series
Inline		
Manifold m	ounting	1100
stacking		55
		56
		57
		58
		59
		700
		900
		82
		6300
		6500
		6600
		2700
		1800
		<b>ISO 1</b>
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© Contraction of the series 700	R	e	Π	0	ţ	е	a	i	ſ	V	9	]	V	e	5	
Function	Port size					(Max)		In	udividual mou	Series	Series					
4/2	1/8" - 1/4"				0.7	C <sub>v</sub>			Inline							
OPERATIONAL BENEFITS 1. Balanced spool, immune to pressure. 2. Short stroke with high flow 3. The piston (booster) provise shifting forces. 4. Powerful return thanks to to	w. des maxii	num										AN AN	M	110 55	0	
<ol> <li>Powerful return thanks to the combination of mechanical and air springs.</li> <li>Bonded spool with minimum friction, shifting in a glass-like finished bore.</li> <li>Wiping effect eliminates sticking.</li> <li>Low leakage rate.</li> </ol>															56 57	
HOW TO ORDER									201	0	and the second			58		
Port s	ize				Sing	le operator				Double op	erator			59		
					<b>A</b> D						B B			700	)	
1/8″ 1						11C-11-RA				721C-11	-RA			000		
1/4″ !	NPTF				7	11C-12-RA				721C-12	-RA			900		
HOW TO ORDER VALV	e with	FLOW (	CONTRC	OLS												
Port s	ize				Sing	jle operator				Double op	erator			82		
					<b>A</b> ⊡∑	IIV VEX								630	0	
1/8″ P 1/4″ P						12C-11-RA 12C-12-RA				722C-11 722C-12				650	0	
Air pilot port : 1/8" NPTF.					,					, 220 12				660		
														270	0	
														180	0	
														ISO	1	
														<b>ISO</b>	2	
														150	3	





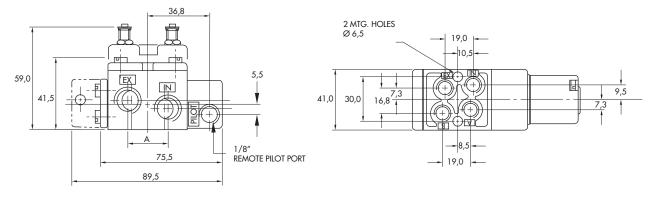
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator : 20 to 150 PSI ≥ main valve pressure
	Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1bar)$ :	1/8" : (0.6 C <sub>v</sub> ), 1/4" : (0.7 C <sub>v</sub> )

• Remote air operator : R-07002. • Valve cover plate with integral flow controls : N-07002.

Spare parts : Options :

• BSPP threads.

DIMENSIONS





© Contraction of the series 700	R e	Π	0	ľ	6	5	į	ſ	V	3		V	е	5
Function							Mā	anifold mounti	Series					
4/2	1/8"	- 1/4"		0.8	c <sub>v</sub>			stacking						
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune to v pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The piston (booster) provides shifting forces.</li> <li>4. Powerful return thanks to the mechanical and air springs.</li> <li>5. Bonded spool with minimum in a glass-like finished bore.</li> <li>6. Wiping effect eliminates stick 7. Low leakage rate.</li> </ul>	s maximum combination of friction, shifting						â	1			000		110 55 56 57 58 59	0
Port size	•			Sing	le operator				Double ope	rator			37	
				<b>▲</b> ⊡									700	
1/8" NP1					3C-11-RA 3C-12-RA				723C-11- 723C-12-				900	)
HOW TO ORDER VALVE V	WITH FLOW (		S											
Port size	ŧ			Sing	le operator				Double ope	rator			82	
				<b>▲</b> ⊡									630	0
				71										
1/8" NP1					4C-11-RA 4C-12-RA				724C-11- 724C-12-				650	0
<b>1/4" NPT</b> End plate kit (Port size 1/4") : <i>N</i>	rf M-07001-01-01				4C-11-RA 4C-12-RA								650 660	
<b>1/4" NPT</b> End plate kit (Port size 1/4") : <i>N</i>	ſF												660	0
1/4" NPT End plate kit (Port size 1/4") : A	rf M-07001-01-01													0
1/4" NP1 End plate kit (Port size 1/4") : N	rf M-07001-01-01												660	0
1/4" NP1 End plate kit (Port size 1/4") : A	rf M-07001-01-01												660 270	0
1/4" NP1 End plate kit (Port size 1/4") : N	rf M-07001-01-01												660 270 180	0 0 0 1



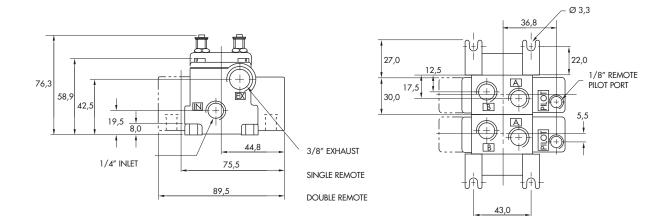


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator : 20 to 150 PSI ≥ main valve pressure
	Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
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> )

- 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





R	e	Π	0	ŀ	6	đ	į	ſ		V	3		V	e	S
Individual mounting											Series				
Manifold mounting											110	0			

stacking

**ISO 1** 

ISO 2

Series 900	R e m		t e	a i	ſ V	al	V e s
Function	Port size		Flow (Max)	Indi	vidual mounting		Series
4/2	1/8" - 1/4	4"	1.4 C <sub>v</sub>		Inline		
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune to 2. Short stroke with high flow.</li> <li>3. The piston (booster) provide forces.</li> <li>4. Powerful return thanks to the mechanical and air springs.</li> <li>5. Bonded spool with minimum glass-like finished bore.</li> <li>6. Wiping effect eliminates stic.</li> <li>7. Low leakage rate.</li> </ul>	es maximum shifting e combination of s. n friction, shifting in a						1100 55 56 57 58 50
Port size	Ie		Single operator		Double or	perator	59
					700		
			OIN VEX		~n		
1/8″ NP			911B-RA		921B-		
1/4″ NP						RA	900
			911B-RA		921B-	RA	900 82
1/4″ NP			911B-RA		921B-	RA	82 6300
1/4″ NP			911B-RA		921B-	RA	82
1/4" NP			911B-RA		921B-	RA	82 6300
1/4" NP			911B-RA		921B-	RA	82 6300 6500
1/4" NP			911B-RA		921B-	RA	82 6300 6500 6600
1/4" NP			911B-RA		921B-	RA	82 6300 6500 6600 2700
1/4" NP			911B-RA		921B-	RA	82 6300 6500 6600 2700 1800
1/4″ NP			911B-RA		921B-	RA	82 6300 6500 6600 2700 1800 ISO 1





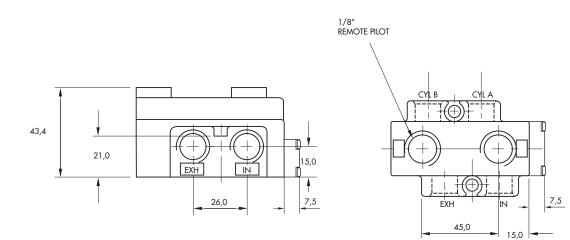
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator : 25 to 150 PSI ≥ main valve pressure
	Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1 bar)$ :	1/8" : (0.8 C <sub>v</sub> ), 1/4" : (1.2 C <sub>v</sub> )

• Remote air operator (single operator) : R-09002-01. • Remote air operator ( double operator) : R-09002-02.

Options :

• BSPP threads.

DIMENSIONS



© Contraction of the series 900	e m	0	ľ	e	3	İ	ſ	V	3		V	9	5			
Function	Port size		Flow (	Max]		Mar	nifold mounti	ING				Series				
4/2	1/8" - 1/4'	T	1.4 (	c <sub>v</sub>		5	tacking									
<ul> <li>DPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune to variation</li> <li>2. Short stroke with high flow.</li> <li>3. The piston (booster) provides maxing forces.</li> <li>4. Powerful return thanks to the combine mechanical and air springs.</li> <li>5. Bonded spool with minimum friction glass-like finished bore.</li> <li>6. Wiping effect eliminates sticking.</li> <li>7. Low leakage rate.</li> </ul>	imum shifting bination of									ė	110 55 56 57 58 59	0				
Port size			Single	Single operator Double operator												
			▲ ⊡∑									700				
1/8" NPTF 1/4" NPTF				13B-RA 14B-RA		924B-RA						900				
Air pilot port : 1/8″ NPTF. Manifold fastening kit (3/8" NPT	PTF) : M-09001-0	1.										82 630 650 660 270 180 150 150	0 0 0 0 0 1			



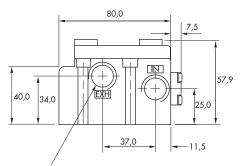


#### TECHNICAL DATA Fluid : Compressed air, vacuum, inert gases Pressure range : Vacuum to 150 PSI Air signal pressure : Single operator : 25 to 150 PSI $\geq$ main valve pressure Double operator : 10 to 150 PSI Lubrication : Not required, if used select a medium aniline point lubricant (between 180°F to 210°F) Filtration : 40 µ 0°F to 120°F (-18°C to 50°C) Temperature range : Flow (at 6 bar, $\Delta P=1bar$ ): 1/8" : (0.8 C<sub>v</sub>), 1/4" : (1.2 C<sub>v</sub>)

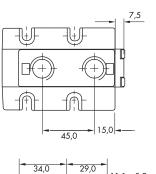
Spare parts :

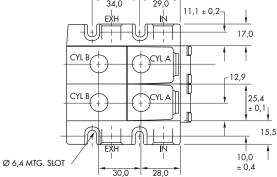
- Remote air operator (single operator) : R-09002-01.
  Remote air operator (double operator) : R-09002-02.
  Pressure seal between valves : 16358.
  Tie-rod (x2) : 19615.
- Options :
- BSPP threads.

DIMENSIONS



3/8" INLET & EXH







Remote air valve	R	6	Π	0	ŀ	6		D	į	ſ		V	D		V	6	S
------------------	---	---	---	---	---	---	--	---	---	---	--	---	---	--	---	---	---

Individual mounting	Series
sub-base	
Manifold mounting	1100
sub-base	55
	56
	57
	58
	59
	700
	900
	82
	6300
	6500
	6600
	2700
	1800
	<b>ISO 1</b>
	ISO 2
	150 3

© Contraction of the series <b>82</b>	R	e	Π	0	ľ	е	9	į	ſ	V	đ		V	e	9
Function		Port size	;		Flow (M	lax]		In	dividual mou	inting				Series	
4/2 - 4/3		1/8"	- 1/4"	- 3/8"	1.35	c <sub>v</sub>			sub-base						
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune pressure.</li> <li>2. Short stroke with high flo</li> <li>3. The piston (booster) provishifting forces.</li> <li>4. Powerful return thanks to mechanical and air sprints</li> <li>5. Bonded spool with minim in a glass-like finished bc</li> <li>6. Wiping effect eliminates</li> <li>7. Low leakage rate.</li> </ul>	w. ides maxir the combi gs. um frictior re.	mum ination of								0000	0	0		110 55 56 57 58	0
HOW TO ORDER										and a state of the					

### HOW TO ORDER

OPTIONS

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
Valve less base	82A-AB-000-RA	82A-BB-000-RA	82A-EB-000-RA	82A-FB-000-RA	82A-GB-000-RA
Sub-base 1/8" NPTF	82A-AB-AAA-RA	82A-BB-AAD-RA	82A-EB-AAD-RA	82A-FB-AAD-RA	82A-GB-AAD-RA
Sub-base 1/4" NPTF	82A-AB-BAA-RA	82A-BB-BAD-RA	82A-EB-BAD-RA	82A-FB-BAD-RA	82A-GB-BAD-RA
Sub-base 3/8" NPTF	82A-AB-CAA-RA	82A-BB-CAD-RA	82A-EB-CAD-RA	82A-FB-CAD-RA	82A-GB-CAD-RA

82A- <u>A</u> B-000-RA	
- For du	al pressure valves, replace A by C, B by D, E by M, F by L, G by H.

6300 6500

59

700

900

82

- 2700
- 1800
- **ISO 1**
- .....
  - ISO 2 ISO 3



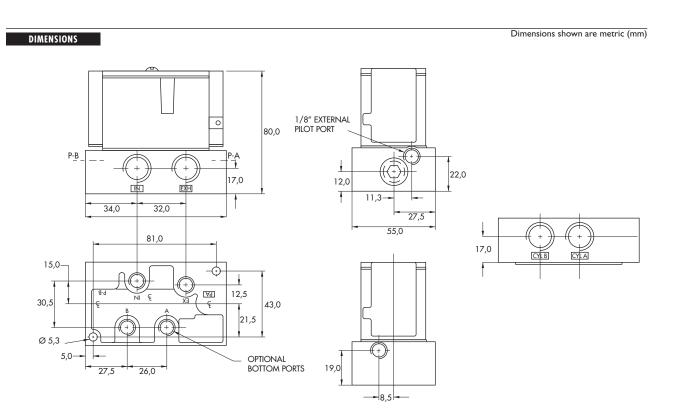


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 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" : (0.9 C <sub>v</sub> ), 1/4" : (1.3 C <sub>v</sub> ), 3/8" : (1.35 C <sub>v</sub> )

• Remote air adapter assy.: R-82003.

• BSPP threads.

Options :



©		R	е	Π	0	ľ	е	ai	i	ſ	V	T	3		V	e	5	
Function			Port size	;		Floш (М	lax]		Manif	fold mount	ting					Series		
4/2 - 4/3			1/4" -	- 3/8"		1.35	c <sub>v</sub>		sub	o-base								
<ul> <li>OPERATIONAL BEN</li> <li>1. Balanced spool, pressure.</li> <li>2. Short stroke with</li> <li>3. The piston (boost)</li> </ul>	l, immune to ve th high flow.										last of					110	)0	
<ol> <li>The piston (boos shifting forces.</li> <li>Powerful return</li> </ol>												r	1	-		55		
<ul><li>mechanical and</li><li>5. Bonded spool w</li></ul>	d air springs.								-	1			3	1		56		
in a glass-like fi 6. Wiping effect e	inished bore.		,						-	131		E.	0			57		
7. Low leakage rat		ç								0	0.0	9	03	1				
										the l	Em.	199				58		
HOW TO ORDE	ER Pilot air						-			- (1						59		
POTI SIZE	Pilor un	Sir	4/2 ingle opera	ator	Doubl	4/2 le operato		4/3 Closed center	ļ	4/3 Open ce		F	4 Pressur	/3 re cente	er		_	
		A 			▲ ⊡⊵[▲		ь в  м		а в — ——[] у уу[]			в 			ম ব– – ব্য	700		
Valve	Internal	82A	A-AB-000-TM-	ŶEX	82A-BB	<sup>8</sup> IN ♥EX 3-000-TM-RA11	1	₩ <sup>8</sup> ♥ex 82A-EB-000-TM-RA11	8	32A-FB-000-		8		• <b>†ex</b> 00-TM-RA	.11			
less base	only															900	)	
Sub-base	Internal		A-AB-BKA-TM-			B-BKA-TM-RA1		82A-EB-BKA-TM-RA11		B2A-FB-BKA-				KA-TM-RA				
1/4" NPTF Sub-base	External		A-AB-BKD-TM- A-AB-CKA-TM-			B-BKD-TM-RA1		82A-EB-BKD-TM-RA11 82A-EB-CKA-TM-RA11		32A-FB-BKD- 32A-FB-CKA-				KD-TM-RA KA-TM-RA		82		
SUB-base 3/8″ NPTF	Internal External		A-AB-CKA-IM- A-AB-CKD-TM-			-CKA-IM-RAT		82A-EB-CKA-IM-RATT 82A-EB-CKD-TM-RATT		32A-FB-CKA- 32A-FB-CKD-				KA-IM-RA		UZ		
OPTIONS	· ·										Im 19 1					630	10	
82A- <u>A</u> B-000-TM-RA					·	1										650		
└── - Fo	or dual press	sure vo	alves, repi	lace A b	зу С, В by	y D, E by /	M, F by	by L, G by H.								UDV		
Manifold fasteni	ing kit : N-8	2005	-01.													660	)0	
																270	)0	

- 1800
- **ISO 1** 
  - 150 2
  - **ISO 3**



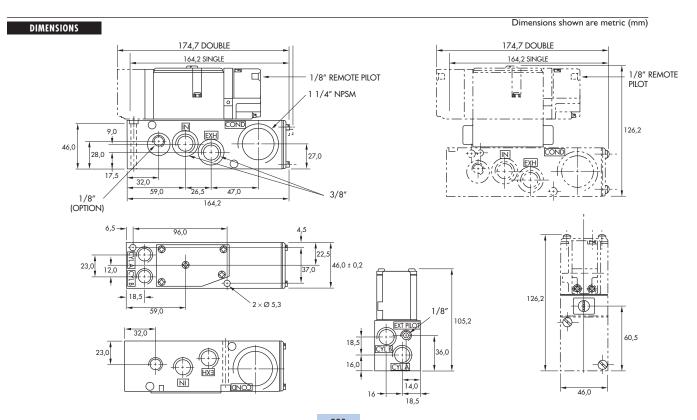


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	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> )

• Remote air operated pilot : TM-RA11.

Options :

BSPP threads.





R	6	Ш	0	ŀ	6	а	į	ſ	V	D	V	6	S

Individual mounting	Series
sub-base	
Manifold mounting	1100
sub-base	55
	56
	57
	58
	59
	700
	900
	82
	6300
	6500
	6600
	2700
	1800
	150 1
	150 2
	ISO 3

BBB	R	6	Π	0	ľ	e	đ	į	ſ		V	9		V	е	S
Series <b>6300</b> Function		Port size	9		Flow	(Max)		Ind	lividual mo	unting					Series	
4/2 - 4/3		1/4"	- 3/8"	- 1/2"	3.0	c <sub>v</sub>		2	sub-base							
<b>OPERATIONAL BENEFITS</b> <ol> <li>Balanced spool, immune pressure.</li> <li>Short stroke with high flo</li> </ol>	w.								-	E	8				110	0
<ol> <li>The piston (booster) prov shifting forces.</li> <li>Powerful return thanks to</li> </ol>								0		T	1	6	5	-	55	
mechanical and air sprin 5. Bonded spool with minin in a glass-like finished bo	num friction	n, shifting						2		to	-		TI		56	
<ul> <li>6. Wiping effect eliminates</li> <li>7. Low leakage rate</li> </ul>								4	3	9.			C.	D.	57	

S.S.

58

6300

6500

6600

2700

1800

**ISO 1** 

**ISO 2** 

**ISO 3** 

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	
alve less base	6312D-000-RA	6322D-000-RA	6332D-000-RA	6342D-000-RA	
Sub-base 1/4" NPTF	6312D-131-RA	6322D-141-RA	6332D-141-RA	6342D-141-RA	
Sub-base 3/8" NPTF	6312D-231-RA	6322D-241-RA	6332D-241-RA	6342D-241-RA	
Sub-base 1/2" NPTF	6312D-331-RA	6322D-341-RA	6332D-341-RA	6342D-341-RA	

#### OPTIONS

6312D-13<u>1</u>-RA

- - For bottom ports (excluding 1/2"), replace by 4.





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 ≥ 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) :	1/4" : (2.0 C <sub>v</sub> ), 3/8" : (2.6 C <sub>v</sub> ), 1/2" : (3.0 C <sub>v</sub> )

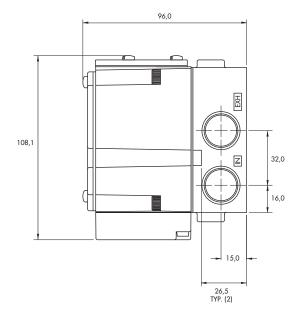
Remote air operator (A side): R-63004A.
Remote air operator (B side): R-63005A.
Seal between valve and base: 16298.
Mounting screw valve to base (x4): 35303.

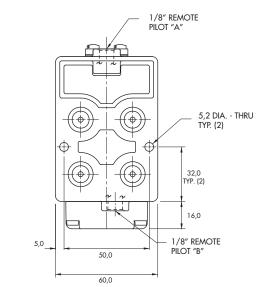
Options :

• BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)





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

Series 6300	R	е	Π	0	1	е	đ	į	ſ	V	3		V	е	S
Function		Port size	ļ		Flow (1	1ax]		Mā	inifold moun	lting				Series	
4/2 - 4/3		1/4"	- 3/8"	- 1/2"	3.0 0	v			sub-base						
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune pressure.</li> <li>2. Short stroke with high flo</li> <li>3. The piston (booster) provishifting forces.</li> </ul>	w.								e			1		110 55	0
<ol> <li>Powerful return thanks to mechanical and air sprin</li> <li>Bonded spool with minim</li> </ol>	gs. ium frictior							ίĝ,	Line .	1.		1	0	56	
in a glass-like finished bc 6. Wiping effect eliminates 7. Low leakage rate.								2		B Harris (B)		). Qa	3	57	
									4.04	Rg Para	6.4			58	

## HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
alve less base	6312D-000-RA	6322D-000-RA	6332D-000-RA	6342D-000-RA
Sub-base 1/4" NPTF	6312D-431-RA	6322D-441-RA	6332D-441-RA	6342D-441-RA
Sub-base 3/8" NPTF	6312D-531-RA	6322D-541-RA	6332D-541-RA	6342D-541-RA
Sub-base 1/2" NPTF	6312D-631-RA	6322D-641-RA	6332D-641-RA	6342D-641-RA

#### OPTIONS

6312D-43<u>1</u>-RA

- - For bottom cylinder ports, replace by 4.

Fastening kit : N-63002-01

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

6300

6500

6600

2700

1800

**ISO 1** 

**ISO 2** 

**ISO 3** 





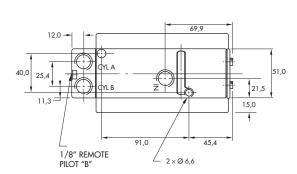
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1bar)$ :	1/4" : (2.0 C <sub>v</sub> ), 3/8" : (2.6 C <sub>v</sub> ), 1/2" : (3.0 C <sub>v</sub> )

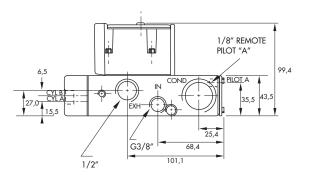
Remote air operator (A side): R-63004A.
Remote air operator (B side): R-63005A.
Seal between valve and base: 16298.
Mounting screw valve to base (x4): 35303.
Tie-rod (x2): 19624.

Options :

• BSPP threads.

DIMENSIONS







	R e	Π	0	t e	đ	i ſ	V	Ð	l V	6	S
--	-----	---	---	-----	---	-----	---	---	-----	---	---

Individual mounting	Series
sub-base	
Manifold mounting	1100
sub-base	55
	56
	57
	58
	59
	700
	900
	82
	6300
	6500
	6600
	2700
	1800
	ISO 1
	150 2
	ISO 3

© <b>Contraction</b> Series <b>6500</b>	R	e	Π	0	ţ	е	3	į	ſ	V	đ		V	е	5
Function		Port size	,		Floш	(Max)		In	dividual mour	nting				Series	
4/2 - 4/3		3/8" -	- 1/2"	- 3/4"	5.1	c <sub>v</sub>			sub-base						
OPERATIONAL BENEFITS										_					
<ol> <li>Balanced spool, immune t pressure.</li> </ol>	to variatic	ons of								D all	-II	92		110	0
<ol> <li>Short stroke with high flow</li> <li>The piston (booster) provide</li> </ol>		num								and the	- 5				
shifting forces.									0					55	
<ol> <li>Powerful return thanks to t mechanical and air spring</li> </ol>		nation of								0		P			
5. Bonded spool with minimu in a glass-like finished boi	um frictior	n, shifting							e			6		56	

6. Wiping effect eliminates sticking.7. Low leakage rate.

#### HOW TO ORDER

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
Valve	6512B-000-RA	6522B-000-RA	6532B-000-RA	6542B-000-RA	6552B-000-RA
less base					
Sub-base 3/8" NPTF	6512B-131-RA	6522B-141-RA	6532B-141-RA	6542B-141-RA	6552B-141-RA
Sub-base 1/2" NPTF	6512B-231-RA	6522B-241-RA	6532B-241-RA	6542B-241-RA	6552B-241-RA
Sub-base 3/4" NPTF	6512B-331-RA	6522B-341-RA	6532B-341-RA	6542B-341-RA	6552B-341-RA
					·

#### OPTIONS

6512B-13<u>1</u>-RA

Dual pressure valves : replace by 4. (excluding 3/4" base)

6300

57

58

# 6500

- 6600
- 2700
- 1800
- **ISO 1**
- **ISO 2** 
  - 150 3





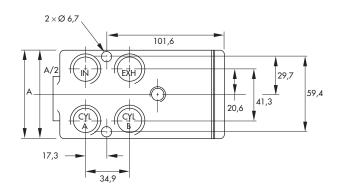
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 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) :	3/8" : (4.5 C <sub>v</sub> ), 1/2" : (5.0 C <sub>v</sub> ), 3/4" : (5.1 C <sub>v</sub> )

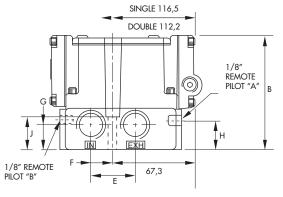
• Remote air operator : R-00008. • Seal between valve and base : 16246. • Mounting screw valve to base (x4) : 32201.

Options :

• BSPP threads.

DIMENSIONS





3/8" & 1/2"	69.6	97.4	36.0	17.9	19.0	23.6	25.4
3/4″	94.5	109.3	40.1	19.2	20.8	35.9	36.6

© Series 6500	R	e	Π	0		9	đ	į	ſ	V	đ	V	е	5
Function		Port size	ļ		Flow (Ma	X]		Mā	nifold mount	ing			Series	
4/2 - 4/3		3/8"	- 1/2"	- 3/4"	5.1 C <sub>v</sub>				sub-base					
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune pressure.</li> <li>2. Short stroke with high fla</li> <li>3. The piston (booster) prov shifting forces.</li> <li>4. Powerful return thanks to mechanical and air sprir</li> <li>5. Bonded spool with minin in a glass-like finished ba</li> <li>6. Wiping effect eliminates</li> <li>7. Low leakage rate.</li> </ul>	ow. vides maxin the combings. num friction ore.	mum ination of							Provide a constraint of the second se	in a large state of the second state of the se			110 55 56 57 58	0

#### HOW TO ORDER

	4/2 ingle operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
4		A AB B			
-					
Valve	6512B-000-RA	6522B-000-RA	6532B-000-RA	6542B-000-RA	6552B-000-RA
less base					
Sub-base 3/8" NPTF	6512B-431-RA	6522B-441-RA	6532B-441-RA	6542B-441-RA	6552B-441-RA
Sub-base 1/2" NPTF	6512B-531-RA	6522B-541-RA	6532B-541-RA	6542B-541-RA	6552B-541-RA
Sub-base 3/4" NPTF	6512B-631-RA	6522B-641-RA	6532B-641-RA	6542B-641-RA	6552B-641-RA

#### OPTIONS

6512B-43<u>1</u>-RA

- For dual pressure valves, replace by 4.

Fastening kit : N-65002-01.

# 6300

6500 6600 2700

**ISO** 1

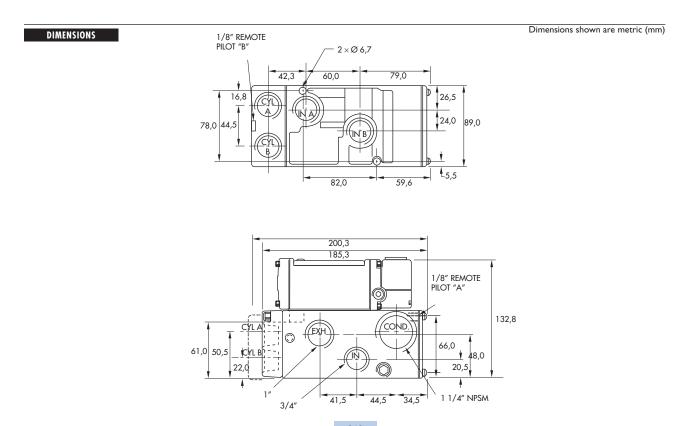
- **ISO 2**
- **ISO 3**





Compressed air, vacuum, inert gases
Vacuum to 150 PSI
Single operator and 3 positions : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
40 µ
0°F to 120°F (-18°C to 50°C)
3/8" : (4.5 C <sub>v</sub> ), 1/2" : (5.0 C <sub>v</sub> ), 3/4" : (5.1 C <sub>v</sub> )

- 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.





R	6	Ш	0	ŀ	6	а	į	ſ	V	D	V	6	S

Individual mounting	Series
sub-base	
Manifold mounting	1100
sub-base	55
	56
	57
	58
	59
	700
	900
	82
	6300
	6500
	6600
	2700
	1800
	150 1
	150 2
	ISO 3

© Contraction of the series 6600	R	e	Π	0	ľ	e	3	į	ſ	V	Ð		V	9	5
Function		Port size	9		Floш (	Max]		Inc	lividual moun	ting				Series	
4/2 - 4/3		3/4"	- 1"		9.6	c <sub>v</sub>			sub-base						
<ol> <li>OPERATIONAL BENEFITS</li> <li>Balanced spool, immune pressure.</li> <li>Short stroke with high flo</li> <li>The piston (booster) provishifting forces.</li> <li>Powerful return thanks to mechanical and air sprints</li> <li>Bonded spool with minimin a glass-like finished boostic.</li> <li>Wiping effect eliminates</li> <li>Low leakage rate.</li> </ol>	w. ides maxir the combi gs. um friction re.	mum ination of										A. 0		110 55 56 57 58	0
HOW TO ORDER														59	

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
Valve	6612A-000-RA	6622A-000-RA	6632A-000-RA	6642A-000-RA	6652A-000-RA
less base					
ub-base 3/4" NPTF	6612A-231-RA	6622A-241-RA	6632A-241-RA	6642A-241-RA	6652A-241-RA
Sub-base 1" NPTF	6612A-331-RA	6622A-341-RA	6632A-341-RA	6642A-341-RA	6652A-341-RA

## OPTIONS

6612A-23<u>1</u>-RA

— Dual pressure valves : replace by 4.

6300

6500

6600

2700

1800

**ISO** 1

150 2

150 3





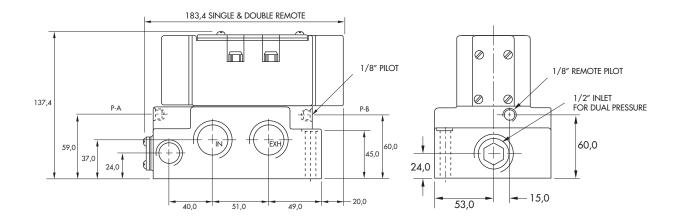
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1 bar)$ :	3/4" : (9.0 C <sub>v</sub> ), 1" : (9.6 C <sub>v</sub> )

Options :

• Remote air operator : R-A3004. • Pressure seal between valve and base : 16436. • Mounting screw valve to base (x4) : 35416.

BSPP threads.

DIMENSIONS



© Contraction of the series 6600	R	e	Π	1 0	e	đ	į	ſ		/	đ		V	e	S
Function		Port size		Flow (M	ax]		M	lanifold mou	nting					Series	
4/2 - 4/3		3/4" -	1"	9.6 C	v			sub-base							
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune pressure.</li> <li>2. Short stroke with high fla</li> <li>3. The piston (booster) prov shifting forces.</li> </ul>	ow.								-		T		1	110	0
<ol> <li>Powerful return thanks to mechanical and air sprir</li> <li>Bonded spool with minin</li> </ol>	ngs.										-	1.		56	
in a glass-like finished bo 6. Wiping effect eliminates 7. Low leakage rate.	ore.	,							111:12		21	9	}	57	
								0			0			58	
HOW TO ORDER										9				59	
Port size		4/2 operator	D	4/2 ouble operator		4/3 ed center		4/: Open co				/3 'e cente	r		
	▲ ⊡									в [] w(1		B A A T V T EXH	A ব⊢- ব্য₩	700	
Valve less base		00-PM-RA11		22A-000-PM-RA11	6632A-0	000-PM-RA11		6642A-000-			52A-00	io-pm-ra		900	
Sub-base 3/4" NPTF Sub-base 1" NPTF		31-PM-RA11 31-PM-RA11		22A-441-PM-RA11 22A-541-PM-RA11		41-PM-RA11 541-PM-RA11		6642A-441- 6642A-541-				1-PM-RA			
OPTIONS		<u> </u>												82	
6612A-XXX-PM-RA11	r dual pre	ssure valve	es, repla	ce by 4.										630	0
Fastening kit : N-66002	-		· 1	,										650	0
														660	0
														270	0

- 1800
- **ISO 1**
- 150 2
- **ISO 3**



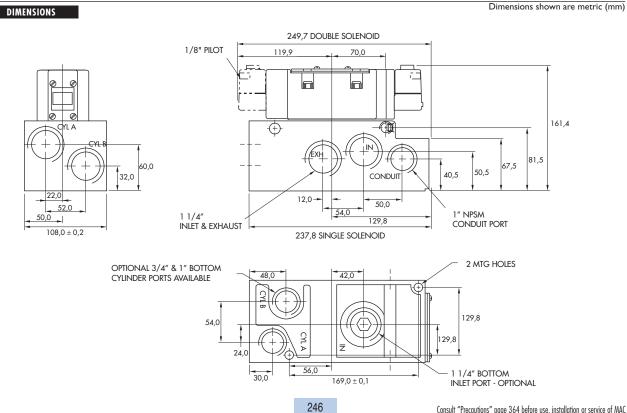


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 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) :	3/4" : (9.0 C <sub>v</sub> ), 1" : (9.6 C <sub>v</sub> )

• 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.



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



R	6	m	0	ľ	6	a	į	٢	V	g	V	6	5
				dividual n	nounting	 						Series	
				sub-base		 			 		 	110	0

**ISO 1** 

**ISO 2** 

150 3

© Constant of the series 2700	Rer	n o t	е д	İ ſ V		/ e s
Function	Port size		Flow (Max)	Individual mounting		Series
4/2 - 4/3	3/4" - 1"	- 1 1/4" - 1 1/2"	15.9 C <sub>v</sub>	sub-base		
OPERATIONAL BENEFITS						
<ol> <li>Balanced spool, immune to pressure.</li> <li>Short stroke with high flow</li> </ol>	<i>w</i> .				and the	1100
<ol> <li>The piston (booster) provision shifting forces.</li> <li>Powerful return thanks to the mechanical and air spring</li> </ol>	the combination of gs.			•	1	55 56
<ol> <li>Bonded spool with minim in a glass-like finished boo</li> <li>Wiping effect eliminates s</li> </ol>	um friction, shifting re.			-II-	1	50 57
7. Low leakage rate.				·2		58
HOW TO ORDER						59
Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	
						700
Valve						
less base		2701G-1				900
Sub-base 3/4" NPTF		2721G-1	_			
Sub-base 1" NPTF Sub-base 1 1/4" NPTF	Internal	2731G-1 2751G-1	_			82
Sub-base 1 1/2" NPTF		2761G-1	_			-
Valve			_			
less base		2701G-2	2703G-2	2707G-2	2708G-2	6300
Sub-base 3/4" NPTF		2721G-2	2723G-2	2727G-2	2728G-2	
Sub-base 1" NPTF	External	2731G-2	2733G-2	2737G-2	2738G-2	6500
Sub-base 1 1/4" NPTF		2751G-2	2753G-2	2757G-2	2758G-2	
Sub-base 1 1/2" NPTF		2761G-2	2763G-2	2767G-2	2768G-2	6600
						2700
						1800
						ISO 1
						ISO 2
						150 3

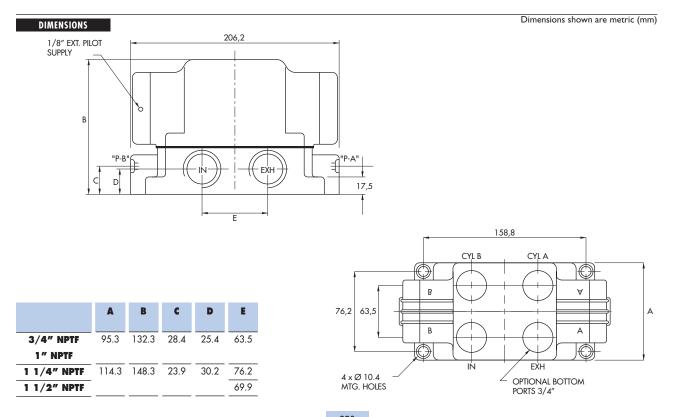




TECHNICAL DATA								
Fluid :	Compressed air, vacuum, inert gases							
Pressure range :	Vacuum to 150 PSI							
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI							
Lubrication :	Not required, if used select a medium aniline 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, <b>DP=1bar</b> ) :	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> )							

Options :

- Remote air end plate : R-00016B. Pressure seal between valve and base : 16083. Mounting screw valve to base (x4) : 32214.
- BSPP threads.





R	e	Π	0	ľ	9	9	į	ſ	V	đ	V	e	5
			Int	lividua) I Inline	mounting	 						Series	
						 			 		 	110	0
												55	
												56	
												57	

**ISO** 1

**ISO 2** 

**ISO 3** 

© Constant of the series 1800	Rer	m o t (	е а	İſ	V	3		V	e	S
Function	Port size	Flow (Ma	] XI	Individual mountir	IQ				Series	
5/2 - 5/3	1/4"	1.4 C <sub>v</sub>		Inline						
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune pressure.</li> <li>2. Short stroke with high flo</li> <li>3. The piston (booster) prov shifting forces.</li> <li>4. Powerful return thanks to mechanical and air sprin</li> <li>5. Bonded spool with minim in a glass-like finished bac</li> <li>6. Wiping effect eliminates</li> <li>7. Low leakage rate.</li> </ul>	ow. vides maximum o the combination of ngs. num friction, shifting ore.					. 9. E. F.			110 55 56 57 58 59	D
Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open cente	r		/3 'e cente	r	37	
				B 2 3	A 1			А	700	
1/4" NPTF	180001-112-0003	180003-112-0003	4* * * * 180304-512-0304	4* • • • • • • • • • • • • • • • • • • •	304	4* 180304-	¶⊽5 812-030	4	000	
Air pilot port : 1/8" NPTF.									900	
Options : Side pilot port : re	eplace code 0003 by 00	10 (2 positions valves only).							82	
									630	0
									650	0
									660	0
									270	0
									180	0
									ISO 1	
									<b>ISO</b> 2	2
									150 (	





TECHNICAL DATA	1	
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, $\Delta P=1bar)$ :	: 1/4" - 3/8" : (1.4 C <sub>v</sub> )	

• Remote air operator (2 positions) : 180003. • Remote air operator (3 positions) : 180304.

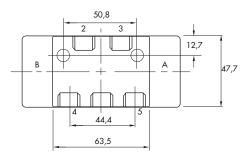
• BSPP threads. • 3/8" ports (ports 1, 2 &3 - MOD. 0358 required).

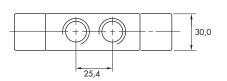
Options :

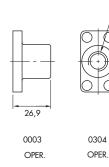
DIMENSIONS

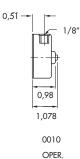
Dimensions shown are metric (mm)

1/8″











R	6	Π	0	ľ	6	Б	į	ſ	V	g	V	6	9

Individual mounting	Series
valve only	
Manifold mounting	1100
sub-base	55
	56
	57
	58
	59
	700
	900
	82
	6300
	6500
	6600
	2700
	1800
	ISO 1
	150 2
	150 3

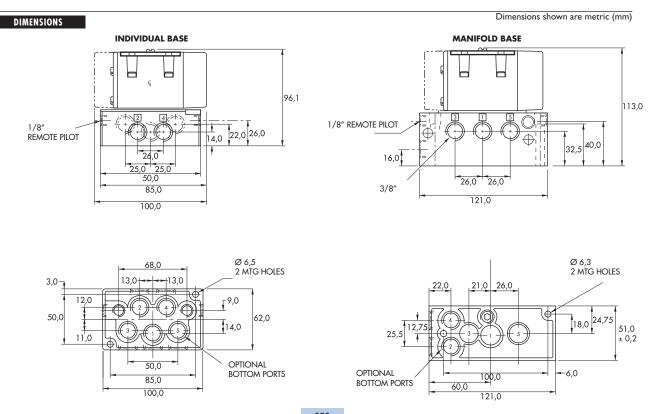
erites ISO 1	Re		0 [	e	a i	ſ						
iction	Port siz	e	Flou	u (Max)	In	dividual mounti	ng & Manifol	d mountin	IQ		Series	
/2 - 5/3	1/4"	- 3/8"	1.0	5 C <sub>v</sub>		valve only						
Balanced spool, immune to spressure. Short stroke with high flow. The piston (booster) provide: shifting forces. Powerful return thanks to the mechanical and air springs. Bonded spool with minimum in a glass-like finished bore. Wiping effect eliminates stic Low leakage rate.	s maximum combination of friction, shifting						Ĩ		r		110 55 56 57 58	0
HOW TO ORDER	ς										59	
	5	<pre>/2 operator 4 2 12 </pre>	<b>Dou</b> 14	5/2 ble operator		5/3 ed center $\frac{4 \cdot 2}{1 \cdot 1}$ 12 12	14	5/3 Open ce			59 700	
NGLE PRESSURE VALVE Air spring	5 Single	operator 4 2 12 12 12 12 12 12 12 12 12 12		ble operator 12 12 12 12 12 12 12 12 12 12		4 2 12 4 2 30 12 12 12 12 12 12 12 12 12 12	14 wc [	<b>Open ce</b>	nter		700	
NGLE PRESSURE VALVE	5 Single 12  MV-A	operator	14 	ble operator		d center	14 ***C []				~ -	
NGLE PRESSURE VALVE Air spring Internal External	5 Single 12  MV-A	<b>operator</b> <b>4</b> 2 <b>12</b> <b>12</b> <b>12</b> <b>12</b> <b>12</b> <b>12</b> <b>12</b> <b>13</b> <b>12</b> <b>13</b> <b>14</b> <b>15</b> <b>15</b> <b>16</b> <b>17</b> <b>18</b> <b>18</b> <b>18</b> <b>19</b> <b>19</b> <b>19</b> <b>19</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>1</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b>	14 	$ \begin{array}{c}                                     $		4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 ***C []	<b>Open ce</b> 4 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7			700 900 82	
NGLE PRESSURE VALVE Air spring Internal External	5 Single 12  MV-A	operator 4 2 12 5 00 11 3 10 - B111 10 - B121 5 / 5	14 {D 	4 2         12           5 voi 1 v3            V-A1C-B221	Close	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 wc []	<b>Open ce</b> 4 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	B321		700 900	
Air spring Internal External JAL PRESSURE VALVES	5 Single 12  MV-A	operator 4 2 12 5 00 17 3 10-B121 5/0 5/0 5/0 5/0 5/0 5/0 5/0 5/0	14 ⊡ 2 perator	4 2         12           5 voi 1 v3            V-A1C-B221	Close 14 E 	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 wc []	Open ce           4 2           5 y 0 y 3           5 y 0 y 3           MV-A1C-           5/3           sure cent	B321		700 900 82	)
Air spring Internal External JAL PRESSURE VALVES Air spring	5 Single 12  MV-A	operator 4 2 12 5 ∞ 1 ↓ 3 1C-B111 1C-B121 5 √ 1 ↓ 3 5 √ 1 ↓ 5 5 √ 1 ↓	14 ⊕ M 2 perator 4 2 ↓ ↓ ↓ 3 ↓ ↓ 3	ible operator       ible operator	Close 14 	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 wc []	Open ce           4 2           5 y 0 y 3           5 y 0 y 3           MV-A1C-           5/3           sure cent	nter 12 12 12 12 13 14 14 14 14 14 14 14 14 14 14		700 900 82 630	0
Air spring Internal External JAL PRESSURE VALVES	5 Single 12  MV-A	operator 4 2 12 5 00 17 3 10-B121 5/0 5/0 5/0 5/0 5/0 5/0 5/0 5/0	14 12 /2 perator 4 2 5 12 5 12 5 13 C-B131	ible operator       ible operator	5/2 $MV-A$ $5/2$ $MV-A$ $5/2$ $5/2$ $MV-A$	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 wc []	Open ce           4           5           5           5           1           4           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1	nter 12 12 12 12 13 14 14 14 14 14 14 14 14 14 14		700 900 82 630 650	0
Air spring Internal External JAL PRESSURE VALVES Air spring Internal port 3	5 Single 12  MV-A	operator 4 2 12 5 x v 1 v 3 1C-B111 1C-B121 5/ 5/ 5/ 5/ 5/ 5/ 5/ 5/ 5/ 5/	14 12 //2 perator / 3 / 3 / 3 / 3 / 3 / 3 / 3 / 3 / 3 / 3	ible operator         ible operator <td< td=""><td><math display="block">5/2</math> <math display="block">\mathbb{D}_{14}^{14}</math> /td><td>4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0</td><td>14 ⊡ Press</td><td>9pen ce           4           5           5           5/3           sure cent           4           4           4           4           4           4           4           4           4           5/3           sure cent           4           1</td><td><math display="block">\frac{12}{3}</math> B321 B321 B321</td><td></td><td>700 900 82 630</td><td>0</td></td<>	$5/2$ $\mathbb{D}_{14}^{14}$	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 ⊡ Press	9pen ce           4           5           5           5/3           sure cent           4           4           4           4           4           4           4           4           4           5/3           sure cent           4           1	$\frac{12}{3}$ B321 B321 B321		700 900 82 630	0
Air spring Internal External JAL PRESSURE VALVES Air spring Internal port 3 Internal port 5 External	5 Single 14 	operator 4 2 12 5 00 1 1 3 1C-B111 1C-B121 5 0 5 0 14 	14 ⊕ M 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3	ible operator         ible operator <td< td=""><td>Close 14 </td><td>4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0</td><td>14 ⊡ Press</td><td>9pen ce           4           5           5           5/3           sure cent           4           5073          </td><td><math display="block">\frac{12}{3}</math> B321 B321 B321</td><td></td><td>700 900 82 630 650</td><td>) ) ) ) )</td></td<>	Close 14 	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 ⊡ Press	9pen ce           4           5           5           5/3           sure cent           4           5073	$\frac{12}{3}$ B321 B321 B321		700 900 82 630 650	) ) ) ) )
Air spring Internal External JAL PRESSURE VALVES Air spring Internal port 3 Internal port 5 External	5 Single 14 	operator 4 2 12 5 00 1 1 3 1C-B111 1C-B121 5 0 5 0 14 	14 ⊕ M 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3	ible operator         ible operator <td< td=""><td>Close 14 </td><td>4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0</td><td>14 ⊡ Press</td><td>9pen ce           4           5           5           5/3           sure cent           4           5073          </td><td><math display="block">\frac{12}{3}</math> B321 B321 B321</td><td></td><td>700 900 82 630 650 660 270</td><td></td></td<>	Close 14 	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 ⊡ Press	9pen ce           4           5           5           5/3           sure cent           4           5073	$\frac{12}{3}$ B321 B321 B321		700 900 82 630 650 660 270	
NGLE PRESSURE VALVE Air spring Internal External UAL PRESSURE VALVES Air spring Internal port 3 Internal port 5 External	5 Single 14 	operator 4 2 12 5 00 1 1 3 1C-B111 1C-B121 5 0 5 0 14 	14 ⊕ M 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3	ible operator         ible operator <td< td=""><td>Close 14 </td><td>4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0</td><td>14 ⊡ Press</td><td>9pen ce           4           5           5           5/3           sure cent           4           5073          </td><td><math display="block">\frac{12}{3}</math> B321 B321 B321</td><td></td><td>700 900 82 630 650 660 270 180</td><td></td></td<>	Close 14 	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 ⊡ Press	9pen ce           4           5           5           5/3           sure cent           4           5073	$\frac{12}{3}$ B321 B321 B321		700 900 82 630 650 660 270 180	
Internal Internal Internal Internal Internal Internal Internal Internal Internal port 3 Internal port 5	5 Single 14 	operator 4 2 12 5 00 1 1 3 1C-B111 1C-B121 5 0 5 0 14 	14 ⊕ M 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3	ible operator         ible operator <td< td=""><td>Close 14 </td><td>4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0</td><td>14 ⊡ Press</td><td>9pen ce           4           5           5           5/3           sure cent           4           5073          </td><td><math display="block">\frac{12}{3}</math> B321 B321 B321</td><td></td><td>700 900 82 630 650 660 270 180 ISO</td><td>000000000000000000000000000000000000000</td></td<>	Close 14 	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 ⊡ Press	9pen ce           4           5           5           5/3           sure cent           4           5073	$\frac{12}{3}$ B321 B321 B321		700 900 82 630 650 660 270 180 ISO	000000000000000000000000000000000000000
NGLE PRESSURE VALVE Air spring Internal External UAL PRESSURE VALVES Air spring Internal port 3 Internal port 5 External	5 Single 14 	operator 4 2 12 5 00 1 1 3 1C-B111 1C-B121 5 0 5 0 14 	14 ⊕ M 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3	ible operator         ible operator <td< td=""><td>Close 14 </td><td>4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0</td><td>14 ⊡ Press</td><td>9pen ce           4           5           5           5/3           sure cent           4           5073          </td><td><math display="block">\frac{12}{3}</math> B321 B321 B321</td><td></td><td>700 900 82 630 650 660 270 180</td><td>000000000000000000000000000000000000000</td></td<>	Close 14 	4 2 12 4 2 3 5 0 0 0 0 5 0 0 5 0 0	14 ⊡ Press	9pen ce           4           5           5           5/3           sure cent           4           5073	$\frac{12}{3}$ B321 B321 B321		700 900 82 630 650 660 270 180	000000000000000000000000000000000000000





Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 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) :	1/4" - 3/8" : (1.6 C <sub>v</sub> )

- 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.



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



R	6	Ш	0	ŀ	6	ā	ı i	ſ	V	6	V	6	S

Individual mounting	Series
valve only	
Manifold mounting	1100
sub-base	55
	56
	57
	58
	59
	700
	900
	82
	6300
	6500
	6600
	2700
	1800
	ISO 1
	150 2
	150 3

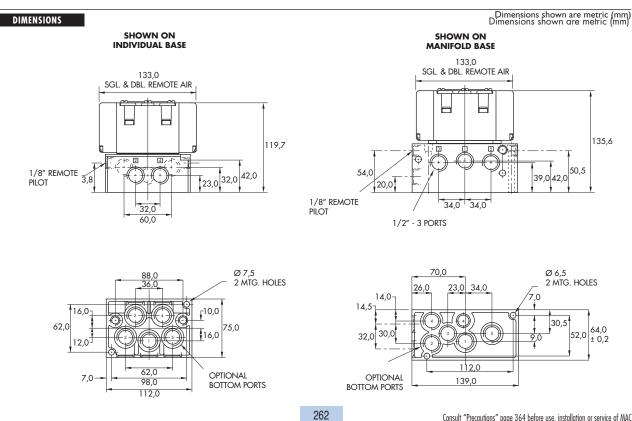
Series ISO 2	R e m o		6	j E	ſ	V	9		V	е	5
Function	Port size	Flow (Ma	X]	Ind	ividual mounting	) & Manifol	d mountin	g		Series	
5/2 - 5/3	3/8" - 1/2"	3.0 C <sub>v</sub>	,	vc	alve only						
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Balanced spool, immune to var pressure.</li> <li>2. Short stroke with high flow.</li> <li>3. The piston (booster) provides a shifting forces.</li> <li>4. Powerful return thanks to the a mechanical and air springs.</li> <li>5. Bonded spool with minimum fin a glass-like finished bore.</li> <li>6. Wiping effect eliminates sticki</li> <li>7. Low leakage rate.</li> </ul> HOW TO ORDER SINGLE PRESSURE VALVES	maximum combination of riction, shifting ng.							1		110 55 56 57 58 59	0
Air spring	5/2		/2 operator		/3 I center		5/3 Open ce			700	1
	Single operator           14         4         12          12        12        12        12           Internal         MV-A2B-B111        12        12           External         MV-A2B-B121        12        12					14 •••⊡ ⊡					
External	570173 MV-A2B-B111		₩1 <b>₩3</b>  2B-B221		2B-B322		 MV-A2B-I	3321		900	
	MV-A2B-B111 MV-A2B-B121 5/2	 	 IB-B221				MV-A2B-I			900 82	)
External DUAL PRESSURE VALVES	MV-A2B-B111 MV-A2B-B121		 IB-B221	 MV-A2			MV-A2B-I 5/3 ure cent				
External DUAL PRESSURE VALVES Air spring Internal port 3	5%173           MV-A2B-B111           MV-A2B-B121           5/2           Single open           14	mator 12 m 131	 28-B221 Doul	5/2 5/2 5/2 5/2 5/2 5/2 12 12 5/2 12 			MV-A2B-1 5/3 ure cent 4 2 1 ↓ 1 ↓ 1 5 0 ¥ 0 3 	er		82	0
External DUAL PRESSURE VALVES Air spring	MV-A2B-B111 MV-A2B-B121 5/2 Single oper 14 	MV-A2	 28-B221 <b>Doul</b> 14 [2]	$\frac{5/2}{50} = \frac{4^2}{500} \frac{12}{500} \frac{12}{500} \frac{12}{5000} \frac{12}$		Press	MV-A2B-1 5/3 ure cent 4 2 1 4 1 4 5 5 0 3	er ⊒.₩ ⊴		82 630	0





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 ≥ 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, $\Delta P=1 bar)$ :	3/8" - 1/2" : (3.0 C <sub>v</sub> )

• Remote air operator : R-A3004. • Pressure seal between valve and base : 16351. • Mounting screw body to base (x4) : 35412.





R	e	Π	0	ŀ	e	đ	į	ſ	V	9	V	e	S
				lividual m	ounting							Series	
			v	ralve only							 		
												110	0
												55	
												56	
												57	
												58	
												59	
												700	)
												900	)

**ISO 1** 

**ISO 2** 

ISO 3

© Contraction of the series ISO 3	R e	Π Ο	t	e	5	i r		V	9		V	е	G
Function	Port size		Flow (M	ax]		Individı	ual mounting					Series	
5/2 - 5/3	1/2" - 3	8/4"	6.3 C	v		valve o	nly						
<ol> <li>pressure.</li> <li>Short stroke with high flow.</li> <li>The piston (booster) provides r shifting forces.</li> <li>Powerful return thanks to the c mechanical and air springs.</li> <li>Bonded spool with minimum fr in a glass-like finished bore.</li> <li>Wiping effect eliminates stickin 7. Low leakage rate.</li> </ol>	ombination of iction, shifting						a la la			न		110 55 56 57 58 59	
SINGLE PRESSURE VALVES Air spring	5/2			5/2		5/3			5/3			~ -	
Internal External	Single ope	2 12 √ ↓ 3 111		4     2     12       12     12     12       14     12     12       15     10     12       10     10     12       11     12     12       12     12     12       13     12     12	14 D	2 <b>10sed ce</b> <b>4</b> 2 <b>5 1 1 1 1 1 1 1 1 1 1</b>		14 wc D	<b>Open ce</b> 4 2 5 ↓ ↓ ↓ ↓ 5 ↓ ↓ ↓ ↓ MV-A3B-			700 900	
DUAL PRESSURE VALVES Air spring		5/2 Single oper	-	Devi	5/2 ble opera	-		Drees	5/3 sure cent			82	
			12	14 D		12 ]				12 30w 4		630	0
Internal port 3		MV-A3B-B1	31		5 0 1 0 3 							650	0
Internal port 5 External		MV-A3B-B1 MV-A3B-B1		M	 V-A3B-B24	1		MV	 A3B-B34	1		660	0
Note : ISO valves are delivered v	v/o base. See pag	je 281 for ba	se code.									270	0



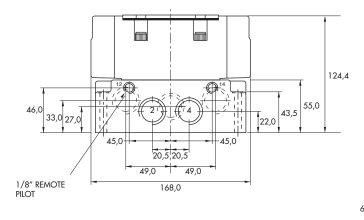


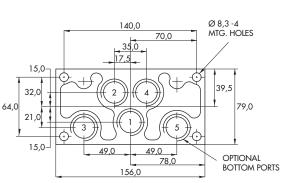
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Air signal pressure :	Single operator and 3 positions : 25 to 150 PSI ≥ main valve pressure Double operator : 10 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1bar)$ :	1/2" - 3/4" : (6.3 C <sub>v</sub> )

• 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)		
3/2 - 2/2	1/8" - 1/4"	0.18 C <sub>v</sub>		
3/2 - 2/2	1/8" - 1/4"	0.14 C <sub>v</sub>		
5/2 - 5/3	1/4"	1.35 C <sub>v</sub>		

Individual m	nounting Man	nifold mounting	Series
Inline	su	sub-base	
P. 273	P	P. 275	1100
P. 279			1800



Indiv	dividual mounting		Series
	Inline		
	Manifold mi	punting	1100
	sub-base		1800

Series 1100	echanica	ally and m	anually	operated	valves
Function	Port size	Flow (Max)	Individual mountin	Ng	Series
3/2 NO-NC, 2/2 NO-NC	1/8" - 1/4"	0.18 C <sub>v</sub>	Inline		
OPERATIONAL BENEFITS <ol> <li>Short stroke with high flow.</li> <li>Powerful return spring.</li> </ol> HOW TO ORDER					1100 1800
Port size		Universal valve		NC only valve	
1/8" NPTF 1/4" NPTF MECHANICAL OPERATOR >		2 1111A-XXX 1113A-XXX XXXX		2 10 10 10 10 10 10 10 10 10 10	
					_
Code     Description       011     Cam roller parallel       012     Cam roller perpendice       012     Cam roller perpendice       011     Cam roller perpendice	رومطو 223 پالمت سالمت		r 031 Push	n button n button n button (panel mounting)	
013 Lever cam perpendicu to ports 1 & 2 014 Lever cam parallel	lar 025	Lever locking push parallel to ports 1 & 2 Lever non-locking push parallel	Œ	n button with guard n button	
to ports 1 & 2         021       Lever locking push per         to ports 1 & 2         022       Lever non-locking push         to ports 1 & 2         to ports 1 & 2	rpendicular 027	to ports 1 & 2 Lever locking pull parallel to ports 1 & 2 Lever non-locking pull parallel to ports 1 & 2	037 Palm (pan	n button nel mounting) n button with guard	





### TECHNICAL DATA

Flu Pr Lu Fil Te Fla

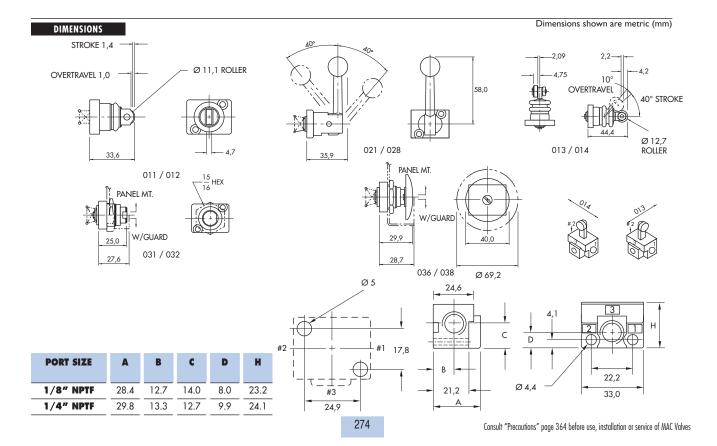
luid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
ubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
iltration :	40 µ
emperature range :	0°F to 120°F (-18°С to 50°С)
low (at 6 bar, ΔP=1bar) :	1/8" - 1/4" : (0.18-C <sub>v</sub> )

Spare parts :

• Operator : 1100A-XXX (see codification).

Options :

• BSPP threads.



Series 1100	echani	cally and ma	anually opera	ted valves
Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	1/8"	0.14 C <sub>v</sub>	sub-base	
<b>OPERATIONAL BENEFITS</b> 1. Short stroke with high flow. 2. Powerful return spring.			9	1100
HOW TO ORDER				1800
Port size		Universal valve	NC only valve	
Valve less base Sub-base 1/8" N		1130A- <b>xxx</b> 1132A- <b>xxx</b>	1170A- <b>xxx</b> 1172A- <b>xxx</b>	
MECHANICAL OPERATOR >		XXX		
Code Description		Code Desc	ription	
025 Lever locking push pa to ports 1 & 2 026 Lever non-locking pus		028 Lever	button r non-locking pull parallel	
b ports 1 & 2	allel	to po	orts 1 & 2	
	40 500 4 01			

End plate kit (Port size 1/4" NPTF) : A2-5004-01.



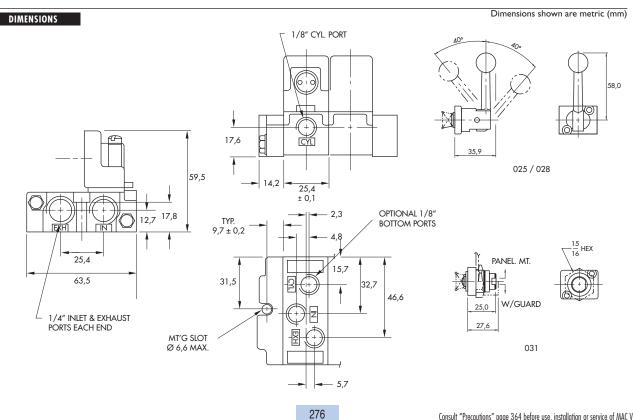


TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.14-C <sub>v</sub> )

• Operator : 1100A-XXX (see codification). • Function plate : A2-7009. • Pressure seal between bases : 16226. • Tie-rod (x2) : 19546.

Options :

• BSPP threads.





Individual mo	ndividual mounting		
Inline			
		1100	

Series 1800	echani	ically and man	uallų operate	d valves
Function	Port size	Flow (Max)	Individual mounting	Series
5/2	1/4"	1.4 C <sub>v</sub>	Inline	
<ul> <li>OPERATIONAL BENEFITS</li> <li>1. Short stroke with high flow.</li> <li>2. Powerful return force.</li> <li>3. Bonded spool with minimum frict in a glass-like finished bore.</li> <li>4. Wiping effect eliminates sticking.</li> <li>5. Long service life.</li> </ul>				1100
Port size		Single operator	Double operator	
		$ \begin{array}{c} A \\ \hline \downarrow / \downarrow \downarrow \downarrow \downarrow \\ 5 0 0 0 4 \end{array} $	$ \begin{array}{c} A \\ \hline \downarrow / \downarrow \\ 5 \forall 0 \forall a \end{array} $	
1/4" NPTF		180001-112- <b>XXXX</b>	18xxxx-112-xxxx	
MECHANICAL OPERATOR >		XXXX		
<b>Code</b> Description		Code Description	Code Description	_
0111       Cam roller parallel         to ports 2 & 3         0112       Cam roller perpendicu         to ports 2 & 3         0013       Lever cam perpendicu         to ports 2 & 3         0014       Lever cam parallel         to ports 2 & 3         0014       Lever cam parallel         to ports 2 & 3         0021       Lever locking push per         2       Lever non-locking push         0022       Lever non-locking push         2       Lever locking push         0023       Lever locking pull per	lar / /pendicular n perpendicular	0024       Lever non-locking pull perpendicular         v       to body         0025       Lever locking push parallel         v       to body         0026       Lever non-locking push parallel         v       to body         0026       Lever non-locking push parallel         v       to body         0027       Lever locking pull parallel         v       to body         0028       Lever non-locking pull parallel         v       to body         0028       Lever non-locking pull parallel         v       to body         0028       Lever non-locking pull parallel         v       to body         0031       Push button         v       v         v       Push button (panel mounting)	0033     Push button with guard       0034     Push Pull       0035     Push Pull       0036     Palm button       0037     Palm button       0038     Palm button with guard       0039     Push Pull palm button	
	ice 0 by 2 for leve ator with boot (see		Consult "Precautions" page 364 before use, installation or ser	vice of MAC Valves





### TECHNICAL DATA

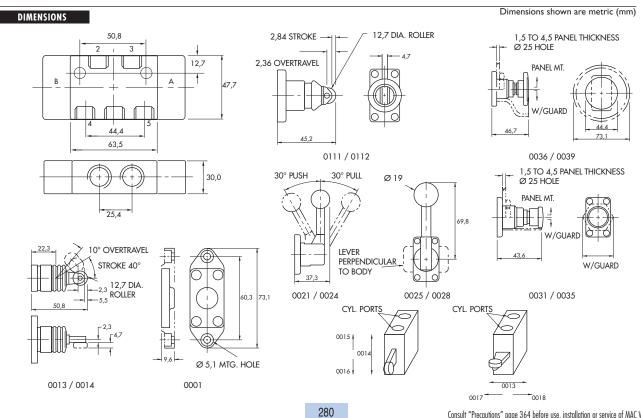
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 200 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4-C <sub>v</sub> )

Spare parts :

• Operator : 18XXXX (see codification).

Options :

• BSPP threads. • 3/8" ports (ports 1,2 & 3 - MOD. 0358 required).



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



## 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



Series



#### HOW TO ORDER

#### INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
1/4" NPTF	MB-A1C-221	MB-A1C-223	MB-A1C-222	MB-A1C-224
3/8" NPTF	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
1/4" NPTF	MM-A1C-221	MM-A1C-223	MM-A1C-222	MM-A1C-224
3/8" NPTF	MM-A1C-231	MM-A1C-233	MM-A1C-232	MM-A1C-234

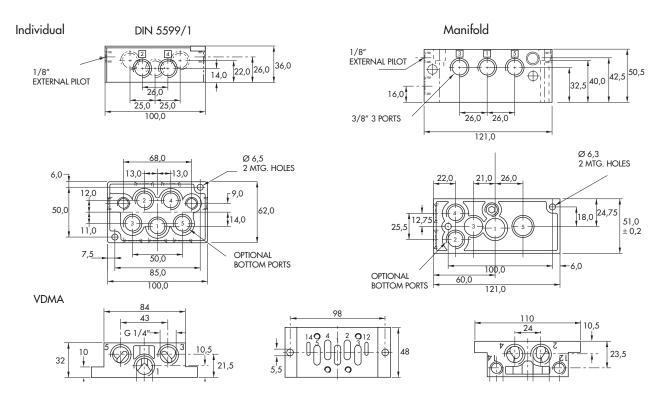
Manifold fastening kit : N-63002-01.





DIMENSIONS

Dimensions shown are metric (mm)





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
3/8" NPTF	MB-A2B-221	MB-A2B-223	MB-A2B-222	MB-A2B-224
1/2" NPTF	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
3/8″ NPTF	MM-A2B-221	MM-A2B-223	MM-A2B-222	MM-A2B-224
1/2" NPTF	MM-A2B-231	MM-A2B-233	MM-A2B-232	MM-A2B-234

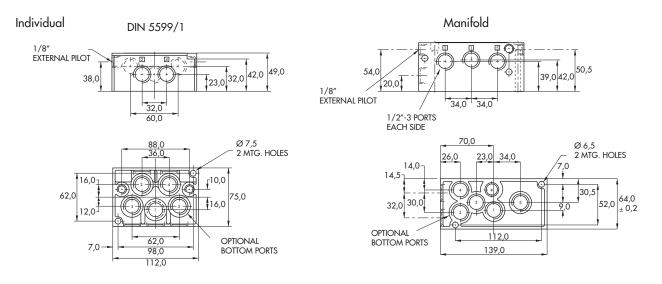
Manifold fastening kit : N-63002-01.





DIMENSIONS

Dimensions shown are metric (mm)





Series





#### 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

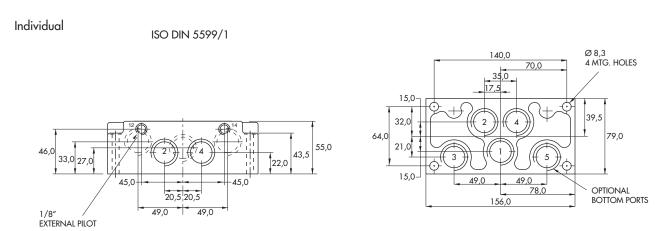
Options: MB-A3B-XXXF C Optional Integral Flow Controls



DIMENSIONS



Dimensions shown are metric (mm)





# 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





### HOW TO ORDER

### INDIVIDUAL BASE

Port size	Side ports
1/4" NPTF	MAC125A-B21A
3/8″ NPTF	MAC125A-B31A

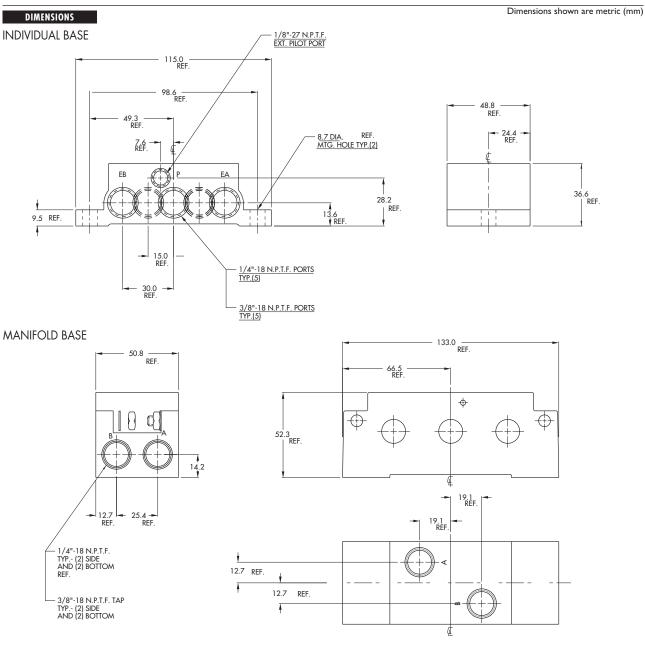
### MANIFOLD BASE

Port size	Bottom cylinder ports	Side & bottom cylinder ports	
1/4" NPTF	MAC125A-M21B	MAC125A-M21C	
3/8" NPTF	MAC125A-M31B	MAC125A-M31C	

Manifold fastening kit : M-12001-01 (3/8" NPTF)









Series
Series



### HOW TO ORDER

### INDIVIDUAL BASE

Port size	Side ports
1/2" NPTF	MAC250A-B21A
3/4" NPTF	MAC250A-B31A
1" NPTF	MAC250A-B41A

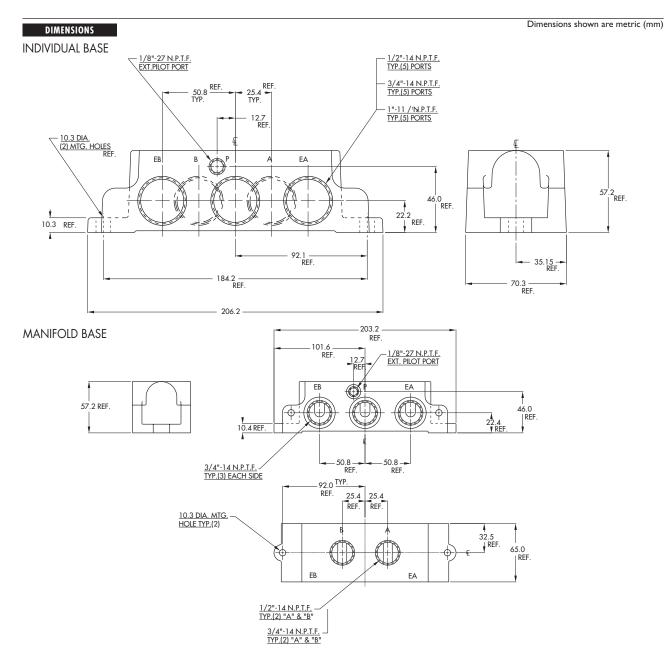
### MANIFOLD BASE

Port size	Bottom cylinder ports	Side & bottom cylinder ports	
1/2″ NPTF	MAC250A-M21B	MAC250A-M21C	
3/4" NPTF	MAC250A-M31B	MAC250A-M31C	

Manifold fastening kit : M-25001-01 (only required for manifolds with side & bottom cylinder ports)









Series



MAC 125

**MAC 250** 

MAC 500

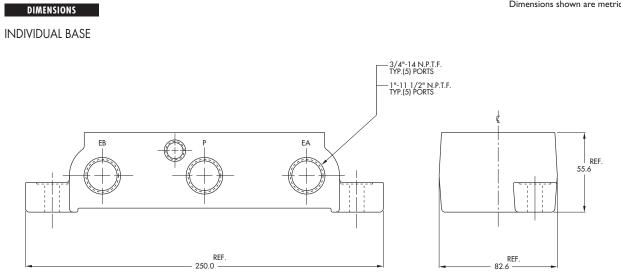
HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	
3/4" NPTF	MAC500A-B21A	
1" NPTF	MAC500A-B31A	





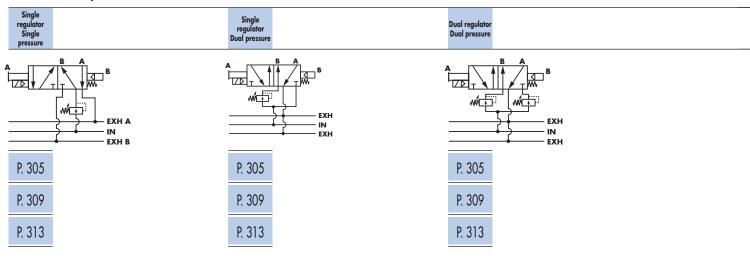




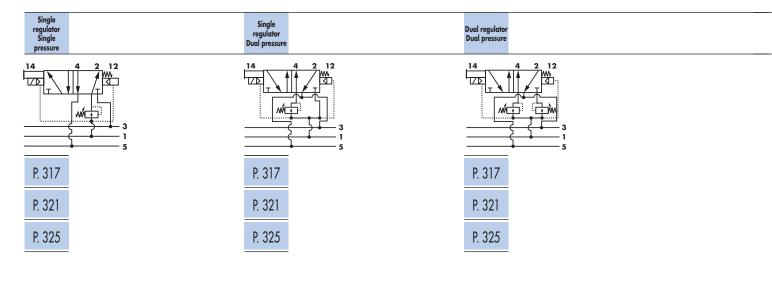
# Section 6 Pressure regulators

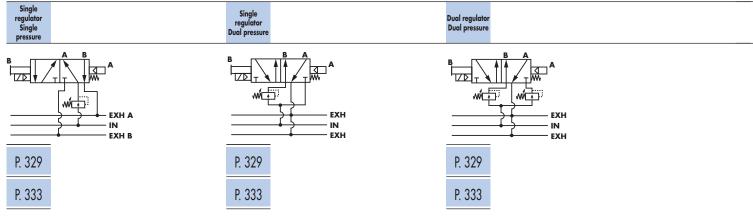


# Manual adjust



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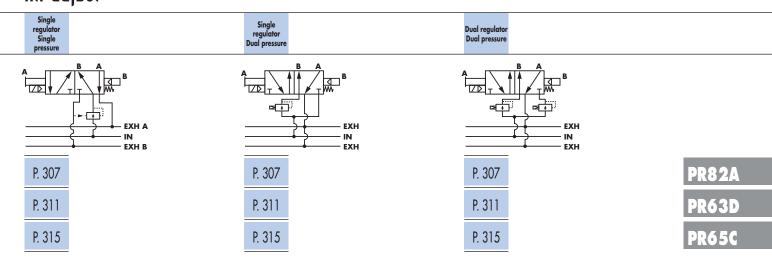


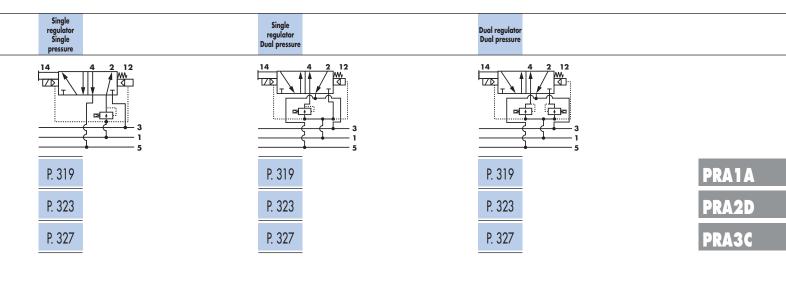
# r e s s u r e

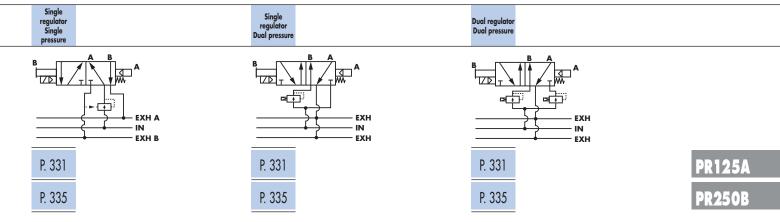
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Air adjust











**PR82**A

PR63D

PR65C

PRA 1 A

**PR125A** 

**PR250B** 

### Sandwich pressure regulator with manual adjust locking knob.

р

### 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.



### 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	PRA2D PRA3C
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-<u>xxxx</u>

- 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.





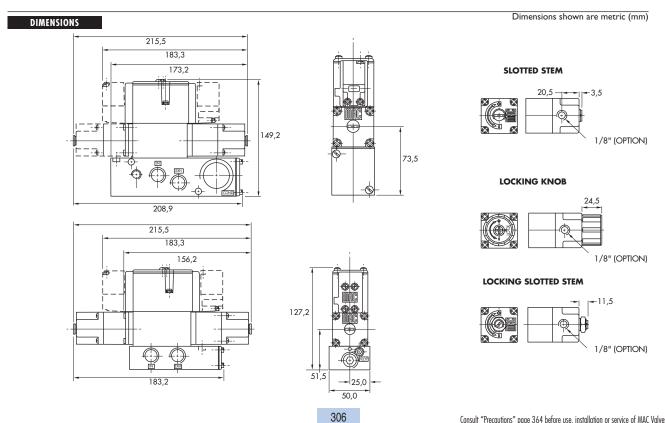
### TECHNICAL DATA Fluid : Compressed air, inert gases 0 to 150 PSI Pressure range : Regulating range : 0 to 120 PSI (other ranges see below) Lubrication : Not required, if used select a medium aniline point lubricant (between 180°F to 210°F) Filtration : 40 µ 0°F to 120°F (-18°C to 50°C) Temperature range : Flow : (1.08 C<sub>v</sub>)

Spare parts :

- Pressure regulator (less sandwich block) : PR82A-JOAA (KNOB), PR82A-COAA (SLOTTED STEM), PR82A-MOAA (LOCKING SLOTTED STEM).
- Fressure regulator (less sandwich block) : FR6ZAJ
   Gauges : N-82016-01 (0-120 PSI perpendicular)
   N-82016-02 (0-120 PSI parallel)
   N-82016-03 (0-80 PSI perpendicular)
   N-82016-05 (0-30 PSI parallel)
   N-82016-05 (0-30 PSI perpendicular)
   N-82016-06 (0-30 PSI parallel)

Regulating range options : PR82A-XXXA

- 0 to 80 PSI - 0 to 30 PSI - 0 to 120 PSI on "A" end - 0 to 120 PSI on "B" end - 0 to 120 PSI on "A" end - 0 to 120 PSI on "A" end - 0 to 120 PSI on "A" end - 0 to 30 PSI on "A" end - 0 to 30 PSI on "A" end - 0 to 30 PSI on "B" end - 0 to 30 PSI on "B" end - 0 to 30 PSI on "A" end - 0 to 30 PSI on "A" end Replace by B Replace by C Replace by D Replace by E Replace by F Replace by G Replace by H Replace by J



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



Pressure regul	ators
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**PR82A** 

PR63D

PR65C

PRA 1 A

### 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.



### 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	PRA2D PRA3C
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.

**PR125A** 

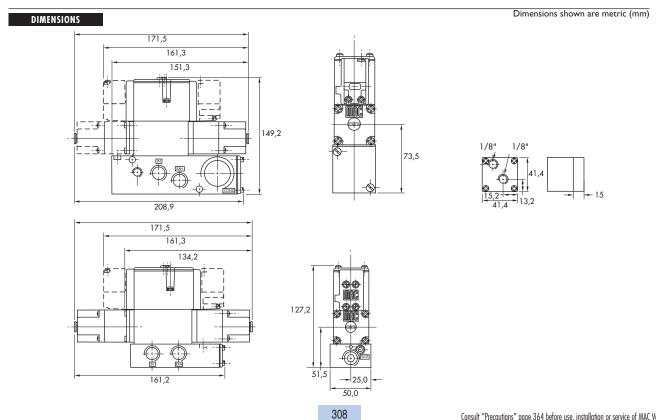




### TECHNICAL DATA Fluid : Compressed air, inert gases Pressure range : 0 to 150 PSI Regulating range : 0 to 120 PSI Lubrication : Not required, if used select a medium aniline point lubricant (between 180°F to 210°F) Filtration : 40 µ 0°F to 120°F (-18°C to 50°C) Temperature range : Flow : (1.08 C<sub>v</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)





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### Sandwich pressure regulator with manual adjust knob.

р

### 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

PRA 1 A

PRA2D

**PRA3C** 

**PR125A** 

**PR250B** 

### 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

egulator ed pressures	Dual pressure Dual regulator Two regulated pres to ports A and	Dual pressure * Regulator B end Regulated pressure to port A	Dual pressure * Regulator A end Regulated pressure to port B	Single pressure Regulator B end Same regulated pressure to ports A and B	Single pressure Regulator A end Same regulated pressure to ports A and B	Gauges
-35AA	PR63D-35AA	PR63D-33AA	PR63D-34AA	PR63D-31AA	PR63D-32AA	No gauge
-35DA	PR63D-35DA	PR63D-33BA	PR63D-34BA	PR63D-31BA	PR63D-32BA	Glycerine filled gauge on regulator(s)
		PR63D-33CA	PR63D-34CA	PR63D-31CA	PR63D-32CA	Glycerine filled gauge opposite to regulator
-35HA	PR63D-35HA	PR63D-33FA	PR63D-34FA	PR63D-31FA	PR63D-32FA	Non-filled gauge on regulator(s)
		PR63D-33GA	PR63D-34GA	PR63D-31GA	PR63D-32GA	Non-filled gauge opposite to regulator
)	PR63D	PR63D-33BA PR63D-33CA PR63D-33FA	PR63D-34FA	PR63D-31BA PR63D-31CA PR63D-31FA	PR63D-32EA PR63D-32CA PR63D-32FA	Glycerine filled gauge on regulator(s) Glycerine filled gauge opposite to regulator Non-filled gauge on regulator(s) Non-filled gauge

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

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# TECHNICAL DATA Fluid : Compressed air, inert gases Pressure range : 0 to 150 PSI 0 to 150 PSI (other ranges see below) 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 :

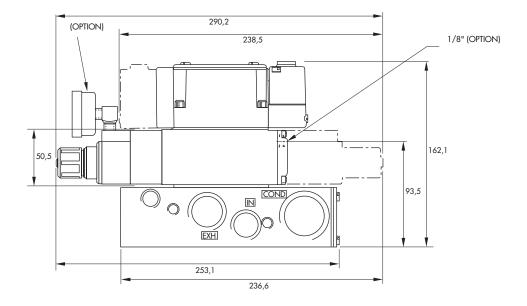
Pressure regulator (less sandwich block) : PR63D-41AA (KNOB), PR63D-D1AA (SLOTTED STEM), PR63D-H1AA (SLOTTED STEM WITH LOCKNUT).
 Gauges : 

 Glycerine filled : N-62015-01
 Non filled : N-62016-01

Regulating range options : PR63D-XXXA

Replace by B - 0 to 100 PSI
 Replace by C - 0 to 45 PSI

DIMENSIONS





Pressure regulator	S
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### 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

PRA 1 A

PRA2D

**PRA3C** 

### 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.





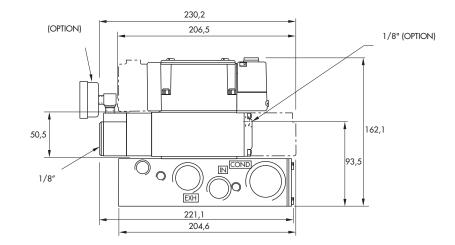
### TECHNICAL DATA

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, $\Delta P=1bar$ ) :	(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





DR650

PRA 1 A

PRA2D

**PRA3C** 

### 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.



HOW TO ORDER

### REGULATORS FOR "PLUG-IN" VALVES

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
PR65C-22AA	PR65C-21AA	PR65C-24AA	PR65C-23AA	PR65C-25AA
PR65C-22BA	PR65C-21BA	PR65C-24BA	PR65C-23BA	PR65C-25DA
PR65C-22CA	PR65C-21CA	PR65C-24CA	PR65C-23CA	
PR65C-22FA	PR65C-21FA	PR65C-24FA	PR65C-23FA	PR65C-25HA
PR65C-22GA	PR65C-21GA	PR65C-24GA	PR65C-23GA	
	Regulator A end         Same regulated pressure         to ports A and B         PR65C-22AA         PR65C-22BA         PR65C-22CA         PR65C-22CA         PR65C-22FA	Regulator A end     Regulator B end       Same regulated pressure to ports A and B     Regulator B end       PR65C-22AA     PR65C-21AA       PR65C-22BA     PR65C-21BA       PR65C-22CA     PR65C-21CA       PR65C-22FA     PR65C-21FA	Regulator A end Same regulated pressure to ports A and BRegulator B end Same regulated pressure to ports A and BRegulator A end Regulated pressure to port BPR65C-22AAPR65C-21AAPR65C-24AAPR65C-22BAPR65C-21BAPR65C-24BAPR65C-22CAPR65C-21CAPR65C-24CAPR65C-22FAPR65C-21FAPR65C-24FA	Regulator A end Same regulated pressure to ports A and BRegulator B end Same regulated pressure to ports A and BRegulated pressure to port BRegulated pressure to port APR65C-22AAPR65C-21AAPR65C-24AAPR65C-23AAPR65C-22BAPR65C-21BAPR65C-24BAPR65C-23BAPR65C-22CAPR65C-21CAPR65C-24CAPR65C-23CAPR65C-22FAPR65C-21FAPR65C-24FAPR65C-23FA

Note : above models are coded for use with double solenoid plug-in valves.

### REGULATORS FOR "NON PLUG-IN" AND REMOTE AIR VALVES

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
PR65C-32AA	PR65C-31AA	PR65C-34AA	PR65C-33AA	PR65C-35AA
PR65C-32BA	PR65C-31BA	PR65C-34BA	PR65C-33BA	PR65C-35DA
PR65C-32CA	PR65C-31CA	PR65C-34CA	PR65C-33CA	
PR65C-32FA	PR65C-31FA	PR65C-34FA	PR65C-33FA	PR65C-35HA
PR65C-32GA	PR65C-31GA	PR65C-34GA	PR65C-33GA	
	Regulator A end         Same regulated pressure         to ports A and B         PR65C-32AA         PR65C-32BA         PR65C-32CA         PR65C-32FA	Regulator A end     Regulator B end       Same regulated pressure to ports A and B     Same regulated pressure to ports A and B       PR65C-32AA     PR65C-31AA       PR65C-32BA     PR65C-31BA       PR65C-32CA     PR65C-31CA       PR65C-32FA     PR65C-31FA	Regulator A end Same regulated pressure to ports A and BRegulator B end Same regulated pressure to ports A and BRegulator A end Regulated pressure to port BPR65C-32AAPR65C-31AAPR65C-34AAPR65C-32BAPR65C-31BAPR65C-34BAPR65C-32CAPR65C-31CAPR65C-34CAPR65C-32FAPR65C-31FAPR65C-34FA	Regulator A end Same regulated pressure to ports A and BRegulator B end Same regulated pressure to ports A and BRegulated pressure to port BRegulated pressure to port APR65C-32AAPR65C-31AAPR65C-34AAPR65C-33AAPR65C-32BAPR65C-31BAPR65C-34BAPR65C-33BAPR65C-32CAPR65C-31CAPR65C-34CAPR65C-33CAPR65C-32FAPR65C-31FAPR65C-34FAPR65C-33FA

Note : regulating range for above models is 0-150 PSI. For other ranges see technical data page.

Replace by 1 for single solenoid plug-in with knob adjustment.

### PLUG-IN OPTIONS

PR65C-XXXX

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

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### 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, $\Delta P=1bar$ ) :	(4.0 C <sub>v</sub> )

Spare parts :

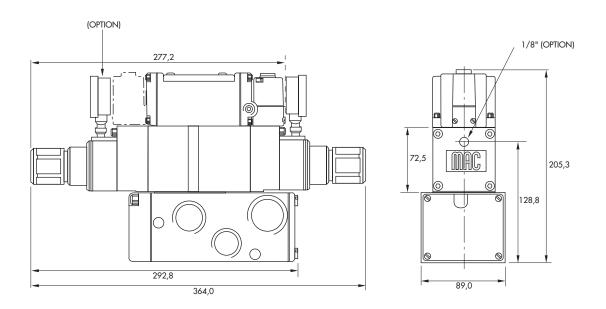
Pressure regulator (less sandwich block) : PR65C-41AA (KNOB), PR65C-D1AA (SLOTTED STEM), PR65C-H1AA (SLOTTED STEM WITH LOCKNUT).
 Gauges : 

 Glycerine filled : N-62015-01
 Non filled : N-62016-01

Regulating range options : PR65C-XXXA

Replace by B - 0 to 100 PSI
 Replace by C - 0 to 45 PSI

DIMENSIONS





### 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

PRA 1 A

PRA2D

**PRA3C** 

### HOW TO ORDER

### REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	vlator A end Regulator B end Regulator / gulated pressure Same regulated pressure Regulated pr		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	CA PR65C-3DCA PR65C-3CCA						
Non-filled gauge on regulator(s)	PR65C-3BFA	PR65C-3AFA PR65C-3DFA PR65C-		PR65C-3BFA PR65C-3AFA PR65C-3DFA PR65C-3CFA		PR65C-3BFA PR65C-3AFA PR65C-3DFA PR65		PR65C-3CFA	PR65C-3EHA
Non-filled gauge opposite to regulator	PR65C-3BGA	PR65C-3AGA	PR65C-3DGA	PR65C-3CGA					

### PLUG-IN OPTIONS

PR65C-xxxx

- - Replace by 1 for single solenoid plug-in.

PR125A





### TECHNICAL DATA

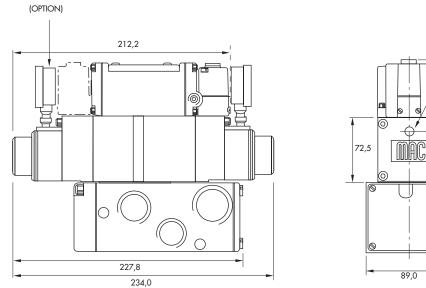
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 150 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow (at 6 bar, $\Delta P=1bar)$ :	(4.0 C <sub>v</sub> )

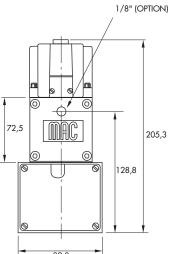
Spare parts :

- Pressure regulator (less sandwich block) : PR65C-4AAA.
  Gauges : 

  Glycerine filled : N-62015-01
  Non filled : N-62016-01

DIMENSIONS







### Sandwich pressure regulator with manual adjust knob.

р

### **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

PRA1A

PRA2D

PRA<sub>3</sub>C

### 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 * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA1A-GAAA	PRA1A-GCAA	PRA1A-GBAA	PRA1A-GBAA PRA1A-GDAA	
Gauge parallel to regulator(s)	PRA1A-GADA	PRA1A-GCDA	PRA1A-GBDA	RA1A-GBDA PRA1A-GDDA	
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	Regulator         14 end         Regulator         12 end         Regulator         14 end           Same regulated pressure         Same regulated pressure         Regulated pressure         Regulated pressure		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-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-XXYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A1C-AX4X-PM-XXYZZ (dual pressure ext. pilot)

Note : regulating range for above models is 0-120 PSI. For other ranges see technical data page.

### ADJUSTMENT OPTIONS

### PRA1A-<mark>xxxx</mark>

— - 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)

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.

PR125A





# 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-JOAA (KNOB), PRA1A-COAA (SLOTTED STEM), PRA1A-MOAA (SLOTTED STEM WITH LOCKNUT).
   Gauges : N-82016-01 (0-120 PSI perpendicular)
- Pressure regulator (less sanawich block) : FKATA-JU
   Gauges : N-82016-01 (0-120 PSI perpendicular) N-82016-02 (0-120 PSI perpendicular) N-82016-03 (0-80 PSI perpendicular) N-82016-05 (0-30 PSI perpendicular) N-82016-05 (0-30 PSI perpendicular) N-82016-06 (0-30 PSI parallel)

Regulating range options : PRA1A-XXXA

 A
 Replace by B
 - 0 to 80 PSI

 Replace by C
 - 0 to 30 PSI

 Replace by D
 - 0 to 120 PSI on "12" end

 - 0 to 120 PSI on "12" end

 - 0 to 120 PSI on "12" end

 - 0 to 120 PSI on "12" end

 - 0 to 120 PSI on "12" end

 - 0 to 120 PSI on "14" end

 - 0 to 120 PSI on "14" end

 - 0 to 120 PSI on "14" end

 - 0 to 120 PSI on "12" end

 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

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 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

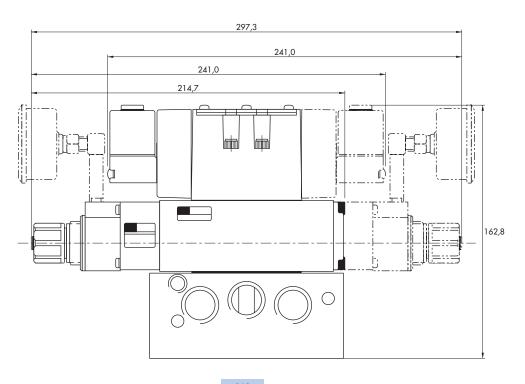
 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

 - 0 to 30 PSI on "14" end

DIMENSIONS





### Sandwich pressure regulator with air pilot adjust.

р

### 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.



### 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-DBAA PRA1A-DDAA	
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 * Dual pressure Regulator 14 end Regulator 12 e Regulated pressure Regulated press to port 4 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.

**PR125A** 

PRA1A

PRA2D

PRA<sub>3</sub>C





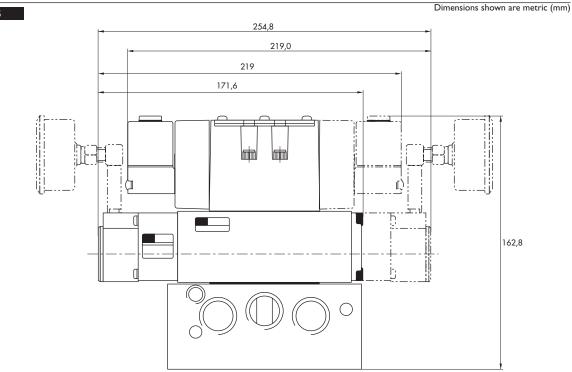
## TECHNICAL DATA

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





### Sandwich pressure regulator with manual adjust knob.

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### **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.



### 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	

### EXTERNAL PILOT AND REMOTE AIR

Gauges			Regulator 14 end         Regulator 12 end         Regulator 14 end           Same regulated pressure         Same regulated pressure         Regulated pressure		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-2		PRA2D-2BBA PRA2D-2FBA	
Glycerine filled gauge opposite to regulator	PRA2D-2CBA	PRA2D-2GBA	PRA2D-2DBA	BA PRA2D-2HBA	

\* - 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) 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)

PRA 1 A

PRA2D

## PR125A





# TECHNICAL DATA Fluid : Compressed air, inert gases Pressure range : O to 150 PSI Regulating range : O 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 : O°F to 120°F (-18°C to 50°C) Flow : (2.3 C<sub>v</sub>)

Spare parts :

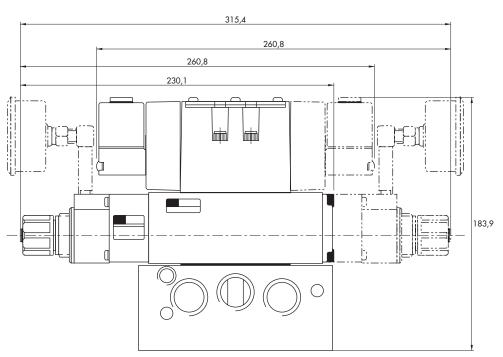
Pressure regulator (less sandwich block) : PRA2D-30AA (KNOB), PRA2D-C0AA (SLOTTED STEM), PRA2D-F0AA (SLOTTED STEM WITH LOCKNUT).
 Gauges : 

 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





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### Sandwich pressure regulator with air pilot adjust.

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### 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.



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	

### EXTERNAL PILOT AND REMOTE AIR

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
PRA2D-5AAA	PRA2D-5EAA	PRA2D-5BAA	PRA2D-5FAA	PRA2D-5JAA
PRA2D-5ADA	PRA2D-5EDA	PRA2D-5BDA	PRA2D-5FDA	PRA2D-5JEA
PRA2D-5CDA	PRA2D-5GDA	PRA2D-5DDA	PRA2D-5HDA	
PRA2D-5ABA	PRA2D-5EBA	PRA2D-5BBA	PRA2D-5FBA	PRA2D-5JCA
PRA2D-5CBA	PRA2D-5GBA	PRA2D-5DBA	PRA2D-5HBA	
	Regulator 14 end         Same regulated pressure         to ports 2 and 4         PRA2D-5AAA         PRA2D-5ADA         PRA2D-5CDA         PRA2D-5ABA	Regulator 14 end Same regulated pressure to ports 2 and 4Regulator 12 end Same regulated pressure to ports 2 and 4PRA2D-5AAAPRA2D-5EAAPRA2D-5ADAPRA2D-5EDAPRA2D-5CDAPRA2D-5GDAPRA2D-5ABAPRA2D-5EBA	Regulator 14 end Same regulated pressure to ports 2 and 4Regulator 12 end Same regulated pressure to ports 2 and 4Regulator 14 end Regulated pressure to port 4PRA2D-5AAAPRA2D-5EAAPRA2D-5BAAPRA2D-5ADAPRA2D-5EDAPRA2D-5BDAPRA2D-5CDAPRA2D-5GDAPRA2D-5DDAPRA2D-5ABAPRA2D-5GDAPRA2D-5DDAPRA2D-5ABAPRA2D-5CDAPRA2D-5DDA	Regulator 14 end Same regulated pressure to ports 2 and 4Regulator 12 end Regulated pressure to ports 2 and 4Regulated pressure to port 4Regulated pressure to port 2PRA2D-5AAAPRA2D-5EAAPRA2D-5BAAPRA2D-5FAAPRA2D-5ADAPRA2D-5EDAPRA2D-5BDAPRA2D-5FDAPRA2D-5CDAPRA2D-5GDAPRA2D-5DDAPRA2D-5HDAPRA2D-5CDAPRA2D-5GDAPRA2D-5DDAPRA2D-5HDAPRA2D-5ABAPRA2D-5GDAPRA2D-5DDAPRA2D-5HDA

\* - 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. PRA 1 A

PRA2D

PRA<sub>3</sub>C

PR125A PR250B

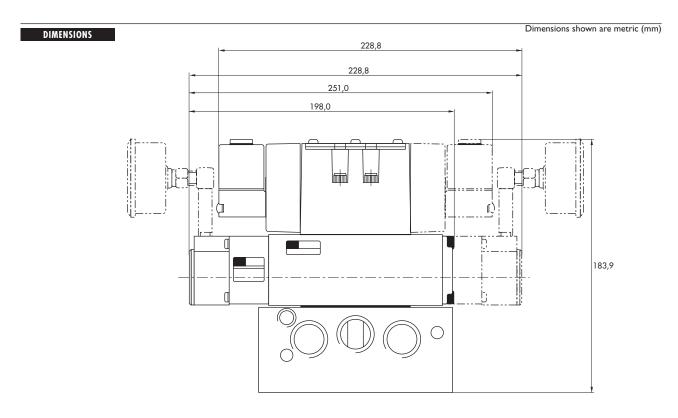




### TECHNICAL DATA Fluid : Compressed air, inert gases Pressure range : 0 to 150 PSI Regulating range : 0 to 150 PSI Lubrication : Not required, if used select a medium aniline point lubricant (between 180°F to 210°F) 40 µ Filtration : 0°F to 120°F (-18°C to 50°C) Temperature range : Flow : (2.3 C<sub>v</sub>)

Spare parts :

- Pressure regulator (less sandwich block) : PRA2D-60AA.
   Gauges : Glycerine filled : N-62015-01
   Non filled : N-62016-01





### 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.



### 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		

### 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

325

- 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)

PRA3C





### 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 :

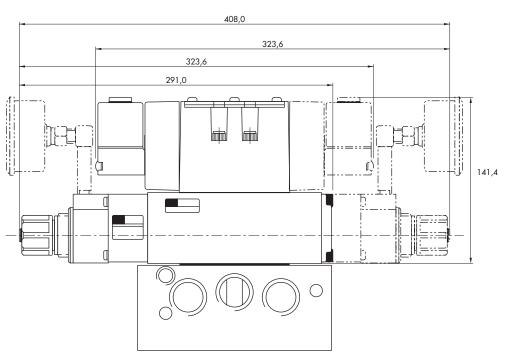
Pressure regulator (less sandwich block) : PRA3C-30AA (KNOB), PRA3C-C0AA (SLOTTED STEM), PRA3C-F0AA (SLOTTED STEM WITH LOCKNUT).
 Gauges : 

 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





### 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.



### 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.

PRA 1 A

PRA2D

PRA3C

PR125A PR250B





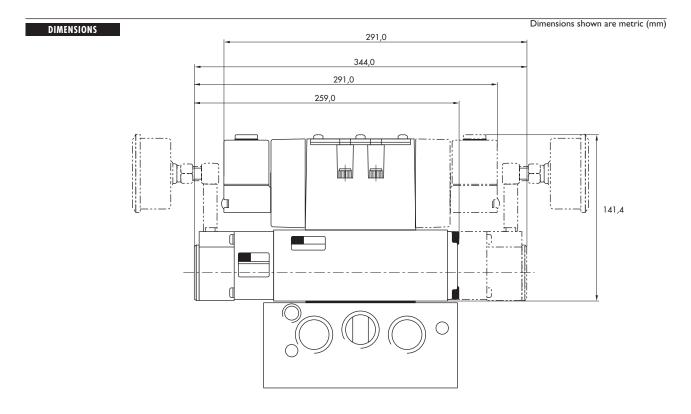
## TECHNICAL DATA

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





### Sandwich pressure regulator with manual adjust knob.

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### **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.



### 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

### 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-XXYZZ (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-xxx

- - 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

# PR1254

**PR250B** 

PRA 1 A

PRA2D





# Fluid : Compressed air, inert gases Pressure range : 0 to 150 PSI 0 to 120 PSI (other ranges see below) 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-JOAA (KNOB), PR125A-COAA (SLOTTED STEM), PR125A-MOAA (LOCKING SLOTTED STEM).
 Gauges : N-82016-01 (0-120 PSI perpendicular)

 Pressure regulator (less sandwich block) : PK12DAJ
 Gauges : N-82016-01 (0-120 PSI perpendicular) N-82016-02 (0-120 PSI perpendicular) N-82016-03 (0-80 PSI perpendicular) N-82016-05 (0-30 PSI perpendicular) N-82016-05 (0-30 PSI perpendicular) N-82016-06 (0-30 PSI parallel)

Regulating range options : PR125A-XXXA

 A
 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 120 PSI on "B" end
 - 0 to 120 PSI on "A" end

 Replace by E
 - 0 to 120 PSI on "A" end

 Replace by F
 - 0 to 120 PSI on "A" end

 Replace by G
 - 0 to 120 PSI on "A" end

 Replace by H
 - 0 to 30 PSI on "B" end

 - 0 to 30 PSI on "A" end
 - 0 to 30 PSI on "A" end

 Replace by H
 - 0 to 30 PSI on "A" end

 - 0 to 30 PSI on "B" end
 - 0 to 30 PSI on "B" end

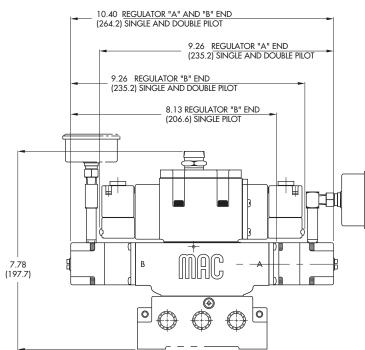
 - 0 to 30 PSI on "B" end
 - 0 to 30 PSI on "B" end

 - 0 to 30 PSI on "B" end
 - 0 to 30 PSI on "B" end

 - 0 to 30 PSI on "B" end
 - 0 to 30 PSI on "B" end

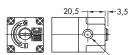
 - 0 to 30 PSI on "A" end
 - 0 to 30 PSI on "A" end

### DIMENSIONS



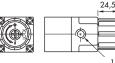
SLOTTED STEM

Dimensions shown are metric (mm)



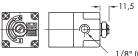
1/8" (OPTION)

LOCKING KNOB





### LOCKING SLOTTED STEM



1/8" (OPTION)



ressure regulators	геззиге гедија	tors
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Series

#### Sandwich pressure regulator with air pilot adjust.

Р

#### **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.



#### 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

#### EXTERNAL PILOT REGULATORS

EXTERNAL PILOT REGULA	ators					PRA2D
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	PRA3C
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

PRA 1 A

**PR250B** 





#### TECHNICAL DATA

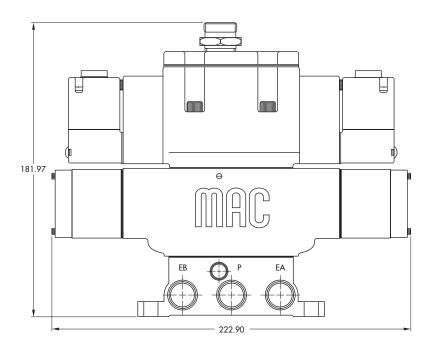
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	0 to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(1.8 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PR125A-FOAA
   Gauges : N-82016-01 (0-120 PSI perpendicular) N-82016-02 (0-120 PSI parallel)

DIMENSIONS

Dimensions shown are metric (mm)





Series

#### Sandwich pressure regulator with manual adjust knob.

р

#### **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.



PR63D

#### 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-ACAA	PR250B-AAAA	PR250B-ADAA	PR250B-ABAA	PR250B-AEAA
Dry Gauge	PR250B-ACCA	PR250B-AACA	PR250B-ADCA	PR250B-ABCA	PR250B-AEEA
Glycerine Gauge	PR250B-ACBA	PR250B-AABA	PR250B-ADBA	PR250B-ABBA	PR250B-AEDA

#### EXTERNAL PILOT REGULATORS

EXTERNAL PILOT REGUL	ATORS					PRA2D
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	PRA3C
No gauge	PR250B-BCAA	PR250B-BAAA	PR250B-BDAA	PR250B-BBAA	PR250B-BEAA	
Dry Gauge	PR250B-BCCA	PR250B-BACA	PR250B-BDCA	PR250B-BBCA	PR250B-BEEA	
Glycerine Gauge	PR250B-BCBA	PR250B-BABA	PR250B-BDBA	PR250B-BBBA	PR250B-BEDA	

\* - To be used with dual pressure valves.

Valve code is : MAC250A-VXX4-PM-XXYZZ (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.





#### TECHNICAL DATA Fluid : Compressed air, inert gases Pressure range : 0 to 150 PSI 7 to 120 PSI (other ranges see below) Regulating range : Not required, if used select a medium aniline point lubricant (between 180°F to 210°F) Lubrication : Filtration : 40 µ 0°F to 120°F (-18°C to 50°C) Temperature range : Flow : (4.7 C<sub>v</sub>)

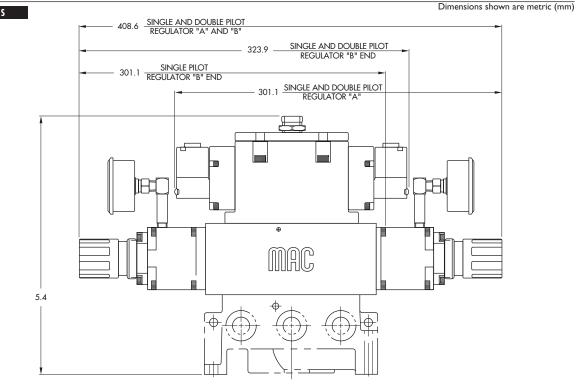
Spare parts :

• Pressure regulator (less sandwich block) : PR250B-COAA (KNOB) • Gauges : • N-82016-01 (perpendicular) • N-82016-02 (parallel)

- Replace by B - 7 to 60 PSI

Regulating range options : PR250B-XXXA

DIMENSIONS





Series

#### 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.



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

#### EXTERNAL PILOT REGULATORS

EXTERNAL PILOT REGUL	ATORS					PRA2D
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	PRA3C
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-XXYZZ (valves must be external pilot models for both single or dual pressure valves)

**PR125A** 

#### PR250B





#### TECHNICAL DATA

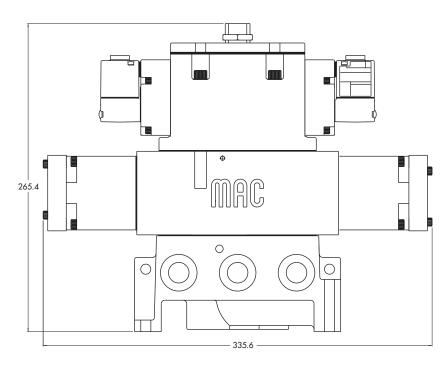
Fluid :	Compressed air, inert gases
Pressure range :	0 to 150 PSI
Regulating range :	7 to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to 50°C)
Flow :	(4.7 C <sub>v</sub> )

Spare parts :

- Pressure regulator (less sandwich block) : PR250B-F0AA
   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



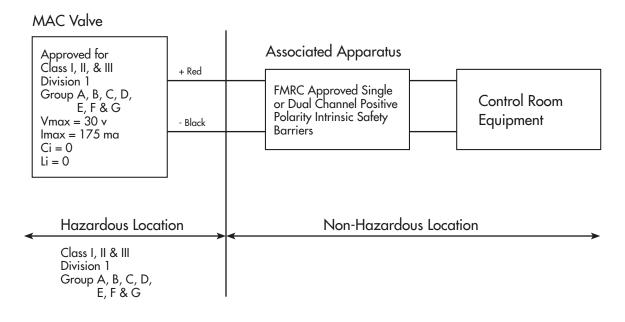
Specifications for Intrinsically Safe Valves	339
35 series	342
45 series	342
100 series	343
56 series	344
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800 series	345
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82 series	347
6300 series	348
6500 series	349
6600 series	350
ISO 1, 2 & 3	351
MAC 125 & MAC 250	352
*Dimensional information (35, 57, & 58 series)	353

\*Dimensional information differs from "Standard Valve" dimensions.

Page

#### **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 values 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 value :

- Ci : Internal capacitance of the solenoid. This indicates how much energy the solenoid is capable of storing.
- Li : 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 :

- Vmax must be greater than or equal to Voc of the barrier. Voc = Voltage open circuit or maximum allowed out of the barrier
- Imax must be greater than or equal to Isc of the barrier. Isc = Current short circuit or the maximum current allowed out of the barrier
- Ci plus field wiring must be less than Ca of the barrier. Ca = Allowed capacitance
- Li plus field wiring must be less than La of the barrier.
- La = 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 & G.

#### Parameters : Vmax : 30 VDC

lmax : 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 handing 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 :

ITOTAL = SUPPLY VOLTAGE — Plug ITOTAL in below – ← TOTAL = Plug ITOTAL in below 250 + BARRIER RESISTANCE

Voltage at Solenoid – I v 250 ohms volta

Manufacturer	Model #	Barrier Res.	Voltage w/o Light	Voltage w/Light	Groups	Туре
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.

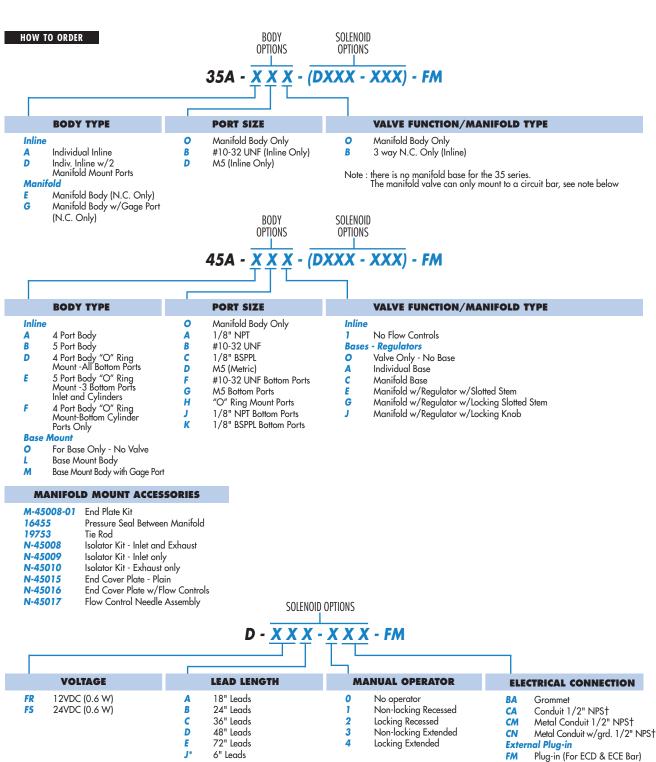
Above data is based on a 24 v DC supply voltage to the input of the barrier. A 12 v DC, 243 OHM, .6 watt intrinsically safe solenoid is used. The measurement with light is an LED with a current limiting resistor.

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

e C	5
E	
Series <b>3</b>	5.45



\*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.

Mini Plug-in

Rectangular Plug-in† Rectangular Male only†

Mini Plug-in Male only

Dual Tabs (.110) Plain

Dual Tabs (.110) Plain † Available on individual valves and

JB

JM

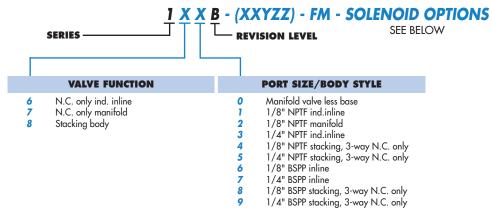
KA KJ

TA

TJ



#### **BODY OPTIONS**



**SOLENOID OPTIONS** 

Γ	EXAMPLE :	<b>XX</b> 	Y <u>ZZ</u> - FM		
ХХ	DC VOLTAGE	Y	MANUAL OPERATOR	ZZ	ENCLOSURE
A5 A6	12 VDC (0.6 W) 24 VDC (0.6 W)	0 1 2 3 4	No operator Non-locking Recessed (std.) Locking Recessed Non-locking Extended Locking Extended	AA BA CA CC JB JM NA RA	JIC w/1/2" NPS Conduit Grommet Conduit 1/2" NPS Conduit 1/2" NPT (CSA threads) Rectangular Plug-in Rectangular Male only Conduit 1/2" NPS w/ground wire Conduit 3/8" NPS for Manifold models

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

MA

MB

#### **100 SERIES-SUPPLEMENTAL TECHNICAL DATA**

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

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

#### STACKING BODY ACCESSORIES : STACKING END PLATE KIT-

Com. Conduit 1" NPS (Manifold models)

Com. Conduit 1" NPS (Stacking models)

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

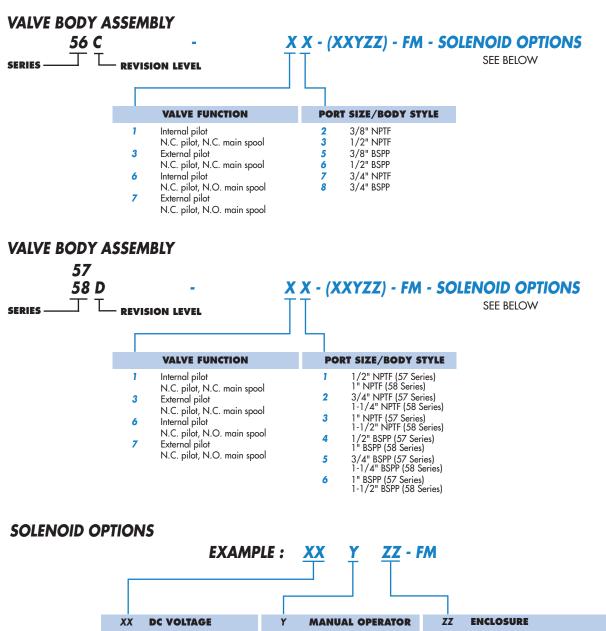
MANIFOLD ACCESSORIES : MANIFOLD END PLATE KIT-

For each gang one kit is required.

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



#### HOW TO ORDER



0

1

2

3

4

12 VDC (0.6 W)

24 VDC (0.6 W)

A5

**A6** 

- AA JIC w/1/2" NPS Conduit
- BA Grommet
- CA Conduit 1/2" NPS
- CC Conduit 1/2" NPT (CSA threads)
- JA Square Plug-in
- JB Rectangular Plug-in
- JJ Square Male only
- JM Rectangular Male only

No operator

Locking Recessed

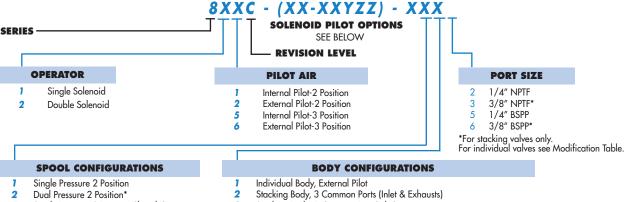
Locking Extended

Non-locking Extended

Non-locking Recessed (std.)



#### **BODY OPTIONS**



Stacking Body, 1 Common Port (Inlet)

Individual Body, Internal Pilot

Stacking Body, Common Ports (with Common Electrical Conduit)

Stacking Body, 3 Common Ports (with Common Electrical Conduit and Integral Exhaust Flow Controls)

Stacking Body, 3 Common Ports (with Integral Exhaust Flow Controls)

2

3

4

5

6

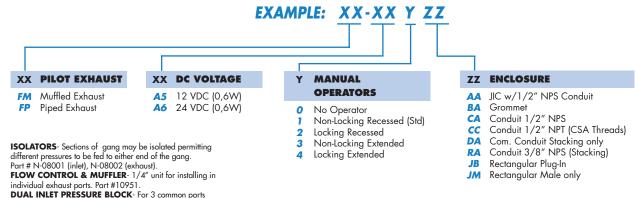
9

- Dual Pressure 2 Position\*
- 2
- Single Pressure 3 Position Closed Center 5
- 6 Single Pressure 3 Position Open Center 7
- Dual Pressure 3 Position Pressure Center 8
- Single Pressure 3 Position Pressure Center

\*Not available on models with integral flow controls

#### SOLENOID PILOT OPTIONS

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 EXT. PILOT PART NO. 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. Com. conduit models, stacks of 1 thru 16 valves. M-08002-01-01 M-08002-02-01 3 com. port or 1 com. port models, stacks of 17 or more M-00005-02-01 M-00005-01-01 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

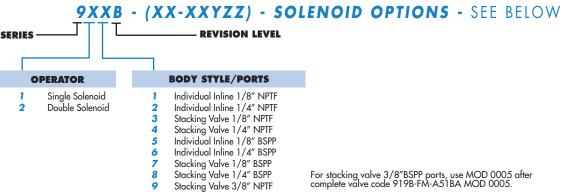
#### MODIFICATIONS

MOD. NO.	DESCRIPTION	MODEL AVAILABILITY
0358	3/8" Inlet & Cylinder Ports	Individual Valves

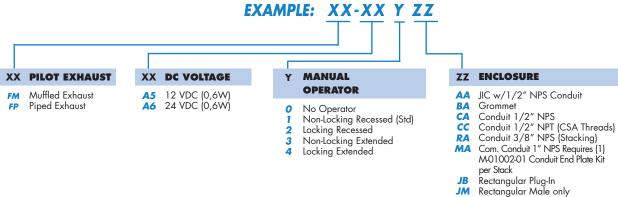




#### **BODY OPTIONS**



#### SOLENOID PILOT OPTIONS



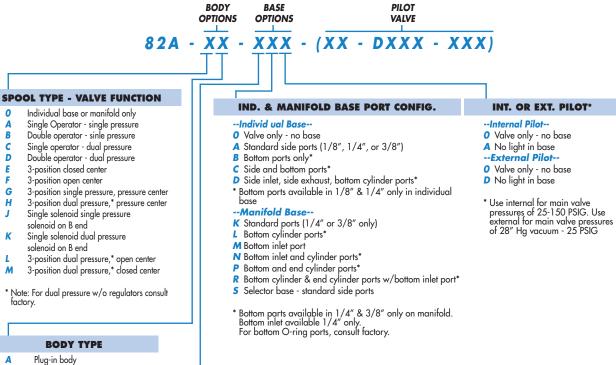
#### **MODIFICATIONS**

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.





Non Plug-in body R

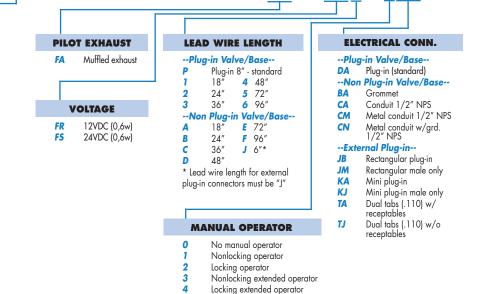
#### IZE - THREAD TYPE

PU	KI SIZE - INKEA
0	Valve only - no base
Α	1/8" NPTF
R	1/1" NIPTE

В	1/4" NPIF
С	3/8" NPTF

- 1/8" BSPPL D 1/4" BSPPL F
- 3/8" BSPPL

## PILOT VALVE OPTIONS - (XX - DXXX - XXX)



#### **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

NOTE: Reference regulator ordering section if a NOTE: Reference regulator ordering section in 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.)

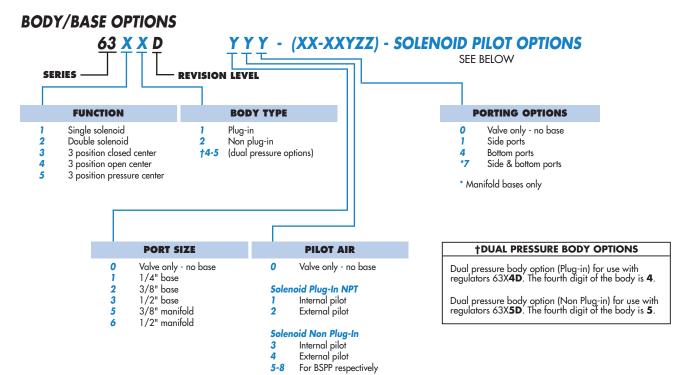
\*If flow control module is to be installed between valve and base or valve and manifold at the factory, add -9 after the flow control model number, i.e., FC82A-AA-9. The flow control model number should follow the valve model number on which it is to be installed.

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

ntrinsically Safe Valves



#### HOW TO ORDER



#### **PILOT VALVE OPTIONS**

			<b>XX</b>		2		
ХХ	PILOT EXHAUST	ХХ	DC VOLTAGE	Ŷ	MANUAL OPERATOR	ZZ	ELECTRICAL CONN
FM FP	Muffled exhaust Piped exhaust	A5 A6	12 VDC (0.6 W) 24 VDC (0.6 W)	0 1 2 3	No operator Non-locking Recessed (std.) Locking Recessed Non-locking Extended	DA Non BA	Plug-in (standard) <b>Plug-In</b> Grommet
				4	Locking Extended	CA JB JM JA	Conduit 1/2" NPS Rectangular Plug-in Rectangular Male only Square Plug-in
D 021	ATIONS 0 Bottom inlet port in addition 8: 6311D-511-FM-A51DA MC		et port (manifolds only)			JJ	Square Male only

Manifold Accesories: Inlet Isolators #32839. Exhaust Isolator #28309.

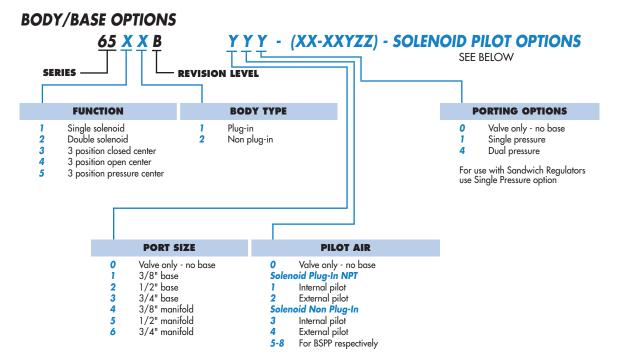
NOTE: 1. The valve less base is always the same for internal or external pilot. These options are effected in the base or manifold.

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.

Intrinsically Safe Valves



#### HOW TO ORDER



#### **PILOT VALVE OPTIONS**

<u>XX</u> - <u>XXYZZ</u>							
				\  \  \			
XX	PILOT EXHAUST	XX	DC VOLTAGE	Ŷ	MANUAL OPERATOR	ZZ	ELECTRICAL CONN.
FM FP	Muffled exhaust Piped exhaust	A5 A6	12 VDC (0.6 W) 24 VDC (0.6 W)	0 1 2 3 4	No operator Non-locking Recessed (std.) Locking Recessed Non-locking Extended Locking Extended	DA Non BA CA JB JM JA JJ	Plug-in (standard) <b>Plug-in</b> Grommet Conduit 1/2" NPS Rectangular Plug-in Rectangular Male only Square Plug-in Square Male only

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

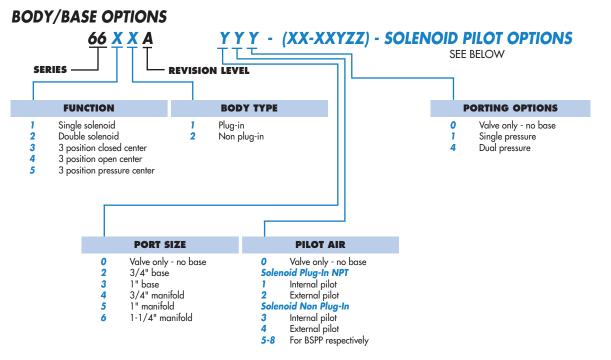
MOD. NO.	DESCRIPTION
0002 0004	Bottom inlet, exhaust, & cylinder ports (no side ports) Full side porting and additional bottom inlet, exhausts, and cylinder ports
0112	Side inlet & exhaust with bottom cylinder ports (no end cylinder ports)
0210 0364	Porting as ordered in model number plus an additional bottom inlet Single Pressure - Side inlet & exhaust and additional bottom inlet
0304	with bottom cylinder ports (no end cylinder ports) Dual Pressure - Same as single pressure except with two bottom inlets

#### MODEL AVAILABILITY

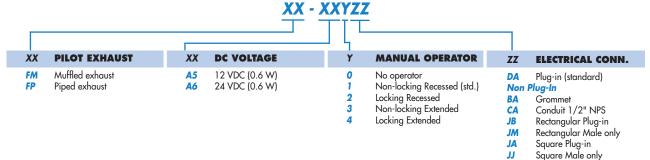
Available on individual base 3/8" & 1/2" only Available on individual base 3/8" only Available on all manifold models Available on all manifold models Available on all manifold models Intrinsically Safe Valves



#### HOW TO ORDER



#### **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 0004 0112 0210	Bottom inlet, exhaust, & cylinder ports (no side ports) Full side porting and additional bottom inlet, exhausts, and cylinder ports Side inlet & exhaust with bottom cylinder ports (no end cylinder ports) 1-1/4" bottom inlet	Available on individual base 3/4" only Available on individual base 3/4" only 3/4" individual base & 3/4" & 1" manifold base 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 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 th ISO size required, insert the appropriate ISO number in the 5th position of the model code; MV-A2B ISO 2 EXAMPLE MV-A1C for ISO 1, MV-A2B for ISO 2, or MV-A3B for ISO 3. MV-A3B 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	DBL. OPERATOR	PILOT	DBL. OPER. 3-POS.	DBL. OPER. 3-POS.
AIR/SPRING RETURN	2-POSITION	SUPPLY	CLOSED CENTER	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	DBL. OPERATOR	PILOT	DBL. OPER. 3-POS.
AIR/SPRING RETURN	2-POSITION	SUPPLY	PRESSURE CENTER
MV-AXB-A131-FM-A51JA	MV-AXB-A231-FM-A51JA	Int. Pilot-From Port 3	MV-AXB-A331-FM-A51JA
MV-AXB-A135-FM-A51JA	MV-AXB-A232-FM-A51JA	Int. Pilot-From Port 5	MV-AXB-A332-FM-A51JA
MV-AXB-A141-FM-A51JA	MV-AXB-A241-FM-A51JA	External Pilot	MV-AXB-A341-FM-A51JA

#### SOLENOID PILOT VALVE OPTIONS

#### XX - XXYZZ XX PILOT EXHAUST XX DC VOLTAGE MANUAL OPERATOR ZZ EXTERNAL PLUG-IN ZZ ENCLOSURE Y JA Square without light (on solenoid) FM Muffled exhaust A5 12 VDC (0.6 W) 0 No operator AA JIC w/1/2" NPS Conduit A6 24 VDC (0.6 W) Non-locking Recessed (std.) FP Piped exhaust **BA** Grommet 1 Rectangular without light (on solenoid) CA Conduit 1/2" NPS Locking Recessed JB 2 CC Conduit 1/2" NPT (CSA Threads) 3 Non-locking Extended JE Square without light 4 Locking Extended

(on body)

JF

Rectangular without light (on body)

#### **BASE TABLE**

ISO TYPE	PORT SIZE	INDIVIDUA BSPP	L BASE NPTF	MANIFOLD BSPP	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

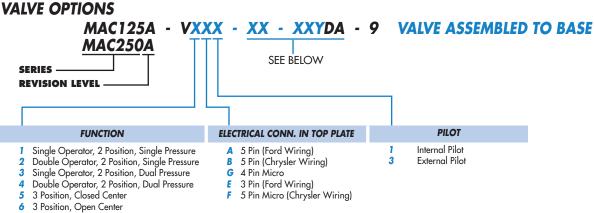
For manifold bases a common external pilot port is available. One connection only is required for all valves in the manifold whether single or double solenoid. Bottom ports are also available; consult factory for ordering information for these options.

MANIFOLD FASTENING KIT - For each gang, one kit is required. To order specify par number N-63002-01.

Intrinsically Safe Valves

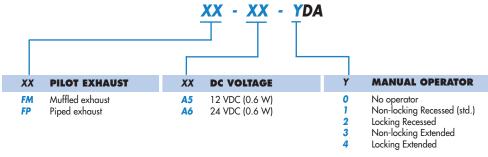


#### HOW TO ORDER



7 3 Position, Dual Pressure, Pressure Center

#### **SOLENOID PILOT OPTIONS**



ORDERING EXAMPLE: MAC125A-V1A1-FM-A51DA

#### **BASE/MANIFOLD TABLE**

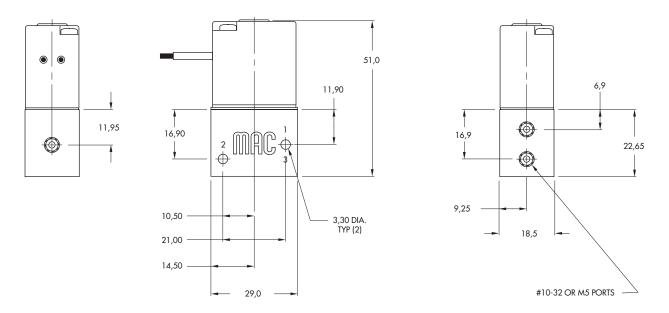
TYPE	PORT SIZE	INDIVIDUAL BASE	MANIFOLD BASE (btm. cyl. ports)	MANIFOLD BASE** (side & btm. cyl. ports)
MAC125	1/4"	MAC125A-B21A	MAC125A-M21B	MAC125A-M21C
	3/8"	MAC125A-B31A	MAC125A-M31B	MAC125A-M31C
MAC250	1/2"	MAC250A-B21A	MAC250A-M21B	MAC250A-M21C
	3/4"	MAC250A-B31A	MAC250A-M31B	MAC250A-M31C
	1"	MAC250A-B41A	N/A	N/A

Individual base available with side ports only. \*\*Requires End Plate Kit M-12002-01 (125 Series), M-25002-01 (250 Series)

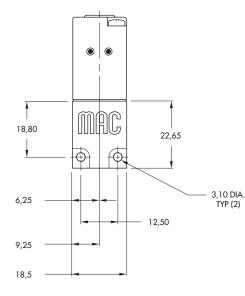
Bases & maifolds coded for internal pilot. For external pilot, last number of code is 2. ORDERING EXAMPLE: MAC125A-B22A.

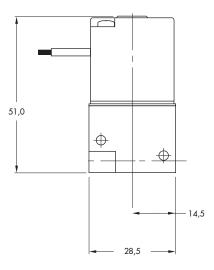


#### **35 Series Inline**



### **35 Series Manifold**

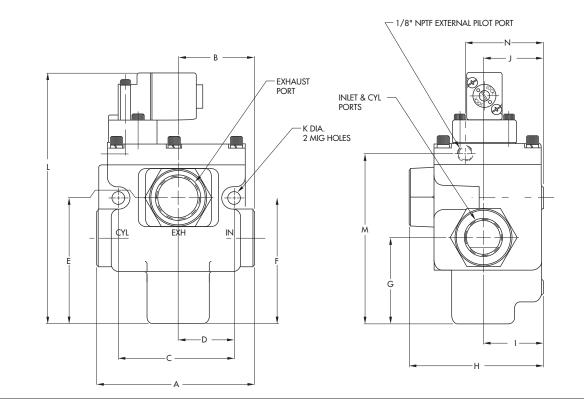






## 57 & 58 Intrinsically Safe

Dimensions shown are metric (mm)



DIMENSIC	ONS	A	В	C	D	E	F	G	н	I	J	K	L.	M	N
57	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
Series	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
58	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
Series	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

р

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

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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)		1. VOLTAGE (200 Serie type coil)
XX Y ZZ	VOLTAGE	- XX Y ZZ	VOLTAGE
11	120/60, 110/50	11	120/60, 110/50, 24 VDC (6 W)
12	240/60, 220/50	12	240/60, 220/50
13	100/60, 100/50	13	100/60, 100/50
15	200/60, 200 /50	14	200/60, 200/50
16	10/60	20	6/60
20	6/60	21	12/60
21	12/50, 12/60	22	24/60, 24/50
22	24/60, 24/50	23	32/60, 32/50
23	32/60, 32/50	24	48/60, 42/50
24	48/60, 42/50	25	240/50
26*	380/50, 440/50, 440/60, 480/60	26	480/60, 440/50
29	220/60	27	127/60
4	127/50, 120/50	28	415/50
35	48/50	29	220/60
86	16/60	30	380/50
31	24/50	31	550/60, 550/50
50	24 VDC (6 W)	32	120/60, 110/50
51	24 VDC (4 W)	33	600/60
54	12 VDC (4 W)	34	127/50
5	12 VDC (6 W)	35	48/50
7	12 VDC (2.5 W)	50	24 VDC (6 W)
9	24 VDC (2.5 W)	51	24 VDC (4.5 W)
0	12 VDC (8.5 W)	52	24 VDC (2.5 W)
1	24 VDC (8.5 W)	53	24 VDC (1.0 W)
54	6 VDC (6 W)	55	12 VDC (6 W)
5	32 VDC (7 W)	57	12 VDC (2.5 W)
6	48 VDC (5.8 W)	58	48 VDC (2.5 W)
7	64 VDC (7.5 W)	60	12 VDC (9.5 W)
3	120 VDC (6.4 W)	61	24 VDC (8.5 W)
9*	220 VDC (8.7 W), 250 VDC (11.2 W)	64	6 VDC (8.5 W)
5	90 VDC (8.8 W)	65	32 VDC (10 W)
5*	100 VDC (6.9 W)	66	48 VDC (11.5 W)
4*	125 VDC (10.9 W)	67	64 VDC (10.5 W)
37*	24 VDC (17.1 W)	68	120 VDC (12.3 W)
88*	12 VDC (17.4 W)	69	250 VDC (9.2 W)
<b>19</b> *	36 VDC (18.8 W)	71	8 VDC (8.2 W)
20	28 VDC (8.2 W)	72	24 VDC (12 W)
91*	6 VDC (10.6 W)	73	198 VDC (10 W)
92	190 VDC (6.5 W)	74	72 VDC (11.3 W)
94	3 VDC (7 W)	75	90 VDC (11.3 W)
95	38 VDC (6.4 W)	76	100 VDC (9 W)
41	24 VDC (1 W)	77	220 VDC (10 W), 230 VDC (11.6 W
42	12 VDC (1 W)	78*	24 VDC (24 W)
43	9 VDC (1 W)	80	55 VDC (10.6 W)
D. DD01 : Prote	ection diode (DC) - MAX. 8.5W	82	170 VDC (11.1 W)
D. MOV1 : Pro	tection varistor (AC) - MAX. 8.5W	83	15 VDC (8.1 W)
oltages are CLSI		84	125 VDC (10 W)
-		86	36 VDC (11 W)
		93*	12 VDC (24 W)



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

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- 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	s used with "AA" electrical connection

#### 3. ELECTRICAL CONNECTION (100 Serie type coil)

3. ELECTRICAL CONNECTION (200 Serie type coil)

- XX Y	ZZ	ELECTRICAL CONNECTION	- XX Y	ZZ	ELECTRICAL CONNECTION
	AA	Wiring box with 1/2" NPS conduit		AA	Wiring box with 1/2" NPS conduit
	BA	Flying leads		BA	Flying leads
	СА	1/2" NPS conduit		СА	1/2" NPS conduit
	СС	1/2" NPT conduit		СС	1/2" NPT conduit
	FA	Military type 2 PIN		EA	Explosion proof (200 Series)
	GA	Military type 3 PIN		EA	Explosion proof (57, 58 & 59 Series)
	HA	AA with ground wire		FA	Military type 2 PIN
	JA*	Square connector		GA	Military type 3 PIN
	JB	Rectangular connector		НА	AA with ground wire
	JC*	Square connector with light		JA*	Square connector
	JD	Rectangular connector with light		JC	Square connector with light
	JE	Square connector on top		JJ	Square connector, male only
		(ISO2, ISO3)		NA	CA with ground wire
	JF	Rectangular connector on top		NC	CC with ground wire
		(ISO1, ISO2, ISO3)			
	JG	JE with light			
	JH	JF with light			
	JJ*	Square connector, male only			
	ЈМ	Rectangular connector, male only			
	MA	Electrical common conduit			
		(100 Series-Manifold/900 Series)			
	МВ	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



	4. COIL WIRE LENGTH (Common options for 100 & 200 Serie type coils)
- XX Y ZZ (-VV)	WIRE LENGTH
AA	18″
AB	24"
AD	36″
AE	48″
AF	72"
AG	6″
AR	12"
AU	120″
BA	60″
BB	144″
Series 6000 : wire length, from	n the base
MOD L024	24"
MOD L036	36″
MOD L048	48″
MOD L060	60″
MOD L072	72"
MOD L120	120″

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



Codification table for voltages / Wire length / Manual operators / Electrical connections

VALVE CODE >

# $-D \frac{XX}{1} \frac{X}{2} - \frac{X}{3} \frac{XX}{4}$

**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
Α	18″
В	24"
С	36″
D	48″
E	72"
F	96″
J	For external plug-in connector ("J", "K" & "T" type electrical connection)
Р	For plug-in valves (82 Series only)



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	3. MANUAL OPERATOR
- D XX X - X XX	MANUAL OPERATOR
0	No operator
1	Non-locking recessed
2	Locking recessed
3	Non-locking extended
4	Locking extended

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#### 4. ELECTRICAL CONNECTION

- D XX X - X XX	ELECTRICAL CONNECTION
BA	Flying leads
ВК	BA with protection diode
BL	BA with protection varistor (M.O.V.)
** <b>CA</b>	1/2" NPS conduit
** CM	1/2" NPS metal conduit
** CN	1/2" NPS metal conduit w/ground
** JB	Rectangular connector
** JD	Rectangular connector with light
** JM	Rectangular connector, male only
KA	Square connector
КВ	Square connector with protection diode
КС	Square connector with protection varistor (M.O.V.)
KD	Square connector with light
KE	Square connector with light and protection diode
KF	Square connector with light and protection varistor (M.O.V.)
KG	Square connector with LED light & diode
КЈ	Square connector (male only)
КК	Square connector with protection diode (male only)
KL	Square connector with protection varistor (male only) (M.O.V.)
TA	Dual tabs
ТВ	TA with protection diode
TD	TA with light
TE	TA with light and protection diode
TJ	Dual tabs (male only)
ТК	TJ with protection diode
ТМ	TJ with light
TN	TJ with light and protection diode
DA*	Plug-in connector
DK*	DA with protection diode
DL*	DA with protection varistor (M.O.V.)
FM	Plug-in
FN	Plug-in with diode
FP	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. \*\*



## 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 -

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 :

- A. Do not install any MAC Valves product without first turning off air (bleed system completely) and electricity to the machine.
- B. 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.
- C. 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 :

- A. 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.
- B. 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.
- C. 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.
- D. 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.



## MAC Valves Product Warranty Information

#### MAC VALVES Warranty, Warranty Limitations, Flat Rate Rebuild Program

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. For this reason, MAC Valves is able to provide the Buyer a limited warranty.

#### WARRANTY:

MAC Valves, Inc. hereby warrants to Buyer that, for a period of 18 months from the original date of shipment of each valve from our factory ("Warranty Period"), such valve will be free from significant defects in material and workmanship and will conform to all specifications agreed to by MAC Valves, Inc.. In addition, MAC Valves, Inc. warrants that the electrical coils on such valves will be free from significant defects in material and workmanship for their normal useful life. EXCEPT FOR THESE LIMITED WARRANTIES, MAC VALVES, INC. EXPRESSLY DISCLAIMS ALL REPRESENTATIONS AND WARRANTIES OF ANY KIND (WHETHER EXPRESS, IMPLIED OR ARISING BY OPERATION OF LAW) WITH RESPECT TO THE VALVES, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR REPRESENTATIONS AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER MATTER. THIS SECTION SURVIVES THE EXPIRATION, TERMINATION OR CANCELLATION OF ANY AGREEMENTS BETWEEN THE PARTIES RELATING TO THE PURCHASE OF THE VALVES.

#### WARRANTY LIMITATIONS:

This Warranty does not apply where the valves have been (i) subjected to abuse, misuse, damage, neglect, negligence, accident, improper testing, improper installation, improper storage, improper handling, abnormal physical stress, abnormal environmental condition, or use contrary to any instructions issued by MAC Valves, Inc.; (ii) modified, reconstructed, repaired, or altered by persons other than MAC Valves, Inc. or its authorized representative; or (iii) used with any third-party product, hardware, software or other product that has not been previously approved in writing by MAC Valves, Inc. Additionally, this Warranty does not cover claims for labor, material, time or transportation, and 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.

#### EXCLUSIVE REMEDY:

The Buyer's sole remedy under this Warranty is limited to the replacement or rebuilding of any valve which does not conform to the warranties provided herein or, in MAC Valves, Inc.'s sole discretion, refund of the purchase price for the non-conforming valve. Buyer's remedy is conditioned on Buyer's compliance with its obligations under this Warranty. Valves that Buyer believes do not conform to this Warranty must be returned (with or without bases) transportation prepaid and received at our factory within the Warranty Period. If MAC Valves, Inc. determines that the valve is non-conforming and is otherwise covered by this Warranty, the rebuilt or replaced valve will be returned to the customer at the expense of MAC Valves, Inc., and will carry the same warranties as provided under the Flat Rate Rebuild Program described below. MAC VALVES, INC. WILL NOT BE RESPONSIBLE FOR ANY INCIDENTAL, SPECIAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION DIRECT AND INDIRECT LOST PROFITS, REGARDLESS OF WHETHER THOSE DAMAGES WERE FORESEEABLE.

#### THE FLAT REBUILD PROGRAM:

Valves no longer covered by the MAC Warranty may be eligible for a one-time rebuild under the MAC Valves, Inc. Flat Rate Rebuild Program. Our constant research and testing program is dedicated to extending the life of our valves and maximizing their reliability under the most adverse conditions. Valves returned under this limited program are completely disassembled, inspected, rebuilt to current operating standards whenever possible, tested and returned within a few weeks for a nominal flat rate charge. All rebuilt valves carry the same warranty described (in our MAC Warranty) for new valves for a warranty period of 90 days from the date of shipment from our factory.

Valves that have gone through the one-time rebuild will have been marked with a letter "R" as part of the date stamp (This is an example of a rebuild date stamp from this month E(May)17(Year)Tester Symbol R(Indicates Rebuild).



Please note that any valves sent back for subsequent rebuild that have already been through the program previously (indicated by the "R") will not be eligible for additional rebuild.

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